

FACULTY OF BUSINESS AND ECONOMICS

UNIVERSITY OF PANNONIA

Pannon Management Review

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PANNON MANAGEMENT REVIEW

Pannon Management Review contributes to bridging scholarly management research and management practitioner thinking worldwide. In particular, *Pannon Management Review* broadens the existing links between Hungarian scholars and practitioners, on the one hand, and the wider international academic and business communities, on the other – the Journal acts as an overall Central and Eastern European catalyst for the dissemination of international thinking, both scholarly and managerial. To this end, the articles published in *Pannon Management Review* reflect the extensive variety of interests, backgrounds, and levels of experience and expertise of its contributors, both scholars and practitioners – and seek to balance academic rigour with practical relevance in addressing issues of current managerial interest. The Journal also encourages the publication of articles outside the often narrow disciplinary constraints of traditional academic journals, and offers young scholars publication opportunities in a supportive, nurturing editorial environment.

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ZOLTÁN VERES

EDITORIAL: HAPPY BIRTHDAY TO THE FACULTY OF BUSINESS AND ECONOMICS

Dear Reader,

Welcome to this festive issue of Pannon Management Review. The reason for celebration is that this year is the 20th anniversary of the birth of the Faculty of Business and Economics of the University of Pannonia. On this occasion, we publish in this issue a selection of 20 articles from previous issues of Pannon Management Review, the authors or co-authors of which are current or former teachers of the faculty.

Naturally, such a selection is thematically very heterogeneous, but what it has in common is the efforts of the faculty's teachers-researchers to generate and present valuable scientific results. And, undoubtedly, each author has traditionally strived for high-quality scientific performance. Based on the focus of Pannon Management Review, one thing connects the articles of the selection. This is the management dimension of the phenomena studied.

Management science by definition is an interdisciplinary study closely related to management, economics, business, engineering, management consulting, and other fields. The origins of management science can be traced to operations research. In the early applications, the scientists used simple mathematical models to make efficient use of limited technologies and resources. The application of these models to the corporate sector became known as management science. The field was initially an outgrowth of applied mathematics, where early challenges were problems relating to the optimization of systems, while today, the discipline of management science may cover a diverse range of managerial and organizational activity. The techniques are not restricted to business applications but may be applied to military, medical, public administration, charitable groups, political groups or community groups etc. There are a number of businessmen and management specialists who can receive credit for the creation of the idea of management science.

If we scan through the selected articles, we can meet with knowledge sharing, digital competences, risk-based decisions, leadership challenges,

innovation capability, difficulties faced to SMEs, network management and financial resources in tourism, tender projects, stakeholders in sports, family businesses, life of local communities and of students, circular economy, service co-creation, quality of life, labour market, Veszprém-Balaton 2023 European Capital of Culture, mobility networks and innovation ecosystems. As it can be seen, the target area of contemporary management research is extremely wide. And this diversity characterizes the scientific and educational activities of the Faculty of Business and Economics of the University of Pannonia.

Finally, let's list it here the former and current authors from the faculty:

Zsuzsanna Banász
Margit Biermann
Eszter Bogdány
Viktória Csizmadiáné Czuppon
Anikó Csepregi
Zoltán András Dániel
Beáta Fehérvölgyi
Hajnalka Fekete-Berzsenyi
Petra Gyurácz-Németh
Dávid Máté Hargitai
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Katalin Molnárné Barna
Ildiko Virág Neumann
Nóra Obermayer
Zsófia Papp
Csilla Raffai
Ágnes Raffay-Danyi
Annamária Sasné Grósz
Judit Sulyok
Szabolcs Szikszai
Nikoletta Tóth-Kaszás
Barbara Varga-Dani
Zoltán Veres

We do hope, Dear Reader, that this special issue will delight you and we can celebrate the 20th birthday of our Faculty together. On behalf of the editorial team, we wish you a good read.

Zoltán Veres, Professor of Marketing, at the University of Pannonia, Veszprém, Hungary, Head of Research Centre of the Faculty of Business and Economics and the Department of Marketing. He was born in Hungary and he received his university degrees from the Technical University of Budapest (Masters degree in Electrical Engineering) and the Budapest University of Economic Sciences (Masters degree in International Business). He obtained his PhD in economics, at the Hungarian Academy of Sciences. More recently, he obtained his habilitation degree at University of Szeged, Faculty of Economics and Business Administration.



He worked as project manager of numerous international industrial projects in the Mediterranean region (e.g. Greece, Middle East, North Africa) between 1977 and '90. Since 1990, he actively participates in the higher education. Among others he taught at the College for Foreign Trades; at the Ecole Supérieure de Commerce d'Angers and between 2004 and 2009 he was Head of Institute of Business Studies at the University of Szeged. In 2011 he was appointed professor of marketing at the Budapest Business School (BBS), Hungary, and between 2010 and 2014 he was also Head of Research Centre at BBS. Since 2014 he is Head of Department of Marketing at the Faculty of Business & Economics of the University of Pannonia, Veszprém, Hungary and the editor-in-chief of the Pannon Management Review.

Zoltán Veres has had consultancy practice and conducted numerous research projects on services marketing and project marketing. In 2001 and 2002 he was Head of Service Research Department at the multinational GfK Market Research Agency. He is a member of the research group of the European Network for Project Marketing and Systems Selling (Lyon); Advisory Board member of Academy of World Business, Marketing and Management Development, Perth (Australia); member of Comité Científico del Academia Europea de Dirección y Economía de la Empresa (Spain); Advisory Board member of the Nepalese Academy of Management; member of Association for Marketing Education and Research (Hungary)

and of the Committee on Business Administration at the Hungarian Academy of Sciences; Advisory Board member of McMillan & Baneth Management Consulting Agency (Hungary) and consultant of Consact Quality Management Ltd. (Hungary).

He has more than 350 scientific publications, including the books of *Introduction to Market Research*, *Foundations of Services Marketing and Nonbusiness Marketing*. He has been editor of series to Academy Publishing House (Wolters Kluwer Group), Budapest. Besides Zoltán Veres has been editorial board member of the journals *Revista Internacional de Marketing Público y No Lucrativo* (Spain), *Вестник Красноярского государственного аграрного университета* (Krasnoyarsk, Russian Federation), *Tér-Gazdaság-Ember and Marketing & Menedzsment* (Hungary); member of *Социально-экономический и гуманитарный журнал Красноярского ГАУ*, member of *Journal of Global Strategic Management*, Advisory Board and Review Committee; member of *Asian Journal of Business Research*, Editorial Review.

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BEÁTA FEHÉRVÖLGYI

PREFACE TO THE JUBILEE ISSUE

Dear Reader!

It is a great pleasure and honour to welcome you through the 20th anniversary publication of the Faculty of Business and Economics of the University of Pannonia.

In the life of our faculty, we have had a remarkable two decades of continuous renewal, consistent and dedicated work and academic excellence. Nothing is better proof of this than our collective achievements since the faculty was established in 2003. In 2008 it was a great honour for us that the Faculty of Business and Economics awarded the Quality in Higher Education Award.

In 2012, the first issue of our scientific journal, the Pannon Management Review (PMR), was published, and in 2013 we established the Supply Chain Management Department. Our development continued and in 2014 we established the Department of Marketing and became a member of the international accreditation body AACSB. Thanks to our geographical location and our social responsibility, in 2015 the Balaton Tourism Research Institute (BATUKI) was born, which is still working on relevant tourism challenges. To support institutional and regional development, we established the Department of Innovation Management in 2023, aiming to support the innovation ecosystem in Hungary through the leading role of universities.

Over the years our faculty has participated in the organisation of several national and international conferences. We have hosted the International Conference on Tourism Competitiveness in 2009, the 24th IPSERA Conference in 2015, the International Conference on Sustainability in Tourism in 2017, the 22nd International Congress on Public and Nonprofit Marketing and the UNeECC Conference in 2023. In addition, we regularly organise conferences on tourism (BATUKI Conference) and management (Maintenance, ECIM, ECKM Conferences).

2023 was also a significant year for the region, as Veszprém was awarded the title of European Capital of Culture, which based on a cooperation across the region and contributed to the development of the local culture. Our faculty played an integral role in supporting and promoting this, which is a source of great pride for us.

However, the success of the past 20 years rests on three main pillars: the humble efforts of our dedicated and committed teachers, researchers and administrators; secondly the dedicated leadership, the deans of the Faculty of Business and Economics; who we would like to commemorate: Dr. Zoltán Kovács (2003 – 2007), Dr. András Jancsik (2007 – 2012), Dr. Lajos Szabó (2012 – 2015) and once again Dr. Zoltán Kovács (2015 – 2018), while, last but not least, on our students who continue to build our reputation by putting their studies and knowledge into practice.

Today, I am proud to say that the Faculty of Business and Economics of the University of Pannonia has become a major player in the region and a significant institution of the Hungarian higher education. Each year has brought us a new challenge and an opportunity, which we have tried to bring out the best. During our work, it has been a priority for us, to provide competitive knowledge for the students, support them to achieve success in their life so enhance the reputation of our faculty. Throughout our work we have always kept the importance of development in our mind. Over the years, we have also built up a number of professional relationships that have contributed to the high quality of our teaching, research and third mission activities.

Looking back over the past twenty years, I believe that the knowledge acquired at the University of Pannonia, the commitment of our colleagues and the cohesiveness of our community will help us to be a flagship of the region, we can look up to with pride in the challenges of the future.

*All the best,
Dr. Beáta Fehérvölgyi
Dean*

Beáta Fehérvölgyi is associate professor, dean of the Faculty of Business and Economics, and head of the Department of Innovation Management at the University of Pannonia. Her academic work focuses on management, tourism and innovation practices, with a special focus on social innovation. She is active in research on innovation networks, social alliances and third mission activities of higher education institutions. She is a course instructor of research and innovation manager and MBA specializations.

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TÜNDE VAJDA

EXPERIENCE. OPPORTUNITY. CAREER.

The Veszprém University of Chemistry, founded in 1949, was one of the best-known chemical engineering universities in the country with a strong international presence. Throughout its continuous development, the university has strived to meet the changing needs of the labour market and to gain a prestigious place in the academic world. After the change of political regime in 1989 and due to the economic transformation, the time has come for restructuring, expansion, and development of the University. The institution rose to the challenge with ease as scientific curiosity and interest had produced the local talent necessary to open new fields of study, and in the early 2000s the University of Pannonia became a multidisciplinary institution with five faculties. It was at this time – in 2003 – when the Faculty of Business and Economics (FBE) was established.

It was a great challenge for the newly formed faculties – and still is – to communicate faculty values, to highlight uniqueness and to maintain interest in a way that is consistent and aligned with the university values and communication. Thanks to the conscious leadership of the Faculty of Business and Economics, we have always sought to communicate the integrity of the faculty to our stakeholders.

The Faculty of Business and Economics celebrates its 20th anniversary in the 2023-24 academic year. To mark the anniversary, we look back and summarise the PR activities we have undertaken to ensure that our relationships be characterised by trust and our reputation be achieved by communicating our values.

Among the group of our stakeholders, our prospective students are highlighted as one of the most important and most attentive target groups for the Faculty of Business and Economics.

Our *recruitment activities* are mainly aimed at the secondary school age population. Alongside the marketing activities, we aim to learn and understand their communication channels and needs in order to reach them and be able to create a dialogue with them. We invite them to see what it is like to be a university student. Our “Peek into the University” programme was popular, but it proved to be too resource-intensive for secondary schools, and we wanted to increase its effectiveness. We reversed the direction: we went to the high schools. We launched our “Economics at

Your Doorstep” programme in 2016, which is still popular today, offering 35-45 lectures a year, courtesy of our colleagues. Doors are still open for the visitors in the “*Open Classes*” programme.

We have developed a “*Study Compass*” application for secondary school students, which allows them to choose courses offered by the FBE that best suit them. The *mobile* app is a digital admissions advisor with an interface that meets the needs of Generation Z: interesting, trendy, and provides opportunity for further communication.

We organise a number of competitions for secondary school students. We actively participate in the “*Researchers’ Night*” programme with an *economic checkpoint game*. Faculty colleagues organise competitions in their own disciplines, such as the “*Business Simulation*” competition, the “*Marketing Challenge Day*” competition, the “*Tour de Pannon*” tourism competition, and a financial competition as part of “*Financial Awareness Week*”.

Good cooperation with secondary schools is crucial not only in terms of enrollment, but also for tailoring the training programmes to the needs of the students and shaping input requirements. The “*Professional Day of Secondary School Principals and Teachers*” was launched with the aim of inviting *secondary school teachers*, and through them parents, to cooperate and think together. We are convinced that by sharing our knowledge and experience we can build a relationship that encourages both sides to formulate and communicate common values to educate the next generation. We have already discussed the issues of raising awareness on sustainability, environmental awareness, online education, Z-Gen communication, and modern tools for knowledge sharing.

We have used the COVID pandemic period for learning. When we did not have the opportunity to meet our partners, current and prospective students, we learnt to give without personal involvement and take our mission to a higher level. We kept the relationship alive with customised *digital packages* and online offers, while learning to produce digital learning material best suited to our target audiences and to develop high quality *e-learning courses*. Our communication in the digital space remained active and confident: we continued to educate and organise online programmes, competitions and recruit our future students.

We have created our week-long *summer camp* “*English Week*” for students from disadvantaged communities or families. With the help of two qualified English teachers, participants take a language course in a university environment and get to know the cultural offer of Veszprém and its surroundings. The summer camp is open to 18 secondary school students per year and the costs are covered by the faculty budget. Every

year we have new students enrolled to the University of Pannonia who have attended the summer camp and heard about our study programme there. There was a year when we had seven new students from the summer camp.

Raising awareness is an important task for higher education institutions. The Faculty of Business and Economics is committed to communicating the results of disciplines where research results are interesting not only for the academic community but are important for society in general. In the framework of the circular economy and sustainability research project we painted the November grey to green in 2021, organising a three-day festival in partnership with the Faculty of Engineering, which included professional, scientific, and public interest programmes, opening the doors to the citizens of the city to learn more about our sustainability responsibilities and the future of our planet.

Sustainability is at the heart of our work, and we organise summer camps for students to raise awareness through the *GreenLike* programme, a trademark of the faculty. We have launched our own *podcast series*, in which university experts and invited guests discuss issues related to the circular economy and sustainability.

Another significant group of our stakeholders are our *business partners*. Communication with them is very diverse, valuable and is in the interest of both parties. Every year, we organise the “*Business Week*” for them, during which business partners have the opportunity to give lectures and introductory presentations, to interview potential candidates for a job, and to participate as exhibitors in a fair, where they can meet students looking for a traineeship. They can also offer a range of training sessions to familiarize prospective employees with the latest challenges in the world of work and changes in the labour market. The programme aims to deepen the relationships and strengthen *professional cooperation*.

The Faculty of Business and Economics is committed to ensuring that students enter the world of labour with the knowledge and competencies required by the labour market, and therefore strives for the closest possible cooperation with the industry. The *Case Study Competition* named after László Tímár is one of the most prestigious and recognised competitions in the country. The cases and the jury members are selected with the help of our corporate partners every year.

Our *CSR* activities are also noteworthy. We are involved in *charity campaigns* of our business partners: we have collected winter clothes responding to the call of the Hungarian Hotel Association in 2023, we collect durable food for disadvantaged young people every year, and we are also a permanent supporter of a dog shelter in Várpalota.

Fostering the activities of the “*Local for Local*” movement, we carry out research and questionnaire surveys for the organisation on a regular basis to increase their effectiveness. Our students give helping hands in cultural programmes and events in the city, and we have conducted research on “*sustainable festivals*”, including the “*Street Music Festival*” during the year of the European Capital of Culture (ECoC). Aligned with our mission, our students contributed to the success of the *European Capital of Culture programme* also by operating the *ECoC information point* in the city centre, which was a great help to the organisers in providing tourists visiting the city with the right information, and also helped students to develop their skills.

In support of local businesses, the Faculty of Economics and Business has initiated an agreement with the “*Balaton Group*” to select the *Wine of the University of Pannonia* from the selected line of wines from producers around Lake Balaton every year. Similarly, the Faculty’s management selects products of a local company to accompany the awards for outstanding performance issued by the Faculty (e.g. Herend Porcelain Manufactory), thus highlighting the *reputation of local products*.

Communicating our *scientific achievements* is an important expression of our mission. To achieve this, we have undertaken to organise *international conferences*, but we also organise and host permanent national conferences where we regularly invite representatives of certain professions to the university. These include the annual “*Maintenance Conference*” organised by the Department of Management, the “*BATUKI Conference*” for the tourism sector organised by the Balaton Research Group and the Department of Tourism, and the “*Innovation Conference*” organised by the Department of Innovation Management in cooperation with the Corvinus University of Budapest, biannually hosted in Veszprém. Furthermore, the nationwide acknowledged annual marketing conference under the aegis of the Hungarian Association for Marketing Education and Research (EMOK), was organised by the Department of Marketing in Veszprém in 2019.

Science communication poses new challenges for universities. In 2022, the Faculty of Business and Economics has launched a new competition series called “*Science for All*”, which invites university teams to a full-day on-site team competition, called hackathon to Veszprém, staged in Hungarian and in English. Foreign students studying in Hungary can also participate in the English-language competition.

In recent years, we have published numerous *PR articles* on the success of our scientific achievements and new postgraduate trainings. The most recent one was published in the “*Hungarian Quality*” magazine,

highlighting our specialised training courses, and an interview with the supervisors of our new master programme will soon be available on the “*EduLine*” online portal.

We regularly publish educational and scientific *podcasts* on our YouTube and Spotify channels with a view to raising awareness, and our new Tik-Tok channel is aimed at motivating secondary school students.

Our slogan was a gift from a graduate student. At the graduation ceremony she said that, if she had to sum it up, we gave her three things: an *experience* during her student years; the *opportunity* to develop herself; and a *career*, as she received many job offers thanks to her knowledge. Over the past 20 years, we have strived to articulate the Faculty’s achievements in the most appropriate ways, addressing our wide range of stakeholders. This will be no different in the future. I wish the Faculty of Business and Economics to evolve along the lines of the goals set out in its vision, and for its successes to be recognised.

Tünde Vajda, MSc Economics in leadership and management. She is head of the Centre for Communication and International Affairs at the Faculty of Business and Economics, University of Pannonia. She is responsible for the Faculty’s communication, domestic and international recruitment, student services, cooperation with business partners and international relations. Her main areas of interest are internationalisation, cultural differences, student services, recruitment, communication, and marketing. In recent years, she has been involved in a number of national and international projects focusing on internationalisation.

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ANIKÓ CSEPREGI

**LOST IN KNOWLEDGE SHARING:
POSSIBLE LESSONS AND IMPLICATIONS
FOR MIDDLE MANAGERS AND THEIR
ORGANISATIONS^{1,2}
(PMR 2012/1)**

Knowledge sharing plays an essential role in the success of organisations. The success, or failure, of knowledge sharing activity depends on how the individuals and/or groups involved feel about the knowledge sharing process itself and about one another (Smith 2005). This article defines knowledge sharing as a two-way process—imparting and receiving of knowledge—between two or more parties. The information thus shared can be knowledge personal to the parties involved in the process—knowledge found in people’s own minds, in other words—or indirect knowledge—knowledge of and contained in relevant sources of information (such as paper documents and electronic documents and databases, for example). Knowledge sharing can be simultaneous, when the parties involved in the process are all present, or consecutive, when the parties make their knowledge explicit. The knowledge sharing process is of mutual benefit to the parties involved. In addition, this article defines middle managers as being those employees who work below the top management of the organisation—the chief executive officer (CEO) and / or top managers—and who are responsible for and work with employees hierarchically lower than themselves. Characteristic mainly of medium- and large size enterprises, middle managers play a significant role in vertical organisational communication and influence horizontal knowledge sharing within the organisation. This article presents part of the results of a study conducted among middle managers in Hungary, highlighting how the individual characteristics of middle managers can influence the maturity of their knowledge sharing. ‘Maturity of knowledge sharing’ is defined by two dimensions—‘availability’ and ‘usefulness of knowledge’—and two directions—middle manager–middle manager and middle manager–subordinate. ‘Availability’ is the extent to which the middle managers studied here, their subordinates, as well as other middle managers are willing to spend time helping one another and sharing their

knowledge when necessary. ‘Usefulness of knowledge’ refers to whether the middle managers studied here, their subordinates, as well as other middle managers possess the necessary knowledge—and to its usefulness for others. This article investigates why and in what areas maturity of knowledge sharing differs, covering differences in age, length of service, and field of activity. In addition, this article suggests ways of enhancing middle managers’ maturity of knowledge sharing—ways of bringing all middle managers’ maturity of knowledge sharing to at least the level of the most mature, thus allowing for the wider creation and improvement of the overall organisational knowledge.

¹This article is part of Young Scholars’ Platform, a *Pannon Management Review* initiative aiming to guide and encourage masteral and doctoral students and fresh graduates to publish. Young Scholars’ Platform is particularly supportive of young scholars for whom English is not their first language.

²This article is based on the author’s 2011 PhD thesis on *The Knowledge Sharing and Competences of Middle Managers* and on her wider research activities within the Strategic Management Research Group (SMRG) at the Department of Management (Faculty of Business and Economics, University of Pannonia) (see Gaál et al. 2012, for example). For financial support received at various stages in her overall research, the author is extremely grateful to the Department of Management (Faculty of Business Administration, University of Pannonia), the ALCOA Foundation, the ‘Közösen a Jövő Munkahelyeiért’ Alapítvány (‘Together for Future Workplaces’ Foundation), and TÁMOP-4.2.2-08/1/2008-0018-Élhetőbb környezet, egészségesebb ember; Bioinnováció és zöld technológiák kutatása a Pannon Egyetemen (Better Environment, Healthier People; Bio-innovation and Green Technology Research at the University of Pannonia). For contributing to the betterment of this article with their helpful comments, the author is extremely thankful to Dr. Lajos Szabó (PhD supervisor), Prof. Zoltán Gaál, and Dr. Nóra Obermayer-Kovács.

Research background

In 2007, the Strategic Management Research Group (SMRG) at the Department of Management, Faculty of Business and Economics, University of Pannonia in Hungary decided to study knowledge sharing among middle managers and the middle managers’ vertical / downward and horizontal / lateral relationships (see, for example, Csepregi 2011; Gaál

et al. 2012). Studies of middle managers date back to at least the 1970s, when, according to Chandler (1977), middle managers were concerned exclusively with the supervision of lower hierarchical levels.

Nowadays, however, a large body of literature discusses their role in other areas.

There has not been a universally accepted definition of middle managers, in the recent literature. Bower (1986: 297–8), for example, stated that middle managers ‘are in a position to judge whether issues are being considered in the proper context’. Uytterhoeven (1989: 136) argued that middle managers are ‘responsible for a particular business unit at the intermediate level of the corporate hierarchy’. Ireland (1992: 18) described middle managers as employees who work between an organisation’s top-level and first-level managers, integrating ‘the intentions of top level managers with the day-to-day operational realities experienced by first-level managers’. Regarding their position in the organisation, Staehle and Schirmer (1992: 70) emphasised that middle managers are ‘employees who have at least two hierarchical levels under them and all staff employees with responsibility for managing personnel’. This article defines middle managers as being those employees who work below the top management of the organisation—the CEO and / or top managers—and who are responsible for and work with employees hierarchically lower than themselves. This definition entails that research on middle managers should focus on medium- and large-size enterprises.

Previous studies focused exclusively either on middle manager–subordinate relationships (Crouch and Yetton 1988; Xin and Pelled 2003; Glasø and Einarsen 2006) or on middle manager–top manager relationships (Schilit 1987; Nonaka 1988; Dutton et al. 1997; Pappas, Flaherty, and Wooldridge 2003). However, Kaplan (1984: 38) pointed out that such vertical relationships also extend to the superior’s superior and the subordinates’ subordinates. Moreover, he argued, middle managers are engaged in horizontal / lateral relationships—with peers, other middle managers’ superiors and subordinates, as well as professionals in other organisations, not only in vertical relationships. Such multidirectional relationships were also identified by Uytterhoeven (1989: 137)—‘the middle manager wears three hats in fulfilling the general management role’, as a subordinate, as a superior, and as an equal, having to manage relationships upwards when they take orders, downwards when they give orders, and laterally when they relate to peers.

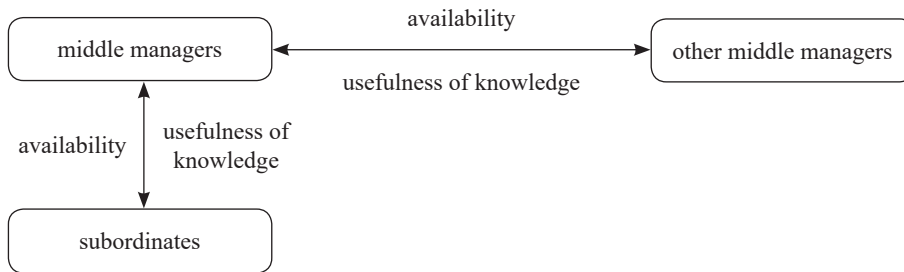


Figure 1 Maturity of knowledge sharing: dimensions and directions

Recognising this multidirectionality, the SMRG study into middle manager knowledge sharing investigated both vertical and horizontal relationships, within as well as between different organisational units. The study did not investigate the leadership function, where only the middle manager–subordinate relationships would have been examined. Instead, it concentrated on the knowledge sharing function, especially on its maturity. As illustrated in Figure 1, ‘maturity of knowledge sharing’ refers to the level of knowledge sharing development and is defined by two dimensions—‘availability’ and ‘usefulness of knowledge’—and two directions—middle manager–middle manager and middle manager–subordinate. ‘Availability’ is the extent to which the middle managers studied here, their subordinates, as well as other middle managers are willing to spend time helping one another and sharing their knowledge when necessary. ‘Usefulness of knowledge’ refers to whether the middle managers studied here, their subordinates, as well as other middle managers possess the necessary knowledge—and to its usefulness for others.

Maturity of knowledge sharing	Components			
	1	2	3	4
usefulness of other middle managers' knowledge to focal middle managers	.899	.101	.168	.105
usefulness of focal middle managers' knowledge to other middle managers	.823	.018	.156	.274
availability of subordinates to focal middle managers	.092	.858	.222	.127
availability of focal middle managers to subordinates	.033	.854	.175	.213
availability of other middle managers to focal middle managers	.238	.181	.858	.047
availability of focal middle managers to other middle managers	.104	.240	.833	.222
usefulness of focal middle managers' knowledge to subordinates	.094	.209	.124	.874
usefulness of subordinates' knowledge to focal middle managers	.340	.146	.132	.756

Extraction method: principal component analysis.
 Rotation method: Varimax with Kaiser normalisation.
 Rotation converged in six iterations.

Table 1 The rotated component matrix for middle managers' maturity of knowledge sharing

Investigation of maturity of knowledge sharing in middle manager–middle manager and middle manager–subordinate relationships used principal component analysis and revealed the following dimensions (see Table 1):

1. For middle manager–middle manager availability, focal middle managers' availability for other middle managers and other middle managers' availability for focal middle managers.
2. For middle manager–subordinate availability, focal middle managers' availability for their subordinates and their subordinates' availability for focal middle managers.
3. For middle manager–middle manager usefulness of knowledge, focal middle managers' usefulness of knowledge to other middle managers and other middle managers' usefulness of knowledge to focal middle managers.

4. For middle manager–subordinate usefulness of knowledge, focal middle managers’ usefulness of knowledge to their subordinates and their subordinates’ usefulness of knowledge to focal middle managers.

The higher the values of these dimensions, the higher the maturity of knowledge sharing. However, the SMRG study aimed neither to create a dimension index nor to differentiate among levels of maturity of knowledge sharing. Instead, it aimed to reveal those individual characteristics that result in differences within dimensions, creating (at least) two dimension groups, one characterised by ‘the most favourable results’ (higher maturity of knowledge sharing) and the other by ‘the least favourable results’ (lower maturity of knowledge sharing).

Research methodology

The average number of registered middle- and large-size enterprises in Hungary was 5,780, between 2007 and 2010 (KSH 2010). Four thousand such enterprises covering a wide range of economic sectors were selected randomly, for the SMRG study, and were sent cover letters and questionnaires (see Csepregi 2011: 209–16 (Appendix 2)), by post or electronically, with the request to be filled in by at least one middle manager. In addition, an electronic version of the questionnaire was created on LimeSurvey, an Online Survey Tool, and a website was established, to allow participants in the study to access further information about the research.

The website address was highlighted on the questionnaire.

Between 2007 and 2010, 400 completed questionnaires were returned from middle managers in manufacturing / production, maintenance, logistics, finance / accountancy / controlling, quality management, human resources (HR), project management, commerce / purchase / sale / marketing, and research and development (R&D) (see Table 2, p. 72). The organisations they represented were in commerce, building trade, processing, logistics / warehousing, mining, telecommunications, agriculture, tourism / catering, education, government, healthcare / social support, estate agency, financial intercession, information technology (IT), electricity / gas / fume / water supply, and other economic sectors (see Table 3, p. 72)—and were involved either only in production activity, or mainly in production activity, or mainly in service activity, or only in service activity (see Table 4, p. 73).

Fields of activity	Middle managers	
	Numbers	Percentages
manufacturing / production	48	12
maintenance	52	13
logistics	32	8
finance / accountancy / controlling	40	10
quality management	16	4
human resources (HR)	56	14
project management	32	8
commerce / purchase / sale / marketing	68	17
research and development (R&D)	56	14
Total	400	100

Table 2 Middle managers' fields of activity

Economic sectors	Middle managers' organisations	
	Numbers	Percentages
commerce	44	11
building trade	28	7
processing	72	18
logistics / warehousing	32	8
mining	16	4
telecommunications	17	4
agriculture	15	4
tourism / catering	12	3
education	15	4
government	17	4
healthcare / social support	15	4
estate agency	16	4
financial intercession	12	3
information technology (IT)	17	4
electricity / gas / fume / water supply	20	5
other	52	13
Total	400	100

Table 3 The economic sectors of middle managers' organisations

In terms of type of enterprise ownership, the organisations the middle managers represented were fully national and privately owned, fully national and state owned, with a national majority and privately owned, with a national majority and state owned, fully foreign, and with a foreign majority (see Table 5).

Types of activity	Middle managers' organisations	
	Numbers	Percentages
only in production	112	28
mainly in production	132	33
mainly in service	72	18
only in service	84	21
Total	400	100

Table 4 The types of activity of middle managers' organisations

Types of enterprise ownership	Middle managers' organisations	
	Numbers	Percentages
fully national and privately owned	144	36
fully national and state owned	56	14
with a national majority and privately owned	36	9
with a national majority and state owned	32	8
fully foreign	104	26
with a foreign majority	28	7
Total	400	100

Table 5 The types of enterprise ownership of middle managers' organisations

Research findings

The SMRG study focused on two directions of investigation—middle manager–subordinate and middle manager–middle manager—vis-à-vis maturity of knowledge sharing defined through availability and usefulness

of knowledge. The focal middle managers' individual characteristics investigated in this study included their functional area, their length of service in their respective organisations, and their age. To ease raw data handling and the interpretation of findings, the middle managers' functional areas were divided with the use of decision tree analysis into 'soft' (HR, project management, commerce / purchase / sale / marketing, and R&D) and 'hard' (manufacturing / production, maintenance, logistics, quality management, and finance / accountancy / controlling) (see Csepregi 2011: 111–12 (Table 42), 208 (Appendix 1)). With regards to the length of service in their respective organisations, two main groups of middle managers were identified, with less than three years and with more than three years of service. With respect to their age, two other groups of middle managers were identified, younger than 35 years old and older than 35 years old.

Middle manager–subordinate availability

Decision tree analysis was used to reveal the classes of middle manager–subordinate availability (see Figure 2, p. 75), analysis of variance was applied to differentiate the classes with most and least favourable results (see Table 6, p. 75), and post hoc test (with LSD test) was conducted to reveal the significant differences between the most-most and the least-least favourable results (see Table 7, p. 76). The SMRG study revealed that only two of the three individual characteristics investigated influence middle manager–subordinate availability. The level of relevance of these two characteristics is also important. The study showed that middle managers who had worked in their organisations for more than three years, and in 'soft' functional areas, were the most available for their subordinates. The same finding was also found valid for their subordinates (see Csepregi 2011: 93–6 (3.5.3 Results)). The explanation was twofold. First, length of service in their respective organisations resulted in reciprocal middle manager–subordinate trust based on familiarity with each other. Second, length of service in their respective organisations and functional areas resulted in enhanced experience and knowledge.

In contrast, the SMRG study showed that middle managers who had worked in their organisations for less than three years, and in 'hard' functional areas, were the least available for their subordinates. The same finding was also found valid for their subordinates. The explanation was threefold. First, trust based on familiarity with one another had not had time to develop between middle managers and their subordinates. Second, middle managers had not had time to familiarise themselves with their

respective organisations and functional areas. Consequently, they were less available for their subordinates than they would have been otherwise. Third, quantitative targets and their realisation dominated ‘hard’—more than they did ‘soft’—functional areas. They were considered generally accepted and known by subordinates, which was not always the case. As a result, middle managers were failing to perceive the need to be available for their subordinates and they were less available for them than they would have been otherwise. By default, subordinates were less available for their middle managers than they would have been if the middle managers had been available for them—not least because they had to find solutions to problems without their middle managers’ collaboration.

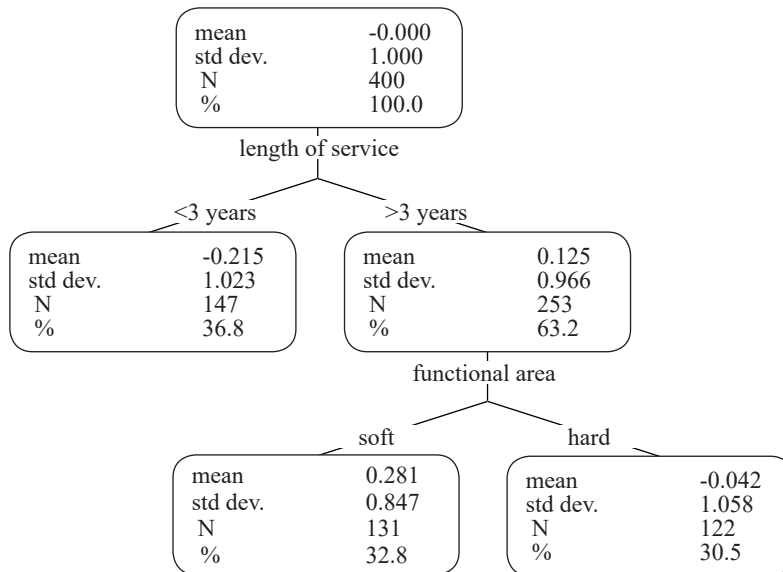


Figure 2 Classes of middle manager–subordinate availability based on individual characteristics

Middle managers' individual characteristics		Effects on middle manager–subordinate availability
functional area	'hard'	least favourable
	'soft'	most favourable
length of service (in years)	under 3	least favourable
	over 3	most favourable
age (in years)	under 35	n/a
	over 35	

Table 6 The effects of middle managers' individual characteristics on middle manager–subordinate availability

Middle manager–subordinate usefulness of knowledge

The SMRG study revealed that only two of the three individual characteristics investigated influence middle manager–subordinate usefulness of knowledge. The level of relevance of these two characteristics is also important. The study showed that the knowledge of middle managers who had worked in their respective organisations for more than three years, and who were more than 35 years old, was the most useful for their subordinates. The same finding was also found valid for their subordinates. The explanation was twofold. First, length of service in their respective organisations resulted in enhanced experience and knowledge of the organisation and their particular functional area—and enhanced acceptance / respect from subordinates. Second, age, especially if combined with length of service, also led to enhanced acceptance / respect from subordinates. Prior to this study, other Hungarian researchers had reached similar conclusions. For example, Bakacsi et al. (2002) studied the Hungarian propensity for high power distance and paternalistic leadership style (see Hofstede 2001). Therefore, higher regard for older rather than younger middle managers is not surprising—most of these middle managers were born in a paternalistic regime (Pintér 2007).

Multiple comparisons						
Dependent variable: middle manager–subordinate availability (functional area and length of service in the middle manager’s organisation)						
I	J	I-J	Std. error	Sig.	Confidence interval: 95%	
					Lower bound	Upper bound
least-least 'hard' < 3 years	most-most 'soft' > 3 years	-.60637711*	.14086537	.000	-.8833146	-.3294397

* The mean difference is significant at the 0.05 level.

Table 7 The LSD test of the least-least and most-most favourable results

In contrast, the SMRG study showed that the knowledge of middle managers who had worked in their respective organisations for less than three years, and who were less than 35 years old, was the least useful for their subordinates. The same finding was also found valid for their subordinates. The explanation was threefold. First, middle managers who had worked for less than three years in their respective organisations had insufficient experience of coordinating and communicating with their subordinates. Second, middle managers who had worked for less than three years in their respective organisations had insufficient experience of their functional areas. In addition, third, the first two explanations were even more relevant for middle managers less than 35 years old—in Hungary, older middle managers are more accepted / respected than younger middle managers (Pintér 2007). The author’s interviews of middle managers revealed that knowledge shared by young middle managers is usually problem-specific and of short-term relevance. Young middle managers (especially young middle managers who had worked for less than three years in their respective organisations) may force their expertise (knowledge acquired through education and experience gained earlier in their careers) onto their subordinates and meet with resistance, particularly if there is a clash of organisational cultures. No matter how useful in itself, knowledge sharing only becomes useful with time—the time it takes middle managers to develop adequate relationships with their subordinates.

Middle manager–middle manager availability and usefulness of knowledge

The SMRG study revealed that only two of the three individual characteristics investigated influence middle manager–middle manager availability. The level of relevance of these two characteristics is also important. The study showed that middle managers who had worked primarily in ‘soft’ functional areas, and for more than three years, were most available for other middle managers. The same finding was also found valid for other middle managers. The explanation was twofold. The first explanation lay with the highly interactive nature of ‘soft’ functional areas, as well as with the other middle managers’ need to keep up-to-date with what goes on in their organisations. Teamwork—and the ability to work as part of a team—played an important role, relationship orientation was dominant, and good relationships with other middle managers were significant. The second explanation stemmed from middle managers acquiring knowledge and understanding of one another, and of their organisations, with time.

In contrast, the SMRG study showed that middle managers who had worked primarily in ‘hard’ functional areas, and for less than three years, were least available for other middle managers. The same finding was also found valid for other middle managers. The explanation was twofold. First, middle managers in ‘hard’ functional areas are characterised by low levels of interaction—they rely on rules and regulations and are task oriented, and individual work and responsibility dominate. Consequently, middle managers in ‘hard’ functional areas may seem less open, less friendly, and less available than middle managers in ‘soft’ functional areas. Second, middle managers who had worked for less than three years for their respective organisations may be viewed by other middle managers as unaware of the goals of the organisation and as lacking in adequate experience—an understandable, but misleading, attitude, since middle managers new to the organisation may bring rich, relevant expertise from elsewhere.

The SMRG study revealed no significant differences between the middle managers’ usefulness of knowledge in ‘soft’ and ‘hard’ functional areas. However, the study also showed that the knowledge of middle managers who had worked for more—rather than less—than three years in their respective organisations was considered more useful by other middle managers. The same finding was also found valid for other middle managers. Length of service in the organisation (knowledge and understanding of the organisation, in other words) mattered, not age—alongside, of course, earning the trust of other middle managers.

Possible lessons

Middle managers who had been working for less than three years in a ‘hard’ functional area, and who are less than 35 years old, are characterised by low levels of maturity of knowledge sharing. Although other middle managers, subordinates, as well as superiors contribute to its improvement, the onus for maturity of knowledge sharing enhancement through patience and openness lies with the middle managers themselves. Patience is required because the study showed that length of service is decisive both in availability and in usefulness of knowledge, vis-à-vis both subordinates and other middle managers. Openness is required to counteract the rigidities intrinsic to ‘hard’ functional areas—the remaining of this article suggests ways in which this can be achieved through trust development, learning, teamwork and self-improvement, training, and competence development.

Trust development

Being open and allowing time for interaction with others may lead to the development of trust. Frequent interactions, personal contact, and socialising among individuals are just a few advices that could be followed to encourage trust building (Arino, De la Torre, and Ring 2001; Child 2001). To promote intensive conversation, cooperation, and knowledge sharing, opportunities have to be created to develop trust levels sufficient for enabling cooperation and knowledge sharing, and resulting in higher productivity (Chami and Fullenkamp 2002; Kaser and Miles 2002). Besides increasing productivity, trust in a workplace had been shown to have a strong effect on job satisfaction, stress, and organisational commitment (Kramer 1999; Levin and Cross 2004).

However, trust and the willingness to share knowledge may differ, depending upon the nature of the personal interactions among individuals (Feldman and Lynch 1988). As an example, the relationship between trust and the willingness to share knowledge can be different for those with whom someone has agreeable personal interactions than for those with whom these personal interactions are rather difficult (Holste and Fields 2010). Knowing this, other solutions should be found for building trust with those with whom interactions may be a bit challenging.

Knowledge of the parties involved in numerous interactions with others leads to a certain level of trustworthiness, which, as a specific form of trust, is called ‘knowledge-based trust’ (Jones and George 1998). Before entering any relationship, these parties weigh the opportunities that they can gain from trusting each other against the potential risks that may occur.

The parties might stop believing in the benefits of the relationship, if it does not yield the expected results, which may reduce the willingness of building a higher trust level or may lead to a breakdown in trust (Jones and George 1998). Middle managers cannot fully follow this behaviour. This does not mean that middle managers should trust everybody, but always weighing the opportunities is not a solution either.

McAllister (1995) identified two types of trust, ‘cognition-based trust’ and ‘affect-based trust’. Trust is cognition-based when ‘we cognitively choose whom we will trust in which respects and under which circumstances, and we base the choice on what we take to be “good reasons”, constituting evidence of trustworthiness’ (Lewis and Weigert 1985: 970). Affect-based trust relies on the emotional ties that link individuals and that include feelings of friendship, love, or care (Lewis and Weigert 1985; McAllister 1995). Without affect-based trust, the sharing of tacit knowledge is low (Holste and Fields 2010). Nonetheless, although the importance of affect-based trust is undeniable, cognition-based trust dominates for middle managers in medium- and large-size enterprises.

Learning

Being open and allowing time for interaction with others may also lead to learning. Middle managers may learn from other middle managers, subordinates, as well as superiors. Moreover, the learning process is not necessarily one-sided. Despite the relative youth of those under discussion (less than 35 years old), middle managers may contribute to learning with their own expertise (knowledge acquired through education and experience gained earlier in their careers, which, in cases, may have been quite intense).

Teamwork and self-improvement

Being open and allowing time for interaction with others facilitates teamwork, and may ultimately lead to self-improvements in middle managers. Launching an organisational development, an organisational shaping, or a knowledge management programme, for example, would require selecting middle managers and apportioning middle manager roles. Middle managers’ wide variety of backgrounds should be regarded as a network of knowledge, and as an asset leading to self-improvements in less experienced middle managers. The network knowledge contains several generations of middle managers (ranging from slightly experienced,

through reasonably well experienced, to highly experienced), but centres on the older (more than 35 years old), highly experienced middle managers, characterised by high levels of maturity of knowledge sharing.

Training

In-house training by middle managers in ‘soft’ functional areas may be highly beneficial for middle managers in ‘hard’ functional areas. Sharing best ‘soft’ functional area practices, as well as sharing day-to-day experiences, may induce middle managers in ‘hard’ functional areas into being open and allowing time for interaction with others. In-house training by reasonably well experienced and highly experienced middle managers may also be highly beneficial for middle managers in ‘hard’ functional areas, through sharing of expertise and of knowledge of the organisation itself. Subordinates of middle managers in ‘hard’ functional areas may benefit too from such training, directly or indirectly.

Competence development

Maturity of knowledge sharing entails certain competences which, in turn, entail matching middle managers with their middle managerial positions. Assessment centres may contribute to securing this match, and project management may also benefit from such an approach.

The SMRG study used principal component analysis to reveal these competences (see Tables 8a, p. 81, and 8b, p. 82). For all of these competences to be highly developed would be extremely unusual. However, middle managers whose competences do not meet requirements—but whose technical expertise, for example, does—can always receive relevant training. Knowing that the organisation thus invests in their long-term future, being open, and allowing time for interaction with others can only facilitate the acquisition of competences leading to high levels of maturity of knowledge sharing.

In order, for example, to develop their ability to combine technical expertise with creativity, middle managers’ methodological competences need to be investigated and, where necessary, enhanced. There are two types of methodological competences: competences important in thought processes (logical thinking, systematising ability, analytical ability, and system analysis ability) and competences important in work processes (awareness of organisational goals, result orientation, and practical comprehension of tasks). Systematising ability and system analysis ability

allows middle managers to contribute knowledge to the systems of their organisations. Middle managers have to integrate information / knowledge into their functional areas, departments, or groups and to apply it into practice. Analytical ability makes processing and using such information / knowledge possible. Through logical thinking, middle managers can take necessary knowledge out of the wider knowledge set and process and share this knowledge relevantly, in order to fulfil effectively the organisational goals assigned to them. Practical comprehension of tasks and awareness of and identification with organisational goals allow middle managers to interpret and transpose knowledge into practice.

Competence	Component						
	1	2	3	4	5	6	7
ability to initiate a relationship	.736	.000	.070	.102	.020	.158	.183
ability to maintain a relationship	.729	-.032	.040	.139	.018	.223	.134
empathy	.682	.119	.115	.220	.201	-.081	-.033
ability to provide feedback	.588	.048	.187	.297	.010	.044	.230
objectivity	.489	.084	.157	.031	.234	.148	.100
international work experience	.078	.934	.120	.062	.000	.003	.018
international education	.070	.892	.133	.050	.051	.056	.040
work experience in international surroundings	.006	.843	.219	.143	.042	.012	-.029
work experience in other types of organisations	.038	.181	.818	.094	-.000	.018	.129
work experience in other specialised fields	.182	.111	.706	.103	.249	.001	.036
experience gained by individual interest	.265	.058	.692	.079	.094	-.007	-.040
work experience in similar organisations	-.003	.169	.676	.024	.011	.119	.261

Extraction method: principal component analysis.
Rotation method: Varimax with Kaiser normalisation.
Rotation converged in seven iterations.

Table 8a The rotated component matrix for middle managers' competences

Knowledge sharing facilitates such processes, both in effort and financially, though social competences for communication and social competences for cooperation. Social competences for communication (ability to understand, ability to summarise, and ability to explain) and for co-operation (ability to initiate a relationship, ability to maintain a relationship, objectivity, ability to provide feedback, and empathy) secure efficient as well as effective knowledge sharing processes. The ability to summarise, for example, allows middle managers to share only the most relevant knowledge with others—the result of prior selection of knowledge facilitated by their ability to understand. The ability to explain, to take another example, allows middle managers to share knowledge in a manner that is understandable and perceivable by the targeted audience.

Competence	Component						
	1	2	3	4	5	6	7
systematising ability	.060	.088	.047	.733	.116	.000	.175
analytical ability	.190	.088	.149	.731	.035	.184	.027
logical thinking	.262	.027	-.013	.667	.226	.115	.052
system analysis ability	.156	.086	.116	.608	.006	.214	.221
ability to undertake tasks	.080	.016	.012	.216	.806	.199	.090
ability to manage stress	.076	.044	.192	.076	.792	.024	.042
stamina	.198	.021	.076	.047	.707	.217	.235
result-orientation	.053	.014	.072	.101	.202	.826	.027
organisational goal awareness	.218	.131	-.085	.075	.094	.704	.126
practical comprehension of tasks	.133	-.079	.125	.286	.093	.607	-.007
ability to understand	.178	-.038	.086	.075	.036	.087	.814
ability to explain	.106	.013	.159	.123	.109	.130	.653
ability to summarise	.141	.046	.046	.189	.167	-.084	.641

Extraction method: principal component analysis.
Rotation method: Varimax with Kaiser normalisation.
Rotation converged in seven iterations.

Table 8b The rotated component matrix for middle managers' competences (continued)

There are three other types of competences that facilitate knowledge sharing: personal, professional, and international. Personal competences refer to stamina, ability to manage stress, and ability to undertake tasks. Professional competences refer to experiences gained by individual interest, including in other specialized fields, at similar or other types of organisations. By gaining such experiences, middle managers may acquire a wide range of information and knowledge in various fields. Professional competences help and shorten middle managers' integration into their organisation, as well as the probation time and the time taken by acquiring the communication jargon specific to that organisation. International competences refer to expertise gained from working and / or studying overseas and / or in international surroundings. International competences facilitate the transfer of current best practices from overseas organisations to nationally owned enterprises, for example, where they are either unknown of or simply not used. International competences are indispensable in organisations with either direct international links, through overseas operations, or with indirect international links, through international partnerships.

As this section shows, there are many types of competences, and the list of competences is very long. Matching middle managers with their managerial positions entails figuring out what specific competences actually need to be nurtured and how.

Implications

Maturity of knowledge sharing varies with middle managers' individual characteristics discussed in this article, while organisations facilitate its enhancement, in order to develop organisational knowledge. Nonaka and Takeuchi (1995: 13) pointed out that 'the organization cannot create knowledge on its own without the initiative of the individual and the interaction that takes place within the group'. They also stressed that organisational knowledge creation has its roots in individuals' tacit knowledge and that it 'should be understood as a process that organizationally amplifies the knowledge created by individuals and crystallizes it as a part of the knowledge network of the organization' (Nonaka and Takeuchi 1995: 59). The creation of organisational knowledge was explained as follows: 'for tacit knowledge to be communicated and shared within the organization, it has to be converted into words or numbers that anyone can understand. It is precisely during this time this conversion takes place—from tacit to explicit, and, as we shall see, back again into tacit—that organizational knowledge is created' (Nonaka and Takeuchi 1995: 9).

Since the creation of organisational knowledge is constituted by interactions, one of the most important management tasks is to encourage these interactions (the sharing of knowledge) occurring among employees. Sharing individual knowledge plays a major part in organisational activity—this, is considered, helps both individuals and organisation to grow (Spender 1996; Teece 1998; Kearns and Lederer 2003). The reason why knowledge sharing within an organisation is so important is reinforced by Dunford (2000: 296) too: ‘much of the key knowledge is held by individuals unless there is some structure to retain it within the organizational memory’. However, if individual knowledge is not shared or cannot be shared in an effective way within the organisation, then, the knowledge may vanish or may have limited effect on the organisational effectiveness and the organisational knowledge base (Bhatt 2002; Chou et al. 2007).

Conclusions

The SMRG study conducted between 2007 and 2010 showed why there are differences among middle managers’ maturity of knowledge sharing, and where these differences appear (for full details of the study, see Csepregi 2011). The study focused on adult middle managers (over 18 years old) who worked for more than a day in either ‘soft’ or ‘hard’ functional areas in medium- or large-size enterprises operating in Hungary. Four hundred middle managers participated in the study, and the enterprises they represented covered both production and services. Regarding type of ownership, these enterprises were fully national and privately or state owned, with a national majority and privately or state owned, or fully foreign or with a foreign majority.

The SMRG study revealed that there are significant differences in the middle managers’ maturity of knowledge sharing, defined through availability and usefulness of knowledge, both with regard to subordinates and to other middle managers. Similar findings were also found valid for subordinates’ and other middle managers’ maturity of knowledge sharing. The relevance of age, length of service, and functional area was investigated vis-à-vis availability and usefulness of knowledge—all these individual characteristics were found relevant, albeit not together, not at the same time.

Middle managers who had been working for less than three years in a ‘hard’ functional area, and who were less than 35 years old, were characterized by low levels of maturity of knowledge sharing, both with regard to subordinates and to other middle managers. This article advised

middle managers patience (to reach the length of service necessary to allow availability and usefulness of knowledge) and openness (to counteract the rigidities intrinsic to ‘hard’ functional areas). This article suggested possible lessons for these middle managers, and possible remedial actions involving not only the middle managers themselves but also subordinates, other middle managers, and the wider organisation: trust development, learning, teamwork and self-improvement, training, and competence development. Both middle managers and their organisations stand to gain from learning these lessons and from applying these actions, through enhanced middle manager maturity of knowledge sharing and enhanced overall organisational knowledge. Knowledge sharing is a win-win deal for everybody.

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KATALIN FEHÉR – ZOLTÁN VERES

BUSINESS NETWORK COMPETENCES AFTER THE DIGITAL TURN (PMR 2014/2)

We assume that the digital turn and the mobile-computing environment facilitate the corporate management functions. This is in order to support both offline and online network competences for developments and for innovations. Our goal was to examine the above thesis applied to both online and offline networks mapping them on an interface of two measurable success-indicators. One of these indicators has been defined as a set of achievements gained by a competitor. The indicator of visible success has been generated from the results of marketing, brand awareness and loyalty. We conducted a series of expert-interviews in selected industries. The focus of the interviews was the level and the impact of corporate network competencies concerning the competitiveness. The segments examined show different patterns regarding the intensity of use and efficiency of online networks and digital tools. Also highlighted is risk management according to the size of the network expansion, the type and quality of the network, the kind of industrial and business embeddedness. The highest level of digital competencies was found in large enterprises, companies with a “digital profile” and such small and medium sized enterprises whose clientele include multinational companies and large corporations. The lowest level of digital competencies was experienced in small companies and manufacturing firms.

Introduction

According to our research, companies that have closer connections with their clients, suppliers and research institutes proactively use the latest digital/network tools. Their organizational and inter-organizational relations are technologically oriented. They are more likely to achieve success in research and development (innovation). Existence and development of network competencies have a positive impact on corporate culture and inter-organizational technical co-operation. Also, positive impacts in

regards to openness, integration and on further innovations (see among others: Ritter – Gemünden, 2003). We assume that the digital turn and the mobile-computing environment facilitate the corporate management functions. This supports both offline and online network competencies for developments and for innovations.

Our goal is to examine the above thesis applied to both online and offline networks. We plan to map them on an interface of two measurable success-indicators. One of these indicators has been defined as a set of achievements gained by a competitor. It is related to figures of effectiveness, growth and sales. We have labelled this indicator as the “*competitive advantage*”. We have labelled the other indicator as the “*visible success indicator*”. The indicator of visible success has been generated from the results of marketing, brand awareness, PR and to partners’ - consumers’ loyalty. The analysis of the sample monitored the way companies and organizations allocated supplementary resources. This allocation of resources was on behalf of information management in order to develop competencies and to implement digital innovations. We assumed a close correlation between the results of measurable success-indicators, investments and developments. Furthermore, this research also focused on the size of companies, industrial embeddedness and on the profiles of the analyzed networks for a deeper understanding. A literature review preceded the empirical work in order to clarify the conceptual framework of the hypotheses. Also, in order to set up the framework of the expert interview guide.

Network competence

The basic category of the research is network competence which we analyze with reference to activities both online and offline. Business and organizational networks have been facing the breakthrough of online communication, growing data resources and vulnerability. Also, they are facing the transparency of partners, trust-based networks and security risks. In a digital environment, the continuous development of networks and network competencies as well as the redefinition of offline networking channels and competencies are also important for an effective and successful operation of networks.

A network is conventionally understood as the sum of hubs and that of the hubs’ linkage. Within each framework, we analyze the connections among digital, social, business and sophisticated users’ networks. These are dynamically changing systems. They are built on network competencies or via developing network competencies. Quantity, quality, centralization or decentralization of linkages in close correlation with digital-technological

innovations, with the use of online networks will all determine the rationale of these complex networks.

We assume that the function and decision-making processes of offline networks are under the influence of digital platforms and online networks primarily because the Internet is a scale-free network. Besides, scale-free frameworks are extremely resistant to occasional errors. Therefore, a great number of randomly chosen points can be removed without ruining the coherence of the framework. On the other hand, these frameworks are really vulnerable in case of a targeted attack because the removal of relatively few points could ruin the largest network hubs. This may cause disintegration.. It is indispensable for business management to support network competence. We analyze networks focused on their spots of risk, vulnerability and effectiveness. We map how much companies attend to the logic of scale-free networks in the use of online networks. While focusing on networking society, we have been relying on Castell's model. The core of which is based on informational and communicational technologies where the accumulated knowledge-hubs are definitive (Castells, 2009).

To operate a network or organization, network competencies are needed that manage processes of decision. Network competences can promote effective organizational communication and the competitiveness of the company concerned. As long as progressive, interactive understanding and skills cooperate on various levels of an organization, network competencies can prevail (Edgar – Lockwood, 2008). Effectiveness, as well as competitiveness, will improve. The use of digital tools and the rapidly changing digital environment deconstruct certain network competencies. This sets up and weakens the importance of other network competences..

Digital tools and platforms, online networks and ICT innovations rely exclusively on digital and network competencies. Their continuous improvement is of uttermost importance because accumulating an amount of data, their supply chains within the organization and in inter-organizational relationships are determinative. The online data collection and the interpretation of the results on the organization or that of the partner/concurrent organization imply competencies that can be separately analyzed. Our indirect target is to point to an emerging effect that makes the analysis of network competencies indispensable. This is the so called big data or data boom. The network of data and contents are facing a serious challenge in the digital environment where we produce an average of 2.5 quintillion data per day (source: <http://www-01.ibm.com>). There is a growing amount of data that comes from sensors, social media networks, online knowledge sharing and from lots of other resources. This brings up basic questions of the handling of data resources and induction, network innovations and network education.

Basic questions and hypothesis

Our research questions are the following: How do social and business networks that use the Internet as a scale-free network measure the vulnerability and risk of digital/online networks? Furthermore, how are they getting ready for big data's effects? How can they make an advantage of them? Do communication and education decrease vulnerability and risk? How much does it depend on the size of the company/firm/organization/network? How much does it depend on the industrial or other embeddedness of the company/firm/organization/network? How determinately do they consider the technical-digital embeddedness? How much do they consider the human/organizational decisions? Which one of these two promotes effectiveness? What is the connection between the size of the network and the level of competence? Can it be determined that 'mezo level' is the most effective? What are the natural and synthetic network regions? What are the condensational fields of the technological-technical-administrative-worksharing-etc. networks?

With the help of the above questions, we have set the following hypothesis and sub-hypotheses:

Hypothesis

According to the research's basic/main hypothesis, considered are those business, social- communication and decision chains that operate with the newest digital- online tools and competences. As compared to their competitors, they are measurably (effectiveness, growth, realization) and observably (marketing/ brand awareness, PR, loyalty of partners and consumers) more effective.

Sub-hypotheses

1. The analyzed sectors' networks regularly use external and internal modes (consultation with advisors, participation at international conferences, webinars, professional blogs with new information, acting social media managers, involving trainees, etc.) for development and self-training in the field of digital-online innovations and competencies.
2. They regularly use competence developing tools and methods in the analyzed sector to introduce them to the market,. Also, to handle the growing amount of data and big data, and to reduce risk. The education is assured by more channels (for example e-learning, conferences, workshops) in many of their connected networks (partners, collaborators, subcontractors, etc.).

3. The analyzed sectors consider familiarity with and the development of online network competencies indispensable to achieve competitiveness and effectiveness. In order to build trust and reduce risk, they first manage their offline networks by traditional tools (keep in touch in person, the requirements defined in the contract/in writing, etc.).
4. The newest digital tools, digital network services, use of programs, data management elaboration and information management need additional resources. The analyzed sectors consider this as an investment. They develop their material and intellectual sources accordingly.
5. The analyzed sectors use both preventive and proactive solutions in their online and offline networks (for example, tracking, management of change and crisis) to decrease vulnerability and increase effectiveness.
6. The analyzed sectors show different results regarding the intensity and effectiveness of the use of online networks and that of digital tools. Different results are shown on risk management depending on the size of the network's expansion, the type and quality of the network. Also shown is the business and industrial embeddedness. Finally, the represented generation is highlighted.

We analyzed the hypotheses' framework and validity by highlighting the relevant elements of literature; and also by qualitative research. We are also going to present the research's results in these two steps.

Theoretical background

The Framework of Networks: Relatedness, Tight Bonds and Vibrations

The network, as defined above, is the sum of the hubs and the links connecting them. Due to the infrastructural development of digital environments, various and effective tools are available via online and social networks (Gloore et al., 2012).

Within business and organizational networks, the nodes belong to the same sector's interconnections or to that of different sectors. According to recent studies on business networks and supply chains, relations themselves are a major set of resources for network operators. Practically, these networks can be defined as investments. The greater the investment, the more meaningful and useful connection can emerge between companies and organizations. By this they shape one another and the whole network.

The wiredness, or a particular node involvement, makes the organization more sensitive and influential in the network information flow. Theories of competitiveness emphasize how important it is that companies or organizations should not keep the network under control. Otherwise it will be less effective and innovative. The only effort they can make would be seeking profit from others' initiatives and creative solutions. It is important to try to understand that they need to see and know how the network operates in terms of the associated partners. Also, to determine how they see their positions from there (Anderson – Håkansson – Johanson, 1994; Dodgson, 1993; Gelei – Mandják, 2011; Håkansson – Ford, 2001; Mattsson, 1997; Wilkinson – Young, 1994). The competitor's benefit may also be increased by this change of viewpoint.

The relationship of these companies and organizations can be divided into online and offline networks, and can be examined along these dimensions. According to the sub-hypothesis supported above, we have observed it is essential to get familiar with and develop online networking competences for the corporations and organizations. This is in order to achieve competitiveness and effectiveness. Information management, the latest digital network services the use of digital tools and programs require additional resources. The question is how much these resources can be regarded as an investment, how indispensable they are, and how they support the company's or organization's competitiveness. The offline networking competence from this viewpoint is also indispensable. This is because traditional fiduciary and risk mitigation tools have an important role.

There is always something in the flow through networking contacts.. It can be information, process management decisions or co-operation in innovation. As a result, we need to review a particular network nodes' strength and stronger bonds. If these stronger bonds use innovations, digital tools and network education more actively, it may have an effect on the long run including on the rest of the network. There may be situations when confusion arises within the network because of the flow and strong links among members of the business networks. Or, the network faces confusions like jarring or corporate economic crisis.

The so-called network quakes according to their extent and strength have various effects on the operational effectiveness of companies and organizations. It is therefore an important issue for the members of the network to reduce this kind of vulnerability and perceive crisis management solutions. These solutions would be those used online-offline concerning their networks in order to be able to preserve their position and innovative capacity (Csermely, 2009).

On the whole, as participants of a business network, all the companies and organizations need to move beyond their own points of view and they should focus on a networking perspective. Without their networks they would not be able to reach their desired results, innovate successfully nor increase their competitiveness (Christakis – Fowler, 2009).

Offline and Online Networks: After the Digital Turn

As we have mentioned earlier, exploiting the potential of online networks is crucial for corporate and organizational relationships. Presumably, for their business-social communication and decision-making chains that use the most recent digital and online tools and competencies. As they tap this online potential, they can become more competitive as compared to the sector's other companies and the organizations. However, we assume that the online network extensiveness, its importance for the company, latest digital tool usage, and the importance of the education all depend on the profile of the company. This includes size of the company and on the staff generations represented.

Hurwitz (2013) also draws attention to the fact that this is the age of the so-called post-trust Internet and of digital technology. This means that online networks are becoming more accessible and less evadable. Due to this, it can be turned against the organization or against the company. This could range from the vulnerability to data leakage through hacker attacks or to destructive communication activities that streamline online information management. Internet architecture is a possibility, but the confidence in online networking is being constantly questioned by the opportunity and verification of vulnerability.

The trust in a network (Krackhardt - Hanson, 1993), the legitimacy and strength of nodes, streamlined network management, issues of safety versus effectiveness are present both in online and offline networks. Yet, they are present in different ways and interconnected with one another. Innovations and effectiveness support the openness. Trust and security supports increasingly exclusive and restricted network solutions. So when we talk about offline and online networks after the digital revolution, it is a fundamental question where the boundaries of the network's development lie, the viewpoint of the network and that of online-offline network competencies..To what extent does competitiveness strengthen the node's place within the network and the trust. When should restrictions be launched for cost cutting, return investments in order to save security

functions? How should competitiveness and the proportion of expenditure, the investments of the communicable and demonstrable competitiveness be optimized?

It is important to emphasize that the patterns of online and offline networks are to a certain extent similar. Again though, to an extent they differ. Here “human” and “algorithmic” nodes and their interconnections indicate basic differences between the various sources. Human nature is more analogous, while the nature of the algorithmic one is digital. According to socio-psychological studies, (including Haythornthwaite, 2005; Bargh – McKenna, 2004) there are no significant differences among patterns of human networking. Online relationships usually share the features of offline relationships.

Online communication is also rather frequent and intense in case of close relationships. It works “analogously” and with the same force of offline relationships. Online social networks also operate quite similarly in personal/corporate-organizational relations with shared trust and risk management strategies (Csüllög, 2012).

Operating along algorithms generates common platforms and network management. These would be in management of companies, logistics, organizational development and project management. Administration, along with other online associate frameworks in corporate-organizational functions, would also be included. They are less flexible between two stages of development, their codification limits usability, and their infrastructural vulnerability could lead to the vulnerability of human network as well.

Information economy, knowledge economy and the network economy model calls attention to the fact that networks are resources in themselves. Within a network technological innovations can spread easier and it is easier for companies and organizations to adapt to each other. They have a greater influence on each other to increase their effectiveness and competitiveness (Bharadwaj, 2000; Moricz, 2009, Seltzer - Bentley, 1999; Vergeer - Pelzer, 2009).

Network Competence, Education and Connectivism

Competence as a sum or as a framework of skills is closely related to the concept of a network. Social capital, the Internet or the digital community, professional platform management- just to name a few- assume complex capabilities. The network management capabilities and skills (Möller - Svahn, 2003; Ritter - Gemünden, 2003) outline a definite competence-portfolio (Vlasyuk, 2010).

The concept of network competence applies to offline and online network management and control. Also, the concept applies to self-learning solutions and to organized education at the same time. Traditional offline forms are moving to some extent to online networks. Online frameworks are newer, platform-oriented stages among competences.

The sustainability of digital networks and the increase of competitiveness altogether assume continuous innovation, competence development and education. Recent developments represent pre-studies, research, the company's/organization's opportunities and expectations to ease the whole network's competence. The development of competence is in this sense system-levelled and includes within the network all those who are involved in the innovation. Developed or adapted solutions are therefore not solely individual components. They also operate as restructuring devices (Henderson - Clark, 1990). Along proper network and digital competences in the digital environment, rapid changes make it possible for companies and organizations to achieve competitive advantage fast and/or on the long run (Grover - Kohli, 2013). Their success can be communicated, marketed, made visible, and in terms of marketing and in partner/customer loyalty – a leverage. As far as the involvement of related resources is concerned it is the process that is in the focus (Partanen - Möller, 2012: 491). It is important to continuously develop competences. In operation management of networking competence, co-operation, collaboration, competition and perceptibility (Vlasyuk, 2013: 970-971) all enhance the visibility and representation of success. Within networks an online community space or a knowledge-sharing portal can have a featured terrain that is being co-developed by an increasing number of organizations. This is based on social media and interactive content services. The activity started earlier in forms of mailing lists and later via forums. This provided some space for communication and by now social network sites have largely shifted to this type of activity (Csüllög, 2012).

Competencies themselves do not change quickly. In Vlasyuk's (2013) approach, they do not come up spontaneously, but along targeted efforts. They cannot be simulated. At best they can be copied. Competence development – within the framework of networking competence development – is defined by the connectivist approach. This is defined as knowledge shared across networks and is in itself an ability to construct this knowledge over networks (Downes, 2007). So networking competence in this sense is a 'meta-competence' This is a competence of accessing and the ability of developing competences.

Competitiveness, Network Trust, Vulnerability

Networking competences are in a dynamic interaction with one another and they promote corporate competitiveness for a strategic vision (Edgar - Lockwood, 2008 and Wang et al, 2012.). It is based on the thesis that a strategic network development approach is needed that is built on the so-called ICT fund (Partanen - Möller, 2012). This also represents value creation (Msanjila - Afsarmanesh, 2009: 4769).

The analyses of networks are not accidentally in the priority areas of strategic management (among others: Gulati, 2007; Jarillo, 1988; Lavie, 2007). Critical success factors map and build strategic networks, establishing strong network linkages and the firmament of protection against quakes. Effective networking is based on application of dynamic competencies (Wang et al., 2012), and the core element is trust.

Trust is a collection of personal beliefs (Berners-Lee et. 2006: 88). Competitiveness and the level of trust are fundamentally interlinked within networks. The results that mark a higher quality and creativity assume networks based on trust (Gloore et al., 2012). Trust and loyalty can be built and feature among companies and organizations in multiple ways. According to our study, the most important question is a sustainable level of online reliability. Can it be as reliable as its offline counterpart? Or, can the online discourse of reliability strengthen offline trust. A further question is how much these factors depend on digital tools and platforms, the human factor and what impact they would have in online/offline networks in the presence and absence of trust. What does risk imply within these networks?

Without trust the majority of online activities would not be viable. In case of online networks there are two formats of trust: 1) trust with reference to systems and 2) with reference to people. For example, in case of trusting systems we speak of web-based architectures (Nagy - Schubert, 2007). According to this, in online relations trust is closely related to a variety of digital tools as mentioned earlier in connection with the so-called post-trust Internet. Therefore, it is important to connect confidence with the use of these tools, and their development. According to all of these, it can also be examined with reference to the company's competitiveness.

Lack of trust can have many reasons. The most significant of which is incorrect communication, lack of information sharing and the unwillingness to share risks (Alawamleh - Popplewell, 2010). This question – among others – is answered by the MESH of companies. MESH is a response to the rapid evolution of technology solutions by results built on networks and sharing. In such networks, proper resources are only available until the company, the organization or consumers need the resources. Thus, these are trust products and services where the credibility of the network members and their reliability are standard (Gansky, 2010).

As far as trust is concerned, networks' informal relationships are important. Their mapping makes the understanding of important and strong linkages possible. In the restructuring of networks and via the network dynamics, these linkages may get damaged. Or, in contrast, they could develop (Sellitto, 2011: 27).

In contemporary economic networks companies', regions' or countries' productivity and competitiveness largely depends on their ability to effectively apply the obtained information. Therefore the networks should try to focus on the trust constituted by their built-up trust networks. This is in order to avoid panic, (Alawamleh - Popplewell, 2010) misunderstandings, errors and to reduce risks and vulnerability.

Trust also implies vulnerabilities – both in case of trust on tools and on human relations. Vulnerability can be reduced on the network level if the network is scale-free. It has sufficiently strong bonds and therefore is more resistant to random errors. If targeted, attacks can be prevented. These formal and informal bonds on corporate and organizational levels need to be carefully treated. Their removal may be critical so that network quakes can be prevented.

Using the latest digital equipment makes it possible for companies and organizations to collect data from their networks. They are enabled to collect from their strong and weak bonds and from the effectiveness of their communication channels, The data is derived both from the network's successful existence or from the network's incompetence. The last step is to analyse the results. Network resources and connections – based on the feedback – can be redesigned more effectively focusing on competitiveness and visibility.

Network Competence, Strategic Co-Operation, Collaboration

The size of a firm defines the strategic position the firm concerned can take within a business framework. The size determines whether it will become a nodal agency or marginal player. The strategic management of trust, networking competences and that of digital frameworks (Grover – Kohli, 2013) is of uttermost importance. This, however, does not only imply a framework, but also a daily routine at companies in online and augmented collaborative environments. Also, implied is a level of transparency and further functions. These determine the corporate strategy and vice versa.

The size of the organization and the organization's position within the business-network concerned provides its functional networking status quo (Wang et al., 2012). Position and linkage might only be qualified after

entering into co-operation (Partanen – Möller, 2012: 491). Insight, analysis and the integration of networking competencies for this are indispensable. This is true both in case of nodes with tight linkages and in case of nodes with loose ones investigating separately the speed and methodology of a node's connectedness (Watson et al., 2004 és Vervest et al., 2004). Only an overall system can be error tolerant.

Networking competence is consequently the basic question of strategic co-operation. Its analysis requires the monitoring of the quality of collaboration (Partanen – Möller, 2012: 491) and that of a shared or alternative strategy (Grover - Kohli, 2013). Competitive advantage within this networking complexity is viable via a strategic point of view supported by education.

This is the reason why collaboration has become the organizational and inter-organizational key term for digital networks. Collaboration for common goals in a recursive, inter-embedded operation is the key focus (Martinez-Moyano 2006). In other words, collaboration is not solely co-operation. It is also a shared pursuit that might be complemented by creative devices, by cumulative competences, sharing knowledge, mutual learning activities and by online open frameworks. Members of networks are striving for consensus in their collaboration. Collaboration implies a networking rationale. It provides points of instruction and subsidiary networks within networks. However, this can be decentralized. For example, they could get access to resources in groups and that would make them increasingly effective. At the same time, this will promote further competence development.

Networking Visibility and Reputation

Visibility is a basic requirement for the nodes within networks. The extent of visibility depends on corporate profile, business embeddedness, vulnerability, risk factors. Also, the visibility depends on communicational strategies and marketing/PR targeting. Competition and visibility together (Vlasyuk, 2013: 970-971) enhance the visibility of success as seen above. The extent of visibility has become even significant within online embeddedness. The organization, people working within these organizations, the ones in collaboration with the organization all produce, share and traffic masses of digital data. It is of strategic importance what/which segments of this data will become available, visible, recognizable and with what implications. Just think of the fact that the good reputation

of a corporation can be ruined on account of a piece of information that has gone viral on an online social platform. The impact and the vulnerability of visibility are obvious.

Honour and reputation also have implications for partnership and for third party or parties (Hurwitz 2013, 1611) within a framework. This refers to interconnectedness that might also generate commitment (Mithas et al. 2013: 521). Reputation becomes recognizable and identifiable in interconnectedness. The question is to what extent we should extend or limit networking to achieve trust and reputation. Extension may generate new connections while limiting visibility will also decrease risks (Alawamleh - Popplewell, 2010: 6046).

The more transparent the interconnectedness of the networks, the more visible are networking relations. Tighter bonds will form and random quakes may occur. The increasing visibility of a node will in turn increase the visibility of further nodes. The more open and free a network, the more visible and accessible it becomes. This might imply a smoother access to already existing and prospective B2C, B2B and B2G relations. Also, implies an increasing trust of consumers. Yet it might also implicate vulnerability and could benefit competitors. "It is easier to observe provisions and, then, to copy them." (Mithas et al. 2013: 519)

The online visibility of networks consequently constitutes issues of reputation and vulnerability. These rely on organizational and inter-organizational collaboration. This implies the availability of marketing, PR, HR and data security functions. Also, implied is the development of competencies that are needed for effectiveness and competitiveness.

Research

Based on the theoretical background, we conducted a series of expert interviews in selected industries. The subject of the interviews was the level and the impact of corporate network competencies (innovative digital technologies, online networks) concerning the competitiveness of companies. The survey methodology consisted of semi-structured interviews for the purpose of studying the junior management staffs of dynamically changing companies. This is based on or engaged in the development of network competencies. These managers have relevant information concerning the subject of the research. The planned number of interviews has been between 25 and 30 for a sampling. Sampling is to be specified later by saturation analysis. Our basic questions were:

- How do the social and business networks, using the Internet as a scale-free network, measure the vulnerability and risks of the digital/online networks?
- How do they prepare for the impacts of big data? How can they turn it to their advantage?
- What kind of innovations, communication and education help to reduce the vulnerability and the risk?
- How much does it depend on the size of the company/firm/organization/network?
- How much does it depend on the industrial or other embeddedness of the company/firm/organization/network?
- How much do they find the technical and digital embeddedness determining and how much the human/organizational decisions?
- Which of the two primarily affects efficiency?
- How do network size and the level of competence relate? What are the natural and artificial network regions?
- What are the areas where ecological, technical administrative labour-division etc. networks intensify?

Preparing sampling, recruiting respondents

The research plan envisaged making 30 interviews. In the preparation of the sample, we planned to interview in 80% representatives of companies where either digital innovation or the use of digital networks plays a crucial part in their business profile. The remaining 20% were intended to be made up of manufacturing and service companies.

According to the planned sampling procedure, the respondents were contacted through personal channels (in person, by phone, by e-mail) with 10% of the planned sample. Those contacted included a tool manufacturing company, an online agency and a company that develops portals for posting media content. After the first interviews, we asked them to recommend people from their own networks that could be relevant in terms of the research topic (snowball sampling). In this way, we contacted additional respondents.

Snowball sampling worked well in the sense that one participant led us to another. The experts interviewed recommended respondents who worked in the same or a related domain. This method also helped us to include companies of different sizes in the sample since small companies can relate to bigger ones. The larger ones are also in connection with small ones. Thus, we reached participants from all levels of the networks identified.

The number of interviewees was 26. The scope of respondents was that of junior managers (senior managers in small companies) who had relevant information concerning the competencies of their own company networks and could give useful answers to our questions.

After making an appointment on phone or via e-mail the interviews were conducted at a place designated by the respondents. Mostly, this was in their workplaces in December of 2013 at the time requested by each respondent.

Basic data

The answers of the interviewees to each question depart along certain parameters. More specifically, some characteristics of the company determine what the respondents think of the questions we examined. These parameters are as follows:

- Companies

The usefulness of the interviews largely depended on whether we managed to interview companies of different sizes, activities and clientele. In terms of networks, different problems arise in organizations with different parameters. The individual companies can give answers to such problems based on their own characteristics.

- Scope of activities

With regard to the scope of activities, we divided the 26 companies we had contacted into two groups. The groups were according to whether there were any IT products or services that played a crucial role in their business profile. More than half of the companies had a “digital profile”. Their scope of activities in more detail: The largest group (31% of the respondents, eight experts work for such a company) is made up of companies dealing with IT development and operation. We reached four companies with a marketing profile, and we spoke to the employees of three manufacturing and three financial firms. In addition, the sample included two non-governmental organizations, two trading companies and two companies providing technical services. We also interviewed a firm dealing with education and one providing telecommunications services.

- Clientele

The companies employing our experts have contacts with mostly corporate clients. Seventy-six percent can be regarded as purely B2B suppliers and four companies serve retail/private customers. Their corporate customer base is most important, though. Only two of the experts interviewed reported that their companies focused primarily on retail customers. Their networks included corporate clients as well.

- Company size

In terms of company size, almost one out of four companies employ less than 10 people. More than one third have between 11-50 employees, i.e. almost every second firm is a small enterprise. One company with 51-250 and one with 251-500 employees belonged to medium sized enterprises. There were 5 large companies: one with 501-1,000 employees and four employed more than a 1,000 people.

- Respondents

In addition to the respondents' companies, it is also worth examining the demographic parameters of the interviewees. From this point of view, our sample is rather homogeneous. No significant differences were observed in the responses of the experts according to their age or sex. Here, the homogeneity of the sample was more striking.

- Age

Seven of our experts were under 35 years and more than thirty-eight percent were between the ages of 35 and 40. Thus, almost two-thirds of the sample is made up of young company managers under 40. We had eight respondents between the ages of 41 and 50 and only one above 50. If we examine the companies with a "digital profile" from this point of view, we find that they have much younger experts. In this group, forty-three percent are under 35 and seventy-nine percent are not more than 40 years of age!

It is worthwhile dealing with age statistics from these companies in a little more detail. All of the seven experts pertaining to the youngest age group (up to 35 years) work for a company or in a position with a "digital profile" and six out of ten in the next age group (between 36-40 years). Except for three people all the companies with a "digital profile" in our sample can be linked to these young managers. All of these are IT start-ups dealing specifically with the latest technologies (music streaming services, online advertising, online communication and image, mobile applications, etc.). In older age groups, we spoke to the employees of three firms with a "digital profile". However, they have a wide and deep knowledge of the industry, which provides them with outstanding possibilities. Two of them lead a successful business as owners. One of them provides M2M network services to German customers. Apart from him, only employees of the largest Hungarian provider report in our sample. A third, older expert holds a senior position in this company.

- Sex, education

In our total sample, there are only three female respondents, two of whom work in the technical and commercial field. We had only one female respondent from a company with a "digital profile". Here we need to mention a remark by one of our experts who deals with the development of small businesses, in particular, the support of female managers. She

attaches great importance to the development of the IT system of companies and the development of the digital competencies of the managers who are in contact with the organization. In her opinion, the level of competence of female managers is much lower than that of their female counterparts—regardless of their age group. In addition, she finds that aversion to modern technology is more common among women than men. Also, in terms of education, our sample can be regarded homogeneous: all interviewees had higher educational qualifications. (See Annex)

Analysis of the information obtained from the interviews

Our research aimed to describe the system of business relations of companies through network dynamics. The wide-ranging networks of companies – the main components of which include the customer base, the partner base and the employee base – can be described with the characteristics of the networks. This is because the basic definition can be related to these systems. However, these systems or certain parts thereof do not necessarily bear the typical characteristics of networks. For example, a customer base is not necessarily organized in a network. There are not necessarily relationships between the individual customers. Nevertheless, the entire system of relationships of the company can be considered as a network.

Thus the extension of this system of relationships does not always happen with network tools. For the companies, the most important thing is to attract and retain customers. To this end, they employ various marketing methods, but apart from a few exceptions, network dynamics in the extension is less typical. Many companies perform networking-like activities to extend their networks. Here, however, formal networks and their nodes play an increased role. Due to the IT and digital focused profile, sampling the online solutions gets strong feedbacks with cautions. The latest innovations and online tools are only part of the frequented tenders, but the daily practise presents a single or several long versions that had been tested earlier. Corporate managements play safe because of long term agreements, partnerships and potential customer loyalty.

Competitive advantage and visible success

Based on the basic hypothesis of the research, those companies which employ the latest digital and online tools are both measurably (efficiency, growth, sales) and observably (marketing/brand awareness, PR, partnership and consumer loyalty) more successful than their competitors.

The interviews showed that companies that employ digital innovation appropriately can indeed gain an advantage over their competitors by using modern technology. The key question, however, is what technologies they integrate into their operation. Also, how the general principle in this area is “the right tool for the right purpose”. Our respondents find that the applications supporting operational functions, coordination, and project management make work more efficient. Our experts attached the greatest importance to network applications that enable efficient joint work from home or in the form of teleworking. Thus the digital innovation brought the greatest breakthrough in the field of resource management.

However, the introduction and operation of these systems requires an expertise that many companies lack among their resources. Therefore, it is becoming more and more common that IT systems are operated by a third-party or outsourced.

In the “visible success” dimension, the online and network tools have proved to be as useful as offline methods. In this respect, our respondents did not report any difference. Maintaining an online presence in the dimension of “visible success”, maintaining an online presence also consumes resources. Accordingly, such campaign activities are mainly performed by large companies.

Development of competencies

We assumed that the networks of the analyzed segments regularly use external and internal solutions for development and self-education. Specifically used in the areas of digital, online innovation and competencies.

In our sample, companies with a “digital profile” are firms where some kind of network or digital innovation as a provided service plays a major role in their business profile. These companies constantly develop their digital competencies through organized and informal training. Mainly, though, they are developed through self-education using online tools. This has the main purpose of learning about novelties emerging in the market on a user and developer level. Among traditional companies, digital innovation does not play such a crucial role in their course of business for digital training to be important. Instead, training into system management is provided when the company governance, task management or database management system are introduced.

Digital innovation

We assumed that companies use competency development to be able to introduce new tools, make the amount of data increase and the data explosion manageable. Also, to allow risks to be reduced. Education is provided in several channels in several related networks.

Network competencies (for the moment we speak only of natural networks) enable individuals to find their way in the relationship net surrounding them. Also, to identify those groups and individuals who if contacted can help them get closer to their goals. In this sense, the interviews showed that the most important network competence development method can be found within the organizations. They show the job of the individual work groups or divisions to other divisions, or, within a division, the work of colleagues to each other. Network competencies are more in focus in companies where networking activities play a crucial part in their business profile. These include: non-governmental organizations and companies providing financial services.

Training, preparing or accompanying digital developments is not so much about the development of network competencies (unless in a specific IT technical sense). Rather, it is about understanding systems that support work processes and effectively mastering their use. Such training really appears outside the internal networks of companies as well. An essential condition for effective co-operation between companies is to be able to satisfactorily manage each other's IT systems (especially in the case of the suppliers of a multinational company). The main aim of digital networks employed by non-governmental organizations developing small enterprises is to develop the digital competences of its members.

Apart from this, other aims of digital developments are mostly to support work processes, enable joint work-teleworking and database management. Technical solutions play an elementary role in eliminating the increasing data quantity and vulnerability. This is except for the companies where data handling is a particularly sensitive area due to their activity. Those companies reside in the banking sector and nationwide providers with high customer traffic.

To protect the data and to reliably manage the increasing amount of data, special technical solutions are developed. These require a high level of special expertise in mathematics, information technology to introduce and manage such solutions. Thus companies either fully outsource these tasks (a big data commission can be rather costly), or entrust the management of systems to an in-house system administrator. The employees absolutely need the knowledge about the technical part of IT which can be acquired through the company's IT department or through organized corporate training.

Corporate management realises that digital skills and tools are part of employees'/partners' private and professional lives. Two consequences result from these facts. First, employees/partners' have self-motivation to collect useful information concerning digital devices and new trends in digital networks. Secondly, employees/partners are digitally linked. Their ignorance and their carelessness implicate some risk for the company. The characteristic management strategy is the simultaneous use of recommendations and regulation. The management function is based on the eventual confidence in online network context.

Competence development and competitiveness

At the beginning of our research, we thought that companies would find it essential to understand and develop online network competencies. This would be to become more competitive and efficient. However, offline networks are treated with primary importance by using traditional tools to build trust and reduce risks.

Understanding and developing online network competencies is fundamental. This is in the sense that the popularity, usefulness and efficiency of IT systems based on network solutions make day-to-day orientation more efficient and less resource intensive. As a result, the companies that use these solutions can enjoy a "competitive advantage" in this area. These network solutions are basically not aimed at expanding and building the network, but rather support work processes. They enable operative communication in connection with work processes.

The natural networks are indeed managed and maintained mostly in person. The interviews showed that at the international level and more importantly in a local context, business relationships are determined by the quality of personal relationships and professional values. One note of caution is the risk that personal relationships invade business life and loyalty overrides professional considerations.

Digital innovation as an investment

We assumed that the introduction and operation of digital innovation required additional resources. The examined segments view this as an investment and develop accordingly their material and intellectual resources.

Depending on the segment examined, the experts have a rather varied opinion of digital and network developments. It is the companies with a "digital profile" that realize the importance of developments. In particular,

the applications supporting work processes. However, since most of them widely use open source software, the issue of return on investment is less important.

Among the traditional companies, it is the large enterprises active in a special market environment that pay the most attention to this area. Medium sized companies generally follow the big ones after some delay. Whereas the level of digital competency of small enterprises largely lags behind both at international levels and compared to local large companies. Generally speaking, traditional companies spend on digital development if it is required by their market position. Or, if the development is so efficient that it enables them to save resources thus they can reduce their costs. Some IT professional respondents regard digital developments as value added improvements that yield a return in the long run.

Vulnerability

According to one of our hypotheses, companies simultaneously employ preventive and proactive solutions in their online and offline networks in order to eliminate the vulnerability of networks,

The vulnerability of natural networks is mostly reduced by the management or an appointed company division by keeping personal contact with the customers and preserving good personal relationships.

The vulnerability of digital networks has a totally different meaning. On one hand technical problems and loss of data. On the other, deliberate external attacks can cause destruction. As already mentioned, the protection of digital networks usually involves using specific technical solutions. These are not the kinds of issues that non-technical staff could manage. Therefore, the management of digital networks is either outsourced or dealt with by the company's system administrator.

Summary

The segments examined show different patterns regarding the intensity of use and efficiency of online networks. Digital tools are highlighted as well as risk management according to the size of the network expansion. Also displayed is the type and quality of the network, the type of industrial and business embeddedness, and the generations represented.

According to our research, the digital competences of companies are influenced by several factors:

- company size
- scope of activities
- type of partnership network
- type of customer base

The highest level of digital competences can be found in large enterprises, companies with a “digital profile” and such small and medium sized enterprises whose partners include multinational companies and large corporations. The lowest level of digital competence is experienced in small companies and manufacturing firms.

As suppositions for a future quantitative survey, we can state the following:

Digital network solutions used for the purposes of networking is mostly typical of B2C large enterprises, or firms and organizations where the development of (natural) networks plays a crucial part in their business profile (non-governmental organizations). The staff of companies with a “digital profile” play a leading role in terms of utilizing informal professional communities and networks (both online and offline). This mostly involves professional communities, professional platforms and meetings.

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ANNEX

Company and respondent profiles

Company profile	Respondent profile
1.	
<p>Medium-sized enterprise. Manufacturing and trade in custom-made tools. A Hungarian member of an international group of companies. Staff: 11-50 people; B2B</p>	<p>Senior manager. Male, approximately 40 years old, with higher educational qualifications. He specializes in mechanical cutting and trade.</p>

Company profile	Respondent profile
2.	
<p>Small enterprise. Online communications agency - creation and operation of websites, social media presence, development of online and mobile games and mobile applications. Staff: 1-10 people; B2B</p>	<p>Senior manager. Female, 35 years, with higher educational qualifications. Account manager, project manager.</p>

Company profile	Respondent profile
3.	
<p>Small enterprise. Portal development to display media content. Website management for online media industries and the press department of organizations. Staff: 11-50 people; B2B</p>	<p>Senior manager. Male, 37 years, with higher educational qualifications. Business development - strategic planning, product development, organizational development.</p>

Company profile	Respondent profile
4.	
<p>Large enterprise. Leading role in the field of insurance and financial services. A Hungarian member of an international group of companies. Staff: over 1,000 people B2C, B2B</p>	<p>Middle manager. Male, approximately 35 years old, with higher educational qualifications. He specializes in the development of insurance and financial products.</p>

Company profile	Respondent profile
5.	
<p>Small enterprise. Activity: IT services, operation. Staff: 11-50 people B2B</p>	<p>Senior manager. Male, approximately 40 years old, with higher educational qualifications. He specializes in information technology, operation, and software development.</p>

Company profile	Respondent profile
6.	
<p>Small business/family business. Wholesale of electronic devices. Staff: 1-10 people B2B</p>	<p>Senior manager. Male, approximately 50 years old, with higher educational qualifications. He specializes in marketing and wholesale.</p>

Company profile	Respondent profile
7.	
<p>Small business/family business. It deals with the wholesale of bicycles and accessories. Staff: 11-50 people B2B</p>	<p>Senior manager. Male, approximately 35 years old, with higher educational qualifications. He specializes in controlling and corporate governance.</p>

Company profile	Respondent profile
8.	
<p>Small enterprise. System integration, technical sales on AV and IT markets. Staff: 1-10 people B2B, B2C</p>	<p>Senior manager. Male, 37 years, with higher educational qualifications. Responsible for AV division, account management, project management, and company management</p>

Company profile	Respondent profile
9.	
<p>Large enterprise. It produces, develops and sells imaging equipment. A Hungarian member of an international group of companies. Staff: 251 and 500 people B2B</p>	<p>Middle manager. Male, approximately 45 years old, with higher educational qualifications. He specializes in marketing, CRM, market research.</p>

Company profile	Respondent profile
10.	
<p>Small enterprise. Adult education in IT, one-on-one and corporate IT courses, online training materials. Staff: 11 and 50 people B2B, B2C</p>	<p>Senior manager. Male, 35 years, with higher educational qualifications. Company management as he is the owner, professional management, curriculum development.</p>

Company profile	Respondent profile
11.	
<p>Medium-sized enterprise. Communications agency - already offline as well. Creation and operation of websites, social media presence, development of online and mobile games and mobile applications, ATL, BTL communication. Staff: 51 and 250 people; B2B</p>	<p>Middle manager. Male, 37 years, with higher educational qualifications. He specializes in high-capacity databases and data management systems, big data (for large enterprises).</p>

Company profile	Respondent profile
12.	
<p>Medium-sized enterprise. She offers technical services, person, product and system certification. A Hungarian member of an international group of companies. Staff: 51 and 250 people B2B</p>	<p>Middle manager, female, approximately 40 years old, with higher educational qualifications. She specializes in marketing and training.</p>

Company profile	Respondent profile
13.	
<p>Non-governmental organization. Lobbying, protecting the interests of Hungarian advertising, the IAB's digital division. Staff: 1 and 10 people (+members) B2B</p>	<p>Senior manager. Male, 34 years, with higher educational qualifications. Communication, organization, keeping contact, lobbying.</p>

Company profile	Respondent profile
14.	
<p>Non-governmental organization. Development of non-profit organizations of public benefit and small enterprises – competitiveness, creating opportunities and sustainability. Staff: 1 and 10 people B2B, B2C</p>	<p>Senior manager. Male, 46 years, with higher educational qualifications. Company management, strategic planning, internal technological and methodological developments.</p>

Company profile	Respondent profile
15.	
<p>Large enterprise. Investment bank, financial services. A Hungarian member of an international group of companies. Backoffice in Hungary, mainly IT development and controlling. Staff: 501 and 1,000 people B2B</p>	<p>Middle manager. Male, 39 years, with higher educational qualifications. IT development and project management</p>

Company profile	Respondent profile
16.	
<p>Large enterprise. Activities: banking and financial services. Major player in Hungary. A Hungarian member of an international group of companies. Staff: over 1,000 people B2C, B2B</p>	<p>Middle manager. Male, approximately 45 years old, with higher educational qualifications. He specializes in marketing, CRM, and market research.</p>

Company profile	Respondent profile
17.	
Small enterprise. It deals with the development of custom software, mobile applications, and web-based solutions. Staff: 11-50 people B2B	Senior manager. Male, approximately 30 years old, with higher educational qualifications. He specializes in information technology and software development

Company profile	Respondent profile
18.	
Small enterprise. Development and operation of ad serving systems for media companies. Staff: 11-50 people B2B	Senior manager, male, 35 years, with higher educational qualifications. Company management, commercial and communication tasks.

Company profile	Respondent profile
19.	
Medium-sized enterprise. It deals with direct marketing and call centre services. Staff: 51-250 people B2B	Senior manager. Male, approximately 45 years old, with higher educational qualifications. He specializes in direct marketing and advertising.

Company profile	Respondent profile
20.	
<p>Small enterprise. Development and integration of ERP software, CRM systems and document management systems. Staff: 1-50 people B2B</p>	<p>Senior manager. Male, approximately 50 years old, with higher educational qualifications. He specializes in software development and system organization.</p>

Company profile	Respondent profile
21.	
<p>Small enterprise. Music streaming services, music store services. Staff: 11-50 people B2B</p>	<p>Senior manager. Male, 36 years, with higher educational qualifications. In addition to company management, he is responsible for most of the sales/commercial and HR tasks.</p>

Company profile	Respondent profile
22.	
<p>Large enterprise. Three areas of activity: telecommunications, application development, and IT infrastructure. Staff: over 1,000 people B2B</p>	<p>Middle manager. Male, 48 years, with higher educational qualifications. Head of network solutions competency centre.</p>

Company profile	Respondent profile
23.	
<p>Small enterprise. Software development - engineering company, outsources its own workforce to 2-3 large companies. Staff: 1-10 people B2B</p>	<p>Senior manager. Male, 52 years, with higher educational qualifications. Company management, software development, and project management.</p>

Company profile	Respondent profile
24.	
<p>Medium-sized enterprise. It produces and sells engineering and automotive parts. Staff: 51-250 people</p>	<p>Senior manager. Female, approximately 35 years old, with higher educational qualifications. She specializes in finance and controlling.</p>

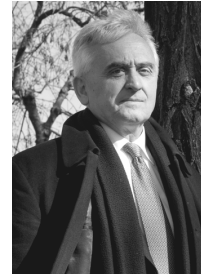
Company profile	Respondent profile
25.	
<p>Large enterprise. Telecommunications, ICT (Information and Communications Technology). Staff: over 1,000 people B2B, B2C</p>	<p>Middle manager. Male, 34 years, with higher educational qualifications. Marketing- service-development, product management, portfolio building.</p>

Company profile	Respondent profile
26.	
<p style="text-align: center;">Small enterprise. System certification, an organization accredited by the National Accreditation Board (NAT). Staff: 11-50 people B2B</p>	<p style="text-align: center;">Senior manager. Male, approximately 50 years old, with higher educational qualifications. He specializes in the development and auditing of management systems.</p>

Katalin Fehér is senior lecturer and new media researcher at Taylor’s University & senior research fellow at Budapest Business School. She was born in 1974, Dunaújváros, Hungary. PhD in Communication and Media, head of research and development at Digital Identity Agency Inc., member of the European Communication Research and Education Association, the European Society for Aesthetics and the Hungarian Communication Studies Association, expert of Tempus Public Foundation. Current research projects: head of Digital Identity Strategy research project in international open source network, head of Systematic Analysis of Network Competences research project at Budapest Business School Research Centre, supported by Hungarian Ministry for Human Resources, research fellow in International Mobile Studies hosted by IGI Global. Research interests: trends of digital and virtual media, network impact in new media. Current focus of interest: digital identity, digital culture, social media, network society and business. Last publication: Katalin Fehér (2013) Digital Urban identities. In. C. – Tarantino, M. – Tosoni, S. (eds.): Media & The City: Urbanism, Technology and Communication. Giaccardi, Cambridge Scholars Publishing. Personal website: www.katalinfeher.com



Zoltán Veres was born in Hungary. He received his university degrees from the Technical University of Budapest (Masters degree in Electrical Engineering) and the Budapest University of Economic Sciences (Masters degree in International Business). He obtained his Ph.D. in economics, at the Hungarian Academy of Sciences. More recently, he obtained his habilitation degree at University of Szeged, Faculty of Economics and Business Administration.



He worked as project manager of numerous international industrial projects in the Mediterranean region (e.g. Greece, Middle East, North Africa) between 1977 and '90.

Since 1990, he actively participates in the higher education. In 2011 he was appointed professor of Marketing at the Budapest Business School (BBS), Hungary and in addition he was also Head of Research Centre at BBS. He is actually Head of Marketing Department of the University of Pannonia, Veszprém, Hungary.

He has had consultancy practice and conducted numerous research projects on services marketing and project marketing. In 2001 and 2002 he was Head of Service Research Department at the multinational GfK Market Research Agency.

He has more than 200 scientific publications, including the books of Introduction to Market Research and Foundations of Services Marketing. He has been editor of series to Academy Publishing House (Wolters Kluwer Group), Budapest. He has been editor of journals *Revista Internacional de Marketing Público y No Lucrativo*, Spain, and *Marketing & Menedzsment*, Hungary. He is a member of the Committee of Marketing Sciences at the Hungarian Academy of Sciences.

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CSABA HEGEDUS

RISK-BASED CONSIDERATION OF MEASUREMENT UNCERTAINTY IN DECISIONS

(PMR 2014/3)

The aim of this study is the revision of conformity and process control techniques and the development of a new method for the design of control procedures and charts. The novelty of the proposed method comes from taking measurement uncertainty and decision risk into account in order to fit the appropriate control procedure to the observed process.

Introduction

Investigation, estimation and handling of risks became necessary tasks of business processes. Risk evaluation processes arise as new standards in several branches of industry or become part of existing ones; for instance, the FMEA in the automotive or micro electric area, the HAZOP in the chemical industry, the HACCP for the foods and PSA/PRA in nuclear power plants (Kovács & Pató Gáborné Szűcs, 2006). However, the treatment of risks is not applied in conformity assessment and control, these methods work only on the reliability base. Decisions based only on the confidence interval and probability of errors lag behind methods employing the consideration of consequences into the decision criteria, too. To minimize the risks a new quality/conformity control approach is proposed with the evaluation of the measurement and sampling uncertainty and modification of decision rules.

Most of the conformity or process controlling decisions are based on measurement results. However, these measurement results have uncertainty that can induce decision errors. Conformity assessment and evaluation of measurement uncertainty are separately handled tasks in everyday practice. In most cases the estimation of measurement uncertainty is only used to choose the adequate measuring equipment and method for a particular assessment job. Previous researches (e.g. Carbone et al., 2003; Ellison & Williams, 2007) treat this problem only from metrology aspects.

In this study measurement uncertainty is considered as part of a risk based decision problem in the cases of continuous conformity control, sampling for process control, and forecasting.

Measurement uncertainty

The International Organization for Standardization (ISO) issued a guide (BIPM, et al., 1993) 20 years ago that defines measurement uncertainty as a “parameter, associated with the result of a measurement, that characterizes the dispersion of the values that could reasonably be attributed to the measurand” (BIPM, et al., 1993, p. 3). Measurement uncertainty is characterized with the σ_m standard deviation of measured values (and called standard uncertainty or combined standard uncertainty) or with an interval that has a $k\sigma_m$ radius (and called expanded uncertainty) according to the Guide to the Expression of Uncertainty in Measurement (GUM). In the last 20 years, since the first issue of GUM expanded uncertainty came into general use in the practice of measuring laboratories, but measurement uncertainty handling methods have not reached a wide audience outside these laboratories.

The guides and industrial standards – (CENELEC, 1997; Ellison & Williams, 2007; IEC CISPR, 1997; ILAC, 2009; ISO, 1998) – specify the coverage factor values on a reliability base and the length of the interval is often calculated with $k=2$ coverage factor value. The normal probability distribution is also assumed for the dispersion of the measurement results. The expanded uncertainty interval contains more than 95% of the observations if the distribution is Gaussian, however in any other case the confidence level of the decision is under or over-estimated (Vilbaste et al., 2010). Therefore decisions should consider the whole probability distribution of measurement uncertainty instead of standard deviation or its multiplication with the coverage factor k (Rossi & Crenna, 2006). Transition from the reliability centred conceptualization to the risk based approach is also required.

The decision risk arising from the measurement uncertainty can be mitigated in two ways, with the reduction of the uncertainty (Kosztján et al., 2010) or taking this uncertainty into account and modifying the decision rules.

Following the GUM many studies (Carbone et al., 2003; Pendrill, 2006; Cox et al., 2008) discussed this problem from a metrological aspect, focusing on the measuring instrument and calibration, and some dealt with the conformity decisions based on the measurement results (Forbes, 2006; Pendrill, 2008). Beges et al. (2010) specified the range of target uncertainty

that minimize the total cost from inspection and decision errors. The focus of that research is on the selection of an appropriate measurement method and instrumentation. There was no solution to implement the measurement uncertainty handling in statistical control chart applications.

Consideration of measurement uncertainty in conformance assessment

This section deals with three main area of the conformity control. The first subsection introduces the consideration of measurement uncertainty and decision risk in complete conformity control when all the products are inspected. This method is extended in the second subsection to support the statistical process control, when decisions are based on sampling. To further enhance the consideration of uncertainties and risks in the third subsection the inherent relationship of the consecutive samples are taken into account in order to forecast the next values.

Revision of complete conformity control

In conformity control the measured value is compared to one or two acceptance limits. If the measured value is within the acceptance region the product considered conforming, if it is outside the region the product considered non-conforming and will be rejected. The acceptance limits can be some technical specification limits or stricter control limits. Because of the measurement uncertainty the measurement result y and the actual value of the observed characteristic x differ from each other.

The decision on the conformity of a product based on $y=x+m$ measured value as a sum of the real value and measurement error m but the conformity of the product is influenced by the relation of the actual value x to the upper (USL) and lower (LSL) specification limits. This twoness results in (at least) four different outcomes of the decision (Table 1): correct acceptance, correct rejection and two types of decision errors. In case of decision error type I the actually conforming product is considered non-conforming based on the measured values and rejected superfluously. Decision error type II is made when the measurement uncertainty conceals the non-conformity and the process revision or product rejection fails.

To each outcome r_{ij} proportional revenues and c_{ij} proportional costs are assigned and π_{ij} proportional profits of the decision outcomes are calculated as their difference ($r_{ij}-c_{ij}$).

		Decision	
		Accept ($j=1$)	Reject ($j=0$)
Fact	Conforming ($i=1$)	$\pi_{11}=r_{11} - c_{11}$ Correct acceptance	$\pi_{10}=r_{10} - c_{10}$ Superfluous rejection
	Non-conforming ($i=0$)	$\pi_{01}=r_{01} - c_{01}$ Incorrect acceptance	$\pi_{00}=r_{00} - c_{00}$ Correct rejection

Table 1 Particular profits of the four decision outcomes
Source: (Hegedűs, 2014a)

To maximize the expected profit the specification limits, which work as acceptance limits in case of total inspection, are modified with KL and KU correction components. The measured value y is compared to the new $LSL+KL$ lower and $USL-KU$ upper acceptance limits. If the measured value is between the new limits ($LSL+KL \leq y \leq USL-KU$) the product is accepted otherwise rejected (Figure 1). This approach allows us to define different intervals for each limit to handle asymmetric distributions. Correction component values are determined to minimize the expected profit depending on them.

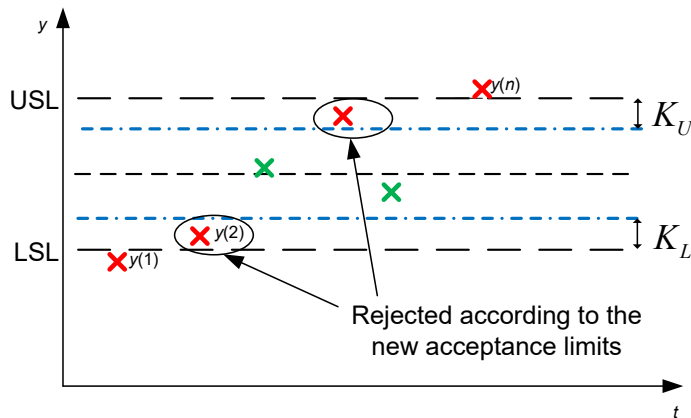


Figure 1 Risk-based modification of acceptance limits
Source: (Hegedűs, 2014b)

Let $\Pi(K_L, K_U) = p_{11}(K_L, K_U)\pi_{11} + p_{10}(K_L, K_U)\pi_{10} + p_{00}(K_L, K_U)\pi_{00} + p_{01}(K_L, K_U)\pi_{01}$ be the expected profit of the decision as a function of K_L and K_U , where $p_{ij}(K_L, K_U)$ is the probability of the outcome ij affected by the correction components.

To calculate the probability of outcomes the following Process – Uncertainty of measurement diagram (PU-diagram) have been created (Figure 2). The left side of Figure 2 depicts the four outcomes of Table 1, the black parallelogram in the middle represents the correct acceptance (the values of x and y are within the specified limits). The cases of decision error type II are presented on the left and the right of this parallelogram ($LSL \leq y \leq USL$ and $x \leq LSL$ or $USL \leq x$). Above and below the parallelogram the cases of decision error type I are presented. The unmarked fields belong to the fourth case, the case of correct (required and performed) revision or control. The probability of an outcome is calculated as the volume bounded by the corresponding area on the diagram and the two dimensional probability density function above it.

If K_L and K_U correction factors are positive the acceptance zone is tightened, the negative value of the correction factors means the relaxation of the acceptance region. By weighting the profits (or loss) of decision outcomes with the value of occurrence probability, the expected profit maximizing objective function can be formulated as the following equation:

$$\Pi(K_L, K_U) = \Pi(0, 0) + \Delta\Pi(K_L, K_U) \rightarrow \max \quad (1)$$

The $\Pi(0, 0)$ is the expected profit without correction ($K_L = K_U = 0$), $\Delta\Pi(K_L, K_U)$ is the alteration of the expected profit as a function of K_L and K_U . It is sufficient to maximize $\Delta\Pi(K_L, K_U)$ profit alteration in order to maximize $\Pi(K_L, K_U)$ expected profit.

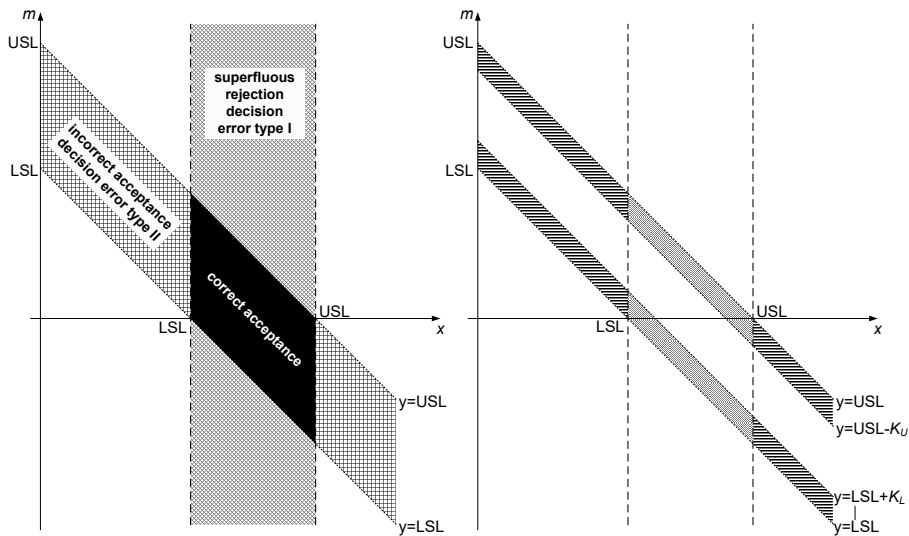


Figure 2 The regions of the four cases of decision outcomes (on the left side) and the regions affected by the alteration of acceptance limits

Source: (Hegedűs, 2014a)

In some simple cases the optimal values of correction components can be determined analytically, in the others numerical methods or simulations are required.

Simulations have been carried out to compare the typical cases (Table 2): when the measurement uncertainty is not taken into account ($K=0$), the acceptance region is tightened ($K=2\sigma m$) or relaxed ($K=-2\sigma m$) with the interval that the industrial standards suggest. Let the q denote the ratio between the proportional losses of the decision errors calculated with the following formula:

$$q = \frac{\pi_{11} - \pi_{10}}{(\pi_{11} - \pi_{10}) + (\pi_{00} - \pi_{01})} \quad q \in]0, 1[\quad (2)$$

The $q=0.5$ indicates the equality of proportional losses of the two kinds of decision errors if the cost of decision errors are compared to the cost/profit of correct decision. The higher values of q show that the proportional loss of a decision error type I is higher than the proportional loss of the other kind of decision error. The lower values indicate the dominance of proportional loss from decision error type II.

In Table 2 the proportional profits (or losses) associated with these cases are compared to the proportional profit gained with the optimal correction ($K=K_{opt}$). In the first three columns are the profits/losses connected to the typical cases. The highest value from these three is marked with bold and underlined type-face. This shows which typical solution is worth to use for each value of q in this illustrative setting [$x \sim N(\mu_x=105, \sigma_x=4)$, $m \sim N(\mu_m=0, \sigma_m=2)$, $LSL=100$]. According to these results the “guard band” calculated only from the (combined) standard uncertainty is not the best solution for every cases, its width varies with change of q . The maximal profit is in the fourth column and the corresponding optimal extent of correction is shown in the last column. Consequently the value of K_{opt} is not only dependent on the measurement uncertainty the costs and revenues of the decision outcomes should also be taken into account.

q	Proportional profit/loss				K_{opt}
	$K=-2\sigma_m$	$K=0$	$K=2\sigma_m$	$K=K_{opt}$	
0,05	-10,5472	2,5184	<u>4,9113</u>	5,6933	2,4280
0,10	-0,4061	5,4685	<u>4,9865</u>	6,3438	1,6156
0,15	2,9743	<u>6,4519</u>	5,0115	6,7386	1,0675
0,20	4,6644	<u>6,9436</u>	5,0240	7,0247	0,6319
0,25	5,6785	<u>7,2386</u>	5,0316	7,2500	0,2582
0,30	6,3546	<u>7,4353</u>	5,0366	7,4362	-0,0774
0,35	6,8375	<u>7,5758</u>	5,0401	7,5951	-0,3884
0,40	7,1997	<u>7,6812</u>	5,0428	7,7339	-0,6835
0,45	7,4814	<u>7,7631</u>	5,0449	7,8572	-0,9690
0,50	7,7068	<u>7,8287</u>	5,0466	7,9683	-1,2500
0,55	<u>7,8911</u>	7,8823	5,0480	8,0695	-1,5310
0,60	<u>8,0448</u>	7,9270	5,0491	8,1625	-1,8165
0,65	<u>8,1748</u>	7,9648	5,0501	8,2487	-2,1116
0,70	<u>8,2862</u>	7,9972	5,0509	8,3291	-2,4226
0,75	<u>8,3828</u>	8,0253	5,0516	8,4046	-2,7582
0,80	<u>8,4673</u>	8,0499	5,0522	8,4758	-3,1319
0,85	<u>8,5419</u>	8,0716	5,0528	8,5435	-3,5675
0,90	<u>8,6082</u>	8,0909	5,0533	8,6083	-4,1156
0,95	<u>8,6675</u>	8,1081	5,0537	8,6707	-4,9280

Table 2 The proportional profit or loss as a function of K and q
($\mu_x=105, \sigma_x=4, \mu_m=0, \sigma_m=2, LSL=100$)
Source: (Hegedűs, 2014a)

To inspect the relationship between the total profit and the relative distance of the process mean from the acceptance limit a new simulation have been done. On Figure 3 the original total profit $\Pi(0)$ is represented by the grey surface and the total profit associated with the acceptance limit modification $\Pi(K)$ is depicted as black surface. The white dashed line belongs to $\Pi(K = -2\sigma_m)$, the total profit from the relaxation of the acceptance region according to the industrial standards. The solid white line marks the maximal total profit that results from the optimal correction of acceptance limit.

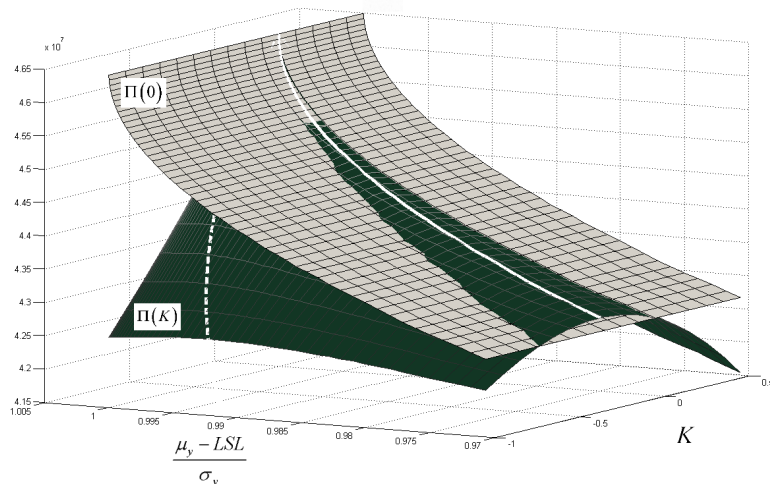


Figure 3 The profit depending on the correction component [$\Pi(K)$] compared to the original profit [$\Pi(0)$] as functions of relative distance of the process mean from the lower bound
Source: (Hegedűs & Kosztyán, 2011)

Consideration of uncertainties in the use of variable control charts

If the conformity of a population is determined in accordance with the results estimated from a sample, e.g. in acceptance sampling and statistical process control (SPC), the uncertainty of estimation also has to be considered beside the measurement uncertainty.

On the control charts of the statistical process control (SPC) the measured values are compared to calculated control limits instead of the specification limits. Falling outside these control limits does not mean the non-conformity of the product (or process) just indicate the necessity of process control or revision. In the SPC the process is said to be in control if the probability of next values falling into a given interval can be determined on the basis of previous observations (Shewhart, 1931) (Montgomery, 1996). The use and analysis of control charts is practically a hypothesis test (Neyman & Pearson, 1933), the null hypothesis assumes that the current process is the same (has the same probability distribution and parameters) as the previously investigated and considered in control.

The probability distribution of the observed value is assumed to be normal (Gaussian) for the specification of the control chart limits, but this assumption is not true in every case (Schippers, 1998). If the sample size falls below 4 or an individual value chart is applied, the non-normality could increase the decision errors significantly (particularly type I errors) (Schilling & Nelson, 1976).

If there is an asymmetry in the probability density function of the observed variable a greater skewness can cause significant bias from the normality of the sample mean even with sample size of 5-10, according to the Berry–Esseen inequality (Esseen, 1956) and calculation of Shevtsova (2011). Similarly the assumption of normal distribution is incorrect and misleading when the expected value of the observed characteristic is near to zero but the set of negative values is not part of the domain, e.g. measuring weight or concentration.

The deviation from the assumed ratio of decision errors causes great problems if one of the decision errors has significantly more severe consequences than the other. This difference of the decision error consequences is not reflected in the rules that are assuming Gaussian distribution of the observed characteristic and based on a reliability centred approach.

According to Albers et al. (2006) if the observed values cannot be considered to follow normal distribution then not the distribution that has the best value on the standard goodness of fit test will necessarily be the best for the calculation or simulation. The standard goodness of fit test concentrates on the middle of the distribution (the surrounding of mode and/or median) not on the tails. Since the majority of the points fall near to the middle of the distribution these points will determine the “goodness of fit”. The conformity control deals with the instances that are near the bound or outside of the acceptance region and these instances are typically on the tails of the distributions. Therefore a new test of fit or a new objection function that takes the consequences of the decision is required.

Optimal modification of control limits

Let the probability density function of x real values be $f(x)$, and the probability density function of m measurement error be $g(m)$. These two distributions are assumed to be independent of each other, and the common distribution is calculated as their multiplication.

Simulations have been run to determine the optimal alteration of control limits. The probability distribution of measured values (and its parameters) can be determined from the initial inspections. The measurement uncertainty can be obtained from the calibrations, previous experience and the documentation of measuring system analyses. The x real values are estimated as the difference of y measured values and m measurement error. The probability distribution of x real values (and its parameters) comes from the deconvolution of distribution of y measured values using the knowledge about the probability distribution (and its parameters) of measurement uncertainty.

During the simulation the same structure of proportional profits can be used with a minor change in the interpretation: the non-conformance of the process not means the non-conformance of the product but the necessity of control actions, therefore the costs are associated with these control actions not with the rejection of the product. The $\Sigma \Pi$ total profit in reference to decisions can be calculated in the simulation:

$$\Sigma \Pi = q_{11} \cdot \pi_{11} + q_{10} \cdot \pi_{10} + q_{01} \cdot \pi_{01} + q_{00} \cdot \pi_{00} \quad (3)$$

The q_{ij} number of elements belongs to certain cases calculated in the simulation. To maximize the expected profit let the decision rules be modified. The value of correction factors are calculated in the simulation. These correction factors are not coefficients; they give directly the extent of the alteration of specification limits. If the risk of decision error type II is low the value of correction factor can be negative. In this case the control limits do not become stricter rather wider. The Monte Carlo simulation searches the value of K_L and K_U that determine the maximum of total profit in reference to decisions.

$$\begin{aligned} \Sigma \Pi (K_L, K_U) = & q_{11}(K_L, K_U) \cdot \pi_{11} + q_{10}(K_L, K_U) \cdot \pi_{10} + \\ & q_{01}(K_L, K_U) \cdot \pi_{01} + q_{00}(K_L, K_U) \cdot \pi_{00} \rightarrow \max \end{aligned} \quad (4)$$

Practical example to the modification of SPC charts

At a supplier in the automotive industry the housing of the fuel pump is manufactured by injection moulding. The diameter of the flanged top cover of this housing is a critical parameter because it affects the ability to assemble the fuel delivery system into the tank. To assure the proper nesting and sealing the diameter must be 121 millimetres and the maximal deviation from this target value should not exceed 0.2 millimetres. The conformity of this parameter is controlled with x-bar (sample mean) chart and sample size of 3.

The observed value follows a Weibull distribution with $\alpha=121.018$ scale parameter and $\beta=1,659.907$ shape parameter. The measurement uncertainty can be described with normal distribution with $\mu_m=0$ mean and $\sigma_m=0.038$ standard deviation.

In the following steps of the manufacturing the flanged top is welded to the other part of the housing that contains the fuel pump. If a non-conforming flanged top is accepted and assembled additional costs appear from the destructive disassembling of the housing and regaining of the fuel pump. Since the capability of the process is low ($c_{pk}=0.704$) these extra costs are calculated in addition to the manufacturing cost ($\pi_{01}=-19.31$) if decision error type II is committed and the necessary control fails to be carried out. If the control chart incorrectly shows that the process is out of control we face with the $\pi_{10}=-1.492$ loss. The two correct decisions come with $\pi_{00}=-1.864$ loss and $\pi_{11}=0.372$ profit.

The use of the x-bar chart have been investigated in case of three different sample sizes – 3, 5 and 7 – and compared to the Gaussian distribution with the same mean and standard deviation (Table 3). In all the six cases the initial control limits are defined according to the general chart design rules ($\pm 3\sigma$ from the centre line). The correction components tightened the acceptance interval in every case, and the extent of the modification not exceeds the σ_m standard deviation that describes the measurement uncertainty.

Probability distribution	Sample size	LCL	$K_{L,opt}$	LCL_{opt}	UCL	$K_{U,opt}$	UCL_{opt}
Weibull	3	120.8751	0.0125	120.8876	121.0769	0.0225	121.0544
	5	120.9155	0.0175	120.9330	121.9155	0.0175	121.898
	7	120.9328	0.015	120.9478	121.0192	0.015	121.0042
Gaussian	3	120.8867	0.02	120.9067	121.0733	0.02	121.0533
	5	120.924	0.0175	120.9415	121.036	0.0175	121.0185
	7	120.94	0.015	120.9550	121.0199	0.15	120.8699

Table 3 Control limits for variables following Weibull and Gaussian distribution
Source: (Hegedűs, 2014a)

If the sample size is small we get different optimal upper ($K_{U,opt}$) and lower ($K_{L,opt}$) correction components for the two distributions (Table 3) because of the differences on the tails of these distributions (Figure 4).

The skewness of the Weibull distribution of the observed parameter is -0.9043 (Figure 5). If the sample mean is investigated the skewness decreases with the increase of the sample size, it equals to 0.5218 for the chart points calculated from three value ($n=3$), it is -0.4029 for $n=5$ and -0.3414 for samples with seven elements (see Figure 6).

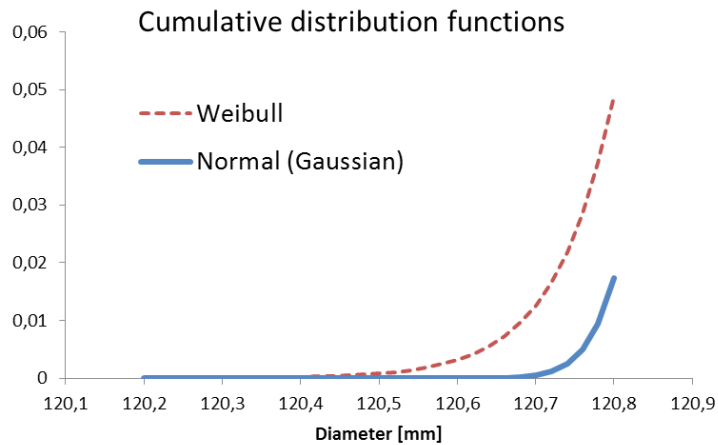


Figure 4 The left tails of the cumulative distribution functions

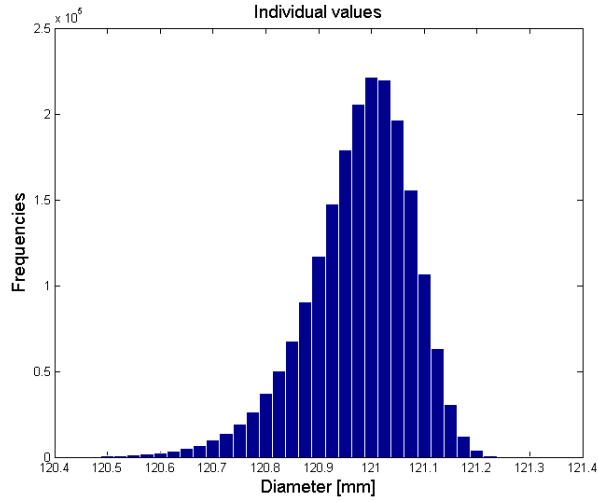


Figure 5 The skewness of the Weibull ($\alpha=121.018, \beta=1659.907$) distribution
Source: (Hegedűs, 2014a)

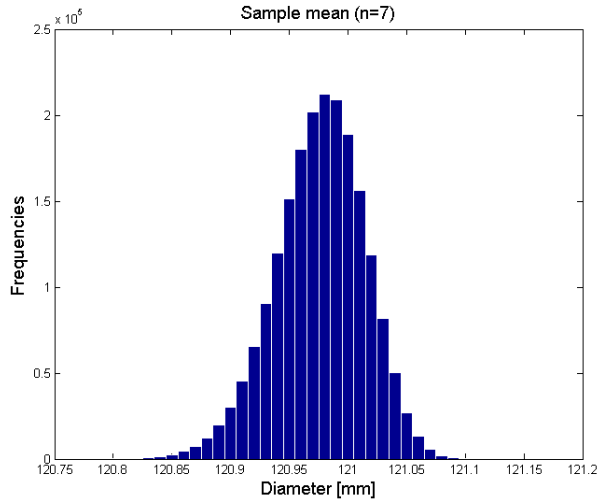


Figure 6 The skewness for samples of seven elements
Source: (Hegedűs, 2014a)

Two million samples in Monte Carlo simulation are not enough to detect significant difference in the sample means outside the control limits. Therefore in this example normal distribution can be used instead of Weibull if just ppm (defective part per million) quality level required and the sample size is at least five.

Since the loss of decision error type II is much higher than the loss of decision error type I the correction of the control limits spares the 36.79 percent of the control cost. This spared control cost is 0.856 percent of the total manufacturing cost of the product and ensue from the change of the modification of decision outcome probabilities.

The investigated process is in the in-control-state in the 83 percent of the time and handled by the x-bar chart ($n=5$) as statistically controlled in 77.99 percent of the two million cases (Table 4). That means the ratio of decision error type I is five percent and the ratio of decision error type II is also high (4.7 percent).

To find the balance of the four cases that provide the maximal profit or minimal cost the control decisions must be modified by the alteration of the control chart limits. Monte Carlo simulations have been carried out to specify the optimal value of K_L and K_U correction components

	Acceptance		Revision		Sum
	cases	percent	cases	percent	
In-Control	1,559,895	77.99%	100,028	5.00%	1,659,923 83.00%
Out-of-control	93,937	4.70%	246,140	12.31%	340,077 17.00%
Sum	1,653,832	82.69%	346,168	17.31%	2,000,000 100.00%

Table 4 Initial cases of the conformity control of flanged top
Source: (Hegedűs, 2014a)

The alteration of control chart limits modifies only the decisions thus the sum of each column. Since leaving the process in a state of out-of-control results the higher cost the optimisation going to decrease the ratio of these instances.

	Acceptance		Revision		Sum
	cases	percent	cases	percent	
In-Control	1,295,340	64.77%	364,583	18.23%	1,659,923 83.00%
Out-of-control	23,160	1.16%	316,917	15.85%	340,077 17.00%
Sum	1,653,832	65.93%	346,168	34.08%	2,000,000 100.00%

Table 5 Ratio of the cases after the modification of control chart
Source: (Hegedűs, 2014a)

Due to the optimisation the number and ratio of process revisions will grow from 17.31 percent to 34.08 percent. The consequence of the more frequent revision is the increase in the ratio of type I errors but it also decrease the ratio of decision error type II with more than 75 percent. Thus the control is overdone because of the low process capability.

Considering uncertainties and risks in forecasting

To improve the conformity control we can take advantage of the inherent relationship of the consecutive measurement results. If this relationship can be described by a stochastic process the next values can be predicted. With the previously introduced correction of acceptance limits and the confidence intervals of the prediction the next time when measurement needs to be performed can be determined at a given level of risk (Figure 7).

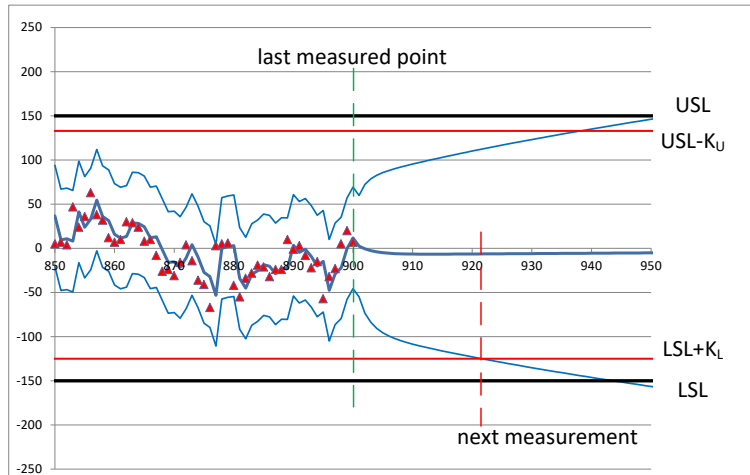


Figure 7 Forecasting between the modified acceptance limits with stochastic processes
Source: (Hegedűs, 2014a)

More suitable to handle the process as a time series particularly in maintenance decisions if deterioration occurs and the process of the observed characteristic of the device has a trend. In order to treat the time series of the observed characteristic with linear stochastic models the time series must be decomposed. The trend shows the expected value of the characteristic. The uncertainty of this forecast derived from the random variation of real value, the frequency of sampling, the sample size and the time interval of the forecast. If the intervals between the samplings are equal the width of the confidence interval of the trend is constant. The lower and upper bound of confidence interval parallel to the trend (Figure 8).

At a given confidence level the width of confidence interval can be decreased if the sampling frequency is increased when the trend comes closer to the LSL (Figure 9). Increasing the frequency of sampling, the length of the confidence interval of forecasting will decrease. The length of the confidence interval (for a given significance level α) can be calculated as follows:

$$INT_{1-\alpha} = \bar{y} \pm t_{1-\alpha/2} \cdot \frac{\sigma}{\sqrt{n}} \cdot \sqrt{1 - \frac{n}{N}} \quad (4)$$

where n is the size of the sample, N is the number of the elements of the whole population, σ is the uncertainty expressed as a standard deviation and t is the value of Student-t distribution that belongs to the confidence level of $1-\alpha/2$.

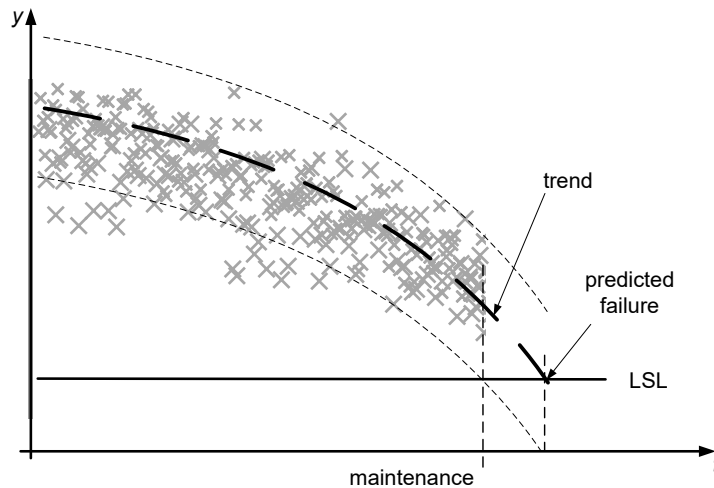


Figure 8 Confidence interval around the measured process
Source: (Hegedűs & Kosztyán, 2011)

After the decomposition we identify the stochastic process best fitting to the real process. Once we have identified a particular model we need to estimate the parameters and assess how well the model fits. After the validation of the stochastic model it can be used for forecasting. This model predicts the next value on the basis of actual and previous values of real process and prediction error. The further we try to forecast the higher the uncertainty will be (see Figure 10).

The optimal control limit can be determined by simulation or estimation with the methods shown in previous sections. This limit is not a constant as it changes with the time. At the time of the initial measurements the risk of decision error type II is low, because the observed characteristic is far from the LSL (see Figure 10). This risk is increasing because of the deterioration. The risk of decision error type I is also increasing but at a slower rate than the risk of decision error type II. So the curve of minimal total risk will increase.

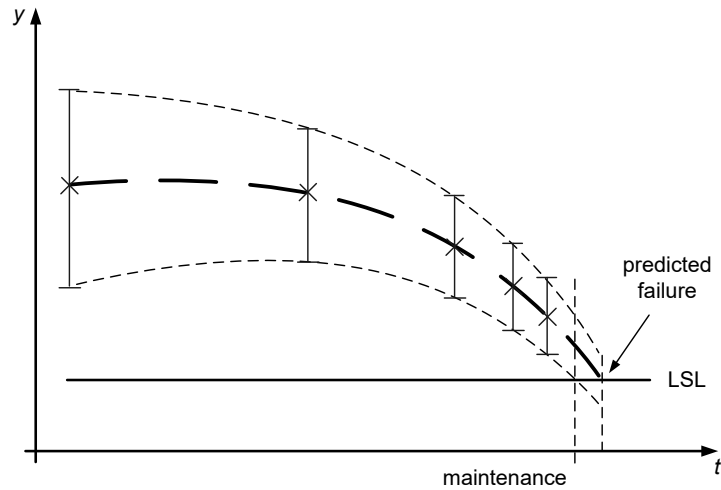


Figure 9 Approximating the level of device failure measurements are taken more frequently to reduce the confidence interval of prediction
Source: (Hegedűs & Kosztyán, 2011)

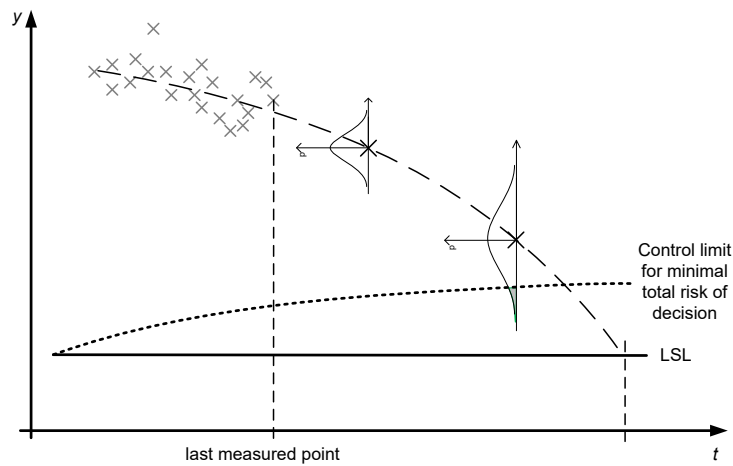


Figure 10 Also the control limits and the confidence interval of the prediction change with the time
Source: (Hegedűs & Kosztyán, 2011)

If the trend of the deterioration and the stochastic model that describes the stationary process are combined the time of the measurements can be determined.

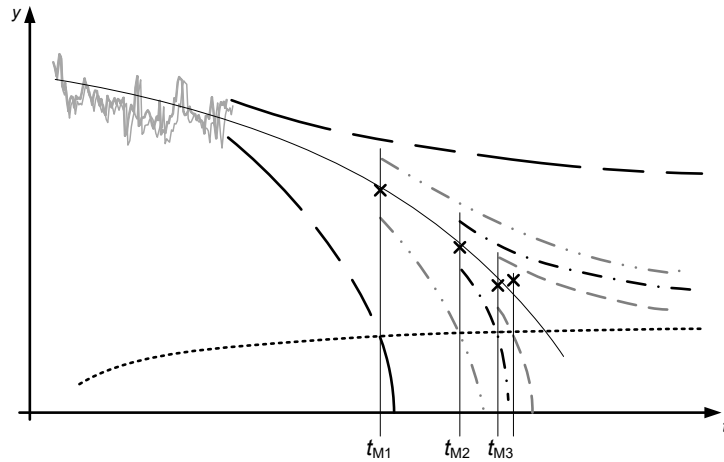


Figure 11 The intersection of prediction confidence intervals and the control limit determine the next time of measurement or maintenance
Source: (Hegedús & Kosztyán, 2011)

The following measurement must be performed there, where the confidence interval of prediction intersects the curve of minimal total risk (t_{M1}) (see Figure 11). Until this point failure will not occur in the process with the confidence level of forecast. With the new measurement result the decomposition, identification, estimation of parameters and forecast will be executed again. These steps are performed iteratively (t_{M2} , t_{M3}) until the interval between intersection of the confidence interval and the curve of minimal total cost and the intersection of the confidence interval of the trend and the curve of minimal total risk is inessential. At this point maintenance is required as opposed to measurement.

Summary

The industrial conformity assessment or process controlling decisions are simplified to ease the understanding and the everyday work. However, the assumptions and requirements of the used methods are not true for all the case. Due to the computer aided decisions support these simplifications and presuppositions are no longer required and new, more precise methods are available to the managers and operators.

In this paper simulation methods are introduced to reduce the risk from uncertainty of measurement and estimation. These methods no longer require the normality of a process, the deviation from the Gaussian distribution can be handled with the modification of the acceptance limit. The focus of the optimisation is on the decision consequences, the decision rules are modified to decrease the risk of the conformity control. The possible outcomes of a decision are taken into account and costs and revenues are associated with them.

The preventive maintenance decisions are based on measurement results, but these results have an uncertainty and cause incorrect decisions. It is necessary to take into account this uncertainty on a risk base. In this paper a uniform model was presented that treats the customer's risk along with the producer's risk through the consideration of the measurement uncertainty and costs or losses in reference to maintenance decisions. This model gives the optimal control limit of the process that minimizes the total risk associated with the decisions and maximizes the related profits. It can treat both kinds of the processes that have either only one or two specification limits. The optimal control limit influenced by the risks can be determined by Monte Carlo simulation.

The methods introduced here require the user to describe the uncertainty of measurement and the process of the observed characteristics with a probability function, and the cost and revenues should be determined correctly. This means that the managers need to know profoundly the technical and economic attributes of these processes.

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ESZTER BOGDÁNY

PASSING THE LEADERSHIP BATON IN HUNGARIAN SMALL-AND MEDIUM SIZED ENTERPRISES (PMR 2014/4)

Small- and medium sized enterprises (SMEs) are one of the most important driving forces of the performance of Hungarian economy. ‘Recognition of the special role of SMEs and in particular family-based enterprises, their typically local base, socially responsible attitudes and capacity to combine tradition with innovation, underpins the importance of simplifying the transfer of businesses and the skills’ (EKB, 2008:6). Enterprises are not yet ready to handle pressure caused by the change of generations is becoming stronger and stronger.

The aspect of handing over top management functions caused by the pressure of generation transition and the factors influencing that process are at the forefront of the research. I believe it is of major importance to reveal more depth analysis of the role of leadership succession in SMEs and the factors influencing it. It is imperative for enterprises to have a clear review of the current phase of their succession process based on which a future direction of the succession process can be set. The research sample includes SMEs because today they are at the phase of development in which their leadership system is more or less well founded and the owner-managers are in a position to hand over leadership functions. Hence, the aim of the research was to study the succession process of SMEs with a special focus on handing over top management functions (leadership succession).

In order to do so a thorough literature review has been completed. It has revealed that succession processes are partly emotional for leaders. As a result not only quantitative but also qualitative research methodologies were applied. Research questionnaires are underpinned by case studies. Additionally, I also aimed at identifying leadership functions and roles that help us build a better understanding current and future phases of succession processes in case of SMEs. Following the identification of current and future leader function I also investigate relationships between organisational and individual characteristics. The results indicate that SMEs which show good example in succession process by founding the professional base that is independent of the founder/owner are few in number.

The importance of leadership succession in Hungary

Hungarian researchers have been considering the management based approach to SMEs since 1980's and it became an emergent theme after the economic and social changes of the 1990's. Both nationally and internationally the force of generational change puts the phenomenon of business succession forward. Consequently, it is essential to ask the questions about which phase the SMEs succession process is in presently and what future SMEs succession process will have.

According to Watkins (2003) there is an abundance of change models to support organisational change processes but there is a lack of research focusing on how to manage newly received leadership functions and roles which are critical to a successful succession process. Leaders who invested their creative energy into building their dream have to let it go as they reach the age of retirement. They need to realise that it is the time when a new wave of creative ideas needs to be introduced to the organisation in order to find the strengths to find viable solutions to newly emergent environmental, technological and other difficulties. The response process is hardly ever simple. Finding, preparing and also financing leaders who will eventually be up to the task is mutually challenging. Most research on leadership succession focuses on theoretical perspectives (Fizel and D'Itri, 1997) and lack models representing the various aspects of succession. According to Giambatista et al. (2005) the questions raised by the three fundamental theories (common sense, vicious circle (or vicious cycle), and ritual scapegoating) have already been answered so it is time to go beyond the study of influencing factors. Researches are mostly based on the experiences of those who had been part of succession processes (Haddadj, 2006). Despite the fact that succession processes are critical to small businesses "where the founders pass on the leadership to professional management" (Kesner and Sebor, 1994:363) there are only a few theoretically well founded studies with practical relevance which focus on SMEs where the primary concern of leadership succession (Giambatista et al., 2005).

The overall aim of my research is to explore the current phase of leadership succession of Hungarian SMEs. Therefore, leadership functions and roles have been identified. I also aimed at identifying relationships between organisational and individual characteristics and the characteristics of succession.

The research attempts to answer the following questions:

1. Is it possible to create a leadership role profile with which the distinctive phases of succession of Hungarian SMEs can be described and studied?
2. What organisational and individual characteristics help defining the current phase of succession?
3. What is the nature of the relationships between organisational and individual factors and the characteristics of the succession process?

The process of succession

According to Grusky (1960) succession occurs in every organization and it leads to instability because it will change the basic norms and values. Disruptive for every organization, it motivates the implementation of new methodologies, distracts the initial traditions, and induces change. According to Zhang and Rajagopalan (2004) the succession is the most powerful critical process in the life of the organization. According to initial succession researchers (Grusky, 1960; Barry, 1975) the succession is the change of key position during the lifecycle of organizations and can be distinguished into two parts: the transfer of ownership and leadership. The role of key leadership roles were emphasized in the researches of Pfeffer and Salancik (2003), too. The resource dependency theory based on Pfeffer and Salancik (2003) emphasized the leadership transfer which is influenced by the environmental changes (p. 226). According to Pfeffer and Salancik (2003:228) the leadership change is a strategic answer to the possibilities of environment. Most of the research emphasises the role of the family during the succession process. According to Beckhard and Burke (1983: 3) the family business succession means “the passing of the leadership baton from the founder-owner to a successor who will either be a family member or a non-family member; that is, a ‘professional manager’”. As we can notice during the process of succession two different roles are important, the role of the founder/owner-manager and the next generational member who can be also professional manager not necessarily a family member. According to Handler (1990: 48-49) who created the “dance” process of succession, “succession represents a mutual role adjustment process between the founder and next-generation family members”. The aim of Handler’s research was to describe the “dance” between the actors of succession process and to call the attention of researchers to the relevance of succession planning. According to Chand and Bronner (2008:1) “succession is not about filling leadership vacancies; it’s about creating an

organization's future. It's about looking down the road, determining what future challenges await the organization and providing what's needed to arrive at the desired destination".

Summarizing the above, succession is a structural process whereby the transfer of business occurs including the whole or partial transfer of ownership or/and leadership, moreover it includes the strategic decision of the founder-owner with respect of the future of the organization. During the decision the founder-owner is considering the characteristics of environment, enterprise and individuals in order to plan their own exit strategy and the entry of the successor, who can be a family member or non-family member and can come from outside or inside of the company.

It is widely accepted that succession is more like a process than an event (Churchill and Hatten, 1987; Farquhar, 1989; Friedman, 1986; Gilmore and McCann, 1983; Handler, 1990; Longenecker and Schoen, 1978). It is not just a step where the leadership and/or ownership will be transferred. Succession also needs to be handled as a multi-decisional process, which is happening repeatedly during the organizational life. The process of succession can be interpreted by two aspects:

- the process models (Longenecker and Schoen, 1978; Handler, 1990;) and,
- the lifecycle models (Greiner, 1998; Barnes and Hershon, 1976; Adizes, 1992; Gersick et al., 1997)

The process models construe the succession process like a periodic process, the life cycle models interpret the succession process as the way of the organizational evolution in order to reach the transfer of business. My research concentrates on the analysis of the process of succession so I will present Handler's model (1989) in details. According to Handler (1989) the process of succession can be divided into phases, which can be phases before the arrival of a successor and the after phases of transfer of leadership. Handler (1989: 43) executed 32 interviews with family businesses and experienced that the "next-generation family members indicated that their own role in the business was shaped by the role of the predecessor". With her case studies a mutual adjustment process is described in which the roles during the process of succession are not separated rather evolving according to the succession of the other actor. First the successor has no role then they become a helper, a manager and at the end of the process they will be leader/chief executive decision-maker. On the other hand the roles of the predecessor are first sole operator, followed by the role of a monarch, an overseer/delegator and finally a consultant. Figure 1 shows the process of succession.

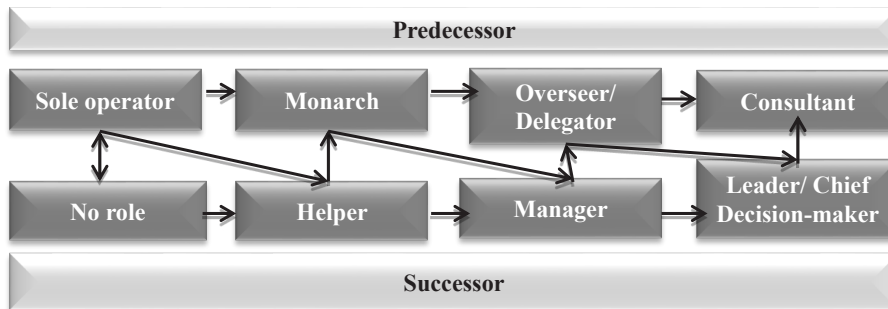


Figure 1 Handler's mutual adjustment process of succession
 Source: Handler, 1989:194

As we can see in Figure 1 during the first phase the predecessor is the sole operator of the business. During this phase the owner mainly deals with leadership functions and initial operational functions in connection with the establishment of the business. In this phase the owner is equal with their business. The successor role is not apparent yet or it is not necessary to think about the succession. During the next phase the predecessor takes up the monarch role which already gives them an outstanding power over the business. In line with these the successor also gets a new role as a helper. In this phase the successor gets functional tasks and learns the operational mechanisms of the business. When the predecessor is a delegator they transfer the responsibility over the business to the successor, who is a manager. This point is one the most sensitive parts of the progress. According to Handler (1989) most of the companies cannot get to this phase. To get through the phase mutual trust, sharing common values and delegation of responsibilities are needed. During the last phase the predecessor is a consultant, actively not part of the operation of the business. A main difficulty during this phase is the disengagement or retirement from the organization and the simultaneous pursuit of other interests. The leadership role of the successor will be successfully transferred if the power and influence will be also passed.

According to Handler (1989) the succession will end if beside the transfer of leadership the transfer of the majority of ownership also takes place. The starting point of a typical succession process is not when the successor enters the business. It happens earlier when the idea of the succession surfaces in the mind of the owner. After the entrance into the business operation the relationship between the owner and manager is based on the recognition of the roles and the transfer of business specific knowledge to the successor. The successor receives managerial functions

or tasks when they step into the formal hierarchical system. The phase will end when the predecessor appraises the work of the successor and decides about the transfer of the whole leadership. At the end of the whole process the transfer of the majority of ownership occurs, and finally the succession ends.

Leadership roles during the process of succession

Instead of the process of the leadership succession as a whole the research narrows down to the transfer process of leadership roles and factors influencing its phases. The literature review revealed the complex nature of the process of leadership succession. I opted for the process models approach to understand the leadership succession process. The central idea of process models is that the leadership succession process is treated independently from the business life-cycle. When dealing with process models I focused on the continuous and mutual exchange of roles that occur throughout the various phases of the leadership succession process. The exchange of leader roles results in a decreasing number of roles on behalf of the transmitter and an increasing number of roles on behalf of the successor. To answer the question whether it is possible to define a profile of leadership roles of current and future leadership succession processes of SMEs I used the three most common types of task-oriented leadership roles that exist in the literature.

In order to identify the appropriate tasks in relation with the roles of the leader and manager I reviewed the most important literature. It is important to note that the present literature review does not cover all leadership and management research results, the review represent the most significant features. The aim of the review is to demonstrate such parameters which clearly define the leaders' and managers' tasks. The longish research stream represents well the main differences between the managers and leaders (see in Appendix No.1). As we can see on the table in Appendix No. 1, the role of manager is characterized by the rules, consistency, predictability and order. The main task of the manager is the efficient and effective implementation of the organizational goals by the planning, organizing, managing and controlling of the organizational resources. They believe in the rules, accept the presents' losses with such expectation that they will win next time. The leader communicates indirectly, through messages and signals. The managers' goal is to be, what the company expects from them – they accept the status quo. The manager uses traditional techniques to reach the predetermined goals. They are too busy to handle difficult or

impossible problems. They accept reality, focus on the systems, structures and lead on controlling. They follow a short-run viewpoint, and concentrate on the 'How?' and 'When?' questions.

The leaders' tasks could also be itemized similar to the managers' tasks. The equivalent of planning is the representation of an attractive vision for people and marking out the way that people need to follow. The equivalent of organizing is lining up people in order to achieve the vision. The equivalent of leading is the motivation and inspiration of the people in order to stay in the right way. The leaders' goal is working, and in order to reach goals high and outstanding performance is expected. The roles of the leader are like a capability that allows them to influence, motivate and empower people to contribute to the organizational performance and efficiency. The leader rebels against rules, creating new approaches to the long-standing problems and posing open questions to the new opportunities. The leader works in a highly risky position and is ready to explore the risk and danger. The leaders' goal is to execute the talents, motivate, coach and build trust. They are looking to the future in order to define tasks which help to reach the organizational goals. The leaders' goal is to be what you are. I also consider it important that not just these two roles could appear in the successor and in the incumbent roles. I also examined the third role, the governors' role. The governor is the appropriate role for owners who would like to participate in the direction of the organization but they do not want to take part in the daily operation.

The governor who dominates the decision-making channels, influence, handle the formal and informal power structures, balance between boards or bodies, lobby, form coalitions, manoeuvre between influential bodies (Angyal, 1999). The governor ensures that the organization has a clear mission; give direction in order the organization can have a clear strategy. He or she also provides wisdom, insight and good judgment. The governor manoeuvres with differing, competing, or colliding priorities, interests, values, and perspectives. "They must serve as mediator, translator, negotiator, and facilitator... To characterize these ideas succinctly: leadership answers the question 'what?' management answers the question 'how?' and governance answers the question 'who?'. Or, to put it more playfully, leadership is inspiration, management is perspiration, and governance is incorporation" (McLaughlin, 2004: 6).

The literature shows clearly what managers, leaders and governors really do. Based on these and also based on the field work I determined the main tasks of the leaders, managers and governors (see in Appendix No. 2) and we can assume that a profile of leadership roles can be defined with which the leadership succession processes of Hungarian SMEs can be characterised.

Research model and factors influencing leadership succession

Following the identification of current and future leader functions, I also investigated relationships between organisational and individual characteristics and the roles of leadership. In order to visualize my hypotheses a research model was developed. It shows organisational and individual factors as explanatory variables and the factors of leadership succession as the explained variables and the relationships between the two sides (Figure 2).

The first component of the organisational factors is the ownership interests. They were examined from two perspectives: the family aspect and the international aspect. In the first stage of the analysis I wanted to identify the differences between family owned and non-family owned businesses in terms of their leadership succession processes.

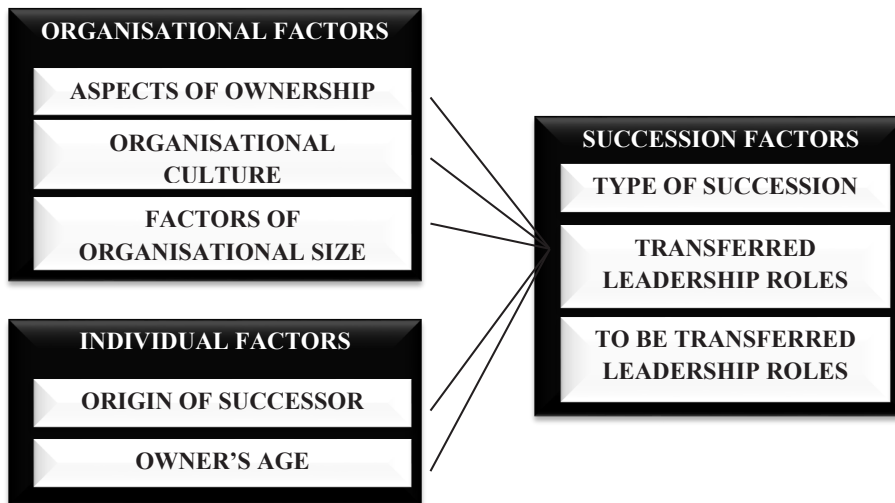


Figure 2 Research model

The literature review indicated that during the leadership succession process family businesses favour those successors who upon stepping into family businesses take roles of lower management levels or leader roles (Stewart and Hitt, 2011; Gersick et al., 1997; Yeung, 2000). Bringing managers from outside the family is not common in Hungary so the professionalization of family businesses is not common either (Csákné, 2012). It would lead to loss of trust in businesses (Bjuggren and Sund, 2002;

Lee et al., 2003; Royer et al., 2008). These facts indicate that transferring ownership interest and governor roles in family businesses to managers outside of the family is less common. Non-family businesses prefer transferring roles and functions to managers outside the family are more common because the leadership succession process is less influenced by emotions (Grusky, 1969; Giambatista et al., 2005; Zhang and Rajagopalan, 2006). Consequently, non-family businesses are more ready to transfer a wider range of functions and roles now and in the future as well. When examining the international aspect I aimed at finding evidence to identify the differences of leadership succession processes between enterprises with Hungarian and foreign ownership majority. Since Hungarian enterprise owners are quite young succession is not at the forefront at it can be assumed that these enterprises are at an earlier phase of leadership succession.

To examine the second component of organisational factors I used Cameron and Quinn's organisational assessment instrument (Quinn and Rohrbaugh, 1983; Cameron and Quinn, 2006) which is able to measure the dominant organisational culture of organisations (Cameron et al., 2006). Based on the literature review we can assume that there is significant relationship between the ownership relations of enterprises and the factors of leadership. Preliminary research results had shown that passing on values and norms does influence leadership functions and roles that are to be transferred (Ciampa, 2005; Hall and Hall, 1989; Venter et al., 2005; Benavides-Velasco et al., 2013). Regarding the correlation between the various phases of leadership succession and the organisational culture type the main question is whether the internal-external focus or the stability-flexibility dimensions are more dominant in the later phases of leadership succession. According to the literature of influential effect of values during the transfer process (Denison et al., 2004; Chirico, 2008; Nordqvist, 2005; Schein, 1995; Bynander and Hart, 2008; Kur and Bunning, 2002; Dyer, 1988) we can conclude the influence of organizational culture too.

In my opinion in clan culture where solidarity and team work are the most important values the process of leadership succession is less relevant because paternalist leaders withhold most of the leaders' functions and roles to themselves. In market culture competition is highly motivating and leaders quickly realise the advantages brought by delegating functions and roles. The lesson we can learn from the above is that the dominant organisational culture and the type of leadership succession show a relationship as do the dominant organisational culture and the transferred leader functions and roles. At the same time, it might also be interesting to see how a future dominant organisational culture can influence leader functions and roles that will be transferred in the future. Do SMEs take

thought for the future in regards to their dominant organisational culture?

The third component of organisational factors is size which was divided into two sections one is organisational size and the other is change in size. In case of the organisational size the challenge was to find answer to the possible differences between small and medium sized businesses in terms of their leadership succession processes. It might seem obvious that small businesses transfer less roles but it is more complex to answer which roles are transferred. It is hypothesized that in case of small and medium sized businesses manager and leader roles are more often transferred and governor roles are transferred mostly in case of medium sized businesses only (Dalton and Kesner, 1983). I thought to be important to examine any changes in business size as well because a dynamically changing business more leadership functions and roles will be transferred in both small- and medium sized businesses (Kraatz and Moore 2002, Finkelstein and Hambrick, 1996; Boeker, 1997). Based on these we can assume that there is significant relationship between the factors of organisational size and the characteristics of leadership succession.

Within individual factors the most significant element most researches focus on is the origin of successor which can be divided into two (Grusky, 1960; Brown, 1972; Brady et al., 1982; Weisbach, 1988; Kesner and Sebor, 1994; Birnbaum, 1971). On the one hand there is the origin of the successor and its relation to the performance of the organisation (Karaevli, 2007) and the other is the analysis of the characteristics of successor (Gersick et al., 1997; Yeung, 2000). During my research I focused on the influence of the origin of the successor. More precisely the relationship between the origin of the successor – from within the organisation versus from outside the organisation – and the factors of succession were examined. It can be assumed that the successors from inside the organisation are transferred more functions and tasks from the owner-leader simply because there is more trust involved in this transfer (Gersick et al., 1997; Yeung, 2000; Harris and Helfat, 1997; Helmich and Brown, 1972; Dalton and Kesner, 1983; Royer et al., 2008). The literature shows that successors from outside of the organisation push the organisation more to the direction of professionalization (Stewart and Hitt, 2011) and eventually they can take over more functions and tasks if trust evolves between them and other members of the organisation. Based on these we can assume that there is significant relationship between the origin of the successor and the factors of leadership succession.

The literature is quite divided about the age of the owner and there is no clear evidence regarding this issue (Brickley, 2003; Hambrick and Mason, 1984; Lansberg, 1999). Some of the research suggests that the owner's age has influence on the motivation of decision-making. So, in

my research I was looking for evidence to support whether the factors of succession are influenced by the age of the owner. As the owner-leaders draw on in years they gradually start to prepare their organisation for the succession process. Although, in Hungary it seems that owner-leaders are less concerned with their age and they are often 'addicted' to their organisation and they do not want to part with it. To show their strong ties with their organisation they are reluctant to transfer governor roles and their ownership interest (Csákné, 2012).

Methodology and research sample

When selecting the appropriate research methods we need to keep in mind the research questions which must be responded to and the hypotheses that must be tested. As the focus of my research was the succession aspects of Hungarian SMEs and the study of various organisational and individual factors with succession it. Consequently, my research is a descriptive and explanatory one within social and management science. In order to secure the reliability of my research results I used both quantitative and qualitative research methodologies. I have prepared case studies which provided a firm base for the final questionnaire. The quantitative research methods included statistical analyses to prove my hypotheses. I applied principal component analysis to investigate the process of succession and analysis of variance to investigate the differences according to aspects of transferred and to be transferred leadership roles. To investigate relationships between various factors I used analysis of variance (ANOVA) and cross-table analysis.

Micro enterprises were excluded from the research sample. Methodologically it is difficult to identify these organisations and they have fewer levels of hierarchy which suggests that succession is also much less complicated. The final target group became Hungarian small- and medium sized businesses. There have been several studies on Hungarian and foreign family businesses so I aimed at including non-family businesses as well. I also excluded businesses which operate in a legal form in which the question of ownership is blurry such as joint stock companies. The research sample included limited partnerships and limited companies. The formulation of the questionnaire included a section in which the current and future organisational culture was examined using an already existing and widely used questionnaire developed by Cameron and Quinn. The 'Organizational Culture Assessment Instrument' (OCAI) is a validated research method to examine organizational culture. The rest of the questionnaire was made relying on information from forming the research concept and operationalizing the research.

Research sample characteristics

Questionnaires were sent to top managers of companies listed in a marketing database. I selected 6112 small-and medium sized enterprises from the database which corresponded with my criteria. I sent the questionnaires in three rounds: on 21 and 28 February and on 7 March in 2013. Respondents had two weeks to return the questionnaires. I received a total of 412 responses and in the following two months an additional 15 questionnaires were received. After verification of all the questionnaires (427) 393 (that is 92% of the total) were testable.

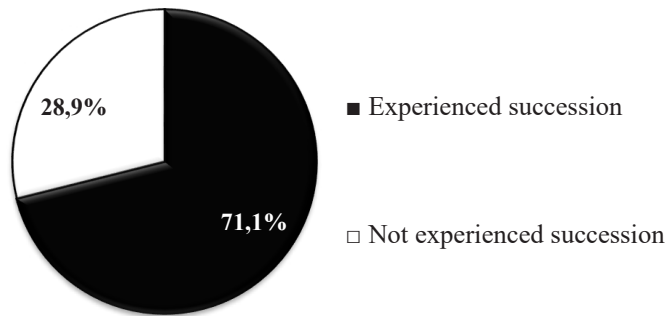


Figure 3 The distribution of enterprises already experienced and not yet experienced leadership succession

More than 70% of enterprises which responded have experienced at least one phase of leadership succession and 28.6% had not experienced any forms of leadership succession (Figure 3). The research analysis included only those enterprises that have already experienced leadership succession so the examined enterprises amounted to 278.

Research results

Firstly, I examined the transferred and 'to be transferred' leadership roles which were analysed by qualitative and quantitative techniques. In order to characterize the transfer of organizations I examined three factors, which came from the contradictory literature results. As a result I set out as an objective to create my own measuring system. The factors of succession are measured by the types of occurred succession (whether it

was only managerial function transfer, only ownership transfer or both); by the presently transferred and the desirable leadership roles what mean the owner wants to transfer in the near future.

The sample distribution by the occurred transfer show that the 21.9% of the companies experienced only ownership succession, 42.8% only functional transfer and 35.3% both types of succession (Figure 4). The balanced distribution gives opportunity to examine the transfer of companies according to the 3 types of succession. Hereinafter, I use these companies for further examination.

The transferred and the “to be transferred” leadership roles were created by principal components analysis. The three leadership roles are: the governor, the leader and the manager. Before the principal components analysis I also tested the leadership roles in four companies. First, I created 76 tasks based on literature in order to describe the leadership roles. After the fieldwork I reduced these tasks to 38 and tested with principal components analysis. The present and preferred succession has been identified by the principal components analysis of leadership roles (Table 1).

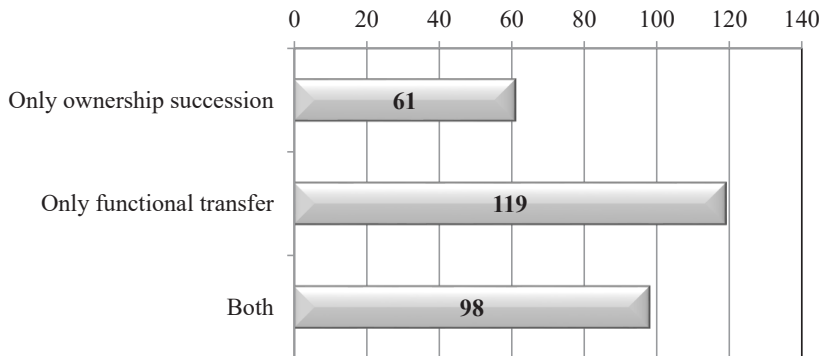


Figure 4 Succession types

Principal component analysis of roles	KMO value	Bartlett significance	Communalities	Explained variance
Transferred governor role	.873	.000	✓	45.852
To be transferred governor roles	.865	.000	✓	41.707
Transferred leader role	.943	.000	✓	59.812
To be transferred leader roles	.934	.000	✓	55.823
Transferred manager role	.949	.000	✓	64,760
To be transferred manager role	.941	.000	✓	64,882

Table 1 Principal component test

As we can see in Table 1, the requirements of the analysis have been met so the principal components of the transferred and “to be transferred” roles can be used for further analysis. The principal components of leadership roles meet the requirements of KMO and Bartlett tests (Table 1). The communalities are over the required 0.25 which is above the traditional methodological expectations of social sciences. This indicates that the principal components of transferred and ‘to be transferred’ roles can be accepted. Based on the above we can state that in the companies responding, that **by the role profile of governor, leader and manager we can characterize the current and future phases of leadership succession of Hungarian small-and medium sized businesses.**

The influencing factors of leadership succession were divided into organisational and individual factors in my explanatory research. Organisational factors include the aspects of ownership, the organizational culture and the factors of organizational size. I measured the aspects of ownership with the family aspect and the aspect of the majority of ownership whether it is foreign or Hungarian. The examination of relations between the organizational, individual and succession factors I used crosstab and variance-analysis. The connection between the aspects of ownership and the type of succession was examined by crosstab analysis. Table 2 shows the results of crosstab analysis.

Correlation between factors	χ^2 Significance	Cramer V	Analysis
Family aspect and the type of succession	0.032	0.16	Significant weak relationship
International aspect and the type of succession	0.515	0.73	No relationship

Table 2 Results of cross-table analysis

The significance of Chi-square is 0.032 and the Cramer V shows weak connections. It means that between the type of succession and the family aspect of ownership there is a significant but weak connection. I investigated another aspect of ownership too, which is the majority of the ownership whether it is Hungarian or foreign. The value of the Chi-square is not significant (Table 2) so on this sample I cannot report any significant relationship between the majority of ownership and the succession types. Figure 5 shows that 48% of family businesses and 38% of non-family businesses transferred only leadership functions. Family businesses prefer less the transfer of ownership, they rather choose only the transfer of leadership or both of the two types of succession together. Otherwise 27.6% of the non-family business transferred only the ownership and 34% of non-family businesses choose both of the succession types together.

I examined the relationship between the aspects of family ownership and the leadership roles during the succession process. The principal components of leadership roles were created to the present and to the desired status of leadership succession. To investigate the relationship between these two factors I made variance-analysis. The results are demonstrated in Table 3. The requirements of homogeneity of variances and the normality have been met so I can investigate the results of ANOVA table. The ANOVA table (Table 3) shows significant differences between the roles and the majority of ownership.

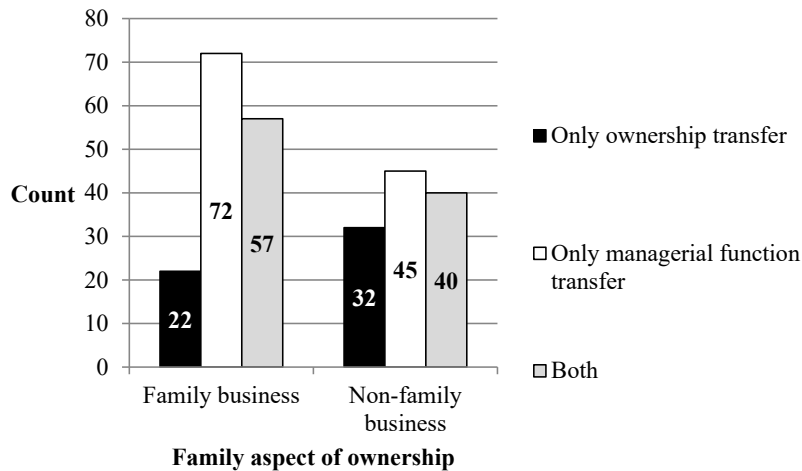


Figure 5 Family-businesses and the type of succession

Roles during the process of leadership succession	Family business (significance)	Foreign business (significance)
Transferred governor role	.003	.011
To be transferred governor role	.124	.005
Transferred	.002	.032
To be transferred leader role	.494	.137
Transferred manager role	.003	.000
To be transferred manager role	.270	.011

Table 3 ANOVA levels of significance

Based on the results I can state that the owners of family businesses want to hold the ownership in their own hands until their successors become experienced enough to succeed, at the moment when the successors can demonstrate their qualities in the managerial functions and earn the trust of the owner. On the other side the succession characteristics of non-family businesses in the group of small sized companies are very similar to the family businesses and the dominant type of succession is the transfer of managerial functions. In the middle-sized company category the non-family

businesses already transferred besides the managerial functions the share of the ownership too. The results show significant differences between the transferred leadership roles according to the family aspect of ownership. Moreover, the family businesses are less experienced in the transfer of leadership roles than the non-family businesses. These results mean that in the family businesses the tenure of the owner is significantly longer and it indicates that top management role is a strongly protected “throne” for the owner. The family business owners insist on the top management and will not transfer the leadership roles in the near future. Otherwise the non-family business’ owners are delegating more leadership.

According to the results we can say that the approach of the family business owner about the letting go of the business is very hide-bound. They are applying a paternalistic attitude which is holding the owners very close to the business. Moreover, their stance is not helping to recognize the importance of the succession and the actions and competences of the new leader or leaders. This introspected organizational behaviour resulted in the fact that the family businesses failed to recognize the priorities of leadership succession. This may also lead to the stagnation of the family businesses. Based on the above we can state that **the family aspect of ownership has significant relationship with the transferred leadership roles.**

The further analysis is concentrated on the organizational culture effect. After the computation of the values of dominant current and future organizational culture I examined the relationship between the culture and the factors of succession by crosstab-, and variance analysis. The crosstab analysis shows no significant correlation between the culture and type of succession. The next step of the analysis was to examine the relationship between the current and future culture and the transferred and ‘to be transferred’ leadership roles by analysis of variance. The analysis shows significant connection between the current organizational culture and the transferred governor and managerial roles. According to the post-hoc analysis the difference is significant between the clan, hierarchy and market type of cultures (Figure 6).

Owners of organizations which are operating in current clan or hierarchy culture transfer less governor and managerial roles. According to the analysis of variance there is a significant relationship between the dominant future organizational culture and ‘to be transferred’ managerial role (Figure 6). According to the post-hoc analysis the difference is significant between the hierarchy and market type of cultures. Owners of organizations which are operating in future hierarchy culture are less transferred the managerial role than organizations desire to operate in future market culture.

The dividing line between the transferred and ‘to be transferred’ leadership roles are the internal-external focus of organizational cultures. What it means is that organizations in which the values of competitiveness, the performance and the customers are operating, are delegating more leadership roles than organizations in which the values of family, the hierarchy and the formalities are the most important. Based on the above we can state that **there is a significant relationship between the current dominant organisational culture and the transferred governor and manager roles. Moreover there is a significant relationship between the desired dominant organisational culture and the ‘to be transferred’ manager role.**

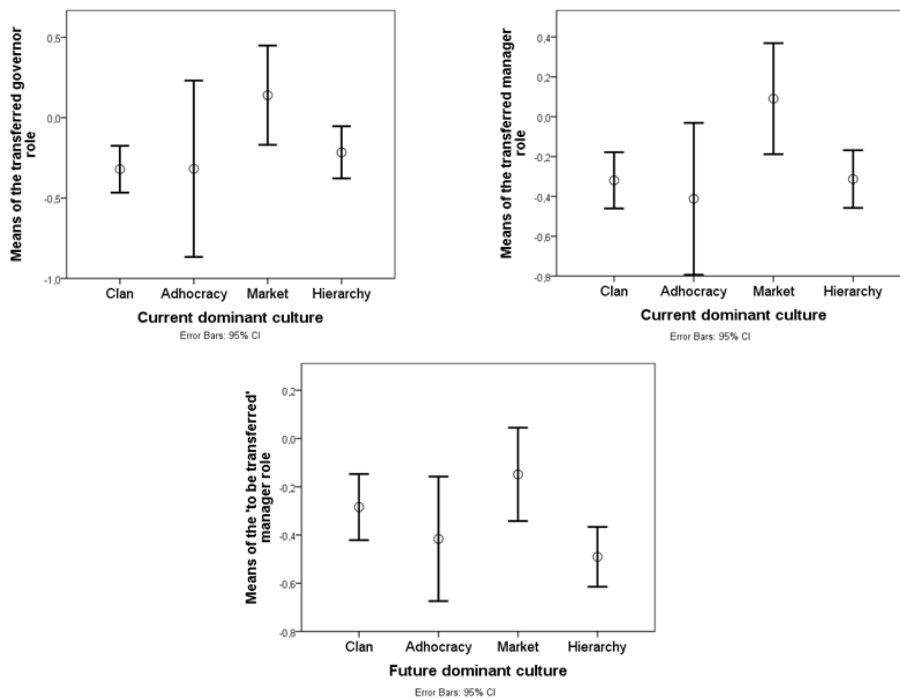


Figure 6 The means of main components of transferred governor, manager and “to be transferred” manager roles based on the current and future dominant culture

The third organizational factors were the factors of organizational size, which contained two components: the size of the organization, and the change in size. The organizational size was measured by traditional definition of small-and medium sized enterprises. The change in size was measure by absolute and relative indicators of growth according to the European Commission and these resulted 4 change category (exponentially growing, linearly growing, stagnant and companies decreasing in size).

The components of organizational size have no significant relationship with the type of succession according to the crosstab analysis and has significant relationship with the transferred and ‘to be transferred’ leader and managerial roles according to the analysis of variance (Table 4).

Roles during the process of leadership succession	Size (significance)	Change in size (significance)
Transferred governor role	.247	.476
‘To be transferred’ governor role	.095	.872
Transferred	.016	.239
‘To be transferred’ leader role	.012	.025
Transferred manager role	.000	.246
‘To be transferred’ manager role	.001	.070

Table 4 ANOVA levels of significance

More leadership roles were transferred and desire to transfer in medium sized enterprises, and where the change in size was exponentially growing. Based on the above we can state that **there is a significant relationship between the size of organisation and the ‘to be transferred’ leader and manager roles. Moreover there is a significant relationship between the change in organisational size and the ‘to be transferred’ leader role.**

During the examination of individual factors I analysed two components, namely the successor origin and the owners’ age. The crosstab analysis show significant connection between the successor origin and the type of succession (Table 5) where mostly the inside successor take over the functions and ownership too, and the outsider successor mostly get only functional areas.

As Figure 7 shows 48% of the company owners passed the inside successor the ownership, and the functional areas, too. 41% of the company owners preferred the outside succession and preferred only the transfer of functional areas. The results show that the inside successor take over both the ownership and functional areas, and the outside successors take over only functional areas.

	χ^2 Significance	Cramer V	Analysis
Origin of successor and the type of succession	.005	0.184	Significant weak relationship

Table 5 Results of crosstab analysis

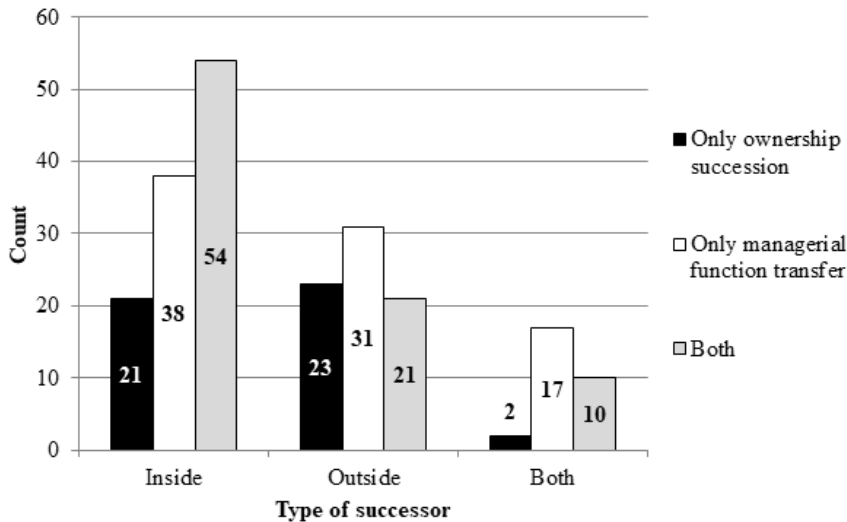


Figure 7 Origin of successor and the type of succession

The analysis of variance shows significant differences between the transferred and the ‘to be transferred’ leadership roles according to the successor origin (Table 6).

Roles during the process of leadership succession	Origin of successor (significance)
Transferred governor role	.010
To be transferred governor role	.034
Transferred	.000
To be transferred leader role	.158
Transferred manager role	.006
To be transferred manager role	.182

Table 6 ANOVA levels of significance

Owners passed and desire to pass significantly less governor, leader and managerial roles to the inside successors than to outside successors. The results show that trust is important during the process of succession because insider successor take over frequently the part of ownership than outsiders, but during the transfer of leadership roles the role of professionalization of the company is more important. Based on the above we can state that **there is significant relationship between the origin of the successor and the transferred leadership roles and the ‘to be transferred’ governor roles.**

The other aspect of individual factors is the age of the owner. Here I focused on the age of the owner-manager at the time of the first succession and whether the age of the owner had any influence on the type of succession and the distribution of transferred and ‘to be transferred’ leader roles. The examination of the age of the owner remained inconclusive which suggests that there is no correlation between the age of the owner and the various characteristics of the succession. In the second round I selected those organisations which are older than 15 years to see whether there is any correlation there. The results show that those organisations which are at least 15 years old show a significant but moderate correlation with the type of succession. Most of the owners of these organisations were between the ages of 35 and 49 during the first transfer of roles. 63% of the transfer of roles included ownership as well as leader roles. There is also a significant correlation between the age of the owner at the time of the first transfer of roles and the transferred governor and ‘to be transferred’ governor and manger roles. My original assumption could not be proved but I consider it a useful result that organisations older than 15 years show a significant correlation between the age of the owner and the type of succession.

At the beginning of my research I formulated three questions and I made my answers according to the reported analyses:

1. *Is it possible to create a transferred leader role profile with which the distinctive phases of succession of Hungarian SMEs can be described and studied?*

The current and future succession phases of SMEs are narrowly described in literature and can be characterised by qualitative and quantitative leader role profile.

2. *What organisational and individual characteristics help defining the current phase of leadership succession?*

The succession phase of SMEs can be characterised by the ownership interest, the dominant organisational culture, the size of organisation and changes in size, the origin of the successor and the age of the owner.

3. *Is there a relationship between organisational and individual factors and the factors of leadership succession?*

The current succession phases of SMEs show a relationship with the types of ownership of businesses – whether they are family-businesses or non-family businesses – the dominant organisational culture and the size of organisation and the origin of the successor. The future succession phase of SMEs shows a relationship with the dominant organisational culture, the size of organisation and changes in size and the origin of the successor.

Conclusion

Small businesses and their owner-managers are able to construct their own current and future succession phases by identifying and interpreting leadership roles. When analysing their future succession phases they are able to plan the road to a successful succession. It is important because the research has revealed that Hungarian SMEs are less developed in terms of transferring roles during a succession process. Hungarian business owners only consider a future succession process in an explicit way.

The transferred leadership roles of organizations are significantly different according to their family aspect of ownership. The family businesses realized lower transfer states than the non-family businesses. Results show that family business owners pass on the functional areas more frequently than the part of her/his ownership. In my opinion the results are indicating the classical entrepreneurial mentality during which the owners want to stay longer on their ‘throne’. Unless the family business owners

create a very strong paternalistic organizational climate which gives the owner a protection and make the owner the father of the organization, it is very difficult to recognize the importance of the transfer of leadership.

According to the organizational culture there are significant differences between the transferred and 'to be transferred' leadership roles. Lower states of succession were experienced in the presence of clan organizational culture according to the transferred governor role and lower states were also in the present and desired clan culture according to the managerial role. The state of succession is higher in the desired and present market culture according to the managerial and governor roles.

The differences between the states of succession are based on the internal and external focus. Owners are concentrating on the external processes of organization and are delegating more leadership roles than owners who are concentrating on internal mechanisms. Break with the friendly organizational climate; leave the role of father, and start to operate as a professionalized company it makes very difficult to shift from the clan culture to the market culture. In the clan culture owners are attached to their leadership roles, and they do not want to pass that. However, in the market culture these owners have already recognized the importance of professionalized operation and delegate more leadership roles, too.

According to the factors of organizational size there are significant differences between the transferred and 'to be transferred' managerial and leader roles where the middle sized companies and the exponentially growing companies delegated and desire to delegate more leadership roles. Most of the owners do not want their company to grow, and companies where growth was important more leadership roles are delegated. So, it is interesting to ask why the exponentially growing companies want to delegate more leader roles? According to the exponentially growing companies the growth indicates that they need to adapt to the environmental changes and this means that they need a strong strategy "creator". Those kind of owners could recognize that they need competent leaders.

Successors from inside the organisation are usually transferred ownership interest and leader functions, too. In those organisations where there is no preferred successor only the transfer of leader functions dominates. It is typical, that owner-managers are strongly attached to the team who was around at the time of foundation. This leads to more trust towards successors from inside the organisation and ownership succession to them is easier. But it is an interesting fact that top management leader functions are retained because while successors from inside the organisation are transferred ownership interest and leader functions, the own leader functions are less transferred. Finding a competent successor from outside

the organisation is time and finance consuming and risky. There are no resources available for these long and difficult processes. But it is also true that whenever successors from outside the organisation enter they feel pressured to prove themselves and receive more leader functions. My case studies also suggested that unless a successor from outside the organisation demonstrates his/her abilities he/she will not receive ownership interest.

Applying research results, limitation and further research

Leadership succession is still an uncharted field of management science. There are many aspects of the leadership succession process that need to be studied. One of the specific areas of leadership succession is small-and medium sized businesses. Succession in these organisations has a more crucial role because of knowledge acquisition. In the future I plan to continue research on SMEs because they play a defining role in the Hungarian economy both in terms of innovation and in terms of their contribution to GDP. In order to continue their important role in our national economy they need to secure continuity even when owner-managers leave the organisation. The influencing factors of the research questionnaire need to be extended in order to learn more about the leadership succession of SMEs. This would allow us to analyse those succession processes which had been carried out successfully.

Based on the research results it can be assumed that professionalization has a strong influence on the leadership succession process. It means that certain leader functions are fulfilled by manager hired specifically for these roles. These managers from outside of the organisation are able to bring in values and norms which are new to the organisation. Through these new values and norms the organisation will be able to experience new momentum and might become more professional. Another field that needs to be further researched is organisational culture and its influences. In this regard the Cameron-Quinn dominant culture types should be further investigated.

My research questionnaire is able to reveal the main characteristics of the leadership succession process in SMEs. The questionnaire section which covers the leader functions is appropriate to study succession processes of SMEs and the aims set for future succession processes. Studying leadership succession processes can also provide a base for comparative analyses of organisations. Environmental factors also need further studies. SMEs are in a difficult position in the current dynamically changing environment which forces them to constantly adapt to changes

while they suffer from constant lack of professionals. Business life-cycle studies would also be highly relevant. Within these studies the critical time and size of SMEs should be determined when succession is the most ideal.

The research sample included businesses where the leadership succession process was only partial and the focus of the research was to map the phase of the succession process. In the future I plan to continue the research by analysing the leadership and ownership succession jointly. This is the only way to gain a thorough picture of the whole of the succession process. It is evident that studying ownership succession is much more complicated and needs a deeper analysis. The reason for the complexity of the task is that there are extensive legal, financial, psychological and social factors and interconnectedness involved in that process. Business equity not only involves financial advances but also considerable social and psychological values. Business owners are attached to the organisation they lead and manage. Transferring leader roles during the generation transition processes will be less emotionally tough for owners in the near future than ownership transition.

Acknowledgement

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Appendix No.1

Manager	Leader
“Do things right!” (<i>Bennis and Nanus, 1985</i>)	“Do the right thing!” (<i>Bennis and Nanus, 1985</i>)
General management functions: planning, organizing, staffing, controlling (<i>Kotter, 1996; Yukl, 2006</i>)	Planning: Presenting the vision; Organizing: Accomplishing the vision by supporting people; Leading - Controlling: motivation, inspiration in order to take the right way (<i>Kotter, 1996</i>)
Focuses on complexity – the aim is the efficiency (<i>Dover and Dierk, 2010</i>)	Focuses on change – the aim is the acceptance of the change (<i>Dover and Dierk, 2010</i>)
Get to the position by assignment, follow the traditional hierarchy (<i>Stogdill, 1997</i>)	It is a process, not a position, and turn up with the undertake of the teams’ responsibility (<i>Bennis, 1989; Davis, 1967; Stogdill, 1997; Bateman and Snell, 1999</i>)
Searching stability and control (<i>Zaieznik, 1977; Bennis, 1997, Yukl, 2006</i>)	Tolerating chaos (<i>Kotter, 1996; Zaieznik, 1977</i>)
How? When? (<i>Bennis, 1997; Zaieznik, 1977</i>)	What? Why? (<i>Bennis, 1997; Zaieznik, 1977</i>)
Importance of the rules (<i>Kotter, 1996; Zaieznik, 1977, Yukl, 2006</i>)	Rebelling against the routines (<i>Zaieznik, 1977</i>)
Communicating on indirect way (<i>Zaieznik, 1977</i>)	Using open questions (<i>Zaieznik, 1977</i>)
Problem-solver (<i>Kotter, 1996; Zaieznik, 1977</i>)	Problem-analyzer (<i>Zaieznik, 1977</i>)
Administrator, Maintainer, typical good soldier (<i>Bennis, 1997</i>)	Change manager, Innovator, Developer (<i>Bennis, 1997; Hay and Hodgkinson, 2006; Covey et.al, 1994; Bennis, 1989; Maccoby, 2000; Zaieznik, 1977</i>)
To be, what the company expects from you! (<i>Bennis, 1989</i>)	To be what you are! (<i>Bennis, 1989</i>)
Accepting status quo (<i>Bennis, 1997;1989</i>)	Status quo as challenge (<i>Bennis, 1997;1989</i>)
More brain, less soul! (<i>Capowski, 1994</i>)	More soul and heart, less brain! (<i>Capowski, 1994</i>)
Working with available, existing paradigms and methods (<i>Covey et.al, 1994, Kotter, 1996; Zaieznik, 1977; Bennis, 1989, 1997; Riggs, 1982; Yukl, 2006</i>)	Creating new paradigms, approaches and methods (<i>Covey et.al, 1994, Kotter, 1990; Zaieznik, 1977; Bennis, 1997</i>)

Manager	Leader
Short- run viewpoint (<i>Bennis, 1997</i>)	Long- run perspective (<i>Hay and Hodgkinson, 2006; Bennis, 1997; Kotter, 1996; Bennis and Nanus, 1985; Zaieznik, 1977; Perloff, 2004</i>)
Systematic activities and the importance of the rationality (<i>Watson, 1983; Levitt, 1976; Yukl, 2006</i>)	The importance of the intuition (<i>Zaieznik, 1977</i>)
Coping with limited choices, sorting organizational resources, and allocating the scarce resources (<i>Kotter, 1996, Daft, 2003; Weathersby, 1999, Covey et.al, 1994</i>)	For her/him the goal is work itself, the work causes satisfaction for her/him, and also expects outstanding performance (<i>Bennis, 1997; Kotter, 1996; Watson, 1983; Bass and Stogdill, 1990; Bateman and Snell, 1999</i>)
Stronger emotional reactions (<i>Zaieznik, 1977</i>)	The importance and the existence of self-discipline, self-knowledge (<i>Bennis and Nanus, 1985; Bennis, 1997</i>)
Too busy to deal with difficult or impossible tasks (<i>Riggs, 1982</i>)	Ready for searching the risk and danger, above all for the opportunity and reward (<i>Zaieznik, 1977, Yukl, 2006</i>)
Concentrating on systems (<i>Kotter, 1996; Covey et.al. 1994; Bennis, 1989; Bennis, 1997</i>)	Concentrating on the stimulation of reaching the aims (<i>Bateman and Snell, 1999; Kotter, 1996; Dover and Dierk, 2010</i>)
The main device is the control, regulation, and the guarantee of discipline (<i>Dover and Dierk, 2010; Kotter, 1996; Bennis, 1989; Daft, 2003; Levitt, 1976; Zaieznik, 1977; Bateman and Snell, 1999, Bennis, 1997</i>)	Empowering, delegation, arousing the interest to solving problems, empathy, building trust (<i>House, 2004; Zaieznik, 1977; Plunkett, 1996</i>)

The characteristics of leader' and manager' roles

Appendix No. 2

Managers' tasks	Leaders' tasks	Governors' tasks
Formulating operational plans, action plans	Formulation of vision	Forming or developing the mission
Communicating the operational plans	Ensuring the acceptance of vision	Ensuring the acceptance of the mission
Formulating the organizational structure	Formulating strategic goals	Defining the policy of the leadership succession
Formulating formalized systems	Facilitating the identification with the strategic goals	Handling the Public Affairs
Formalization of the authorities and responsibilities	Communicating strategies and actions to stakeholders	Handling the relations between the investors
Job analysis and -planning	Initiating changes	CSR
Creation of work conditions	Developing change management strategies	Managing/treatment the employees' interest
Creation of the benefit system	Implementation of organizational development	Handling social interest related to protecting the environment
Operational controlling	Handling the conflict between organizations	PR
Reporting the co-workers	Strategic controlling	Participation in meetings with the key customers, strategic partners
Handling operational problems	Coordinating informal relations	Deciding about donation, sponsorship, patronage and other subsidies
Handling the conflict between individuals	Coordinating projects	
Deciding about the development of the co-workers	Individualized support of the co-workers in the implementation of the tasks	
	Individual guide to co-workers	

Identified tasks of managers, leaders and governors

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CSILLA RAFFAI - SZABOLCS SZIKSZAI

UNDERSTANDING INNOVATION CAPABILITY MATURITY IN RURAL TOURISM (PMR 2015/4)

In this research paper we present the findings of a survey on the innovation capability maturity of rural accommodation service providers in one of Hungary's outstanding rural tourism destinations, the county of Veszprém in the Middle Transdanubian region. Using the results of a field survey among rural accommodators operating in the rural villages of Veszprém county we construct an innovation capability maturity index, which measures the average level of innovation capability maturity of rural accommodators in the individual villages.

Our paper draws on the conclusions of an earlier paper (Raffai, 2013), which proposed a refined version of the Innovation Capability Maturity Model version 2 by Essmann (2009) to identify the factors driving the innovation capability maturity of rural accommodation service providers. Raffai (2013) found that the innovation capability maturity of rural accommodation service providers in Veszprém county, Hungary, can be described by five capability areas: market knowledge, training, managing possibilities, guest orientation and rationality. In our present paper we measure innovation capability maturity in these five areas for the individual rural accommodators and aggregate the results to compute innovation capability maturity indices for the villages in the survey.

The resulting indices are useful indicators of innovation capability maturity for all stakeholders in rural tourism. The values of the index can be used to compare the innovation maturity of rural accommodation providers in different communities. We present an example of this when we analyse Veszprém county in Hungary. Besides an assessment of the present situation, such an analysis can also be used to identify those innovation capability areas where rural service providers need to make the necessary steps to improve their maturity.

Key words: innovation capability maturity index, rural tourism, accommodation service providers, Veszprém county, Hungary

Introduction

Tourism plays an important role in the economy of all, however structurally diverse, OECD countries as it promotes economic growth and increases employment through travel and the trade of touristic services (OECD, 2000). The sector's central economic role as well as the trend of economic globalization compel nation states to increase touristic competitiveness, primarily through innovation (Carvalho – Costa, 2011, p. 24).

This paper deals with innovation in rural accommodation services as part of rural tourism, an important subsector of tourism. Tourism in rural regions stands in sharp contrast with the five-star culture of tourism in metropolitan areas but its economic significance is equally unquestionable. Rural tourism, driven mainly by local players, plays a decisive role in job creation, investments and innovation in most rural areas. Rural tourism covers a range of services provided through the cooperation of many actors including accommodation providers, other service providers as well as local residents. These actors all contribute to creating the harmonious and complex experience, which encompasses all travel-related processes from the guests' choice of destination (e.g. pre-booking telephone inquiry, practical menu system of the hosts' website) to all the stimuli and impressions from the stay (e.g. hospitality of locals, opening hours of the souvenir shop, tidiness of streets and squares, choice of programs).

Rural accommodation is also more than just a room service. Most guests expect extra services and memorable experiences beyond staying in the country house. Satisfying the growing needs of customers, therefore, requires hosts and other regional service providers to cooperate, be open to change, be creative and innovative. Marketable accommodations with returning guests are open to the changing needs of their customers, are ready to cooperate with the right partners and innovate when necessary.

In this research paper we present the findings of a survey on the innovation capability maturity of rural accommodation service providers in one of Hungary's outstanding rural tourism destinations, the county of Veszprém in the Middle Transdanubian region. Using the results of a field survey among rural accommodators operating in the rural villages of Veszprém county we construct an innovation capability maturity index, which measures the average level of innovation capability maturity of rural accommodators in the individual villages.

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Literature review

Innovation in rural tourism

Hjalager et al. (2008, p. 42) argue that the system of innovation can be analysed by examining its main components: the participants in the system, their actions and interactions as well as the driving forces behind innovation. In 2008, six authors from five different Scandinavian countries – Denmark, Finland, Iceland, Norway and Sweden – published a sector analysis based on case studies along with a research report with economic policy recommendations, in which they examined ten exceptionally successful tourism destinations as spectacular examples of innovation in tourism (Hjalager et al., 2008). The methodology of the case studies relied on the identification of the participants in the innovation system and their relationships, the mapping of the driving forces of innovation and the classification of the different innovation types.

The major driving force in the innovation process is the entrepreneurial spirit, characterized by the drive to initiate new investments and activities to keep the enterprise alive (Hjalager et al., 2008, p. 42). Another driving force is profit maximization. The classical profit motivation can be identified in most examined destinations but the reinvestment of profits in the broader local environment is also a reoccurring phenomenon (Hjalager et al., 2008, pp. 44-45). In certain cases, the initiatives and volunteering of locals is another important driving force. For example, the financial and organizational structure of the Roskilde Festival was built on the basis of

a wide network of volunteer groups (Hjalager et al., 2008, p. 45). In some cases, innovation is driven by the participation of consumers. The owners of Opplev Oppdal, for instance, provide hiking or team building groups with several new, customized services, but the idea of an Ice Hotel is also the brainchild of visitors. Volunteering music fans carry out the pre-stage screening of avant-garde music groups wishing to play at the Roskilde Festival, and customers handle the customer feedbacks in the Mountain Destination of Åre or the Whale Watching in Northeast Iceland (Hjalager et al., 2008, p. 47).

Rønningen (2010, p. 16) understands innovation as a complex process, similarly to Hjalager et al. (2008), and emphasizes that the pace of innovation is rather slow in the touristic sector, unlike in other services. He provides a comprehensive review of the literature on innovation in tourism and cites authors (Hjalager (2002) in Rønningen, 2010, p. 17; Fussing-Jensen et al. (2001) in Rønningen, 2010, p. 17) who point out that small enterprises do not always possess the knowledge base of innovation and are also unwilling to participate in cooperation structures, which inhibits the exchange of experiences as well as their knowledge sharing and innovation capabilities. Hjalager (in Rønningen, 2010, p. 16) explains this low level of innovation in tourism by the mutual lack of trust among touristic enterprises. Certain authors (Hjalager (2002) in Rønningen, 2010, p. 17; Fussing-Jensen et al. (2001) in Rønningen, 2010, p. 17; Pechlaner et al. (2005) in Rønningen, 2010, p. 17) suggest implementing a cooperation strategy to enhance innovation capability. They argue that cooperation provides for the flow of knowledge and enables involved parties to lower their transaction costs. Moreover, an empirical study by Pechlaner et al. (in Rønningen, 2010, p. 17) demonstrates that any cooperation that promotes knowledge and experience sharing expands the combined innovation capacity of businesses. Nevertheless, Sorrensen (in Rønningen, 2010, p. 17) opines that differences in the density and intensity of cooperation networks fail to explain the differences in the innovative behaviour of enterprises.

Innovation capability determinants in rural tourism

The complex nature of innovation calls for an investigation of the components of innovation capability from multiple perspectives. The success in the competition of the 21st century lies in the exploitation of the potential of new ideas (Hamel, 2000; Maier et al., 2012). Kim (1997) defines innovation capability as the ability to create new and useful knowledge on the basis of existing knowledge. Burgelman et al. (2004) give another definition describing innovation capability as comprehensive

organizational characteristics that support and promote innovation strategy. Atoche (2007) expands the former by defining innovation capability as a higher order “capability of integration” that shapes and manages the different organizational capabilities and resources that encourage innovation activity.

In his analysis of rural tourism in Norway, Rønningen (2010, p. 18) emphasizes the following factors enhancing innovation:

- The innovation capability of small enterprises is smaller than that of large ones.
- Cooperation boosts innovation capability.
- Knowledge and competences are decisive.
- Government subsidies may improve the innovation capability of enterprises.
- Export orientation leads to product innovation.
- Market orientation and the involvement of employees may enhance innovation.

We illustrate in Table 1 the factors deemed most important in facilitating innovation by the various authors, together with academic references and capability areas considered crucial for innovativeness.

Fazekas (2007) considers knowledge as one of the most important factors of development. He argues that missing information on technological and market conditions as well as potential communication failures and the lack of skilled workforce can all hinder innovation activity. Service providers can acquire most of the necessary knowledge and information in trainings and vocational courses.

Several Hungarian and international studies emphasize the positive impact of cooperation on innovation (Inzelt – Szerb, 2003; Jancsik, 2007; Rønningen, 2010). The results obtained by Inzelt – Szerb (2013) show that the share of new products is significantly higher for enterprises cooperating in innovation than for their non-cooperating peers. The innovation capability of enterprises operating in isolation is also weaker than that of their cooperating peers. Good decisions on the forms of cooperation or the choice of cooperating partners call for the necessary skills to realize business opportunities, the ability to take calculated risks, and, according to Hjalager et al. (2008), entrepreneurial spirit and personal motivation. This is one of the main reasons why decision-making skills play a crucial role both in the strategic and in the operative processes of service providers. Furthermore, guest orientation is another important driver of innovation in tourism. As Decelle (2006) points out, the success of tourism service providers hinges on their ability to adjust their services to the demand and to quickly adapt to changes.

Market knowledge	Essmann, 2009	Rønningen, 2010	Chikán, 1998	Kaplan – Warren, 2010
	Ottenbacher et al., 2005	Brackenbury, 2006	Williams, 2010	Quadbeck-Seegeer, 2007
	Hjalager et al., 2008	Jeffrey et al., 2009	Weiermair, 2008	Spielkamp – Rammer, 2006
Training, competence	Essmann, 2009	Kim, 1997	Cohen – Levin, 1989	Hjalager et al., 2008
	Francis, 2005	Ottenbacher et al., 2005	Atoche, 2007	Quadbeck-Seegeer, 2007
	Rønningen, 2010	Carvalho, 2008	Csath, 2004	
Cooperation	Essmann, 2009	Keller, 2008	Bell – Pavitt, 1985	Hjalager et al., 2008
	Pechlaner – Bachinger, 2010	Ottenbacher et al., 2005	Scott et al., 2008	Porter, 1993
	Rønningen, 2010	Weiermair, 2008	Flagestad, 2001	Hall et al. (eds.), 2005
	Jancsik, 2007	Inzelt – Szerb, 2003		
Decision making	Essmann, 2009	Essmann – du Preez, 2010	Atoche, 2007	Bell – Pavitt, 1985
	Francis, 2005			
Risk taking	Decelle, 2006	Chikán, 1998	Zoltánné, 2002	Fazekas, 2007
	Pakucs – Papanek, 2006			
Entrepreneurial spirit	Schumpeter, 1934	Hjalager et al., 2008	Fazekas, 2007	Hall – Williams, 2008
	Fugslang – Sundbo, 2005	Zoltánné, 2002		
Guest orientation	Essmann, 2009	Hjalager et al., 2008	Ark et al., 2003	Szabó, 2012
	Weiermair – Fuchs, 1999	Sundbo – Darmer, 2008	Csizmadia, 2009	Decelle, 2006
	Csath, 2004			
Rationality	Essmann, 2009	Williams, 2010	Weiermair, 2008	Chikán, 1998
	Hjalager et al., 2008			

Table 1 Factors influencing innovation capability in rural tourism
Source: Raffai (2013).

An innovation capability maturity model for rural tourism

Scholars in both management (Williams, 2010; Essmann, 2009) and tourism sciences (Marchiori et al., 2012) have attempted to provide descriptions of innovation capability maturity. This section presents a model describing the innovation capability maturity of rural accommodation service providers.

We consider Essmann's Innovation Capability Maturity Model version 2 (ICMMv2) as the basic model to describe the innovation capability maturity of rural accommodation service providers. Essmann's ICMMv2 is an advanced innovation capability model, developed from ICMMv1, an earlier version. Essmann – du Preez (2009) argue that ICMMv2, unlike the earlier model, “defines the ‘what’ of innovation capability and not the ‘how’. This is intended to be the ‘essence of innovation’ that ... is the same in every organization” (p. 408). It is obvious that a rural accommodation service provider is practically not an organization, but an individual or family. Operating such a business, however, requires the application of the structured business logic and attitude of an entrepreneur.

The model, published in Raffai (2013), is a simplified version of Essmann's more formalized and complex ICMMv2. ICMMv2 classifies capabilities into 42 construction units (criteria) in order to build a model that grasps the innovation capability maturity of any organization involved in any type of activity. The criteria in ICMMv2, however, cannot be fully adopted in our research because Essmann's model is more formalized and complex than what we need in the case of rural accommodation service providers. The model we use drops the criteria (e.g. treatment of intellectual property rights, suppliers' competence) which are only relevant to a formal organization. Furthermore, in the maturity model of rural tourism, we divide the criteria of cooperation (building formal and informal external connections) into three parts: cooperation with touristic and non-touristic service providers and availability to service providers). We use a total of five capability areas out of Essmann's set of criteria, which we describe in the next five paragraphs.

The capability area of “market knowledge” includes the criteria of understanding customer needs, knowing regulations and processing the news. In rural accommodation, awareness of the needs and expectations of guests is of key importance. It is also indispensable to keep track of regulations and consumer trends. We deem the criterion of processing the news to be important because only evaluated and processed pieces of news can adequately inform the process of planning, making changes in the supply of services and reacting to market changes.

The capability area of “training” involves the criteria of training strategy and training program. In the world of services, the importance of possessing up-to-date knowledge and skills needs little explanation. Most rural accommodation providers, understandably, hold neither a touristic nor any other college degree. But their training is a vital necessity if they wish to follow the latest developments and apply new practices. To this end, they regularly participate in vocational programs such as trainings on accommodation, language courses, team buildings or hiking, where they can learn about and make use of best practices and applicable solutions. This is very profitable, because according to Keller (2008, p. 35), model imitation pays off in tourism because service providers can save the costs of experimentation and research.

The capability area of “managing possibilities” encompasses several criteria. Idea management and project applications can indicate openness to entrepreneurial spirit, change and making changes. Cooperation with and availability to touristic and non-touristic service providers, institutions of education and research also plays a crucial role within the driving forces of innovation. Cooperation is an efficient way of sharing information, resources and knowledge, in which all actors are interested in participating. Still within this capability area we have also included decision making, risk management and innovation communication. The ability to seek solutions to different problems, choose the right alternative and communicate the realized innovation are further aspects of innovation maturity.

We included the criteria of guests’ contribution to innovation and availability to guests in the capability area of “guest orientation”. Customer satisfaction and, in the long run, commercial success, hinges on the human factor and the personal dimension. Informality, being open and reacting flexibly to personal needs is essential in services, and even more so in the innovation maturity of rural service providers.

Our last capability area is “rationality”, which covers financial planning, measuring innovation performance, choosing the target group, and keeping guest records. Rationality leads to long term strategic thinking, consciousness, and continuous investment into the business, which promote renewal and are the manifestation of an entrepreneurial attitude.

Raffai (2013) applied the above indicators of the five capability areas in a survey among rural accommodation service providers in Veszprém county, Hungary. The preliminary categories of the indicators were also confirmed by conducting principal component analysis, using the results of the survey as input data. Raffai (2013) found that the innovation capability maturity of rural accommodation service providers in Veszprém county,

Hungary, can be described by the above five capability areas. The five capability areas and the relating eighteen significant indicators describing these areas are summarized in Table 2.

Innovation capability areas	Indicators
Market knowledge	<ul style="list-style-type: none"> • Understanding customer needs • Knowing industry regulations • Processing the news
Training	<ul style="list-style-type: none"> • Training strategy • Training program
Managing possibilities	<ul style="list-style-type: none"> • Idea management • Tender applications • Cooperation with touristic service providers • Cooperation with non-touristic service providers • Availability to touristic service providers • Decision making • Innovation communication
Guest orientation	<ul style="list-style-type: none"> • Guests' contribution to innovation • Availability to guests
Rationality	<ul style="list-style-type: none"> • Financial planning • Measuring innovation performance • Choosing the target group • Keeping guest records

Table 2 Areas and indicators of the model of innovation capability maturity in rural tourism
 Source: Raffai (2013).

Determining innovation capability maturity levels

Having identified the innovation capability areas, the innovation capability maturity index can be calculated. Essmann (2009) identifies five levels of innovation capability maturity, the description of which we adopt in our calculations of the innovation capability maturity of rural accommodation service providers. In our calculations these five levels of maturity are translated into an index with a value of 1 to 5.

On the bottom (first) level innovation is not yet present. The least innovation mature accommodation providers basically improvise in the process of providing their services. Even if there exists a process of innovation service providers do not follow it and there are no regulations

that insure that such processes are followed. Such accommodators react to changes rather than consciously initiate them. Their planning horizon is short and they deal with the problems as they emerge. Quality and performance cannot be measured in an objective fashion.

As we go up to higher levels of maturity conscious innovation is becoming an integral part of business processes. On the second level, service providers perceive the need for innovation, define innovation accurately and understand the different factors driving innovation. The innovation process is transparent but its outcome is yet inconsistent. On the third level, service providers support and manage innovation by appropriate practices, processes and tools and encourage their clientele to share innovative ideas. The outcome of innovation processes is foreseeable and insure sustainable market share and position. On the fourth level, innovation processes are integrated into service activities. The link between business expectations and the internal innovation model is clear and the innovation model operates reliably.

On the top (fifth) level, innovation becomes part of everyday routine. Innovation mature accommodation providers are capable of managing the entire service process and understand the significance of each internal process within the full process. Their decisions are for the long haul and they continuously expand the range of their services, and apply objective methodology to monitor the satisfaction of their guests.

Research design

Data set

Within Hungary's Middle Transdanubian region, our broad area of interest, the performance of rural touristic service providers in the county of Veszprém is outstanding, by far exceeding the performance of those operating in the other two counties (Fejér and Komárom-Esztergom). Based on this consideration, our research sample includes those rural accommodation service providers in Veszprém county which operate in villages with unquestionable rural touristic performance. We use 2009 figures of the villages from the dissemination database of the Central Statistical Office to define the cut-off values for entering our sample. These values are 600 registered guest nights and 200 accommodated guests, which, then, predetermine the range of accommodation service providers entering the research sample. In Figures 3 and 4 in the Appendix, we illustrate on a map the geographical distribution of these villages in Veszprém county.

As can be seen in Table 6 in the appendix, a total of 82 rural accommodation service providers (out of the 253 total) in Veszprém county answered our survey questionnaire. Table 3 shows the descriptive statistics of the hosts and the places of accommodation. The average age of the hosts is 50, with a minimum age of 28 and a maximum of 70 years. They have been involved in rural tourism for an average of 9.5 years, with their experience ranging from 0 to 28 years. In 2011, the interviewed hosts spent an average of 36 per cent of their annual profit on the maintenance and upgrading of their facilities. They spent 0-30 per cent of their annual sales revenue on communication and advertising. The number of guest nights in 2011 ranged between 0 and 2000 with an overall average of 350 guest nights. Guest rooms cost a minimum of 2200 Hungarian forints (7.5 euros) and a maximum of 9000 forints (30.5 euros) per night.

		Age (year)	Duration of service (year)	2011			2012
				Net profit spent on maintenance and upgrade (%)	Revenue spent on communication (%)	Number of guest nights	Room-price (high season, person/night, HUF)
N	Valid	82	82	82	82	82	82
	Missing	0	0	0	0	0	0
Mean		50.5	9.5	36.0	8.6	350.1	3420.7
Median		50.5	9.5	30.0	10.0	270.0	3050.0
Std. Deviation		10.9	5.5	29.2	7.0	336.6	1027.8
Skewness		-0.1	0.7	0.5	1.3	2.0	2.6
Std. Error of Skewness		0.2	0.2	0.2	0.2	0.2	0.2
Kurtosis		-1.0	0.9	-1.0	2.1	6.3	10.3
Std. Error of Kurtosis		0.5	0.5	0.5	0.5	0.5	0.5
Range		42	28	100	30	2000	6800
Minimum		28	0	0	0	0	2200
Maximum		70	28	100	30	2000	9000

Table 3 Descriptive statistics of the sample
 Source: own construct

In our questionnaire, we asked hosts to answer a total of 19 questions that each pertain to one particular indicator. The questions are clustered together to indicate the five aforementioned capability areas they belong to. To each question, we asked the interviewee to choose that one of the three possible answers that he/she felt the most adequate for his/her services. When he/she could not choose between the three given answers, or if two subsequent answers were both partly true, we asked him/her to check one of the two alternatives in between the three answers. The answers to these questions become our indicators of innovation maturity, ranging on a likert scale between 1 and 5. Innovation maturity is then calculated as the arithmetic mean of the scores of these indicators within one particular capability area. Finally, total innovation capability maturity is calculated as the arithmetic mean of the innovation maturities in the five capability areas.

Results and discussion

After calculating the innovation capability maturity index of each accommodation provider in the sample we averaged these values in each village. Table 4 shows the average values of the innovation capability maturity index for the surveyed villages in Veszprém county, Hungary.

Village	Number of observations	Standard deviation	Minimum	Maximum	Average
Nemesvámos	4	0.6825	2.83	4.44	3.62
Dudar	5	0.5435	3.11	4.44	3.60
Vászoly	3	0.3379	2.94	3.56	3.33
Ganna	4	0.4468	2.61	3.61	3.11
Lovas	7	0.7136	2.11	4.28	3.06
Csesznek	6	0.6428	2.22	3.83	2.96
Bakonybél	13	0.7680	1.50	4.00	2.91
Magyarpolány	8	0.6482	2.28	4.22	2.83
Felsőörs	6	1.3294	1.39	4.44	2.68
Eplény	5	0.5046	1.78	3.00	2.67
Bakonyszentkirály	2	0.8250	2.06	3.22	2.64
Nemesvita	4	0.4612	1.94	2.94	2.57
Öskü	4	0.2581	2.22	2.83	2.57

Village	Number of observations	Standard deviation	Minimum	Maximum	Average
Pécsely	2	0.4321	2.17	2.78	2.47
Szentbékállá	3	0.3889	2.06	2.78	2.33
Németbánya	3	0.3572	2.00	2.67	2.26
Mindszentszállá	3	0.7398	1.56	2.89	2.04
Total	82	0.7300	1.39	4.44	2.86

Table 4 Innovation capability maturity indices of rural accommodation providers in Veszprém county (averaged by village)
 Sources: own construct

The average value of innovation capability maturity indices for rural accommodation service providers in Veszprém county is 2.86 but the indices show great variance not only throughout Veszprém county but also within the individual villages. The average difference between the minimum and maximum index values within the individual villages is 1.36. For instance, in Felsőörs and Lovas, two villages in the southern part of the county close to lake Balaton, this difference is strikingly high. In these villages we saw significant deviation in the attitudes of rural service providers to innovation: while some are proactively and incessantly seeking possibilities of innovation, others have not made even the slightest change in the range and type of their services for the last twenty years.

Figure 1 displays the innovation capability maturity indices averaged by village and shown in table 4. This presentation also highlights the differences between the different villages covered in the survey. The numbers on the figure indicate outliers (e.g. 78 stands for the index value of a service provider in the village of Magyarpolány whose questionnaire was marked number 78).

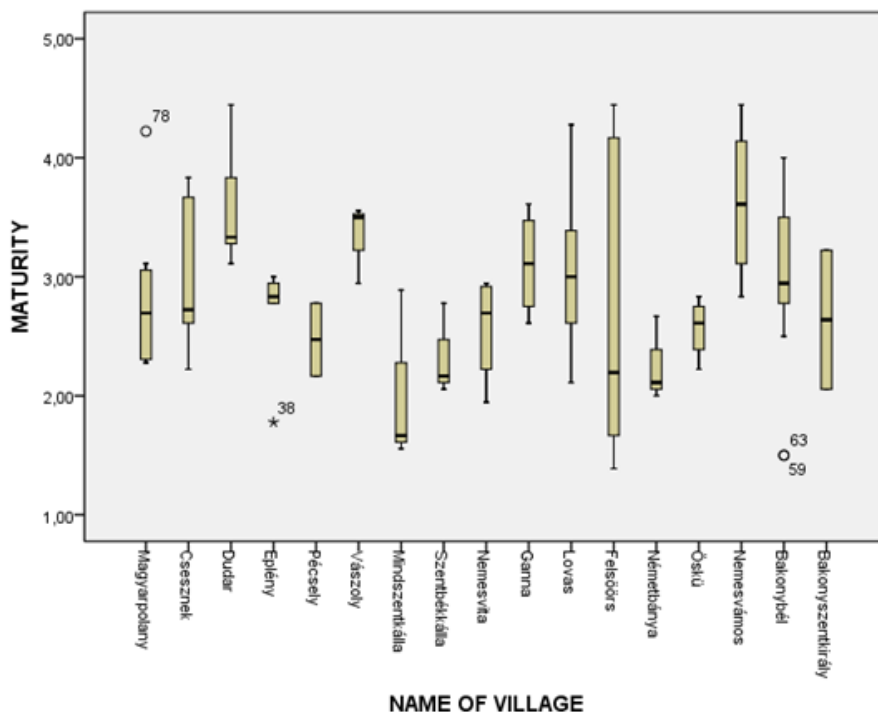


Figure 1 Boxplot diagram

Source: own construct

The innovation maturity of a given rural accommodation service provider can also be plotted on a radar chart, which we call innovation maturity profile. This profile shows in one diagram the innovation capability maturity of a given service provider in the five innovation capability areas. Figure 2 shows the innovation maturity profile of one random rural accommodation service provider, based on the values displayed in Table 5.

Market knowledge	Training	Possibilities	Client-orientation	Rationality	Maturity index
3.67	2	3.33	3	3.5	3.1

Table 5 The maturity of the innovation capability areas of a random rural accommodation service provider

Source: own research.

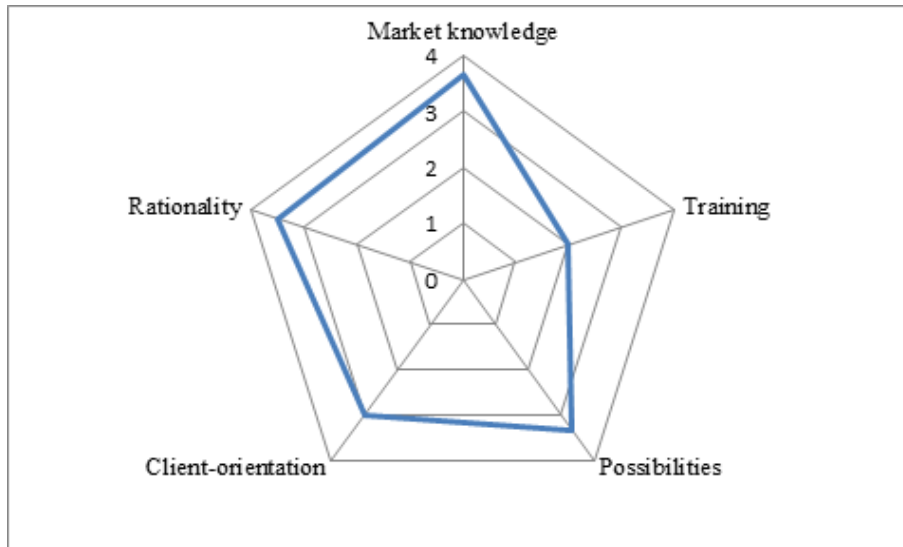


Figure 2 The innovation capability maturity profile of a random accommodation provider in Veszprém county
Source: own construct

Conclusions

The purpose of our research is not exclusively to expand the theoretical framework of rural tourism but also to construct a method that can be applied with ease. The proposed innovation capability maturity model coupled with the innovation capability maturity index enable rural accommodators as well as other stakeholders in rural tourism to measure and compare innovation capability maturity of different accommodation service providers. The measured levels of maturity in the different capability areas point beyond an assessment of the present situation and help service providers map their innovation capability areas, spot their weaknesses and create a development strategy to correct shortcomings. Such a strategy should focus service providers' efforts on developing the particular components of the services found to be less developed in any of the capability areas (e.g. getting to know clients' needs better, communicating realized innovation, submit more tenders bids). Based on these corrections, accommodators can lay out the future path of development.

It is noteworthy that our experiences with the interviewees reinforce our research findings. In our research sample, accommodation providers with a high value of the innovation capability maturity index entirely identify themselves with the provided services and activities. Apart from accommodation, most of them offer other programs and experiences (cheese making, cooking, courses, etc.). Although our research ignores the aspect of satisfaction and happiness the research experiences also fully support the argument in Michalkó (2012), according to which, „being involved in rural accommodation services unquestionably improves the subjectively perceived quality of life” (p. 117) and the arrival of new guests is a source of positive state of mind and good mood.

Although the results of our research do not offer a recipe for successful innovation, they carry well discernible messages for rural accommodation service providers. On the basis of the best practices of accommodation service providers with a high maturity index value, we have three pieces of advice to entrepreneurs in the rural accommodation business. First, rural accommodation providers should look for ways to cooperate with other touristic and non-touristic service providers. Joining a local or regional destination management organization (DMO) or, cluster, could enhance their innovation capability maturity. Such cooperation contributes to the success of participants through different channels, including professional lobbying, information service on new funding opportunities, assistance in compiling tender applications, joint media coverage and professional training programs.

Second, in order to better meet customer demand, accommodation providers should clearly identify their target group (e.g. groups of students, couples with children, seniors, etc.). Satisfying the needs of a well-defined target group is always easier than satisfying the, sometimes opposite, needs of all possible types of customers that might look for rural accommodation. Hungarian service providers are especially advised to be more conscious in targeting a specific segment of customers and streamline their services in line with their needs.

Third, long term success requires constant adaptation to the changing environment. Besides the aforementioned continual search for new information and lifelong training, this approach also includes identifying new customer needs, following the latest market trends and repeatedly measure the satisfaction of customers. The information in the feedbacks can be used to improve the accommodation service, expand the range of accompanying services and, thus, increase the number of returning guests.

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Table 6 (right) Selected data from 2009 on villages of Veszprém county in the sample
Source: own construct

Appendix

Sub regions	Village	Hosts in the sample		Total hosts		Coverage (sample/total)	Local tourism tax revenue (HUF 1000)	Number of bedplaces		Number of guest nights		Number of guests		Average frequency*
Ajkai	Magyarpolány	8	10%	17	7%	47%	641	5%	102	6%	1653	4%	558	5%
Balatonalmádi	Felsőörs	6	7%	33	13%	18%	516	4%	356	20%	2875	8%	495	5%
Balatonalmádi	Lovas	7	9%	35	14%	20%	2619	21%	211	12%	3185	9%	865	8%
Balatonfüredi	Óbudavár	0	0%	6	2%	0%	0	0%	57	3%	1195	3%	275	3%
Balatonfüredi	Pécsely	2	2%	18	7%	11%	122	1%	97	5%	788	2%	290	3%
Balatonfüredi	Vászoly	3	4%	8	3%	38%	342	3%	81	4%	1712	5%	515	4%
Pápai	Ganna	4	5%	7	3%	57%	381	3%	42	2%	1865	5%	462	4%
Pápai	Németbánya	3	4%	3	1%	100%	129	1%	19	1%	2451	7%	424	4%
Tapolcai	Mindszentkállya	3	4%	6	2%	50%	737	6%	34	2%	1020	3%	281	3%
Tapolcai	Nemesvita	4	5%	13	5%	31%	165	1%	81	4%	955	3%	318	3%
Tapolcai	Szentbékállya	3	4%	16	6%	19%	912	7%	92	5%	2182	6%	737	7%
Vámpalotai	Öskü	4	5%	10	4%	40%	0	0%	52	3%	1466	4%	311	3%
Veszprémi	Hárskút	0	0%	2	1%	0%	211	2%	19	1%	606	2%	267	3%
Veszprémi	Nemesvámos	4	5%	3	1%	133%	0	0%	16	1%	880	2%	250	2%
Zirci	Bakonybél	13	16%	35	14%	37%	3943	31%	250	14%	5070	14%	1714	18%
Zirci	Bakonyána	0	0%	11	4%	0%	782	6%	73	4%	3155	9%	561	6%
Zirci	Bakonyzentkírály	2	2%	5	2%	40%	0	0%	35	2%	692	2%	205	2%
Zirci	Csesznek	6	7%	9	4%	67%	301	2%	66	4%	1633	4%	776	4%
Zirci	Dudar	5	6%	6	2%	83%	0	0%	31	2%	698	2%	294	3%
Zirci	Eplény	5	6%	4	2%	125%	96	1%	44	2%	724	2%	339	3%
Zirci	Jásd	0	0%	6	2%	0%	717	6%	52	3%	2022	5%	571	5%
Total:		82	100%	253	100%	32%	12614	100%	1810	100%	36827	100%	10508	100%

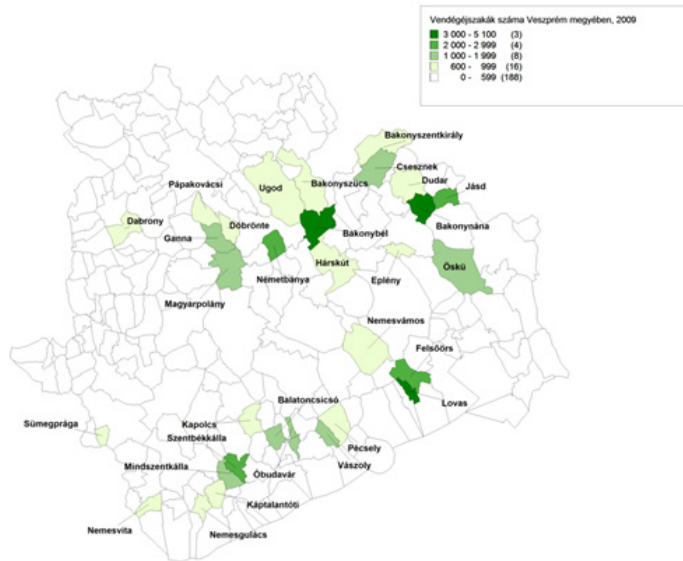


Figure 3 Number of guest nights spent in the villages of Veszprém county
 Source: own construct

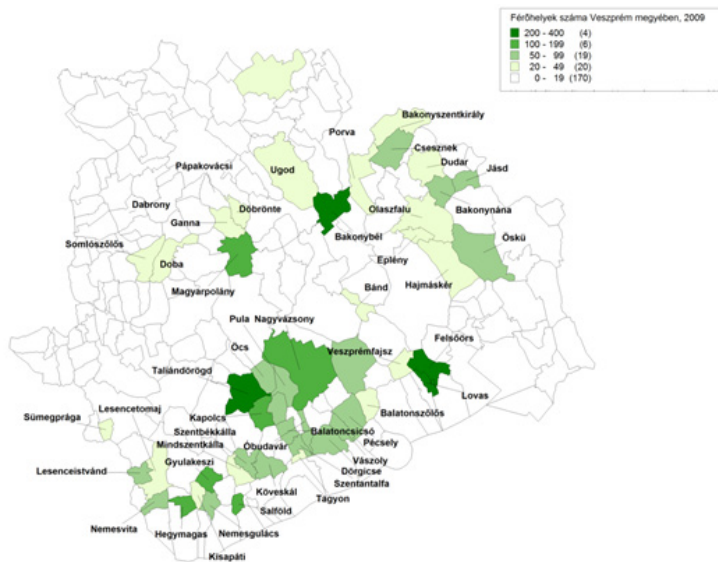


Figure 4 Number of bed-places in the villages of Veszprém county
 Source: own construct

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ZOLTÁN ANDRÁS DÁNIEL – VIKTÓRIA CSIZMADIÁNE CZUPPON

**THE IMPACT OF DEVELOPMENT
RESOURCES OF HUNGARIAN SMES IN
DISADVANTAGE AREAS
(PMR 2017/1-2)**

The Hungarian micro, smart and medium enterprises has the possibility to have access to development resources. The Economic and Competitiveness Operational Programme and The Economic Development Operational Programme (EDOP) support SME's with billions of EU and national non-refundable funds. In our quantitative research, we made a database using data of medium enterprises who received funds between 2004 and 2013 (EDOP funds), the database was completed using data from the enterprises annual reports. We used the balance sheet to obtain data on company assets, income statement to obtain income, expenses and earnings before taxes data. We collected all listed data for the previous years and following periods (between 2006 and 2013). In this study, we analyzed performance indicators based on assets and profitability of company, for periods following the financial fund get from the above-named programs. The research enabled to map the growth path following the grants. This study confirmed the necessity of direct funds for SME companies following their strategical growth path, and gives advice for the future resource allocation. These advices may be integrated as criteria for resource award in the future.

Keywords: SME, growth, EU funds, performance

Introduction

Micro, small and medium-sized enterprises (SMEs) play a significant social and economic role in all countries of the world: in OECD countries, the number of SMEs represents 98% of the total. Of these, the proportion of micro enterprises is almost 90%. In addition to the large number of employees, these companies have a strong impact on GDP production and job creation. The perception of SMEs is important for all national governments (OECD, 2002), even though its significance is explained by various reasons (Mészáros et al., 2001). Szerb (2000) emphasizes the diversification and flexibility of the market to meet the needs. Another important aspect is the role of SMEs in strengthening competition for market players who can react dynamically and flexibly to changes in demand. In some regions, including Hungary, they also offer alternatives to less developed areas and different social groups (e.g. women, minorities, young people) for employers and primarily self-employed (Futó, 2000). In the European Union and also in Hungary, the SME classification is based on the total assets, the annual turnover and the number of employees (Fig 1.). Accordingly, a micro-enterprise is an undertaking with less than 10 employees and whose annual turnover and / or annual balance sheet total does not exceed EUR 2 million. By 2014, the number of enterprises was 21,564,380, of which 21,521,080 (99.8%) were SMEs. SMEs also play an important role in employment; Almost 140 million employees employ 90 million workers (EU28).

Company category	Staff headcount	Turnover	or	Balance sheet total
Medium-sized	< 250	≤ € 50 m		≤ € 43 m
Small	< 50	≤ € 10 m		≤ € 10 m
Micro	< 10	≤ € 2 m		≤ € 2 m

Figure 1 SME classification factors
Source: own editing

Accordingly, the development of small businesses in the EU is of the utmost importance. In March 2000, the Lisbon Agenda was adopted, aiming to achieve a 3% growth and 20 million jobs by 2010 (Euractiv, 2004). At the same time, the European Charter on Small Enterprises was adopted and made proposals to improve business conditions.

However, these measures did not produce the desired results. The differences between the EU and the US have not been reduced. Moreover, the emergence of Asian economies threatened to bring the EU economy to the third place. In response to negative trends, the Green Paper has been published, which contrasts with the Charter with a bottom-up approach in order to reach the widest possible range of action areas. The two proposed topics are 1) the growth of entrepreneurial willingness and 2) the growth of enterprises (EC, 2003a). With regard to these issues, the Commission has issued a business action plan which provided a strategic framework for the two topics covered in the Green Paper (EC, 2004).

The Europe 2020 Strategy will show how the social market economy will emerge over the next ten years and is based on the three areas mentioned above (US, Asia, EU). In order to achieve the set objectives, the Commission recommends the Europe 2020 program, which organizes tasks organized around flagship initiatives.

In the implementation of the strategy, EU management approaches are in place to ensure that effective policy measures are taken. The Commission is constantly monitoring the progress made.

In order to increase coherence, the reporting and evaluation of the Europe 2020 Strategy and the Stability and Growth Pact will take place at the same time. Thus, these two strategies will try to implement the efforts of similar reforms while continuing to act as separate tools (EC, 2010).

Micro, small and medium-sized enterprises in Hungary

The vast majority of businesses in Hungary belong to the SME category, with fewer than 249 employees. They play a significant role in the country's income generation, investment and employment. According to 2013 figures, the number of registered businesses was 598,000, down by 46,000 compared to 2012. This 15% decline was mainly due to small and private enterprises, while corporate enterprises showed stagnation during this period. The number of small and medium-sized enterprises did not change significantly, but micro-enterprises fell by 6.8% (KSH, 2014).

Kallay et al. (2005) characterized the SME sector as follows: *"...for the current situation of the domestic small and medium enterprises is true that a catching-up process can be observed in a number of important*

areas (financing, self-organization, management, the use of information and communication technologies), however, compared with the small and medium-sized enterprises in the developed countries, a significant backlog can be observed". Despite the fact that this statement was born more than ten years ago, it is still valid, although the catching-up process continues.

By 2013, the performance of SMEs could not be recovered from the 2008 crisis, since 2009 the sector performance has weakened. In recent years, many financial indicators fluctuate significantly – 90% of 2008 values – such as SMEs, Employment or Value Added.

The number of Hungarian small and medium-sized enterprises significantly exceeds the EU average and as a result they employ fewer people but have a significant employment impact. The EU average for employment is 4.2/company, in Hungary this figure is 3.1. For micro-enterprises the average number of employees is 1.6, for small businesses 19.1, for medium-sized enterprises 97.9, and for large companies 834.7 for SMEs yearbook (EU, 2011).

The performance of the SME sector in terms of gross added value is significantly below the EU average; According to 2011 figures, the value creation of the domestic sector is 5% lower, since then the performance of the Hungarian sector has deteriorated continuously.

SMEs are characterized by a strong territorial concentration: the most significant is the Central Hungarian region, where 40% of all enterprises, while in the other regions, is similar to the distribution (KSH, 2014).

The average turnover of SMEs was lower than that of any business, and spatial distribution was significant due to organizational structure. According to the 2012 data, SMEs achieved an average turnover of HUF 70 million, while the partnerships reached 112 million. The difference is the smallest in Southern Transdanubia and in the Southern Great Plain, while the biggest difference is observed in the Central and Western Transdanubia and Central Hungary regions.

Although the vast majority of SMEs were micro-enterprises, only 36% of sales revenue, while 28% of small enterprises and 4.1% of medium-sized enterprises were realized. In Southern Transdanubia and Northern Hungary, micro-enterprises played a major role, the ratio of small enterprises to Southern Transdanubia and Southern Great Plain was highest, while Central and Northern Hungary, Central Transdanubia and Northern Great Plain (KSH, 2014).

Balaton Region is part of three NUTS II regions: Central Transdanubia, Southern Transdanubia and Northern Hungary. All three regions are disadvantages regions.

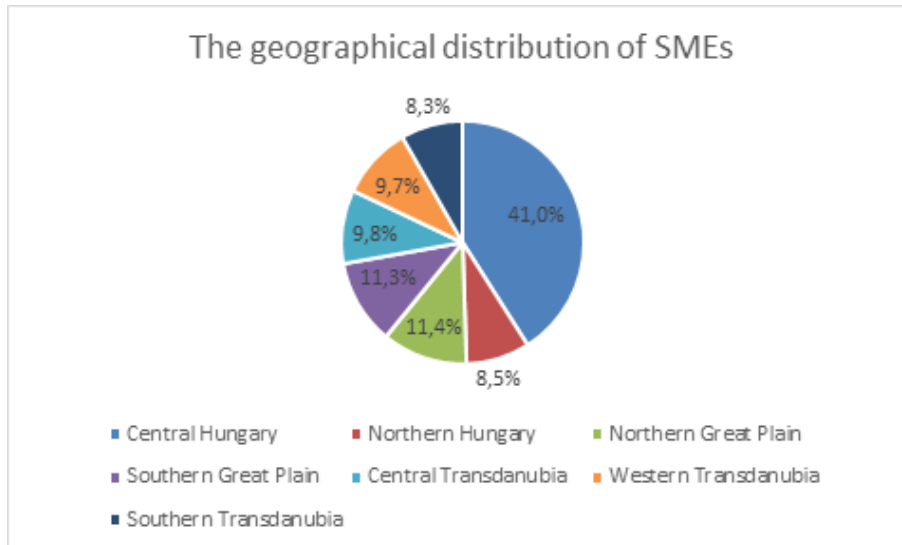


Figure 2 The geographical distribution of SMEs
Source: own editing based on HCSO data

Business development within the EU

In line with the Lisbon process, the European Council published the European Charter for Small Enterprises in 2000. The Charter is nothing but the distribution of the objectives of the Lisbon process at the level of SMEs. When the renewed Commission revised the strategic policy, government support was becoming less and less targeted. The goal was to achieve a more predictable economic environment and better procedural efficiency by improving implementation, transparency and sharing of responsibilities (Evaluation Report, 2010).

Government interventions aimed at SME development in Hungary were covered by the Széchenyi Enterprise Development Program (2003–2006) during the EDOP (Economic Development Operational Programme) planning phase. The main objectives were to increase the competitiveness of businesses, to prepare for integration into the European Union, to facilitate access to resources, and to create the necessary conditions for mobilizing funding sources.

Amin-Tomaney (1995) states that: *'the cohesion policies are intended to compensate for the negative effects of restructuring derived from the neoliberal growth theory, embodied for example by the implementation of the European Common Market and the European Economic and Monetary Union'* (Eperjesi, 2013).

The use of state resources for development in the European Union is governed by cohesion policy, and its resources are a major part of Community spending. Member States represent different levels of development and are consequently eligible for different rates of assistance (Nyikos, 2013).

The essence of cohesion policy was to contribute to the eradication of socio-economic disparities between the Member States of the European Union and to create real convergence. This requires improving the economic performance of the regions, in particular as regards GDP, employment, foreign trade balance and investment (Nyikos, 2013).

Convergence policy, in the interpretation of Nagy–Heil (2013), represents a system of institutions with complex objectives that includes absorption, regularity, efficiency and efficiency.

The European Union's cohesion policy seeks to eliminate inequalities by promoting economic growth. To sum up, the aim of cohesion policy is to promote economic, social and territorial cooperation of the community, to promote harmonious development, to reduce the differences between the different regions and to develop disadvantaged areas¹. The Structural and Cohesion Funds are responsible for the resources required for implementation (Nyikos, 2013).

Cohesion policy has changed significantly in the 2007–2013 programming period compared to the 2000–2006 period. The independent operation of the Cohesion Fund between 2007 and 2013 ceased, but remains part of the convergence objectives. The three new objectives included the first three objectives and the tasks of Interreg III, Equal and Urban II. The latter two programs are among the objectives of convergence, regional competitiveness and employment (EURP, 2007).

Based on the experience of previous periods, five ambitious targets for employment, innovation, education, poverty reduction and climate policy / energy issues in the Europe 2020 strategy (smart, sustainable and inclusive growth) have been set in the Europe 2020 strategy. Three financial instruments are maintained (ERDF, ESF, Cohesion Fund), but these regional categories also appear. The main objectives can be divided into two groups, including investments for growth and job creation, and the other for European territorial cooperation (cohesion policy, 2015).

¹ NUTS 2 regions with a gross domestic product (GDP) per capita in purchasing power standards (PPS) that is equal to or less than 75% of the EU-27 average

Hungarian regional policy

Prior to joining the EU, there was also a regional policy in Hungary, but the legal bases only existed in the 1996 XXI. The Law on Regional Development and its 1999 amendments. At that time, regional policy was operating at the county level, this change was triggered by the NUTS II level, which resulted in the creation of regions (Szabó, 2007).

Although the European Union recognizes Hungary's successes, namely that only our country succeeded in establishing a law on regional development between the transition countries, only low compatibility with the European Union was established. The 1999 amendment created more regions for the regions, obliging them to set up their own regional development councils. This was in line with international practice and the councils were not only related to national and local government institutions, but also participated in the development of domestic small and medium-sized enterprises (Szabó, 2007).

In the 1990s, Hungary received three non-repayable funds for PHARE, ISPA and SAPARD. The pre-accession fund aims to reduce regional disparities within the EU and to develop an appropriate institutional framework to achieve the resources of the Structural and Cohesion Funds (Szabó, 2007).

Hungary's objectives – Operational Programs 2014–2020

Some of the funds granted by the European Union can be accessed through the operational programs of the National Development Plan (NDP). The SME sector was entitled to apply for unprovable funding, mainly under the Economic Competitiveness Operational Program (ECOP). Within these two outstanding programs we should mention: 2.1.1. 'Supporting the technical and technological background of small and medium-sized enterprises' and 2.2.2. 'Special advice for micro, small and medium-sized enterprises'. These programs were characterized by the creation and promotion of fast growing enterprises (Csapó, 2009).

The primary objective of the Economic Development Operational Program was primarily the development of SMEs. The goal of GOP 2.1 was to improve the technical and technological background of SMEs. These include technological upgrading, upgrading their innovative capacity, upgrading technical and technological management, building quality management systems. Its objective is to promote the market position of SMEs, improve competitiveness through their innovative capacity and technological upgrading, and to provide the necessary conditions for

building a quality assurance system (2010 Evaluation Report). Businesses may request resources for technical machinery and equipment, real estate development or expansion to purchase production, trade and / or services, and know-how or licenses.

34.9% of total applications were submitted for GOP offers. Of this number 40.7% were supported projects and the funds received were 13.6% of the total. GOP priorities at regional level were 42,462 applications, 60.1% of which were awarded. Total funding was 1.702 billion forints, 61.4% and 59.3% paid (Hutkai, 2014).

Material and methods

As a first step in the creation of the database, we defined five call for proposals (GOP 2.1.1 / A, 2007–2010), and the winners of these tenders developed the studied base population. The next step was to collect the application data for these businesses. Accordingly, the names of the applicants, the projects they carried out, the location of the investments (region, county or municipal level), the resources acquired and spent, and the intensity of the funding for which we calculated the actual financing requirement of the project was available. It was also possible to collect the date of commencement and completion of the execution.

In order to establish our hypothesis, besides the basic information on subsidies, information on the financial situation and profitability of the applicants is also needed. These data are freely available in companies' published financial statements. These reports are available only to companies because the reporting obligations are provided in the Accounting Act and individual entrepreneurs are not subject to the Accounting Act (C. Act of 2000).

Accordingly, we had to exclude companies from the database that are not covered by the Accounting Act. Following the exclusion of self-employed persons, the final sample contains 4977 companies, typically limited-liability companies (4265) and limited partnership companies (535). Out of the remaining 177 enterprises, 49 cooperatives, 10 general partnerships and 118 limited liability companies. The sample includes 3632 micro-enterprises, 1075 small businesses and 270 medium-sized enterprises.

In addition to the existing and purified data of the applicants in the third part of our database, besides the classification of the enterprises in the SME categories, we had to examine the financial situation and the profitability of each undertaking. This study was based on data from financial statements.

These data are accessible to the public in the Company Information System of the Ministry of Justice through the Accounting Act and are accessible to everyone.

After collecting data, we determined the time required for the analysis. As projects were implemented between 2007 and 2010, we chose an analysis of the 2006–2013 period, so the period under review is eight years. According to our hypothesis, we needed the financial statements of the companies. We were downloaded the financial data every year from the balance sheet. Further analysis is required for classification. For the purposes of the capital structure analysis, we examined the company's equity, its long-term and short-term liabilities. To compute absolute and relative numbers with the indicators, we collect annual revenue, financial and personnel expenses, depreciation and amortization in the income statement. In addition to the aforementioned sales revenues and expenses, we collected the following revenue categories: operating income, extraordinary income, pre-tax profit, post-tax profit.

As outlined above, in each of the eight years selected, each company received 12 data a year, a total of 96. The collection has started downloading the downloadable format financial reports at <http://e-beszamolo.im.gov.hu>. We have collected 4 reports for each business. Since each report must contain the data for the previous year, it was enough to download the report every two years. Separate parts of the report or reports (balance sheet, profit and loss statement) can be downloaded annually, depending on the type of uploads chosen by the company, the system is not consistent in this respect. Number of documents downloaded (except annexes to the profit and loss account) 28.093. The number of data extracted was 477,792. The number of data extracted was 477,792. For the sake of comparison, the data were deflated for the base year 2006 with the help of the official inflation index in order to eliminate inflationary impacts.

The financial and economic crisis has had a significant impact on our country and therefore on SMEs. The database presented above has improved as a result of the crisis. A second database was created to adjust the data on the impact of the change in GDP, similarly to adjusting the effects of inflation. In this case, we also used the official statistics of the Hungarian Central Statistical Office.

The structure of the definitive database

The raw database contains the bidder's offer (business name, project name, region, county government, funding, intensity of support, execution time), micro, small and medium enterprises) and the above-mentioned accounting records. Accordingly, the complete database 522,585 Input data.

During the hypothesis, we had to reconcile the application years (periods) before and after the implementation of the projects. This has allowed the correlation between the results of businesses receiving support at different times. When setting the time intervals we would have to analyze short-term and long-term effects.

After determining the periods and intervals, the indicators designed for testing the hypotheses (derived data) were determined. Accordingly, we calculated the value-added index to validate the first three hypotheses to measure changes in the value added of businesses. This uses variable income data and summarizes pre-tax results for the period, personnel expenses and amortization costs. The value of value added (AV) was determined by the following formula (Chikán–Wimmer, 2004): pre-tax profit + employee costs + depreciation expense.

The correlation between data correlation was performed using SPSS 22.0. Correlation calculations were performed when we had to investigate interaction between different variables (interaction). This paper presents the direction and proximity of the relationship between different variables (Molnár, 2015). The relationship between the different variables is shown by the correlation coefficient, while the correlation coefficient is represented by the absolute value of the coefficient (Sajtos, 2007).

Results and debates

In order to examine the utilization used at regional level, we first listed the individual regions. The ranking was based on the per capita GDP of 2007. The first places of the ranking are occupied by the Transdanubian regions, while in the second half of the list we find the regions of Eastern Hungary. The EDOP 2.1.1 call for proposals, which we have examined, has appeared uniformly in convergence regions. This means that, unlike the call for proposals, there were no separate quotas or targeted resources to support disadvantaged regions. In our hypothesis, we suppose that the difference in the aid intensity of the disadvantaged regions in the proposals for proposals is insufficient to provide these regions with proportionally more resources.

Along with the distribution of the companies in the sample, we examined the average amount of aid received by each company. According to the following table, the three most disadvantaged regions are outstanding, while the average aid (AT) in developed regions is below HUF 13 million, while the average of the three least developed regions is HUF 15 million.

Then, in addition to the above, we examined that a relationship can be quantified between the sources of financing and the level of development of the regions. For each of the bidding periods and proposals for proposals we have examined the level of development of the region (per capita GDP-GDPFO) and the amount of grant awarded. We used a correlation calculation to test the connection. The results for each year can be found in the following tables:

Correlations				Correlations			
		AT2007	GDPFO2007			AT2008	GDPFO2008
AT2007	Pearson Correlation	1	,031	AT2008	Pearson Correlation	1	-,870*
	Sig. (2-tailed)		,954		Sig. (2-tailed)		,024
	N	6	6		N	6	6
GDPFO 2007	Pearson Correlation	,031	1	GDPFO 2008	Pearson Correlation	-,870*	1
	Sig. (2-tailed)	,954			Sig. (2-tailed)	,024	
	N	6	6		N	6	6

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations				Correlations			
		AT2009	GDPFO2009			AT2010	GDPFO2010
AT2009	Pearson Correlation	1	-,880*	AT2010	Pearson Correlation	1	-,848*
	Sig. (2-tailed)		,021		Sig. (2-tailed)		,033
	N	6	6		N	6	6
GDPFO 2009	Pearson Correlation	-,880*	1	GDPFO 2010	Pearson Correlation	-,848*	1
	Sig. (2-tailed)	,021			Sig. (2-tailed)	,033	
	N	6	6		N	6	6

*. Correlation is significant at the 0.05 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 1 The relation between regional development (per capita GDP - GDPFO) and the size of the average grant (AT) awarded
 Source: own editing

As you can see, except for 2007 data, the connection is significant and has a strong negative connection. The explanation is contained in the calls for proposals, Because of the four financing cycles, 2007 was the year when the level of development of the regions was not a discriminating factor for businesses, and the proportion of subsidies was uniform throughout. Beginning in 2008, regions with a greater number of disadvantaged sub-regions have a higher aid intensity.

We would therefore like to demonstrate that the relationship between the resources received and the resources used and the added value of the winning companies are independent of the level of development of the regions. In examining our assumption, we tried to look at the value-added changes of the underlying companies compared to the results of all the companies in a given region. However, this analysis was hampered by the fact that data on the performance of SMEs were not available at regional level. In such circumstances, we could only compare the added value of all the companies in the regions (including large companies).

During the study, we calculated the value added of the companies in the sample in the end of 2013 (end of the test cycle) and the 2006 base year and then the same calculations were made for all Enterprises in a given region. The ratio of these two values shows that the dynamics of growth are different between enterprises from the sample and all enterprises in that region. Based on the results we came to the conclusion that in the three least developed regions (Northern Hungary, Northern Great Plain, Southern Great Plain) this dynamics is significantly higher (112.69%, 109.67%, 97.64%) than in economically developed regions. In economically developed regions, the result remained below 90%.

Correlations

		GDPFO	Dynamics
GDPFO	Pearson Correlation	1	-,835*
	Sig. (2-tailed)		,038
	N	6	6
Dynamics	Pearson Correlation	-,835*	1
	Sig. (2-tailed)	,038	
	N	6	6

*. Correlation is significant at the 0.05 level (2-tailed).

Table 2 The relation between per capita GDP (GDPFO) and the rate of change of the value added dynamics

Source: own editing

The difference in the dynamics of growth is clear from the above data, but we also examined whether there is a verifiable relationship between ranking the regions on this dynamics and per capita GDP. To verify the connection, we performed a 5% significance level correlation calculation

and found a strong negative (-0.835) connection. The above facts clearly show our hypothesis, and we can also conclude that funding sources have led to more dynamic economic growth in less developed regions.

Conclusion

In our research we examined the regional impact of the projects. We demonstrated that enterprises in the disadvantaged statistical regions received a larger share of the aid, and the average amount received was also higher. By correlation calculation, we proved that the higher aid intensity resulted in an increase in the amounts granted so that the higher aid intensities in the call for proposals have a positive effect on the absorption capacity of the given region.

We have also examined whether enterprises in disadvantaged areas are able to take advantage of the subsidies received or their results are below the performance of businesses in the more developed regions. During the investigation, we found that the added value of enterprises in the less developed regions was higher than in the developed regions. The analysis showed a strong negative significant relationship between the per capita GDP of the regions and the added value of the subsidized enterprises, so we came up with the fact that the aid granted resulted in a more dynamic growth in the less developed economic regions.

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ESZTER MADARÁSZ

THE NETWORK OF ACTORS IN A TOURISM DESTINATION BASED ON VESZPRÉM TOURISM ASSOCIATION (PMR 2017/1-2)

Since the end of the 20th century and the start of the 21st century networks related to various aspects of human life have been present and more intensively brought to the focus of scientific research or even in interpreting problems and phenomena of everyday life. This approach provides tourism with plenty of new information, since previous research methodologies did not allow an objective and structured description of tourism, learning relations among actors, and introducing their impact on the entire system. It is especially important for touristic destinations, since an appropriate network of actors and tourism suppliers on the supply side is not only a precondition to marketability but also one of the key tools in competition (Michael, 2003; Baggio, 2008b). At present, networking has certainly attracted the attention of Hungarian tourism researchers (Jancsik – Mayer, 2010; Jancsik, 2010; Rátz – Kátay, 2009), but no specific network has been analysed yet. The first paper in this very topic was published in 2013 in Hungarian Geographical Bulletin (Madarász – Papp, 2013), whereas this paper aims to present further possibilities provided by this approach. This empirical research presents the analysis of the members' connections takes place in case of the Veszprém Tourism Association with the help of network analysis. By analysing the density, indegree and outdegree centrality, and prestige of the members of the association it can be concluded that the management of the Veszprém Tourism Association is in harmony with the power positions taken within the networks, and the actors with highest level of local recognition, prestige, and power control and manage the life of the association. Additionally, this method made the management aware of the actors in peripheral position.

Keywords: social network analysis, DMO organisation, destination management, tourism destination

Introduction

The main drive to make this research was to map the new and quickly-spreading opportunities, which social network analyses provide in tourism. The paper splits into two main parts: in the first half national and international sources of literature are used to present the basis of network building and its aspects for tourism, whereas the second part presents an empiric research of relations of members of Veszprém Tourism Association.

The purpose of introducing the literature is to provide a complex background for the implementation of the research. The empirical part aims at promoting and facilitating the spread of this novel and scientific approach of studying destinations in the Hungarian literature. A further goal is to use the case of Veszprém Tourism Association as an example to create a measurement tool that makes the cooperation among actors at tourism destinations measureable and help discover the structure and power relations of a destination.

As tourism has developed, has become more available to masses of people, and has become more and more complex, the number of definitions has grown remarkably too; nowadays definitions belong to two main categories (Formádi – Mayer, 2002):

- definitions of economic-statistical purpose: the most widely accepted definition of tourism was phrased by WTO-OMT¹ (now UNWTO) in 1989 and published in The Hague Declaration.
"It encompasses all free movements of persons away from their places of residence and work, as well as the service industries created to satisfy the needs resulting from these movements." (Formádi – Mayer, 2002; Puczko – Rátz, 1998; WTO-OMT, 1989)
- complex definitions: apart from economic processes, those definitions contain natural, cultural, and social aspects that are difficult to quantify, which sheds a light on the complex relation of the surrounding environments and actors in tourism. The following English definition endeavours a shift to complexity:
"Tourism may be defined as the processes, activities, and outcomes arising from the relationships and the interactions among tourists, tourism suppliers, host governments, host communities, and surrounding environments that are involved in the attracting and hosting of visitors." (Goeldner – Ritchie, 2012)

¹ WTO-OMT – World Tourism Organisation, the intergovernmental organisation for tourism, presently called UNWTO and functions as a UN-organisation responsible for tourism.

From the above definitions we can clearly conclude a systematic approach to tourism is essential (Michalkó, 2012), since various actors of tourism are in continuous interaction in order to meet visitors' demands, on which the environment surrounding the actors have significant impact too; moreover, as this relation applies vice versa as well, tourism functions as an open system. It is important to discover those relations, since there are numerous (yet invisible at the first glance) factors in the background that can have substantial impact on the success of a tourism destination (Michalkó, 2012).

A methodology with a new aspect – social network analysis

Social network analysis (hereinafter as: SNA) has been brought into the mainstream of economic researchers' scientific interest of over the past few decades as the role of economic actors' network in business and competition has raised. Although social network analysis is a new approach applied for a few decades in economic researches, the methodology itself looks back upon a remarkably history (Gerő, 2006). Nowadays the primary goal of network analysis is to investigate how the networks surrounding us can be described, explained, managed, and to what extent their behaviour may be predicted (Kovács, 2010; Scott et al., 2008a; Gerő, 2006).

Basically, social network analysis differs from conventional research in three main aspects (Letenyei, 2005): it collects new data types, phrases new analysis questions, and uses new analysis methods.

Social network analysis in tourism

Lately tourism networks have earned a role of growing importance in (regional) economic development (Presenza – Cipollina, 2009; Lengyel, 2010) either in terms of network of clusters or destinations (Rátz – Kátay, 2009, p. 82). One of the reasons behind is that tourism, as a resource-dependant sector, is a sector whose output cannot be removed from the region, but revenue streams through consumers to economic actors and is therefore capable of expanding its market (Lengyel, 2010). In addition, for many reasons it is the nature of network of tourism suppliers that determines the success of tourism and the attractiveness of a destination. For tourists the network creates information, transportation, and service environment, in which trust, human factor, and quality are represented in interaction as well as separately. As far as supply is concerned, networking is able to compensate the fragmented nature of tourism (Scott et al., 2008a).

Besides cooperation is essential since tourism uses many shared resources, on which stakeholders in tourism can only pass a joint decision (Scott et al., 2008b).

It was not until SNA entered tourism when the first theoretical description came to life on the organization, relations, and structural characteristics of touristic destination, as existing destination models are mostly related to competitiveness and describe the related influencing factors, processes, and activities. They do not throw light on actors and their networks implementing the elements, processes (Baggio, 2008a), although many papers have concluded that the more frequent interactions actors witness at both formal and informal level, the more successful the destination will become (Michael, 2003; Baggio, 2008b).

Tourism destinations as networks

Many researchers have attempted to define and delimit tourism destination (e.g. Leiper, 1995; Hall, 2000; Buhalis, 2000), yet have not reached consensus. It is the individual researcher's approach to select the definition applicable to the case (Jancsik, 2007). The World Touristic Organisation (UNWTO) comes to stage as a synthesis of tourism destination-delimitation definitions:

'A local tourism destination is a physical space in which a visitor spends at least one overnight. It includes tourism products such as support services and attractions, and tourism resources within one day's return travel time. It has physical and administrative boundaries defining its management, images and perceptions defining its market competitiveness. Local tourism destinations incorporate various stakeholders often including a host community, and can nest and network to form larger destinations.' (Papp, 2012; UNWTO 2007, p. 1)

Based on the above definition, tourism destination is virtually a complex social system, which can also be defined as a fundamental unit of touristic competition. According to Amaral and Ottino (2004) (quoted by Baggio et al., 2008b) the following toolkit can be used to examine complex systems: non-linear dynamics, statistical physics and network analysis (Baggio et al., 2008b). This research applies the latter method to study tourism destinations.

The importance of bottom-up approach in tourism development is widely accepted in both the Hungarian as well as the international literature (e.g. Michalkó, 2012; Vanhove, 2010). An efficient implementation and holding on in competition require tourism destination to be managed and coordinated by an elected organisation or actor, since in this case it

is a particular tourism supplier with divisions/departments more or less independent from one another, but do cooperate to fulfil the shared vision. As a conclusion, the fundamental units of the research introduced in this paper are tourism suppliers belonging to such an organisation, and the empirical chapters discuss and map the business network of the Members of Veszprém Tourism Association.

Empirical research – Methodology

The purpose of my research is to improve the transparency and further develop the cooperations of actors in national tourism destinations with the help of a questionnaire I have prepared and interviewed with. As a result, in awareness of interrelations and their properties, an opportunity may open up to explore the structure of network of tourism destinations and describe interactions. Based on the achievements, I further aim to make propositions for Veszprém Tourism Association on building connections among actors in order to enable the tourism destination to enhance competitiveness with an advanced and more complex supply portfolio. To achieve my goals, I have selected Veszprém Tourism Association, because

- Veszprém Tourism Association was one of the first TDM organisations founded,
- unlike many other destination organisations, it was indeed a self-initiated and bottom-up organisation at the beginning of creating the Hungarian destination management system,
- thanks to early formation and later the foundation of Veszprémi Turisztikai Közhasznú Nonprofit Kft., the organisation has been expanding with an upgrading tendency, and
- naturally, its closeness as well as my local professional connections furthered and simplified the collection of data on cooperation there than in other local tourism destination organisations, since confidence is a key aspect in gaining answers to my questions in the research.

To analyse the data gained from the questionnaires I used quantitative network analysis methods with NodeXL and Ucinet 6 software. The questionnaire, consisting four parts, was interviewed in personal interviews, although a structured questionnaire was used (with closed questions sometimes converted to open questions wherever required), but personal visits were preferred due to the subject being discussed, to avoid misunderstanding, and achieve the highest possible/maximum response rate (Babbie, 1999).

Results – Social network analysis of Veszprém Tourism Association

The entire social network of the members of Veszprém Tourism Association

The analysis of all connections of the members of association suggests they have arborescent business cooperations and work with plenty of non-member partners. Among the latter ones, certainly there are some named by other partners as well, and therefore have high level of indegree. With respect to their activities, they mostly work for the local media (Veszprém Tv, Méz Rádió, Veszprémi 7 Nap (weekly paper), Veszprémi Napló (journal)), and the University of Pannonia, Bakony-Balaton TDM, and the Local Government of Veszprém represent centrality in the network. These results are not surprising as the local media and the municipal government are key partners; obviously many actors are also members of Bakony-Balaton Regional TDM, whose activities spread over a larger area than the association in concern.

With regard to partners outside the association, the largest share (18%) of cooperations was related to marketing communication service providers, whereas tourism information service providers (mostly Internet sites) got the second place (15.4%). Additional significant actors (around 10%) are Internet accommodation reservation agencies and other service providers.

Social network of the members of Veszprém Tourism Association

The next paragraphs analyse the ties of VTE's members within the association. For the purpose of the analysis VTE and the closely-linked Tourinform Office (hereinafter as TDM organisation) are removed from the network, since their high level of indegrees (the number of adjacent edges that is the number of neighbours, partners) and high-level of centrality arising out of their roles and functions distort the true network of connections among the rest of the actors as well as the indices that can be derived from the data.

Before commencing the above analysis, the figure of the network that includes the TDM organisation to be removed from the scope of analysis at a later stage is illustrated below. Figure 1 shows the abbreviations used to mark each member of the Association (a combination of alphabetical and numerical digits) as well as the colour codes applied to clearly distinguish the three different types of service suppliers (tourism basic services – orange, other tourism services – blue, other services consumed by tourists – black):

- accommodation – SZ + number,
- actor providing accommodation and boarding – SZV + number,
- catering provider – V + number,
- other tourism services – EKT + number,
- other services consumed by tourists – TE + number.

In the Figure orange, blue, and black indicate basic tourism service suppliers, other tourism services, and other services consumed by tourists. Figure 1 clearly shows the central role played by VTE and TI, which, in terms of data, means while there are as few as maximum 10 indegrees to other actors, VTE has 41 and TI has 22 indegrees. The centrality of those two organisations guarantee there aren't any elements completely isolated in the network, because any element (EKT2) has at least one tie to TDM organisation (to VTE or TI).

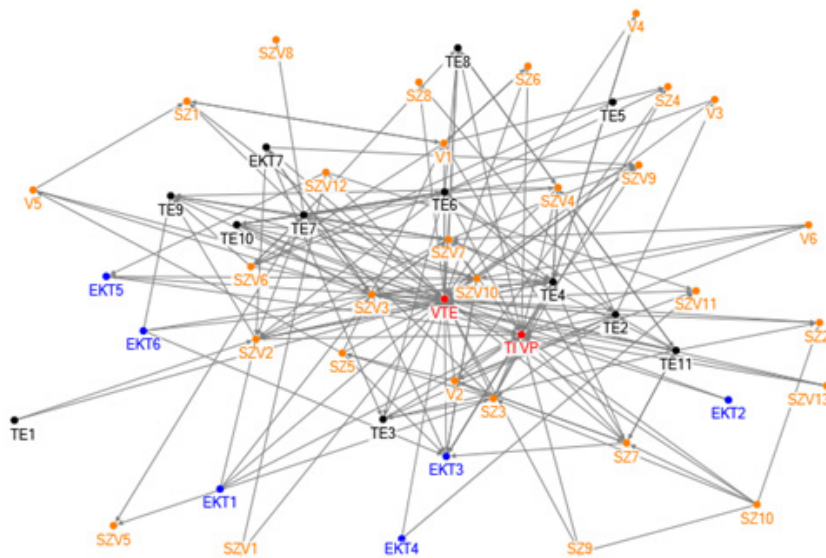


Figure 1 Social network of the members of Veszprém Tourism Association. Source: edited by the author

The indices have demonstrated evidence to the small-world nature of this network, as network diameter is 3 (6, excluding TDM organisation), the average geodesic distance is 1.94 (2.72, excluding TDM organisation). The diameter shows that from any actors you can get to any other actor through maximum 2 (5) mediators, whereas in accordance with the average

geodesic distance the distance between actors is 1.94 (2.72) on average. These parameters play a very importance role in information flow. Table 1 indicates although network density is very low, the distances shown above provide information flow among the members of VTE.

	Directed network		Undirected network
	Complete	without TDM organisation	
Density	0.086	0.062	0.107
Standard deviation	0.280	0.241	0.309
No. of ties	186.000	123.000	212.000
Variance	0.079	0.058	0.096
No. of cases	2162.000	1980.000	1980.000
Missing value	0.000	0.000	0.000

Table 1 Network density of members of the Association.
Source: edited by the author

The density of the complete network is 0.086 that is 8.6% of all potential connections exist in reality. If TDM organisation is removed from the network, the value of this index further decreases (Table 1). This volume, the general level of relation is, however, a general phenomenon in the analysis of destination networks; results of previous studies shown that tourism destinations are typical of networks with very low density (e.g. Tomaselli et al., 2013; Baggio, 2011; Baggio et al., 2008b; da Fontoura, Costa – Baggio, 2009; Scott et al., 2008b).

Standard deviations are 0.28 and 0.241 that is more than threefold and fourfold of the average, which are very high values. In this very case it means ties among members are distributed unevenly. Density measurement of ego network can help to identify actors in central or peripheral position (Letenyi, 2005).

In the previous paragraphs VTE's actors' social network was analysed as a directed network, which means the data matrix considered the direction of ties: only the direction mentioned in the questionnaire was taken into account. Those ties, however, can also be examined undirected, since they are business relations that affect both parties, and it might as well be the case that either party forgets about the other while filling in the questionnaire. With regard to undirected network the network density

of VTE's members' social network is still low (10.7%) but slightly higher than in the previous case (directed network). Deviation is threefold of the average, which reflects a fairly uneven distribution of connections.

Social networks of basic tourism service suppliers of Veszprém Tourism Association

The same letter and number combinations are used to sign service suppliers in figures 2, 3, and 4 as in the figure illustrating the entire network, but the colour coding has changed: red indicates catering providers, blue indicates accommodations, and violet indicates suppliers providing accommodation as well as boarding.

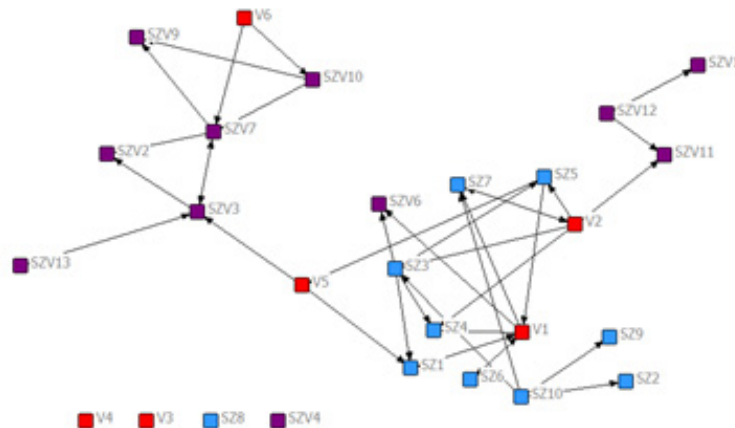


Figure 2 Network of basic tourism service suppliers of Veszprém Tourism Association.

Source: edited by the author

Figure 2 shows the social network of basic tourism service suppliers. Members in this sub-network have very loose connections only and there are few edges compared to the total possible number of edges. There is only one area, circled in red, with significantly higher number of ties, yet the maximum number of degrees related to a single point is still as low as 6 (at two actors, V1 and SZ3). The latter one, however, applies even only if connections are perceived as undirected. With regard to the entire network there is one actor (V5) that prevents the structure from splitting into two

halves, but there is a number of other suppliers functioning as bridge in the network in order to ensure the flow of resources (especially information) among the basic tourism service suppliers of the Association.

In the event only accommodation suppliers' network is analysed within the association, then a fragmented structure including some isolated actors is seen, that is they have no connection with other accommodation. There are some accommodation suppliers, who co-operate with other accommodation suppliers, whereas during the interview it was revealed such cooperation is limited to re-direction when fully reserved, that is if a supplier is fully reserved, then recommends another supplier of the same or lower category in town. They create the connections illustrated in Figure 3: actors providing accommodation only mostly cooperate only with other actors of the same profile, and the same applies to suppliers of accommodation and boarding.

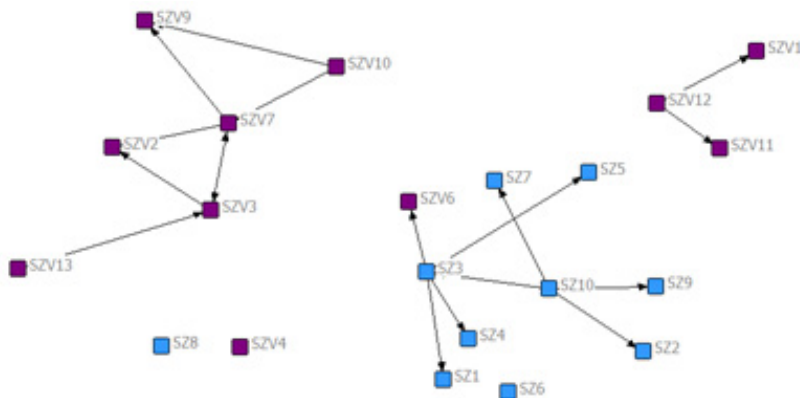


Figure 3 Network of accommodation suppliers.
Source: edited by the author

The network of members that provide accommodation only (Figure 4) virtually does not exist, as they keep contact with one another only via the Association; furthermore the interviews have shown that such relations exist at micro-regional or regional levels only, probably because in the latter case suppliers are no more competitors, but their cooperation enhance and widen the range of options offered in the micro-region or region, thus generate higher aggregate sales. If we analyse what sorts of accommodation and catering suppliers the actors offering catering services only are linked, it becomes clear actors pay attention to deliver quality and offer nearly the same standards in their cooperations.

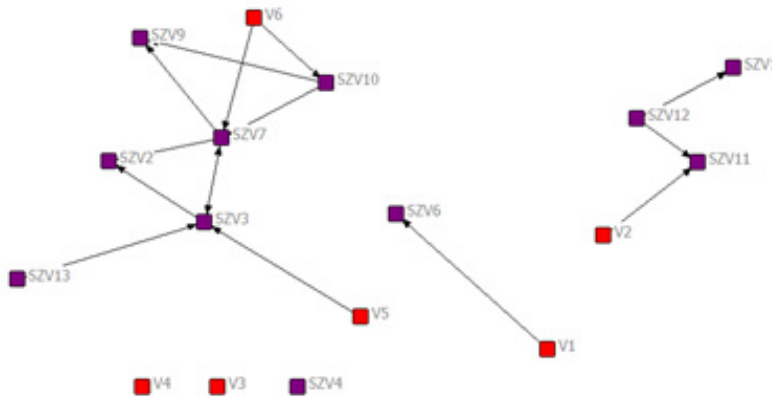


Figure 4 Network of catering service providers.
 Source: edited by the author

The entire social network of the members of Veszprém Tourism Association

In this chapter network analysis indices are used to investigate the structure drafted by the connections of members. First the degree density of VTE members' social network will be examined.

On the basis of indegree and outdegree there are 8 and 12 actors with high values², respectively, which are equivalent to 17% and 26 % for a total population of a 45 members; in other words that small share of respondents have plenty of connections, whereas the majority have few connections only. In harmony with other published findings in the literature, members of VTE are also characterised with scale independence, so there are few members with large number of connections in a network, and the majority of members have few connections.

The highest value of indegree density was 22.7 %³, and there are four more actors with similar value. It means about 20% of all members of the Association reported connection with them. These four actors include four attractions of national recognition and two high-class suppliers of accommodation and catering services. Except for one actor, actors with indegree densities between 10 and 20 % are basic tourism service providers (mainly accommodation), including one event attracting visitors from the entire country. As far as outdegree density is concerned, high values are

² Indegree and outdegree values were maximum 10 and 9 in VTE's members' network, so values of 5 and above are interpreted as high indegree and outdegree.

³ Indegree and outdegree densities in that case were calculated by dividing the indegree or outdegree of a particular point by (N-1).

gained mainly by actors offering other services for tourists (e.g. museums, institutes for culture and art), but also by some basic service suppliers. It means mainly institutes from non-profit sectors aim at keeping relations with the members of the Association.

To sum up, density indices allow us to conclude that in terms of business connections basic tourism service suppliers rather have "recipient" status, while suppliers of other tourism services function as "emitters" in the network. If seen as an undirected network, these two types of suppliers have equal shares on the top of the list, so the density of connections increases in the vicinity of actors. One quarter of all respondents (11 actors) ended up in the last quartile of in the rank of indegrees and outdegrees with values of 1 or 0, which indicates a very low tie/ willingness to have ties with the network and the members of the network. Almost two-third of them is basic tourism service suppliers, whose inclusion into the network is a key task for their management.

The next group of indices is used to measure centrality of members; by definition, centrality differs from density in measuring the number/ share of implemented ties an actor possesses. Basically, it was introduced to measure ego network, but may be extended to give information on the entire network as well. Among the various centrality indices, the most common one is degree centrality. In case of directed graphs, just like in this case, centrality calculated on the basis of degree is called prestige. The prestige of a particular actor is calculated by comparing the number of real ties (indegrees) to the total possible number of ties. If the focus is on outdegrees of an actor, then the influence of the actor can be identified and measured (Letenyei, 2005).

The above prestige analysis of actors shows (based on indegree density) that the most centralised actor with the highest prestige is a non-profit institution (TE4), the second place is given to a high-quality basic tourism service provider (SZV3) playing an important role in the life of the Association. In the third place there is one of the largest touristic attraction in town (EKT9), followed by two basic tourism service providers (SZV2, SZV7). These actors are typical of having higher number of indegrees than outdegrees, nevertheless there is room for further refining the interpretation of their prestige levels if the prestige of elector members are examined. The higher the prestige of members they are elected by, the higher the prestige the elected actors will have. Table 2 below summarises the data of that analysis.

	Indegree	Electors voted for a particular actor (indegree)	Explanation
EKT9	8	SZV3(9), SZV2(8), SZV4(5), SZV6(4), SZV7(7), SZV10(5), EKT6(0), TE7(3)	the majority (8/5) have indegrees exceeding 5 – EKT9 has high prestige, because has high number of indegrees and elected by actors with high indegree
TE4	10	EKT3(6), SZV3(9), V4(1), TE6(2), SZ3(4), SZV7(7), SZV2(8), SZV10(5), SZ7(4), SZV4(5)	the majority (10/6) have indegrees exceeding 5 – TE4 has high prestige, because has high number of indegrees and elected by actors with high indegree
SZV7	7	V6(0), TE4(10), TE10(2), TE7(3), SZV10(5), SZV3(9), TE11(3)	the majority (7/4) have indegrees below 5 – the number of indegrees would result in high prestige, but elected by actors with low indegree
SZV2	8	SZV3(9), EKT7(0), EKT1(1), TE6(2), TE1(0), TE7(3), SZV7(7), TE4(10)	the majority (8/5) have indegrees below 5 – the number of indegrees would result in high prestige, but elected by actors with low indegree
SZV3	9	EKT1(0), EKT6(0), V5(1), TE7(3), TE10(2), EKT7(1), SZV13(0), SZV7(7), TE2(3)	the majority (9/8) have indegrees below 5 – the number of indegrees would result in high prestige, but elected by actors with low indegree

Table 2 High-prestige members of Veszprém Tourism Association.
Source: edited by the author

To sum up, it can be concluded that the top two actors with the highest prestige are an actor of national recognition and offering other complementary services and an actor also of national recognition and offering other services consumed by tourists. The high prestige levels detected correspond with the fact that they are two key actors in the Association: the first member (EKT9) is a shareholder in VTE (although I did not manage to interview, many actors refer to the connection (owing to the high level of prestige) with it quite often), whereas the latter actor (TE4) is the member of the association's board or management.

Having analysed ties of actors with high prestige, the following statements may be made:

- Actor EKT9 is an attraction of national significance, who is on legal terms is a member of the Association, a shareholder of non-profit ltd, but informal talks accompanying the formal interviews suggest there is no close cooperation established between the association and the actor in concern. Basic tourism service suppliers, especially accommodation suppliers, have connections with the actor and offer in accommodation packages favoured by tourists (offer tickets to one of the most significant attraction in town). Considering Håkansson's typology (2008), there is lack of personal or activity-based relationship between them; nevertheless they are mutually dependent on cooperation, since the actor offers a very important element to the package (resource), without which most tourists would find the complete offer less attractive. As discussed earlier that actor had refused participating in the research, so the scope of study was limited to indegrees only.
- Actor TE4 is a renowned and important non-profit institution (as well as attraction) also of national recognition. It was found that 80% of its connections with tourism service suppliers are reciprocal, and was said to have been an active member of the Association. Primarily it is linked to basic tourism service suppliers, including to two catering provider enterprises with well-established resource and activity-based relationships of personal source (e.g. shared events). With the rest of basic service suppliers it has resource and activity-based relationships, but the survey revealed no personal aspects.
- Actor SZV7 is a provider of accommodation and catering services; according to the responses, half of its connections are reciprocal and have ties with partners of versatile activities. It is linked also to basic service suppliers, mainly to offer visitors other services, but also to important partners of cultural background (e.g. area for exhibitions, events). Looking at all connections of the actors the majority of all key ties have personal source and relate to producing companies, and activity-and resource-based connections dominate the ties with various actors of tourism.
- In case of actors SZV3 and SZV2 the level of reciprocity is also low, and cooperations are mainly typical of other tourism services and other services consumed by tourists, to which these actors are related to function as accommodation and catering service provider. Relations are therefore primarily based on activity, but resource-dependence is also significant, because high-category

accommodation providers are in great need of guests and renowned performers attracted by cultural institutions and events. According to informal discussions accompanying the formal survey, the owner of actor SZV3 has been participating national events of tourism and playing an active part in social and cultural life of Veszprém. Consequently, personal relations have a fundamental role in business activities as well, and he/she is the chairperson of the Associations. The social network of actor SZB2 is similar to that of SZV3, namely personal aspects dominate business relations. That actor has been actively present in the local arena for several decades and has strong connections not only with local entrepreneurs but also politicians and decision-makers.

With the help of UCINET 6 software the entire network was analysed for form information on density. Both in and outdegree level values suggest the network has normal centrality, as there are outdegrees emitted by a number of actors and many actors absorb plenty of indegrees. It is further reinforced by the fact that deviation in both outdegree as well as indegree remained below average. It must be noted though the light network may fall into pieces easily. In the network of tourism service providers catering service providers (restaurants) functions as "bridges" to ensure connectivity among other parts of the network. From professional viewpoint it is absolutely clear and understandable, since in the town there are many pensions providing the guests with bed and breakfast only, so keeping good relationships with restaurants nearby is absolutely essential.

Conclusions

The simplest network analysis index (density) and the map of social network clearly demonstrate the central role played by the Association and the related Tourinform Office in the conventional business relations. In these cooperations, the Association is the actor that keeps the network uniform and unified, and integrates normally isolated actors into the social network of service providers. The Association and the Tourinform Office responsible for operative work are able to unite the actors, urge and endeavours cooperations; moreover, their role is of key importance in the operation of the tourism destination.

In accordance with results of previous studies (e.g. Tomaselli et al., 2013; Baggio, 2011; Baggio et al., 2008b; da Fontoura Costa – Baggio, 2009; Scott et al., 2008b), the density of network being studied in this research was also very low. It applies not only to tourism destinations,

but also to social networks in general is typical of having network density between 1–10 % (Baggio et al., 2008a; Barabási–Albert, 2002). The density of the social network of actors in Veszprém as a tourism destination is very low (total network – 0.086; network excluding TDM organisation– 0.062; undirected network).

By analysing the density, indegree and outdegree centrality, and prestige of the members of the association it can be concluded that the management of the Veszprém Tourism Association (Chairman, executive officers) is in harmony with the power positions taken within the networks, and the actors with highest level of local recognition, prestige, and power control and manage the life of the association (except for one basic tourism service provider SZV7).

Additionally, this method made the management aware of the actors in peripheral position, i.e. which members should be more involved in the life of the association and the work of members.

Further research directions

This research presents a snapshot of results achieved during the studies, nevertheless it is definitely worth doing follow-up studies on a regular basis to monitor the changes in relations and make propositions in the activities of the management accordingly.

The scope of analysis of connections in the research was limited to classic statistical methods (not detailed in this paper), but may be extended to any dimensions (e.g. separately on the flow of information, knowledge, services, etc.); by mapping the network an laying layers on the top of one another even more accurate conclusions can be drawn.

By extending the scope of research and improving the tools involved it would also be possible to conduct a more comprehensible study of a larger number of tourism destinations enabling us to draw conclusions of extended nature and to seek relation between tourism destinations of various structures with their competitiveness or any other feature influencing market share.

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ZSÓFIA PAPP – KATALIN MOLNÁRNÉ BARNA –
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TOURISM TAX IN THE BALATON REGION (PMR 2017/1-2)

Nowadays, tourism tax has gained importance. To achieve the tourism programme's objectives for 2020 financial resources are also needed to reach sustainability. In that regard, tourism tax has a key role. The National Tourism Development Concept clearly sets out economic recovery impact of the reinvested financial resources. This multiplier impact is greater than in other sector. However, the guest nights tax is one of the most disputed tax form in Hungary. There is no agreement on the goals of this tax – even within professional circles. The question is if it should serve as a base for tourism development or it should be only one part of the whole budget of local governments. Each settlement has different facilities for tourism and also different amount from this kind of tax, so professionals vote in favour of one or the other side depending on these factors. The aim of the paper is to analyse the tourism tax in a relatively long period of time between 2000 and 2013 in the settlements of the Balaton Region. The results show that the amount of the tourism tax highly varies in case of the different settlements of the Balaton Region. This variability can be called a tendency, which is definitely shown by the trend analysis the authors executed in the time period 2000-2013. There is high concentration in the tourism tax among the settlements in the sample. The analyses show that through this long period of time, there were only 7 settlements which provided the 64% of all tourism tax. On that basis, it may be considered, that the tourism tax in terms of volume shows a strong concentration in the Balaton Region.

Keywords: tourism tax, Balaton Region, time series rank of the settlements

Introduction

The Balaton Region is the second most important region in Hungary concerning guest nights and economic importance. There were several tourism researches concentration on this region (e.g. Raffay, Clarke, 2015; Sulyok, 2013; Madarász, Papp, 2013; Péter et al. 2011).

Tourism tax is commonly used in the world. There are several forms how this tax can be collected. In Hamburg for example, it is called a 'culture and tourism tax' and it was initiated in 2013 (<http://www.hamburg-travel.com/service/culture-and-tourism-tax/> 10/10/2017). In the Balearic Islands there is also an ecotax the tourists have to pay (Labandeira et al., 2006). Although it is important to mention that the application and the amount of the tourism tax are argued and its economic contribution is controversial.

The aim of the paper is to analyze the tendencies of the tourism tax in the Lake Balaton Region of Hungary. The authors define the tourism tax as a contribution paid by the tourist for at least one night spent in an accommodation in a settlement. According to this definition, the tax is attached to the accommodation facilities and only those tourists are required to pay it who spend at least one night in the settlement.

The research analyzes the tendencies of the volume of the tourism tax. It also determines the ranks of the settlements which are paying the least and the most tourism taxes in the region.

The role of the tourism tax

The law of 1990./C. enables local governments to raise the financial and social wellbeing of the residents through the local tax system. The local governments have the chance to decide how they will use the collected tourism tax and they do it according to the regional development goals (Csizmadiáné Czuppon et al, 2015).

Tourism tax originates further back than the transition: the settlement of Balatonalmádi had already collected its 'kurtax' at the end of the 19th century. There was a health and resort tax laid between 1919 and 1945 among mixed taxes (Nagy, 2013). Although the actual local tax started to be collected in 1990s, when the workload of local governments became higher due to the more limited tasks of the state.

Tourism tax can be classified as communal type in the local tax system and can be laid two way:

- on the one hand a person is liable to pay the tax, when they have property which is not an apartment but suitable for recreation purposes;

- on the other hand a person is also liable who has no permanent address in the settlement, but they spend at least one night. This paper deals with this liability and calls it a tourism tax.

Tax relief:

- everyone under the age of 18,
- people in inpatient or social care,
- students in secondary schools or higher education, who spend at least one night in the settlement within educational framework,
- the owner or the relatives of the holiday-home,
- people staying in a church-owned facility and conducting religious activity (Law 1990./C.).

The market based accommodation facilities keep a record of the tourism tax, they declare their tax monthly and pay the amount to the local government.

The tax is based on the inchoate guest nights or the rate for the inchoate guest night. There is an upper bound of the tax according to the law. (Law 1990/C). The local governments got the opportunity in 2005 to exceed the upper bound, if it is justified by the inflation. Because of this fact several local governments decided to raise the tourism tax since it was supported by the residents opposed to another tax which they should have paid (www.ado.hu,2015/2-6).

This tax does not put pressure on the residents so more local governments took the opportunity to increase the amount. On the other hand studies showed the tourism tax had not been raised in several settlements (for example Martfű, Gyöngyös, Mórahalom or Tihany) for years. The third reason was that the tourism tax works as a support tool and those settlements which laid tourism tax could get a differentiated contribution from the Ministry of National Economy – of course besides other conditions met.

In 2017 the additional amount decreased from 1.55 HUF to 1 HUF. The reason for this was financial resources rearrangement in the central budget.

This reduction was compensated:

- Tourism indicative target has increased to HUF 11 billion.
- Another HUF 10 billion will be allocated to tourism development.
- The maximum amount of tourism tax has increase, 4,6% of the accommodation fee may be imposed instead of the previous 4%.

According to the above mentioned facts, tourism tax is directly connected with the tourism activity. Although giving the fund back to the tourism sector is not always typical in Hungary. In many cases, however, it is difficult to decide what the public task is and what can be tourism development (for example construction of cycle path, road maintenance). The main reason is that the local governments have to brief the residents about the amount of tax annually, but they do not have to publish how and where they spent it exactly (Péter et al, 2015). Therefore the tax mostly fills in the financial holes of the budget. That is the reason why there is argument about this type of utilization of the tax and its ability to support the local tourism development (for example modernizing the lighting of the settlement).

Tourism in the Balaton Region

The area of the Balaton Region is one of the most popular tourism destination of Hungary both for domestic and international visitors. Besides lake holidays there are a lot of historical sights, special natural attractions and opportunity for active tourism, as well. Although the region had been anticipated as an average agricultural area, the lake and its surroundings went under a tourism development from the 19th century (Buday-Sántha, 2008).

Currently the Balaton Region is the second most visited region in Hungary (after Budapest), and 26.1% of the accommodation facilities can be found here (ksh.hu). 26.1% of the domestic and 12.9% of the international guest nights at commercial accommodation establishments are registered in this region. As Figure 1 shows, the number of guests is rising in the last years. In 2016 the occupancy rate for the 554 accommodation facilities in the region was 47.1%. The increase of the occupancy rate is also due to the several attraction developments. Although the tourists need and visit these attractions, they are mostly registered only in the accommodation facility.

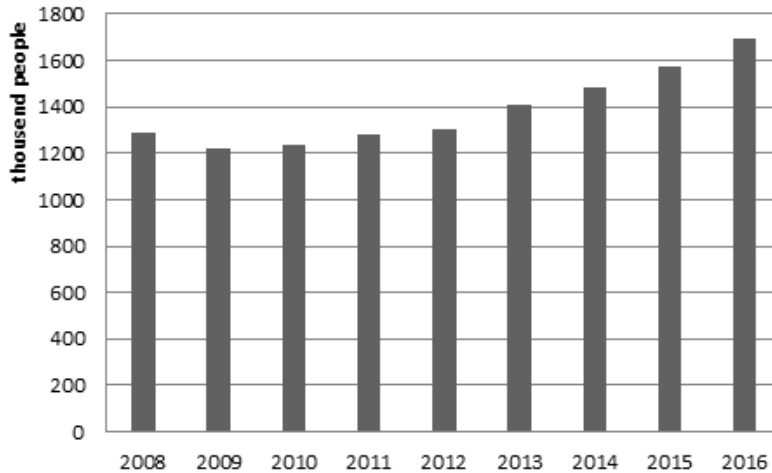


Figure 1 Number of the guests in the accommodation facilities in the Balaton region between 2008 and 2016
Source: own editing according to HCSO data

Research methodology and the introduction of the applied database

The analysis is based on the so-called TEIR (National Regional Development and Planning System), which contains freely available data about local taxation. The authors examined the volume and distribution of the tourism tax between 2000 and 2013 with simple and more complex statistical methods in each settlements of the Balaton Region. The long time series were analyzed by the quantification of the rate change, trend analysis and creation of ranks:

- the rate change showed the alteration of the tourism tax and the amount paid by each settlements,
- the trend analysis indicated the tendencies in the time series,
- the ranking shows the changes in the place of each settlements in the rank, in this paper according to the tourism tax (Molnár, 2016).

The role and change of the tourism tax in the Balaton

There were 179 settlements analyzed in the database, more than half of them did not pay any tourism tax to the government in the year 2000. This tendency was present until 2007, although after that year some settlements joined in and started to pay the tourism tax (Table 1). As a result of it, there were 91 settlements paying tourism tax in 2013 opposed to the 78 payers in 2000.

Year	The ratio of settlements not paying any tourism tax, %
2000	56.42
2001	53.63
2002	55.31
2003	53.63
2004	54.75
2005	55.87
2006	56.98
2007	56.42
2008	54.75
2009	54.19
2010	53.07
2011	53.63
2012	51.96
2013	50.28

Table 1 The ratio of settlements not paying any tourism tax between 2000 and 2013

Source: Authors' calculation based on the TEIR database 2000–2013.

There is a clear tendency in the amount of tourism tax paid by 179 settlements. Time series can be described by a well fitted function. Figure 2 shows that the phenomenon – the tendency of the tourism tax – looks like a parabola since this function could describe the original data the best way (Relative error of the estimate: 4.56%¹). The application and explanation of a linear function is always easier from the professional point of view

¹ Relative error of the estimate shows the average difference between the original data and the function. The smaller the distance is (less than 10-15%), the better the fit is.

and in this case this function follows through the change of the original data (Relative error of the estimate: 9.23%). This is the reason why in this situation the characteristics of linear function are being presented.

Since the function is parabola shape, it can be stated that the amount of the tourism tax did not increase continuously, there was a decrease between 2002 and 2006. Although it can be declared that altogether – due to a linear function – the amount of tourism tax in the period of time involved in the research rose by 60,418 HUF annually.

There are some external factors which cannot be neglected concerning the changes in the amount of the tourism tax. The impact of economic recession can be observed in the database of the tourism tax in the 2008–2010 time period. The registered guest nights have increased due to the introduction of the SZÉP card, which intensified the domestic tourism and creates more tourism tax.

The rank of the settlements paying the least tourism tax has significantly changed in the analyzed period of time. There are only two settlements which position have not altered in this rank. It can obviously been seen that the amount of tourism tax paid by the 10 settlements at the bottom of the rank decreased to 40% (213,000 HUF) by 2013 (1. Table). There are more stable positions on the top of the complete list (3. Table). 7 settlements can be found in the rank, which were there in 2000.

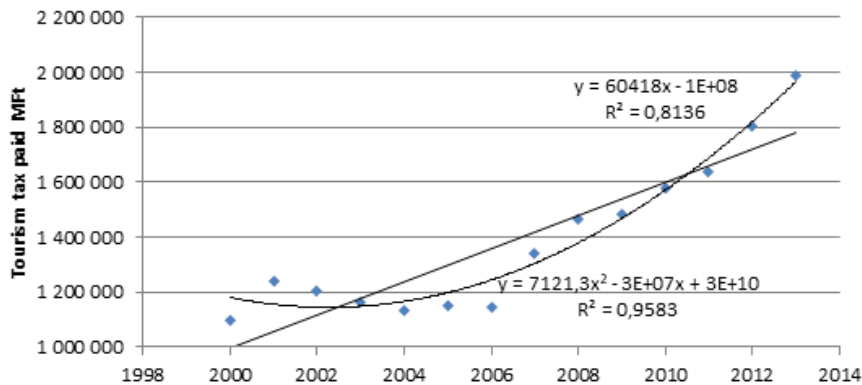


Figure 2 The tendency of the tourism tax between 2000 and 2013
 Source: Authors' calculation based on the TEIR database 2000–2013.

Rank	Settlement	Tourism tax, Thousand HUF, 2000	Settlement	Tourism tax, Thousand HUF, 2013
170.	Sármellék	43	Kötcse	27
171.	Zalaújlak	41	Felsőpáhok	26
172.	Köveskál	39	Kisapáti	20
173.	Szentkirályszabadja	38	Sármellék	14
174.	Balatonszőlős	35	Balatonfőkajár	14
175.	Zalaszabar	34	Zalaszabar	11
176.	Szentbékálla	29	Balatonhenye	5
177.	Karmacs	19	Somogyvár	2
178.	Somogybabod	18	Nagyberény	2
179.	Mindszentkál	17	Lengyeltóti	2

Table 2 The list of settlements paying the least tourism tax between 2000 and 2013

Source: Authors' calculation based on the TEIR database 2000–2013.

Rank	Settlement	Tourism tax, Thousand HUF	Settlement	Tourism tax, Thousand HUF
1.	Hévíz	207,672	Hévíz	487,729
2.	Siófok	163,254	Siófok	290,572
3.	Balatonfüred	134,270	Balatonfüred	246,268
4.	Keszthely	67,111	Balatonlelle	67,511
5.	Balatonföldvár	59,363	Cserszegtomaj	61,106
6.	Balatonalmádi	35,325	Vindornyaszőlős	60,569
7.	Balatonlelle	31,187	Keszthely	57,692
8.	Balatonboglár	30,932	Balatonszemes	57,508
9.	Balatonszemes	30,311	Balatonföldvár	56,819
10.	Fonyód	27,508	Tihany	54,494

Table 3 The list of settlements paying the most tourism tax between 2000 and 2013

Source: Authors' calculation based on the TEIR database 2000–2013.

The tourism tax paid by the above mentioned settlements is substantial, moreover the amount has been doubled comparing to the 2000 data (1,440,268 thousand HUF). The difference in the amount can be seen by the following: the tourism tax paid by the ones in the bottom was 0.04% (2003) and 0.009% of the amount the top paid (3. Figure).

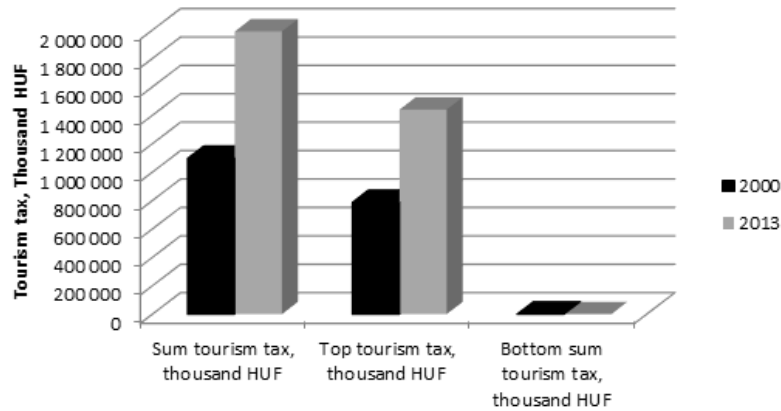


Figure 3 The ratio of the tourism tax in 2000 and 2013

Source: Authors' calculation based on the TEIR database 2000–2013.

After analyzing the ratio changes, it can be stated that the contribution of the settlements in the bottom of the list decreased, but the significance of the top settlements rose in case of the amount of the tourism tax (4. Table).

	Partition coefficient 2000, %	Partition coefficient 2013, %	Ratio change, %
Top sum tourism tax, Thousand HUF	71.74	72.35	100.85
Bottom, sum tourism tax, Thousand HUF	0.04	0.01	21.65

Table 4 The changes in the ratio of the tourism tax in case of the least and most paying settlements in 2000 and 2013

Source: Authors' calculation based on the TEIR database 2000–2013.

After further analysis of the rank, it became obvious that the same settlements are on the top in the whole period of time involved in the research. There were actually 7 settlements which significantly contributed to the tourism tax from the 179 analyzed settlements²: Balatonalmádi, Balatonföldvár, Balatonfüred, Balatonlelle, Hévíz, Keszthely and Siófok. The amount of the tourism tax paid by the previously mentioned 7 settlements is significant, they are responsible for the 62-65% of the tourism tax in the entire period of time. It means that it is easy to define the exact characteristics of settlements which are able to 'produce' significant amount of tourism tax. This comes from their tourism capabilities, features as well, which are hard to compete against. Although this strong concentration can be decreased by creating tourism attractions especially in the same region as the settlements which are the top tourism tax payers.

Conclusion

Tourism tax is an essential tool for tourism development in the settlement level. Although this statement is only true if the revenue is used for tourism services in the destination.

The aim of the research focused on the introduction of the volume of the tourism tax. The analysis shows that there is a high concentration in the Balaton Region in this matter. Although it is not enough to know this fact because the reinvestment of the tourism tax has a big role in tourism development. Unfortunately there is no database concerning how the settlements spend the amount they got from the tourism tax. Although according to the information from the internet, the amount settlements earned from the tourism tax 'shape into' the local budget, which ease the economic problems of the local governments. The dilemma is the following: only those settlements can provide a stronger tourism attraction. The other question is if the reinvested tourism income can strengthen the local economy.

The data also shows that the Balaton Uplands as a destination is one of the most essential area due to the tourism tax. The settlements in that destination performed very well comparing to other areas. It can also be added that there are lakeside settlements in the top of the rank concerning the amount of the tourism tax.

According to the data the authors suggest that the expenditure of the tourism tax should be transparent, so the effect of the investment could be measured. The researchers also recommend the application of other

² Although Balatonalmádi placed only 11 in 2013.

indicators not only the tourism tax, because it is only in connection with the guest nights at commercial accommodation facilities. Although there are one-day visitors as well, who are valuable for the settlement and tourists who are staying in private accommodations and they are not registered.

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NIKOLETTA TÓTH-KASZÁS

**AN UNUSED OPPORTUNITY OR THE WAY
OF PROGRESSION? - WHAT DOES TENDER
PROJECT MEAN AND HOW CAN WE BE
SUCCESSFUL IN IT?
(PMR 2018/1)**

Numberless researches and theories were born in the topic of project and project management during the last decades. However there is an area, which interpretation is different from the traditional approaches in several aspects: the definition and interpretation of tender projects has been less in the focus of researchers so far. In the first part of the study I am going to partly make up for this shortcoming; then I would like to underline the surprisingly important role of tender projects through the example of the higher education sector.

My empirical research was focusing especially on the cross-border tender projects. I analysed the projects implemented in the frame of cross-border co-operation (CBC) programmes between 2007 and 2013. I had focused on the projects of the Hungary-Croatia, Slovenia-Hungary and Austria-Hungary CBC programmes and tried to identify the role of higher educational institutions. An intention of the study was to draw the attention to the appearance of higher education in the cross-border tender projects and based on the previous empirical researches to highlight the possible key of success.

During the research I have concluded that seven factors contribute substantially to the success of cross-border projects. These are the role of the project manager, the consciousness of the project processes, the on the job type knowledge sharing, the competences deriving from the project manager personality, the learned competences of the project manager, his or her external motivation and internal motivation factors.

As a lock-up of my essay I have conceived those steps, along which a higher educational institution can tread on the project management maturity path.

Definition and interpretation of tender project

The project definitions and its interpretations for tender projects

Numberless definitions of project management concept were born during the last decades. These definitions stress for example the unique, novel and complex nature of projects, or emphasize that it should have defined goal, budget and timeframe.

Since the focus of my research is on the tender projects, in order to find the appropriate concept it could be interesting to examine different traditional project approaches and see which items are most frequently mentioned by the authors. I have collected the project concepts from the most cited authors and created an extract from the elements of the definitions (Table 1).

The described 11 definition elements are not fully overlap with each other regarding the content of the projects. Several factors, however, are mentioned by significant part of the authors. In the Table 1 we can see that out of the 11 examined definitions nine authors mentioned the defined timeframe with specified start and end date as main feature of a project. It can be concluded that it is the most common recurring item among the project definitions. Eight of the analysed authors are considered important to emphasize the unique nature of projects and seven of them to have the specific, concrete goals. Thus, these elements are considered definitely important in connection with the project definitions.

Definition element	Number of mentions	Authors
defined timeframe with specified start and end date	9	Graham, Turner-Cochrane, Aggteleky-Bajna, Görög, PMBOK, ISO 9000, Madauss, Kerzner, Pinto
unique nature	8	Turner-Cochrane, Aggteleky-Bajna, Görög, PMBOK, ISO 9000, Madauss, Gareis, Verzuh
defined, concrete goal	7	Graham, Görög, PMBOK, ISO 9000, Kerzner, Gareis, Pinto
defined budget	6	Graham, Turner-Cochrane, Görög, ISO 9000, Kerzner, Pinto
using human and other resources	5	Graham, Turner-Cochrane, ISO 9000, Kerzner, Pinto

Definition element	Number of mentions	Authors
novel approach	5	Turner-Cochrane, Aggteleky-Bajna, Görög, Madauss, Pinto
temporary nature	3	Graham, Gareis, Verzuh
complexity	3	Aggteleky-Bajna, Görög, Madauss
practical implications	1	Aggteleky-Bajna
multifunctional nature	1	Kerzner
customer orientation	1	Pinto

Table 1 Certain element of the project concepts and their frequency in the literature

Sources: Graham, 1979; Turner-Cochrane, 1993;
 Aggteleky-Bajna, 1994; Görög, 1999; Madauss, 2000;
 ISO 9000, 2001; Verzuh, 2006; PMBOK, 2006; Kerzner, 2006;
 Gareis, 2007; Pinto, 2010

In my view, however none of the above described definitions can be transferred directly to the examination of tender projects. Not all the conceptual elements shown in Table 1 can be interpreted for the tender projects. In my opinion the novel approach and the unique nature play lesser role in the tender projects, as well as the complexity and multifunctional features.

On the other hand, using the above mentioned criteria we can state that the tender projects can be described by a collection of these items:

- defined budget: granted amount of subsidy with the national and own contributions;
- defined timeframe with specified start and end date: determined timeframe in the subsidy contract;
- defined, concrete goal: fulfilment of the activities, indicators and outputs outlined in the accepted application form;
- using human and other resources: granted subsidy, involved staff and equipment;
- practical implications: in case of tender projects are also common requirement to create results applicable in the practice;
- customer orientation: to achieve the project's target group and its satisfaction.

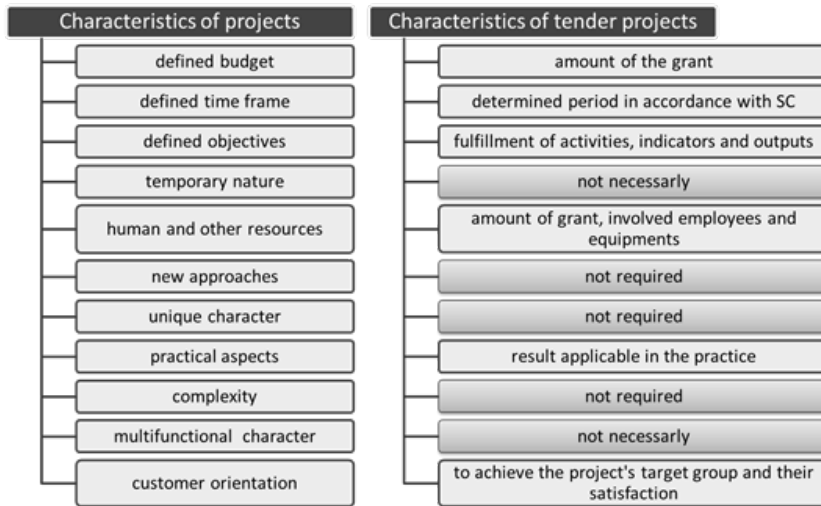


Figure 1 The characteristics of projects and tender projects
Source: own research, 2016.

Looking for factual definition for the tender project is not an easy task, since as I have mentioned, there is scarcer literature background.

Based on a generally accepted approach the tender project is a project, which financial background is provided by a financial contribution of the European Commission. Thanks to this (financial) instrument each project collaborates to achieve the long-term goals of the European Union (European Commission, 2014).

Based on the Project Life Cycle Management Guide issued by the European Committee projects are series of activities, which goal is to achieve the stated objectives till the given deadline in the granted budget (European Commission, 2004:8). This definition is fundamentally does not differ from the traditional approaches. However, it also describes that a tender project has:

- clearly defined stakeholders, which includes the primary target groups and end-users as well;
- clearly defined coordination, management and financing rules;
- monitoring and evaluation system;
- appropriate financial and economic corroboration, to ensure that the achievements made by the project outperform expenses (European Commission, 2004:8).

In my opinion this supplement can also not be considered as tender project definition, primarily because the last thought - since we cannot talk about revenues or profits in the examined tender projects. The interpretation of expenses is same way relevant, if we are analysing the sustainability of the project results or the necessary additional expenses not funded by project. Determination of the stakeholders, coordinating organization and the monitoring, nonetheless, are important elements in this area as well.

To aggregate the above mentioned I was looking for a definition which is valid for the tender projects and includes meaningful elements. So I accepted partially Pinto's approach for the projects, since it contains the most desirable items, as defined budget and timeframe, given resources, specific objectives and customer-orientation. If these elements are completed with the characteristics given by the European Commission, a total picture of the tender project concept will be established.

- A tender project is a project which
- financial background is provided by the financial contribution granted by the European Committee or other external supporting institution;
- stakeholders are clearly defined;
- has clearly defined coordination, management and financing rules;
- has monitoring and evaluation system.
- Furthermore it has defined budget and timeframe, given resources, specific objectives and customer-orientation.

The project success definitions and its interpretations for tender projects

As a project never affects a single person, we can talk about a number of target groups and stakeholders regarding the projects. So it can be also stated that all stakeholder consider different things as project success. As Freeman and Beale said, an architect see the success in the aesthetic appearance, an engineer in the technical skills, an accountant in the within the budget spent amount, a human resource manager in the majority of employee satisfaction, while a CEO sees the success in the stock market value (Freeman-Beale, 1992:8-17).

So the judgement of the project success is not an exact science, and there is no one good solution or exclusive approach.

The relevant literature is highly diverse, many researchers tried to quantify the project success or determine objective indicators for that. In the following I give an overview about the different definitions of the project success, and I will attempt to describe the success of the tender projects through these approaches.

Table 2 shows the general project success approaches and their descriptive adaptation for the tender projects, according to my own interpretation.

authors	general project success approaches	tender project success approaches (own interpretation)
Görög	achieving the general objectives and characteristics (time, cost, quality)	completion and closing of project within the given deadline and budget
	meet strategic goals	starting tender projects, which are in line with the organization's strategic objectives, has the necessary competencies for the task
	stakeholder satisfaction	satisfaction of the applicant, the control bodies and the target groups of the project
Kerzner	project manager and project team	the project manager coordinates the project and prepares the requests for payment, so his/her job directly contributes to the success; while the project team complete the undertaken tasks
	home institution	the home institution can contribute to the success through its staff, their competences and assistance
	consumer organizations	the feedbacks and the satisfaction of the project target group can generate further projects
Verzuh	consensus among the project team, the customers and the management regarding the project's objectives	the existence of the consistency between the applicant organization and the cooperating organization in the planning and implementation
	the progress can be measured with a plan that shows the entire route and clearly identifies the responsibilities	creation of progress reports which include the implemented tasks and their performers
	constant and efficient communication among the people involved into the project	reaching the target groups is required in tender projects, what must also demonstrate a variety of ways
	regulated scope	a tender project will be supported within delimited geographical limits and to perform defined tasks
	management support	the support of the management and its appearance at certain representation events can increase the prestige, the awareness, thus the success of the tender project

authors	general project success approaches	tender project success approaches (own interpretation)
Kendra - Taplin	project manager competences	the project manager coordinates and manages the tender project, and as the people who is preparing the progress reports plays important role in the success
	performance evaluation system	the control and monitoring bodies also expect the performance evaluation of the project manager and other staff working on it
	business processes	the control and monitoring bodies also expect the transparency of business process in the projects
	project organizational structures	the temporary nature of the tender projects (similarly to general projects) can causes problems in the organisational structure, so the appropriate infiltration of the project into the structure can contribute to the success
Shenhar et al.	project efficiency (conformity in time and cost)	closing the project within the given timeframe and budget
	the effect on customer (customer satisfaction)	the satisfaction of the applicant organisation, the control bodies and the project target group
	business success	tender project rarely generate revenues, however their economic benefits in the sustainability of organizational operation are significant
	preparing for the future	tender projects can often contribute to the future development of the organisation – it is easier to implement a development in the frame of a tender project and its grant, than sustain it from own resources

Table 2 The dimensions of project success and their interpretation for tender projects

Sources: own compilation based on Görög, 1996:15-21;

Verzuh, 2006:22-24; Kerzner, 2006:7;

Kendra-Taplin, 2004:30-45; Shenhar et al., 2001:699-725

An intention of this study was to draw the attention to the appearance of higher education in the cross-border tender projects and based on the previous empirical researches to highlight the possible key of success. In the next chapter I am going to introduce the emergence role of tender projects in the operation of higher educational institutions.

The emergence role of tender projects in the operation of higher educational institutions

Working in the higher education sector sometimes look like balancing on a scale. The most important activities are around the education, but it is expected to make researches, publications or take care of the rising generation, looking for talented students, as well. It can be complicated not just from the aspect of time management, but sometimes from the aspect of financial background, as well. This is the point where the tender projects “come into the picture”.

Since Hungary acceded to the European Union, numerous tender opportunities became available for example for universities and colleges, as well. These calls for proposals supported some educational tasks, like talent management, staff improvement, inner trainings etc. and also supported the higher educational researches, as well. These EU projects often helped the institutions to develop their infrastructure and optimize their staff, or educational portfolio. Meantime due to the changes in the financial structure of the higher education and to the demographic “hole” in Hungary’s society, unfortunately these projects usually meant the basis of some educational or research work.

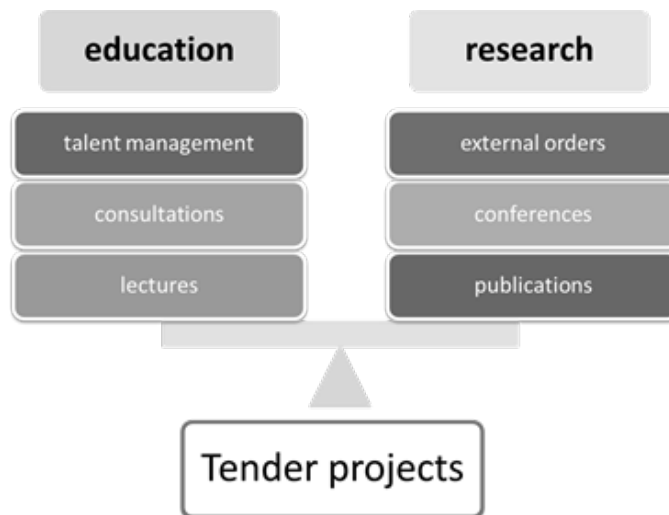


Figure 2 The supporting role of tender projects in higher education work
Source: own research, 2016.

These above processes meant that more and more higher educational institutions were forced to apply not just to nationally funded projects (like TÁMOP, TIOP) but also to European Territorial Programs, as well.

Since the 1990s the European Union has paid more and more attention to support cross-border developments both in its own outer boundaries and in the border regions of future member states. Mostly public or public equivalent bodies, non-profit organisations can apply for funding: national, regional or local authorities, municipalities, universities, non-profit organisations and associations. The subsidy is quite high; beside the 85 per cent ERFA funding each organisation gets ten more per cent national funding, as well.



Figure 3 The structure of financial background of cross-border project
Source: own research, 2016.

Universities lying on the supported programme areas took advantage of these opportunities offered by the territorial programs. From the statistics of the cross-border co-operation (later CBC) programs it is displayed that 10-30 per cent of the total supported project were implemented with the participation of universities.

I have made researches in the western border region of Hungary and examined three cross-border programs: the program between Hungary and Croatia, Hungary and Slovenia and Hungary and Austria.

In the CBC program between Hungary and Croatia a total of 154 projects were supported in the period 2007-2013. Among these 154 projects there were 30 that were partly or fully implemented by universities. From Hungary three universities were concerned: University of Pécs, University of Kaposvár and the University of Pannonia through the Nagykanizsa Campus.

In the Slovenia-Hungary CBC program a total of 41 projects were implemented in the examined period, five with the participation of universities. In this case only one Hungarian university was concerned in three projects, the University of Pannonia.

Finally in the program between Hungary and Austria a total of 86 projects were supported between 2007 and 2013. Among these projects there were 22 partly or fully implemented by universities. From Hungary five universities were concerned: West-Hungarian University, Széchenyi István University, University of Pannonia, Markusovszky University and the Corvinus University.

	Hungary-Croatia CBC Program	Slovenia-Hungary CBC Program	Austria-Hungary CBC Program
Total number of projects	154	41	86
Total number of involved partners	616	190	358
Number of projects with university participation	30	5	22
Number of universities involved into projects	3 <ul style="list-style-type: none"> • University of Pécs • University of Pannonia • University of Kaposvár 	1 <ul style="list-style-type: none"> • University of Pannonia 	5 <ul style="list-style-type: none"> • West-Hungarian University • Széchenyi István University • University of Pannonia • Markusovszky University • Corvinus University

Table 3 The appearance of universities in cross-border programs
Source: own research, 2016.

The topics of these projects performed by universities were mostly preparing common educational programs, student exchange programs or summer schools. On the other hand strengthen the external connections was also an important element, through common researches or commonly organized events.

The key of success – experiences of empirical researches

Methodology of the empirical researches

During the last two years I have examined the projects implemented in three different cross-border co-operation programmes (Hungary-Croatia IPA Cross-border Co-operation Program 2007-2013, Slovenia-Hungary Cross-border Co-operation Program 2007-2013, Austria-Hungary Cross-border Co-operation Program 2007-2013).

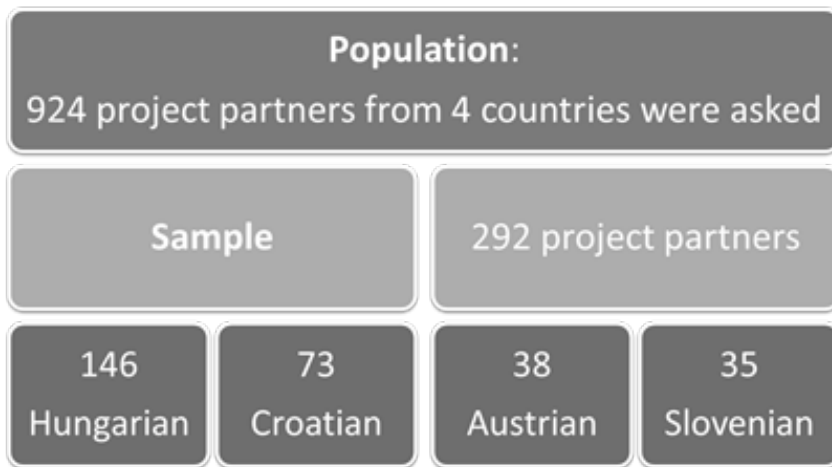


Figure 4 The characteristics of empirical research sample
Source: own research, 2014-2016.

My goal was to explore the main characteristics of the implementing organisations, the key criteria and influencing factors of the project success. In order to that I attempted to accost all institutions have taken part in the above mentioned CBC program projects.

I have sent my trilingual questionnaires to a total of 924 organisations in Hungary, Croatia, Slovenia and Austria. These project partners have meant the population of my empirical research. In Figure 4 it can be seen that I had sum 292 responses from the four countries: 146 from Hungary, 73 from Croatia, 38 from Austria and 35 from Slovenia. Here I have to notice that Hungary was concern in all the three examined CBC programmes that is the reason of the higher respondents' number from Hungary.

Results of the empirical researches

Based on the literature overview I supposed that the **tender project success can be measured by the three elements of the “iron triangle”: quality, time and budget.**

Regarding the success criteria of projects I involved 16 variables into the factor analyses. The analyses proved three success criteria with 0,841 KMO values, which compressed 9 variables from the original 16. The total variance ratio, as the index of the explanatory capacity of the factors analyses was 62,188%, which also supports the success of analyses.

We can conclude that we cannot determine the tender project success with the elements of the “iron triangle” and we should define new criteria.

- Time factor:
 - implementation of activities meet deadline
 - project closing on schedule
 - meet reporting and correction deadlines
- Project management success:
 - project outputs realised
 - project indicators achieved
 - project activities performed
- Satisfaction of target group
 - the project reached its target groups
 - satisfaction of target groups
 - members of the target group participated in project events (Kaszás et al., 2016)

Furthermore based on the literature overview **I have assumed four main project success influencing factors:**

- **organisational structure,**
- **knowledge sharing at the organisation,**
- **motivation of the project managers,**
- **competences of the project managers.**

In order to define the crucial affecting elements of tender project success I have used regression analyses. The independent variables were the details of the above mentioned four topics; while the defined tender project success criteria constitute the dependent variables.

Checking the results of the regression analyses we can conclude that the **role of project manager in the organisational structure** is essential. Those institutions could be successful in tender project management, in which...

- the project manager is situated between the top management and heads of different departments in the organisational structure,
- the project manager is primarily a coordinator and decision-maker,
- the project manager has the right to command and control the activities of the project participants,
- the project manager directs the organizational unit established especially for project purpose.

These elements can help notably in keeping the designed time schedule.

The **consciousness of project processes in the organizational** structure is also important. In a successful organisation...

- a high-level coordination and succession is realized between the projects,
- has significant social capital ,
- there is significant potential to create applications (necessary knowledge, expertise and experience).

These can give the background for the usage of project management planning tools.

Regarding the knowledge sharing it was conducted that the **on the job type of developments** are important, like a coaching or mentoring system. So in a successful institution there is...

- coaching system (assists a certain employee to develop the competencies that are needed for the project),
- mentoring (the mentor is available as an advisor if it's required),
- grant application counsellor (an expert who provides help in the organization in planning projects),
- public procurement counsellor (an expert who provides help mainly in arranging and certifying the procurements).

Keeping the time schedule and satisfying the indicators, outputs of the projects, some **project management competences** are indispensable. There are some personal skills, **deriving from personality** that statistically proven way can help this, like:

- the ability to collaborate,
- attitude for teamwork,
- good adaptability.

There are other, learned, **methodological skills** that can contribute especially to the contact making, and clear communication with the partners, like

- clear goal definition,
- being result-oriented,
- ability to make decisions,
- identifying problems and suggestions for solution,
- cautious and efficient risk management.

Regarding the motivation of the project manager I have to mention that **both the external and internal motivation** can work in order to implement successful projects. The project managers could be motivated by:

- financial and social security ensured by the work,
- the status guaranteed by the work,
- the salary,
- the potential to be creative that lies in the job,
- the intellectual incentive and challenge that the job involves,
- the potential to develop that the job involves,
- the independence and individual work duty ensured by the job,
- the diversity that the job involves.

The primary research proved that the tender projects implemented in the analysed cross-border cooperation programs are influenced by some organizational and individual factors.

I also assumed that there are no significant differences among the project success influencing factors in the three studied programs, and the same or at least very similar affecting factors can determine the success (Kaszás et al, 2016).

Discussion - The first steps towards the project management maturity

In the study I have drawn the attention to the project success influencing elements in case of tender projects. Once we know the affecting factors, we can define those steps that an organization should do in order to be successful and reach a maturity in project management.

As a closure I present the most common problems of the organisations based on the above mentioned criteria and influencing factors; and formulate those steps that can help on them.

First of all for those organizations which can **hardly keep the deadlines** I suggest first of all to solve the problem of the substitution of legally authorized signatories. Because of the representation duties sometimes days go by till a leader sign a project document. It is improper in the world of projects. As an example I can mention some universities, which have installed new rules regarding project document signatures and delegated this authority to lower levels.

Some organizations have **problems with the project management methodologies** and do not know the project planning tools, for example. Solving this problem mini courses (about for example time-planning or logical relationships of the activities) can be initiated by the Technical Secretariat, since they have the proper knowledge and tools, which may be transmitted to the project partners. I am convinced that the Technical Secretariats are able to organize these kinds of mini-courses and the potential applicants would take part on these courses. This training can be important from another aspect, as well: the applicants need more moderate and better designed indicator- and output planning, because in many cases the partners are not been able to meet these. A full description of these elements in the application form can be an advantage as early as the evaluation of the submitted proposals, as it shows the candidate's professional preparedness and sense of reality.

There are organisations that **have not paid enough attention to the target groups** of their projects. In this case I suggest identifying the proper communication channels, tools and not preparing leaflets about the project data. Experiences show neither the public nor the enterprises are not interested in the project information and the presentation of the partnership. Project publications should be much innovative, more noticeable and less conventional. So these should be more customer- or target group oriented and emphasize the benefits of the project for these groups.

The trust and so the **professional network** of an organization can be huge advantages in cross-border projects. I suggest the organizations to keep their contact active, for example through newsletters or partner parties. Networking can be helped by sending newsletters to our partners on monthly basis, which briefly outline the institutional events that have occurred and are also affected by. So the partners do not be noticed by the media when we win a project in which they might be interested. Year opening or closing partner meetings can also help to activate our contacts, where an organisation can regale its current partners, gives them a small gift. These little things can help to strengthen the relationship between the organizations.

Some organizations **do not have enough experiences** in cross-border projects. They have to use those matchmaking surfaces are offered by the Technical Secretariats, like the program webpages or the event. Participation on matchmaking events can also be successful. To these events we should arrive with already existing per-page project ideas as a draft, in which we can mark the potentially eligible organizations as well.

I also have to mention that the organization's interest to strive to keep the staffs, who have already gained experience in cross-border or other types of projects. The employees should be encouraged to participate in project management trainings, or on informational workshops and conferences organized by the Technical Secretariat. So they can get specific information about the particular characteristics of the program. This accumulated knowledge can be extremely useful for the organisation in the long run.

Conclusion

As a conclusion we can state that the tender projects should be treated differently from the general projects, since there are significant differences in its definition and interpretation. On the other hand the tender projects are project themselves, so we must not abandon what we know about project management. These general theories are the bases of the tender project interpretations.

In the first part of my study I highlighted that we need a little modified thinking if we are dealing with tender projects and we need some new ways exploring them. To that end I compiled a perception for the tender projects.

A tender project is a project which

- financial background is provided by the financial contribution granted by the European Committee or other external supporting institution;
- stakeholders are clearly defined;
- has clearly defined coordination, management and financing rules;
- has monitoring and evaluation system.
- Furthermore it has defined budget and timeframe, given resources, specific objectives and customer-orientation.

After that I presented the importance of the cross-border tender projects through the example of the higher educational institutions and defined the tender project success criteria as follow:

- Time factor: implementation of activities meet deadline, project closing on schedule, meet reporting and correction deadlines.
- Project management success: project outputs realised, project indicators achieved, project activities performed.
- Satisfaction of target group: the project reached its target groups, satisfaction of target groups, members of the target group participated in project events.

Finally I concluded that there are lot of elements that can affect the project success in the border region. In Figure 5 we can see a summary about these elements.

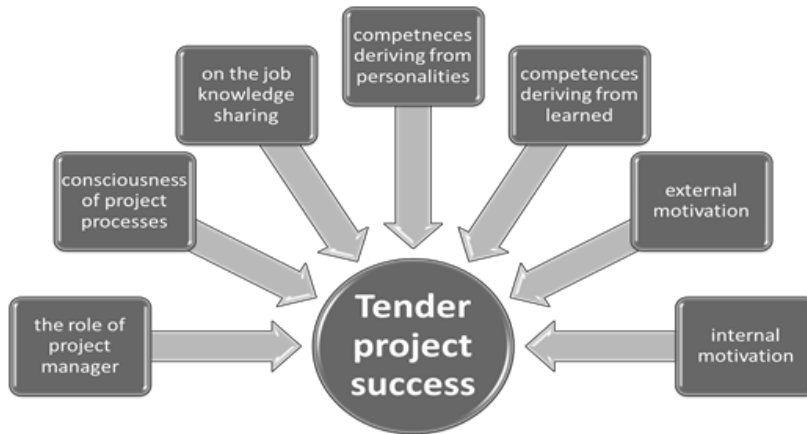


Figure 5 The project success influencing factors in case of cross-border projects

Source: own research, 2014-2016.

As a closure I presented the most common problems of organisations that can hamper a project to be successful; and formulate those steps that can help to be successful in a tender project.

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DÁVID MÁTÉ HARGITAI

STAKEHOLDER ATTITUDES IN HUNGARIAN ATHLETICS – QUALITATIVE ANALYSIS (PMR 2018/1)

In Hungary, sports seems to become rather appreciated in the political and social area. In this paper the complexity of sport service is going to be examined, which can be summarized in four dimensions related to several functions. The purpose is to reveal those effects concerning the values, which determine the operation of the particular sport / sport service. The area of investigation focuses on the attitude research of the concerned groups (stakeholders) in the Hungarian athletics. Besides the sports economy and stakeholder management, the comprehension of consumer (stakeholders in the athletics sports) preference mechanism has to be mentioned as well. The latter is an important question in marketing management, since the boundaries of consumer segments (Allenby-Rossi, 1998) can be determined based on the significant differences in preferences. In this paper it is examined how the sport functions, defined in the literature, appear in the athletics and what differences can be seen. *What kind of contexts characterize different functional areas (preference segments) and the connection of stakeholders in the athletics?* In the research part, it is investigated with the help of a questionnaire with attitude scales and factor and cluster analysis, whether those dimensions can be used to define the complex sport products, which are specified by the theory.

Dimensions of the sport service

The definitions of sport functions were known earlier as well, just the emphases shifted in different times. In the initial period, competition has come into view, considering social and historical aspects, it has been supplemented with numerous factors, primarily with social features and values, for today. In the literature, Alosi (2007) defines five factors as the basic functions of sports, which is in line with the Hungarian Ist Act from 2004 (Sport Act). The role model function is interpreted by the author as a part of the educational function, notwithstanding in other sources, it is

treated in the context of education, and it is still highlighted (Lyle, 2009).

Health function: physical activity offers an opportunity to consolidate the health of the population, and the healing of some diseases is an important tool in the prevention of cardiovascular and cancer diseases, and ultimately improves the quality of life, especially among the elderly. According to the Eurobarometer 2010 survey, 77% of the population proved to be inactive, as they did not move more than three times a month. 53% of the Hungarian never do regular exercise, which is only 37% on average in Europe.

Educational function: Active participation in sport, based on this function, serves the development of a balanced personality in all age groups. In competition, personal character can be developed and easily transposed into any area of life (Siedentop -Tannenhill, 2000).

Social function: Sport is a community-building tool that is a good for building a cohesive, interconnected society, fighting against impatience, violence, exclusion and racism, and reducing and preventing alcohol and drug consumption. Through sport, those people who are excluded from the labour market, get help for social integration, because we are able to accept others through sport (Woolger -Power, 1993).

An overlapping has been experienced in the interpretation of education and social function, thus the relationship between the two factors has been inspected, from an educational point of view. Woolger and Power (1993) present a detailed study on the different perceptions of socialization from the point of view of culture, society or the individual. Based on Geulen's (1989) thought pattern, the following statement can be formulated: Socialization is the development of personality based on its interactions with its physical and personal environments. This concept involves the assumption that environmental conditions are necessary and decisive in the genesis of personality, and these conditions are reflected in social mediation. This relationship has to be understood as a complex interaction in which the subject itself actively participates and develops itself into individual, and does not restrict the relationship between the educator and the educated, the transmission of certain contentions of consciousness or institutions. Consequently, the concept carries the education and it is logically subordinated to the notion of socialization.

Ideal function: Living in a community already existed in the prehistoric times among people. According to Lyle (2009), the community is specified by four factors: common purpose, common interests, shared value system and the knowledge of their existence. In the social system, the individual and his personality are preserved, they can be evaluated by sport either because they can emerge in a given framework with their performance, which can result in respect and may become an example to members of the community. Interpretation of the role model directly gains ground

for the athletes and Olympians, indirectly in the performance, sports and popularity of sports. Thanks to marketing (eg sport sponsorship, CSR activities) and media, this is becoming more and more important today.

Cultural function: sport provides additional opportunities for embeddedness, better understanding of the environment, better social integration, and more effective protection of the environment. International sport events (Olympics, World Cup) contribute greatly to the understanding and acceptance of differences between cultures.

Recreation function: Sport activities are valuable leisure activities and provide opportunities for individual and community entertainment. The sport focuses on improving and stabilizing our performance and sense of well-being, our ability to improve our physical and mental capacity.

The next step is to determine the dominant values within the “live” segments of the sport, how they are related to each aspect of the sport function. The phrase live sport is basically not an economic concept, primarily used in the practice of local government support practice. It means sport activity and activities related to sport events. There are two categories within the live sport. On the one hand, the elite sport, which is created by the elite and professional sports. Basically, it is characterized by outstanding sport performance. On the other hand, community sports where sport does not generate income for the athlete, and within the category we can make distinction between public sports (free-time sports without direct organizational background), leisure sports, competitive and recreational sports of education systems, and training of associations as well (Alosi 2007).

	Live sport segments	Segment values	Dominant sport function
Competitive sports	Professional sports	business, awareness, image, trade, politics	economic, business
	Elite sports	ideal, development of infrastructure public goods, local and international prestige	Ideal
Community sports	Junior, school-university sports	body culture, motion teaching, education, socialization	education and social
	Public and leisure sports	health promotion, preservation of working ability, training	Health

Table 1 Principal areas - value - functions of sports activities
Source: own construct based on Gyömörei (2012),
Nádori-Bátonyi (2003)

Table 1 shows that the social significance of sports plays a much stronger role in determining the function. In describing and interpreting functions, education and social function are referred to as separate categories, but derived from the segments' values, and as a result of the overlap between the two concepts, we look at the empirical research as one category as the socialization function. During the empirical research, athletics in the dominant sport functions is examined. However, the framework outlined above does not include the economic-business function of sport, but it is clear from the table that it is a decisive segment value. Sport economy deals with the production and distribution of sport goods and sport facilities, decision alternatives emerge in consumption and exchange, and the realization of social environment and consequences of the implementation of these decisions (Lera-Lopez -Rapun-Grarate, 2007). In recent decades, the economic importance of sports has been increased. On the one hand, the decline in state support required associations and clubs to deepen their knowledge in sport economics. On the other hand, health, body status and quality of life became major factors in modern societies, with increased leisure time sports became more and more popular for people as the entertaining function of sports and active recreation were appreciated. According to another approach (Gratton and Taylor, 2002) – which, in my opinion, is a good supplement to the previous structure - the structure of sport economy can be depicted in a pyramid model, where the sport market is divided into a sport-specific way of distinguishing the professional and leisure sport market. Compared to the original figure found in the literature, some supplements were used. First, the names of each pyramid element were aligned to the conceptual framework used in the *Table 1* (italicized) so that each segment can be clearly understood. As shown in *Figure 1*, the formal sport market (professional sports and recreational sports) can be directly related to the indicated sub-markets: market of paying audience, market of broadcasting rights, merchandising goods market, volunteer market and sponsorship market. I have made additions to relationships, for instance, the merchandising market - although it rather exists in professional sports -, which is frequently seen in recreational sports and at events that makes up the two, and it can increase the engagement and loyalty of active participants. The same conclusion has been found regarding the addition of links to sponsorship as many companies appear as sponsors in recreational sports. Sport goods and sport services at the bottom of the pyramid can be regarded as a derivative market because their demand and supply largely depends on the size of the sport market. The levels of the pyramid are governed and regulated by government and sport management units.

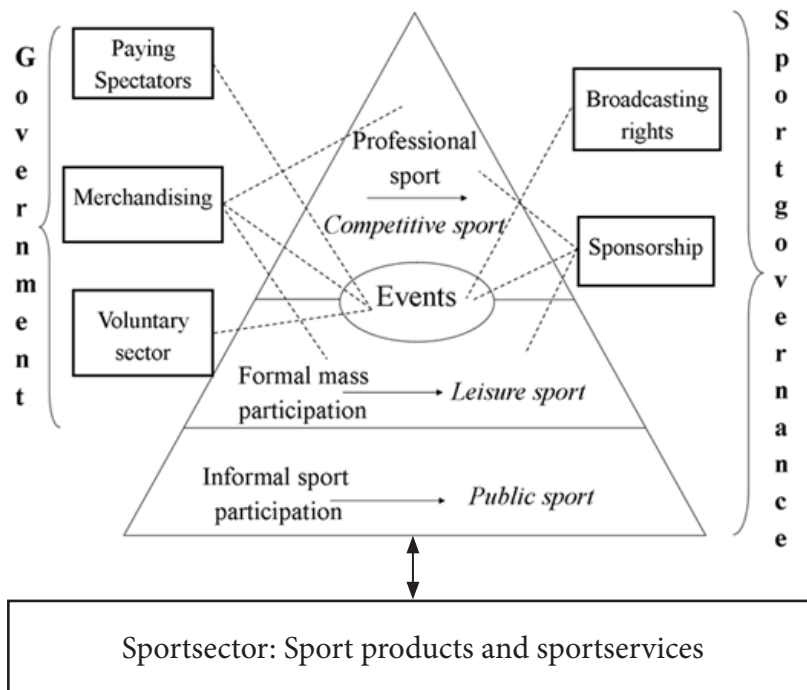


Figure 1 Structure of the sport economy
 Source: own construct based on Gratton and Taylor (2002)

For a more detailed presentation of the full sport industry, Figure 1 should be supplemented in regard to sport products and sport services. This is presented in the sporting model of *Figure 2*. Compared to the original model, the figure has been modified in some points. In the original model, “Leisure” appeared as a separate category, elements of which were provided by the fitness club and other services. Additionally, events and occasions category present items such as facility building and operation, which cannot be interpreted as a category component. In the outlined solution the “Other Service” group has been defined, which contains those factors that could not be categorized into anyone of the models. The group of business services stands the closest to this, yet I had to note that the components included in other services are not always business-related.

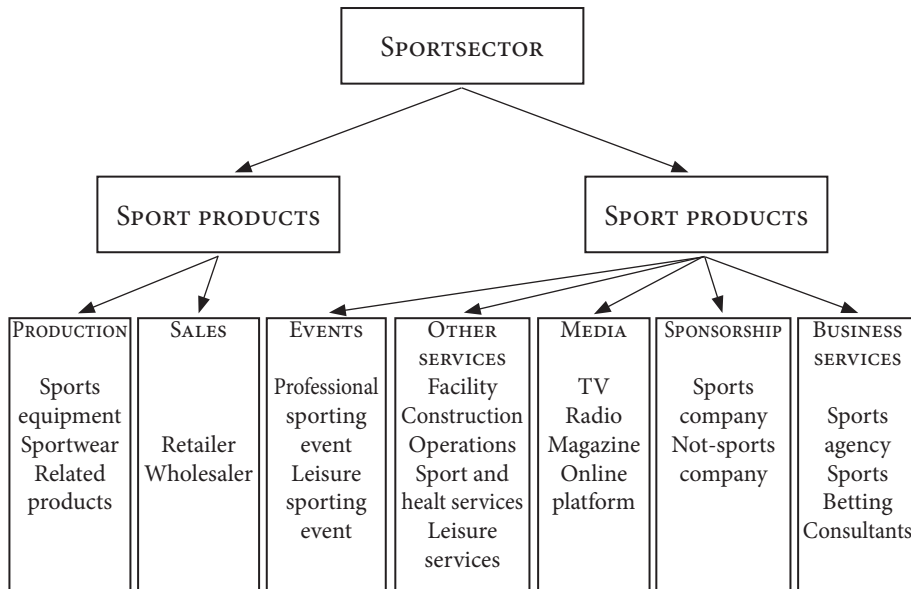


Figure 2 Gratton-Taylor's sports industry model
Source: own construct based on Gratton-Taylor (2000)

Participants in sport services

In our concept, stakeholders related theory is applied (Freeman, 1984), in which stakeholder decisions are the basis for the change. The stakeholder theory is one of the most significant management theory (Stieb, 2009), which is widely used in the field of sport industry as well (Covell, 2004, 2005; Heffernan és O'Brien, 2010; Mason és Slack, 1997). Continuous environmental change in the 21st century, which is exponentially increasing, has an impact on the sports industry, too (Katzell-Austin, 1992). In case of every smaller and larger sport clubs, there are many economic and social players in the environment, and those elements (people, groups of stakeholders, organizations, other companies, sometimes countries) will be major, which are capable to establish a lasting relationship (Mendelow, 1981) and will be able to influence the organization's goals (Freeman, 1984; Friedman et al., 2000, 2004). This kind of approach is a consequence of a process requiring a cultural change, which can be considered as a new concept in the Hungarian sport environment. Incorporating stakeholder interests and values is a serious challenge for our age. In the field of sport, not only management and business which matter can be impacted by

the activity of stakeholders, but also those additional factors needs to be considered like a healthier and more decent living space. The condition of business success depends on how the particular company or, in the present case, a sports club is able to successfully manage its stakeholders. Corporate Social Responsibility recognised that nowadays it is no longer allowed to examine directly only the company itself. Stakeholders may have an impact on operation of the organization, investment willingness, money and other resources, as the organization is located in a social economy matrix. Reactions and interactions, as well as the organizational change around stakeholders, can vary considerably (Lewis, 2007). These do not only interact with each other in business but also with other factors. All in all, therefore, stakeholders are the persons or groups affected or affected by the operation of the company, whether they know about it or not (Preston-Sapienza, 1990).

The basic question is who can be considered as a stakeholder in this area. According to Starik (1994), four factors can be distinguished: firstly a relationship should exist between the person concerned and the organization, which can be direct (championship, player union) or indirect (player agent, player observer); secondly, those who are associated with decisive interests (population, supporters); thirdly, who can enforce their interests against the sports organization. Furthermore, other forms can also exist, such as the team owner or nonnatural persons who may affect the operation of the sport / branch of sport / organization.

Stoldt and his fellow researchers (2012) divided the community system of relationship in sports into eight factors: consumer, government, donor, media, investor, community, employee and industrial relations. The study of Gruning and Hunt (1984) has highlighted the decisive relevance of the connection between community relationships and stakeholders. Functional connections are essential for the organization to produce products or services. There are the workforce and resources (athletes, coaches, alliances, suppliers - sports tool manufacturers) on the input side of the functional connection, while consumers (supporters, family members), retailers and distributors (eg. media partners) appear on the output side. In case of normative relationships, these groups have an influence on the interests, values and goals of the organization (competitors, professional associations and expert institutions). In connection with “creating relationships”, those are involved, who have control and authority over the organization and can provide resources for the autonomous functioning of the organization (presidency, government regulators, and shareholders). Those are involved in the “scattered” relationships that do not have a common interaction with the organization, but may have an impact on it, particularly in vulnerable times (media, community activities).

Research questions and hypotheses

In connection with the questions, an important aspect was to focus on the sport, within that on athletics, which is only partially explored by the science in Hungary.

The formulated research questions were:

1. *What are the functional areas (preference segments) that characterize this sport service?*
2. *What are the relationships between the individual functional areas (preference segments) and stakeholder relationships?*

In the theoretical review, it was shown that it is important, not only in business, to deal with the attitudes and preferences of stakeholder groups, as the sport has a similar effect on the different groups involved. By answering the first research question, the areas in which the sport service is defined in the sports economy is trying be to examined, in this case the Hungarian athletics. With the second research question, the relationship between the individual functional sports dimensions and the specific stakeholder groups are examined, whether there is a robust difference between the particular groups. I have examined my assumptions related to the questions with qualitative methods.

H/I. 3 basic stakeholder groups can be defined in Hungarian athletics: 'direct' (economic leaders, coaches, sportsmen); 'supportive' (government, local government, media, sponsor, association); 'indirect' (teams, educational institutions).

In the case of the first hypothesis the theory of Clarkson (1995) can be implemented, in which primary (direct) and secondary (indirect) concerned parties appear. Primary parties are in connections with the company, they define the operation fundamentally as compared to the secondary parties which have no such dependent relationship, the lack of which would make the operation of the company questionable. The support category is needed to be considered as separated one as the business paradigm changing mentioned in the theoretical overview can be identified as minor in our country, the supportive mainly approach the social and political paradigms in athletics. The instrumental stakeholder approach of Mitchell and partners (1997) can be interpreted more effectively in this context because they consider its power-legitimization-urgency in the same time and identify three groups accordingly. In case of latent concerned group (indirect), there is only one dominant feature. The second group is the expecting concerned group (direct), where already two features appear at the same time (e.g. They have urgent demands but have no power to endorse. In general, they depend on other groups. In case of sport clubs, these are sportsmen who want to realize their earnings, but the final decision is

made by the management which considers the whole operation.). Finally, the third and most important group represents those who have power-legitimization-urgency, meaning they have enough power to realize their demands which are urgent and legitimate. Decision makers must consider this issue inevitably, they are identified as determined (sport supportive) concerned group.

H/II. In preference system individual segments can be identified by sport functions. There are 4 defining functions: medical, socializing, role model and business dimension.

The second hypothesis investigates the existence of theoretical sport functions created. In connection, the center of the investigation is that whether which functions appear in athletics in an identical way.

The qualitative method and framework of the research

The empirical research based on the individual sport functions represents athletics as a sport and service through different dimensions. The definition of preferences and attitudes, in connection with sport functions, is not reasonable to place under statistical analysis in a discreet manner, at first. According to Veres et al. (2014), thoughts are created individually, but opinion development is already largely influenced by the opinion of others and the environmental impacts (mass media, social media). Qualitative methods are particularly suitable for exploring these mechanism of action; they can model their views, attitudes, and image-forming. The aim of our qualitative research is to reveal the attitudes of stakeholders involved in the activities, which want to be investigated, and which will provide later on the basis for quantitative research through attitudes that can be mapped out of the results.

In the case of a minifocus group, it can be supposed that all participants will actively participate as they have high level of concerned factor about athletics (insider or directly concerned group). It was concerned during the selection process that the homogeneity of the group is crucial, thus the group creation was based on status, function of a certain club. This created the insider concerned group, where mini-focus group interviews were made by 3-4 people per group (between October 2016 and December 2017):

- managers (department leaders, board members, chairman)
- coaches (section managers, coaches)
- athletes

For the analysis of qualitative data, *Atlas.ti 7* analytical software was used. By the help of this, it was able to explore consistence, opinion and connections. During the process, codes to analytical parts (different opinions) were assigned. These codes showed the existence of contextual samples and finally hierarchical group has been created based on these. Based on the answers during the interviews, the opinions were grouped (most emphasized opinions about the sport functions) and color codes were used to identify which concerned group they belong to. The software includes graphical show which helps to represent the quotes related to certain codes. This method significantly helped the transparency and interpretation of the results (Muhr, 1991).

Based on the literature, mini-focus group interviews were conducted, in which managers, coaches and athletes have been interviewed. Respondents were asked to express their views and experiences in connection with functions of sport, which can be used to map the sport services they want to look at. The interview was put in a predetermined set of questions within the dimensions raised, and the people concerned were free to tell how they see the overall situation of the current Hungarian athletics.

Mini-focus group interviews took place along a specific guideline, yet it was thought to be important to share their opinions, feelings and related stories on the topic, which made the expressed attitude understandable. It can be mentioned as an advantage, that it was suitable for colliding and evaluating the opinions and experiences of those who were involved. It has made it possible to express attitudes, feelings and preferences as the core line of the conversation; exploring the causes, goals and wider connections. Of course, for each interview, there were problematic areas that we discussed in more detail. The reason of this can be searched in it, that what type of relationship the given stakeholder group is currently concerned with the athletics in.

In Hungary, according to the official source of the Hungarian Athletics Association (masz.hu), there are 161 athletics clubs today, which in itself represents a significant number, of course, there are sports associations for which the number of athletes is low. In the qualitative interviews, those clubs were selected, which are said to be determinate in today's Hungarian athletics. The success of earlier years has been taken into account and the intention that geographically far-off clubs form the subjects of the mini-focus group interview.

Viewpoint of effectiveness

Table 2 shows the results of the absolute point race (resupply, adolescence, short-range and hurdler branch, middle and long-distance running disciplines, walking disciplines, jumping disciplines, throwing disciplines) in the 2010-2012 period, and those domestic and international competitions were marked by the Association where points can be obtained. In this timeframe, it is also clearly obvious that the leading athletic clubs were the same.

	2010		2011		2012
1.	Bp. Honvéd SE	1.	VEDAC	1.	VEDAC
2.	VEDAC	2.	Bp. Honvéd SE	2.	Bp. Honvéd SE
3.	Buda-Cash Békéscsabai AC	3.	Buda-Cash Békéscsaba	3.	Dobó SE
4.	Gödöllői EAC	4.	Dobó SE	4.	Buda-Cash Békéscsabai AC
5.	Dobó SE	5.	KSI SE	5.	Gödöllői EAC
6.	KSI SE	6.	DSC-SI	6.	DSC-SI
7.	DSC-SI	7.	Gödöllői EAC	7.	KARC
8.	Ikarus BSE	8.	Nyírsuli	8.	Nyírsuli
9.	TSC-Geotech	9.	TSC-Geotech	9.	TSC-Geotech
10.	Szolnoki MÁV-SE + SI	10.	ARAK	10.	ARAK
12.	ARAK	18.	BEAC	12.	IKARUS BSE
19.	BEAC	19.	IKARUS BSE	18.	BEAC
53.	AC Bonyhád	47.	AC Bonyhád	28.	AC Bonyhád

Table 2 Scoreboard of the Hungarian athletic points competition in the period between 2010-2012

Source: own construct based on atletika.hu

Over the last three years, the athletics competition system has been transformed, so in absolute numbers it is difficult to express the success of each club, since the classic competition for points has been eliminated. The basis for the comparison is specified by the annual prized two-round (semifinal-final) team championships (each athletic club has the opportunity to associate with another - up to two - athletic clubs in a neighboring region), based on 42 events.

	2014		2015		2016
1.	GEAC-BEAC- IKARUS BSE	1.	Bp. Honvéd-UTE	1.	DSC-SI - NYSC
2.	Bp. Honvéd – UTE	2.	GEAC-BEAC- IKARUS BSE	2.	GEAC-IKARUS BSE
3.	DSC-SI – Nyírsuli	3.	DSC-SI – NYSC	3.	Bp. Honvéd - KSI SE
4.	VEDAC - Pápai SE	4.	Békéscsabai AC - SZVSE - Békési DAC	4.	UTE - MTK
5.	Dobó SE - Haladás VSE - Zalasám ZAC	5.	VEDAC - Pápai SE	5.	Békéscsabai AC - SZVSE
8.	TSC-Geotech - Arak - Győri AC	6.	TSC-Geotech - Arak - Győri AC	7.	TSC-Geotech - Arak
10.	Dunakeszi VSE - Csepeli DAC - Reménység Vác	9.	Favorit AC - DOVASE - Bonyhád AC	8.	VEDAC - Pápai SE
12.	DOVASE- Szekszárdi AK SE- AC Bonyhád	11.	Dobó SE	11.	Favorit AC - AC Bonyhád

Table 3 Scoreboard of the Hungarian athletic team championship points competition in the period between 2014-2016
Source: own construct based on atletika.hu

Geographical frame

Charts 3 and 4 clearly show how many athletics clubs in the particular regions currently operate in Hungary, and how much of these are related to the population.



Figure 3 Distribution of Hungarian athletic clubs by area
 Source: own construct

Name of the region	Number of clubs	Population	Population/ Number of clubs
Budapest	29	1,757,618	60,607
Bács-Kiskun	7	513,687	73,383
Baranya	8	371,110	46,388
Békés	3	351,148	117,049
Borsod-Abaúj-Zemplén	7	667,594	95,370
Csongrád	4	406,205	106,543
Fejér	5	417,651	83,530
Győr-Moson-Sopron	4	452,638	113,159
Hajdú-Bihar	6	537,268	89,544
Heves	4	301,296	75,324
Jász-Nagykun-Szolnok	7	379,897	54,271

Name of the region	Number of clubs	Population	Population/ Number of clubs
Komárom-Esztergom	5	299,110	59,822
Nógrád	6	195,923	32,653
Pest	15	1,226,115	81,741
Somogy	4	312,084	78,021
Szabolcs-Szatmár-Bereg	3	562,357	187,452
Tolna	6	225,936	37,656
Vas	6	253,997	42,332
Veszprém	5	346,647	69,329
Zala	4	277,290	69,322

Table 4 Hungarian athletic clubs as a function of population size
Source: own construct

The athletic clubs participating in the mini-focus group interviews:

- Alba Régia Atlétikai Klub (ARAK)
- Atlétikai Club Bonyhád (Bonyhád AC)
- Budapesti Egyetemi Atlétikai Club (BEAC)
- Debreceni Sportcentrum Közhasznú Nonprofit Kft. (DSC-SI)
- Ikarus BSE atlétika szakosztály
- Veszprémi Egyetemi és Diák Atlétikai Club (VEDAC)

The results of the research

The circle of respondents included the internal stakeholders in the first round, where the participants of the interview were the management of the club, the coaches and the outstanding athletes of the particular sport organization. One important question from the research point of view was to identify those stakeholder groups that affect the functioning of the sport. During the interviews, the relationship network could be divided into three main categories. Those belong to the first category, who have a direct impact on the daily work of the associations and are involved in its activities. The interviewees identified five groups in this category - by quotation frequency -: coaches, athletes (*“Primarily athletes and coaches who work in some kind of employment ...”*); family (*“Another huge circle of supporters with whom they are in constant contact, the contestants and their family members”*); management (*“We are also in daily contact with athletes and colleagues and management”*); as well as civilian workers

(“... and those who are engaged in civilian work, primarily in business administration.”).

Those belongs to the second category, who do not have a direct impact on club operations, yet they have a prominent role in the mechanism. On the one hand, friends who have a decisive role with their opinion and support in younger age groups (*“I’m mostly building on friends who are also athletes, support me, give me advice.”*). On the other hand, partners associations and educational institutions are included here, who provide base of athletes (*“We are also in contact with schools where we occasionally attend a class or workout. In the context of a specific program (ARAK-active), every spring we assess the status of children in different playful competition and try to select them from there.”*), or they offer an opportunity for a successful career for athletes to run it smoothly (*“Talking about athletes from Győr and Fehérvár, there is also a cooperation agreement between the two clubs, as they learn and work in Pest”*). As well as the medical background which treats athletes in a preventative and curative manner (*“In case of an injury, a natural therapist, but a dietitian, human innocent, and also massage therapists helped my work”*).

Finally, the support organizations were classified into a separate category, providing some kind of material support to athletic associations. The political dependence on Hungarian sports in general, and thus the athletics, is the dominant role of local governments (*“The department is fundamentally supported by the local government, the budget may be 20 million HUF”*) and the Hungarian Athletics Association or the Hungarian Olympic Committee (*“Supports of Hungarian Athletics Association and Hungarian Olympic Committee in the form of Sport XXI. or performance grants...”*), which most of the respondents mention with a fairly high frequency. They provide the basic conditions for the operation in financial and competitive terms for achieving a given goal. The sponsoring site is clearly seen as a weakness by all groups of respondents (*“It’s a big step forward for the outstanding athlete to find a sponsor like Nike.”*); the reasons for this will be further analyzed in the economic dimension. Instead of the sponsors, the sport is still characterized by protectors who have previously linked to athletics in some way or are in personal contact with the leadership of the association and therefore support a club or athlete. (*“There are onefold grants, from businesses that have some personal attachment to athletics” / “Financial support can be obtained through personal contacts.”*). Within the support, also the value of the news appeared, that is, the role of the media and how much they deal with the sport and how they do it (*“The press needs news, primarily for local news and the club needs publishing their results to our sponsors, athletes and their families to see and get to know about the work of the club.”*).

Figure 4 illustrates the relationship system revealed by qualitative analyzes. The stakeholders are flagged in white: direct, indirect, supportive relationship. The darkness of the colors represents the frequency of mention, whose quantified results by respondent groups are shown in Table 5.

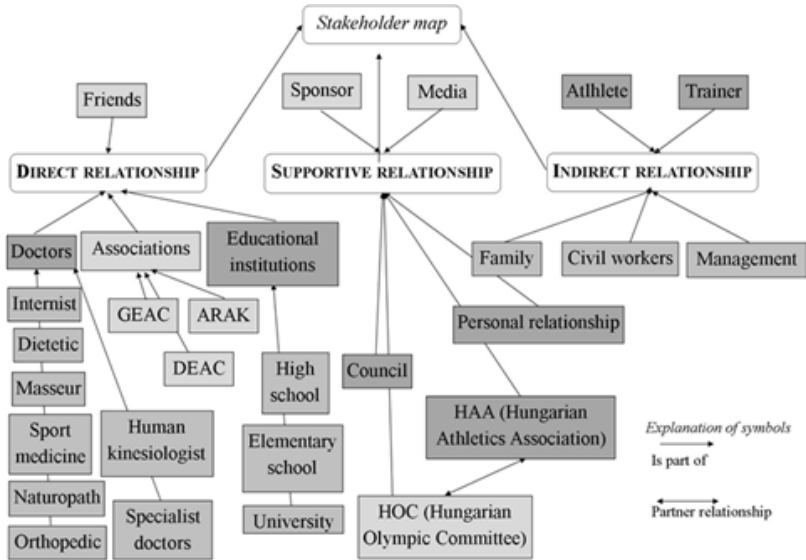


Figure 4 An explored system of relationships based on qualitative research
 Source: own construct

CONNECTION NETWORK					
<i>variable groups</i>	<i>name of variable</i>	<i>frequency of athlete</i>	<i>frequency of coach</i>	<i>frequency of manager</i>	<i>frequency of SUM</i>
Direct	Coaches	4	5	6	15
Direct	Athlete	0	4	9	13
Direct	Family	2	2	2	6
Direct	Management	2	3	4	9
Direct	Civil workers	0	0	2	2

CONNECTION NETWORK					
<i>variable groups</i>	<i>name of variable</i>	<i>frequency of athlete</i>	<i>frequency of coach</i>	<i>frequency of manager</i>	<i>frequency of SUM</i>
Direct	Educational institutions	0	6	5	11
Direct	Associations	0	0	6	6
Direct	Doctors	4	4	3	11
Direct	Friends	2	0	0	2
Supporter	Council	0	3	12	15
Supporter	Hungarian Athletics Association	0	5	9	14
Supporter	Personal relationship	0	2	9	11
Supporter	Hungarian Olympic Committee	0	3	4	7
Supporter	Sponsor	0	3	3	6
Supporter	Media	0	1	3	4

Table 5 Frequency distribution of the contact network variables among internal stakeholders
Source: own construct

Health function

Beginning with the basic functions of the sport, first thing that needs to deal with, is the health function and its projections. During the problem is being processed, the interviewees have covered several areas: the coach and athlete's philosophy (attitudes), the factors influencing the health of active sports, and the performance as a key element of the competition spirit, nutrition and health education by sport. The first question referred to the healthiness of the sport. Each group approached the question from different points of view, but it can be stated as a basic principle that professional and amateur sports must be distinguished. According to most of the professional athletes, there is a level (when they are already competitive) when it can no longer be called healthy ("*... so it's good to play, but who compete in sport, they will have more harm than an average*

person ...”). There were differences between, where exactly this boundary is located in the groups and within the group, (“... it can be healthy until you want to win a national championship ...” / “... it can only be valid until the general age at childhood ...”). Most of the coaches are more subtle, they have essentially linked the two concepts with success (“*The balance between the strain and the rest can be found, as long as the competitor does not reach the international level.*” / “*Where we are talking about serious results no longer so much.*”). The leaders indirectly expressed their opinion that this factor is best determined by the coach’s philosophy, so they approached the question directly through the influencing factors. Many determinants have emerged from interviews, which influences health and can be classified into several categories as a result of the effect, and, in most cases, they are often related to each other. The most distinguishable effect was the **aptitude of the athlete**, which included the genetic substance (“*Which determines the injury is partly genetics, as well as, how much the athlete is mentally concentrated on the training*”) and as a result of this, body part (“*It depends on habitude as well, that there those, who achieve their athlete career without any health damage and lives perfectly at the age of 35, while others have another genetics.*”). Another category of factors affecting health is the **persons** (coach, family, doctor, philosophy of the athlete).

The defining role of the family is mostly important in terms of nutrition (“*The family is a decisive factor in what and how the athlete feeds*”). Within this category, this element was formulated in the most shaded, as the group of interviewed approached the role of coach from several sides, which were linked to the philosophy of sports in several places. The first, which affects both the health and the performance of the athlete, is the qualification of trainer. Coaches have highlighted this importance (“*I have a bad habit that I like to take part in courses too, but there are not many training courses in athletics, moreover they are absolutely missing in Hungary.*”). The problem is well represented in the previous quotation: there are no special sports forums and native-language publications that will allow the concerned group to become more educated. In many cases, it depends on the proactivity of the trainer (“*I also buy books, mostly English publications.*”) and the community where it is possible to work (“*The primary source of information collecting is talking to colleagues working in this field ...*”). This could lead to an additional problem, thanks to the underdevelopment of the sport (especially with regard to coach wages), generation gaps of clubs have emerged, which in many cases hindered bidirectional communication. Professional work, that is closely related to the previous variable, since the adequacy of the qualification greatly determines the level of professional work the coach can do. The lack or

inadequacy of this can cause one of the biggest problems by athletes, which is the burnout that has been repeatedly aroused by both athletes and leaders during the interviews (“... *there are coaches who should not be on the pitch, as they do not do well for the athlete and the child either professionally. Talented children may be discouraged if they are not trained or trained too early to get results and burn out.* “ / *In this area, it should not be allowed thinking in the short term that many people are doing, obviously not intentionally, but they burn out the children.* “). The most common level that contains all of the elements that have appeared so far is the philosophy or the mentality of the trainer. This cannot be separated from any of the factors that have emerged so far, since it has an effect on them (“*For 90% of injuries the coach is responsible for, the remaining 10% the mistaker might be the athlete, when he does not do what the coach asks and goes his own way*”). Doctors also appear to be influencing factors in this dimension, although in the frequency of mentioning even in professional athletes they appear on periphery (“*The truth is that control of blood results must be constant there.*”). Their influence on health is indirect because they have a control function in the process. Finally, the mind of the athlete must be mentioned within this category. This factor cannot be evaluated on its own, as it can be related to athletic awareness, whose one of the main directions formulated by nutrition (“*I eat consciously, I suppose, though I do not make it a maniac. I do not separate all the details into portions, but if I can, I’ll take care of it.*”). Besides the control of the preparation (“*At an amateur level this can happen if he or the coach is an idiot.*”) and how well the goals are consistent with the abilities of the athlete are important. (“*...if someone has the skills to predestine themselves as a national champion, but he has set the Olympics as a goal, then it depends on the professional work of his colleagues to see if health damage occurs*”).

With regard to professional sport, the dimension also gave rise to the assessment of **performance**. Essentially, the role of sports in health preservation becomes separated at that point (“*Sport is linked to health but racing sport works with limit loads*”), according to athletes and coaches as well, as the limit loads no longer supports internal equilibrium, but overloads athlete for better performance. An additional link can be explored with both nutrition (“*...who feeds healthily, is not aware of how much the performance could fall with improper nutrition*”) and talent (“*...it can be said that a talented child is not harmed, endure, bares out pressure and do not need special tools and nutrition ...* “). However, it should also be taken into account, that in many cases the external environment may overwrite the relationships described above (“*While at home environment, the load was completely different ...*”).

The role of **nutritional supplements** and the related opinions within nutrition was an unavoidable topic. The skepticism regarding to nutritional supplements was mostly expressed from leaders' point of view (*"A significant portion of nutritional supplements does not develop. It is not as remarkable as it is supposed."*), they believe that its efficiency and effectiveness are very difficult to judge, they rather consider it as a trend or business than a necessary supplement, and it is also believed as a potential source of danger (*"It has become fashionable in the recent years, but it also has great dangers, these products are marked by too many ..."* / *"The another thing is that it is not known enough, what these drugs contain, and how the body reacts to whom who use it, will it be acceptable or not by the body."*). This was confirmed by some answer of athletes (*"I've taken a lot of nutritional supplements, especially protein. It presents during the whole year. I've taken nutrition supplement since my Junior ages, although there was no serious concept behind it."*). On the other hand, coaches and athletes consider it crucial above a certain level (*"...when we are talking about professional sport and competitive sport, it may be mentioned"*), which has several reasons. On the one hand, nutritionally poor meals should be completed (*"there is not much nutrition in today's meals"*), in addition it can shorten the time of regeneration (*"Mostly I'm taking regeneration supplements"*), besides it is easier for athletes to bear the load (*"Basically, I've started using it for 2 years, because of the higher loads. Since I train more times and I run more than 100 km a day, so it is indispensable."*).

The caution of opinions and attitudes to nutritional supplements is due to the fact that many people in the public are confused with the concept of dietary supplements and doping. This may also be due to the fact that the various products are continuously being tested, thus classification is changing from time to time. The topic of doping has emerged mostly among managers, where it was completely rejected (*"There are a few adult competitors who may think about doping opportunities, but we have a strong conviction in this field, there was no, and we don't even want to help athletes with these tools."*). I find it important to mention that, nevertheless, athletics is excessively one of the most sensitive to doping among sports. One trainer approached this topic from the another side, he thinks there is a group in athletics who does his best to improve his performance (*"... so he sacrifices everything, perhaps even turn to doping does not even know what effect it has on his health"*).

Beside the influencing factors, two interest categories have also appeared in this dimension. One is the acquisition of the new basic forms of movement (*"... learn movement patterns that can be base of other sports later on"*), which must be competed due to harder pressure in a higher level (*"There is many kind of physiotherapy thing, for compensate*

all the moving system and the pressure, and do not have deformities that can cause problems in civil life and sports.”). In addition to this learning value, a healthy athlete appears as an importance (“...the main value is a healthy athlete and not the result”), influenced by health determinants; performance, participants, environment, talents, sport level.

<i>Professional and amateur sport</i>	„Who compete in sport, they will have more harm than an average person”
<i>Health – efficiency</i>	„The balance between the strain and the rest can be found, as long as the competitor does not reach the international level.”
<i>Influential factor - persons</i>	
<i>Ability of athlete</i>	"Which determines the injury is partly genetics, as well as, how much the athlete is mentally concentrated on the training"
<i>Attitude of athlete</i>	"I eat consciously, though I do not separate all the details into portions, but I take care of it."
<i>Family-nutrition</i>	"The family is a decisive factor in what and how the athlete feeds"
<i>Qualification of trainer / professional work</i>	"I like to take part in courses too, but there are not many training courses in athletics”
	"For 90% of injuries the coach is responsible for, the remaining 10% the mistaker might be the athlete, when he does not do what the coach asks.”
• <i>Burn-out</i>	„... trained too early to get results and burn out”
<i>Influential factors – performance</i>	
<i>Health – performance</i>	"Sport is linked to health but racing sport works with limit loads"
<i>Nutrition</i>	"... who feeds healthily, is not aware of how much the performance could fall with improper nutrition"
<i>Talent</i>	"... a talented child is not harmed, endure, bares out pressure and do not need special tools and nutrition ... "
<i>External environment</i>	"While at home environment, the load was completely different ..."
<i>Role of nutrition supplements</i>	„It is not as remarkable as it is supposed.”
	"Is not known enough, what these drugs contain, and how the body reacts to whom who use it.”
	„I train more times and I run more than 100 km a day, so it is indispensable.”
<i>Doping</i>	"There is no, and we don’t even want to help athletes with these tools. "
	"... so he sacrifices everything, perhaps even turn to doping.”
<i>Healthy athlete</i>	"... the main value is a healthy athlete and not the result."

Table 6 Revealed alternatives of health dimensions
Source: own construct

Socializing function

The second function, that is the subject of the test, is lifestyle. Based on the qualitative results, the highest frequency was given to **community strength** and its positive effects especially in the case of the leaders and coaches (*"We try to convince the child is a member of the community here"*). In the case of athletes, negative aspects of this factor also emerged, as in many cases, conflicts of interest may hurt performance. (*"If I train alone, then more attention is given... working in a group sometimes creates a conflict of interests that can make the community morale worse."*). The other variable, closely related to the community, is the **effect of group work**, which has also appeared as a separate variable in a positive sense (*"They work together, they suffer together, they compete together and are in good friendships, who are on the pitch opponents"*). As a result, athletes are often get into a **conflict situation**, which can also have a positive impact on their lives in the long run, even if the coach manages them properly. (*"There was a little girl from Pécs, who has soon overtaken the age group, who were there worked with them for 3-4 years. And they were overwhelmed by them in a year. Jealousy, vanity, these must be mentioned because they are difficult to accept. On the other hand, there is the conflict that the outstanding athlete does not feel the proper attention."*). In terms of frequency, as a secondary value in this area, the **success experienced** in a group-level has been appeared despite the fact that it is a personal sport. It is important for them to help each other during the workout or even race (*"... last year I helped them to run in the level of European Championship"*).

The next major factor group could be related to learning, the direct element of which was connected to sport, the learning of movement patterns (*"learn some forms of movement that could later be based on other sports"*), indirectly the impact of sport on learning, which is not positive because *"... it would bring extra to the nervous system ..., but for those who have less time for sports, and no time for slack"*. For the variables mentioned, additional background variables can be found in this interview: **timing** and **design** (*"The day won't be broken, adjust to a strict agenda"*); **task orientation** (*"They know what to do at what time"*), **concentration** (*"I noticed that my ability to concentrate getting better; my brain working better; I can understand things better ..."*). Due to the differences in efficiency in the performing sport, roles are quite differentiated within the group. According to the opinion of coaches it is positive in childhood (*"There are norms in the group, which need to be consolidated and taken over by the newly attached child"*). At the level of athletes and coaches, which is a higher level, conflicts are generated

(*“Two piper can not fit in one inn”*). There were two external variables related to learning which has appeared, on the one hand, the opinions in connection with the **education system**, where it appeared to be a major factor (*“In many cases the university does not even support my athlete work because they do not let me go to a training camp or competition”*). At a professional level, compatibility can be seen in the type of training by the athletes (*“Very training-depending how much it is compatible, as there are training areas where it is only possible to do with a very drawn schedule (medical), and then you’re mentally exhausted too.”*). Leaders and more coaches also have similar opinions (*“Here in Hungary, higher education seem to be as a passive viewer, there are some positive attempts, but this is mostly person-dependent”*). The other determining factor, which has emerged in all three stakeholder groups, is **parental attitudes**, which in many cases can not be stated as positive effect in sports (*“It is often the case that a parent does not allow a child to workout because they have got a bad mark or write have to write a test, must go to a private lesson. “/” This requires a parental intelligence, and foresight. “*).

<i>community power / the effect of group work</i>	"We try to convince the child is a member of the community here."
	„...working in a group sometimes creates a conflict of interests that can make the community morale worse.”
	"... last year I helped them to run in the level of European Championship."
<i>roles</i>	"There are norms in the group, which need to be consolidated and taken over by the newly attached child."
	"Two piper can not fit in one inn."
<i>the impact of sport on learning</i>	"The day won't be broken, adjust to a strict agenda."
	„...my ability to concentrate getting better, my brain working better, I can understand things better ..."
• <i>education system</i>	„Higher education seem to be as a passive viewer, there are some positive attempts, but this is mostly person-dependent."
	„In many cases the university does not even support my athlete work because they do not let me go to a training camp or competition.”
• <i>parental attitudes</i>	„It is often the case that a parent does not allow a child to workout because they have got a bad mark or have to write a test, must go to a private lesson.”
	„This requires a parental intelligence, and foresight.”

Table 7 Revealed variables of socialization function
Source: own construct

Ideal function

The question of this dimension is, what each stakeholder group reckon as sporting goods and sport values, what variables can be separated, and how it can be measured. The biggest difference between the groups was experienced in this area. The most commonly mentioned variable referred to **absolute success** in each group (*“If one or more athletes will get to the Olympics, then they have to perform well and make an individual peak, and it’s a huge thing in itself. To be an Olympics Icon is a life-long story.”*), since this is the basis for judging the sport and the club. (*„The measure of success is how the professional work is acknowledged, the mapping out of this is in the form of grants by the HAA.”*). However, the performance orientation of athlete is balanced by the **individual development** of the athlete, mentioned in a tight connection by the coaches and leaders. (*“... as you proceed in your sport career, everyone have to achieve the result which is appropriate for the skills.” / “Give everyone a goal that’s accessible, personalized.”*) In this respect, two intertwined pairs of attitudes can be identified, on the one hand, it is needed to be professional athletes in the meaning of absolute comprehension, thus individual skills are determinative, so that everyone have to prepare personalized goals. The factors above, are largely determined by **professional work**, which is mostly lived as success by leaders (*“It’s a social engagement and a hobby. The success for me is to be an operative structure that can be insertable in the right professional content.”*).

During the interviews, additional discovered variables support these sports values (background variables). On the one hand, **building the mass base** appeared (*“The biggest success is if there are many ...”*), for which it is essential to provide an **open environment** (*„Providing an open environment for everyone to tell their problems or if they have a thought speak it out.”*). On the other hand, the **respect for traditions** are also represents an added value (*“Here by BEAC tradition has a prominent role, we preserve it and pass on it ...”*) and the willingness to **renew** it (*“At the departmental level it is a success if we can function well professionally and we can rejuvenate continuously in order to react to the new conditions ...”*).

<i>absolute success</i>	"If one or more athletes will get to the Olympics, then they have to perform well."
	„The measure of success is how the professional work is acknowledged, the mapping out of this is in the form of grants by the MASZ.”
<i>self-development</i>	„Give everyone a goal that's accessible, personalized."
	"... as you proceed in your sport career, everyone have to achieve the result which is appropriate for the skills."
<i>professional work</i>	„The success for me is to be an operative structure that can be insertable in the right professional content. "
• <i>mass base</i>	"The biggest success is if there are many ..."
• <i>open environment</i>	„Providing an open environment for everyone to tell their problems or if they have a thought speak it out.”
• <i>traditions</i>	„Here by BEAC tradition has a prominent role, we preserve it and pass on it ..."
• <i>rejuvenation</i>	"At the departmental level it is a success if we can function well professionally and we can rejuvenate continuously in order to react to the new conditions ... "

Table 8 Revealed variants of the dimension of sport success
Source: own construct

Business value

Financing is always a basic question in sport. From sport value and the aspects of it, it can be derived that at this time athletics cannot be function without **state aid** (*“State engagement is better compared to previous years, it would work really difficult without”*), besides the role of social participation is also indispensable. (*“Anyone who is not obsessed with stupidity and madness, leaves it. We have to go against many things.”*)

During the interviews, stakeholders started from the basic idea that athletics could work on a business basis (*“athletics is vendible a sport “*), but only in the far future, since many segments should change positively; coach training, compulsory physical education, social judgment of the sport, spreading in public awareness, infrastructure development. There are many positive examples in Western Europe where the sport has been rebuilt from nothing, but several factors need to be met, which according to the

content analysis were the following. The number of athletes who achieved **peak performance** (*“It could be vendible, but it would require more Hungarian athletes who are in the top 8 in the World Cup”*), **traceability of competition** should be simplified (*“There are very few official IAAF competitions that can be easily understandable, for non-skilled people.”*) and special attention should be paid to the crowd came from running as a hobby, by sport clubs (*“Street racing yes, there are thousands of people there, thus it has a business value”*) ensure a remunerative market. As long as there is no shift along these variables, sustainability is attributed to municipality engagement (*“The philosophy that is represented is vendible because it is supported by the local government.”*), as well as it is ensured by local businesses through **personal contact** (*“There is the possibility to find people who are sympathize with the sport”*). As long as there is no **market for this** (*„an internal market can be created with the increase of an athlete’s base”*), so many **sponsors** cannot be involved, but local media as support organizations can appear. The majority of the managers and some coaches realise that the hobby running could give the success of the athletic business, it would be possible to extend the athletics, attract crowd runners, which work well abroad (*“It’s a common habit in Denmark to get joggers into the club, but it also requires culture as well”*). We have not been there yet to be a community-building force.

The strongest negative attitude associated with business value, which is appeared in the responses, is the **doping sensitivity** of sport, which is critical in connection with sport (*“In Hungary our throwing events can be world-class, but those are very susceptible to doping, so that sponsors are very cautious in this area”*).

By the preparation of mini-focus group interviews in connection with business value, contrary to my preliminary expectations, other sectors of the sport (*eg. sports media, manufacturers and traders of sport equipments, sport health*) appeared in a negligible extent. One of the possible reasons for this, is that the interviewees approached the topic basically in an introverted way, they mentioned those factors that appear in their own narrow environment (see: affected person revealed by contact network).

<i>state support</i>	"State engagement is better compared to previous years, it would work really difficult without..."
<i>personal relationships / municipality engagement</i>	"The philosophy that is represented is vendible, because it is supported by the local government."
	"...there is the possibility to find people who sympathize with the sport."
<i>social engagement</i>	"Anyone who is not obsessed with stupidity and madness, leaves it. We have to go against many things..."
<i>business-based operation</i>	The sport faculty is vendible, but in numerous factors positive change need to be occurred.
• <i>peak power</i>	"It could be vendible, but it would require more Hungarian athletes who are in the top 8 in the World Cup"
• <i>competition traceability</i>	"There are very few official IAF competitions that can be easily understandable, for non-skilled people."
• <i>lack of market</i>	„...an internal market can be created with the increase of an athlete's base”
• <i>appreciation of running as a hobby</i>	"Street racing yes, there are thousands of people there, thus it has a business value."
• <i>doping sensitivity</i>	"In Hungary our throwing events can be world-class, but those are very susceptible to doping, so that sponsors are very cautious in this area."

Table 9 The variables of the business value dimension
Source: Own construct

Summary

By identifying the stakeholder groups presenting in the Hungarian athletics, transparent network of contacts and operational processes come to conclusion in this field. In this article, with the attitudes of managers, coaches and athletes are being dealt. In the exploratory research mini-focus group interviews with athletes, trainers and leaders of several outstanding athletics clubs in Hungary were conducted. Qualitative research has provided an opportunity to outline the relationship network (stakeholder map). The results showed that there were three significant sub-groups of

stakeholders in the Hungarian athletics from the sports clubs point of view. In connectoin with the sport service, athletics, coaches and club leaders are involved directly, while indirect contacts are being disseminated (formal – in the form of cooperation agreement - and in an informal way) with other sport clubs, educational institutions and doctors which is able to improve the effectiveness and the basis of athletes. Supporters are primarily concerned with those who provide financial backing support (primarily by association and local government) to clubs and have their expectations and attentiveness in this regard. In the group of *supporters*, primarily those are concerned, who provide financial background support (primarily by association and local government) for clubs and, in this regard, have their expectations and interest validation. **In our research through the interviews the attitudes connected to sport functions have been revealed, which draws the attention to the specialties of this sport.** The results show that each of the examined areas has its corner points, but many other variables are also displayed:

Medical dimension: the difference between official sportsman and the amateur, the connection between health and efficiency, the sportsman skill and attitude, the expertise of the coach, the factors influencing performance (relationship of family and nutrition, role of nutritional supplements, doping, talent), external environmental factors.

Socializing dimension: the effect of community power and team work, the roles within the group, the effect of sport on learning (assessable skills, education systems, parental attitude).

Role model (success) dimension: absolute and relative sportsman efficiency, professional work (building of mass base, supplying open environment, traditions, openness for new).

Business dimension: support from federal and local government, personal contacts, social roles, the influential factors in case of business connection (maximum performance, championship administration, lack of market, the evaluation of hobby running, sensitiveness to doping).

The results obtained would provide an opportunity to get measurable athletics as a complex sports service through attitude–scales. It is possible to set up a preference sequence within the group and between them, whose incremental utility evolve in the synergistic affect between the groups. The many years of experience gained in Hungarian athletics shows that making processes more efficient is not just a matter of money. Structures have to change, but the circle of affected people need to know, as well as their attitudes and preferences.

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OBERMAYER NÓRA

**THE ROLE OF KNOWLEDGE-BASED
SOCIAL MEDIA TOOLS AMONG
HUNGARIAN LEADING FAMILY
BUSINESSES
(PMR 2018/4)**

One of the key factors behind the success of an organization lies in the ability to manage the constantly “renewing” knowledge effectively. The exchange of knowledge among employees is a vital part of knowledge management. Organizations have urgent need to pay attention on effective knowledge sharing, thus, it is important to understand what encourages individuals to cooperate. Social media tools become a mainstream, modified personal relationships and generated new possibilities to facilitate collaboration. Majority of the people uses these tools in order to increase their networks, gather information and nowadays organizations are finding the way to integrate them into the business processes. In 2014 an exploratory survey investigated how social media were being used for knowledge sharing and whether the usage were supported by the organizations. As a continuation of this survey, the new research focuses on Hungarian leading family businesses as their economic and societal value creation is extremely important. These enterprises, produce 30% of the GDP of the country and employ one-third of all employees, are essential for the economy, because they have long-term planning based on their ownership structure, operating principles and policies, and their corporate profit is held in the country and reinvest about 80%. Business co-operation between family enterprises is therefore remarkable. The purpose of the research is to examine the characteristics of the knowledge-based social media tools used by family businesses. The qualitative research implies on the collection of semi-structured online interviews, observations, case studies, personal experience and literature review. The research was conducted from September 2017 to March 2018. The results indicate that social media provides a great opportunity to give exposure to family businesses at low cost. It can be seen that the most popular social media tools used by family businesses are Facebook, LinkedIn and Instagram. The findings also show that organizations face some challenges, such as to respond to customers in real-time and they felt

it difficult to maintain the communication with them. However, it is possible to overcome these challenges by committing more time to social media, including the listening and monitoring processes, or by hiring a social media strategist.

Introduction

Organizations need to thrive, compete, and operate in an ever evolving environment, thus, the transfer of information and knowledge to the partners and customers is an essential part of their business. The remarkable growth in Internet-based business activities demonstrated that different advantages can be derived from communication technology. Internet changed the way people connect, communicate, collaborate, share knowledge and learn. Internet makes it possible for the companies to connect, collaborate and transfer knowledge and information. “The Internet is a global network of interconnected networks” including corporate, governmental, private and other organizational networks (Strauss – Frost, 2009). Internet delivered to organizations a global market presence, and online marketing became an essential part of their business.

Nowadays a majority of the people uses social media tools in order to increase their networks, gather information and enterprises are also finding the way to integrate them into the business processes. Khang et al. (2012) in their research indicated a “definite increasing number of social-media-related studies” that shows huge growth of social media users and its impact on different “aspects of individuals’ lives and society”. Social networking sites, blogs experienced significant growth, which encourages organizations to communicate with the existing and potential customers in new and knowledge-based social networking and marketing communication, in particular its different online channels. Social media often associate with marketing. The reason is that initially social applications were focused on advertising and related to marketing issues but later social media becomes a “complimentary extension of all of marketing efforts” (Evans – McKee, 2012:37).

An exploratory survey in 2014 investigated how social media tools were being used for knowledge sharing and whether the usage were supported by the organizations in Hungary (Gaál et al., 2014). As a continuation of this survey, the new research focuses on Hungarian leading family businesses as their economic and societal value creation is extremely important. The target group (leading family business) was chosen due to the author’s own personal interest and contacts towards family businesses in Hungary.

In this paper, the theoretical background includes the description of main fields followed by the research framework and discussion of the research results. Conclusion is the final chapter of the paper.

Literature review

This session is about the contribution of various researchers to the field of family business, marketing communication and social media tools.

Family business

Family businesses are being recognized by their significant economic presence throughout history, they are among the longest-lived, most prevalent organizations in the world (Astrachan, 2010). The study of family businesses has evolved rapidly in recent decades (Villalonga – Amit, 2010, Short et al., 2016; Evert et al., 2016). One of them stands out the action “Statistics for family businesses” conducted with the support of the Programme for the competitiveness of enterprises and small and medium- sized enterprises (2014-2020) (COSME) (European Commission, 2015) by seven European countries and aimed to identify family businesses in order to assess family businesses’ relevance, scope and nature. Family businesses have a significant role to play in the strength and dynamism of the European economy. With more than 14 million family businesses providing over 60 million private sector jobs (50% to 80% of jobs in a majority of countries) in Europe, their importance to the economy cannot be overestimated (KPMG Enterprise, 2015). The field of researching family businesses starts in 1975 when the entrepreneur and consultant Leon Danco (1975) published his pioneering paper titled: “Beyond survival: a business owner’s guide for success“. The past few decades’ research related to family businesses has predominantly struggled with defining family businesses and their main characteristics. Sharma and Christman (1996) in their analysis found 21 different definitions in terms of the family businesses in the survey of more than 250 papers. The uniqueness of the family businesses is attributed to the different impact of the family on the part of the ownership, management, governance and participation through strategic guidance, direct involvement in the daily activities and/or retention of control of voting (Astrachan, 2010). In the common European Commission (2015:4) definition: “A firm, of any size, is a family business, if:

- *the majority of decision-making rights is in the possession of the natural person(s) who established the firm, or in the possession of the natural person(s) who has/have acquired the share capital of the firm, or in the possession of their spouses, parents, child or children's direct heirs,*
- *the majority of decision-making rights are indirect or direct,*
- *at least one representative of the family or kin is formally involved in the governance of the firm,*
- *listed companies meet the definition of family enterprises if the person who established or acquired the firm (share capital) or their families or descendants possesses 25 per cent of the decision-making rights mandated by their share capital."*

Family businesses have a significant role to play in the strength and dynamism of the European economy. With more than 14 million family businesses providing over 60 million private sector jobs (50% to 80% of jobs in a majority of countries) in Europe, their importance to the economy cannot be overestimated (KPMG Enterprise, 2015).

Marketing communication

Bovee and Thill (2010) define communication as the process of transferring information and meaning between senders and receivers, using written, oral or online channels. The key factors of communication are to provide and share information. Communication benefits business in different ways; it supports stronger decision, to solve problems faster, increases productivity and sends clear messages. It is essential for the organizations to decide on relevant and interesting information, to choose the right time and place to deliver these messages, and to engage the customers with contents, comments or applications. The concept of integration of different communication channels in order to deliver clever messages about the organization and its products/services describes integrated marketing communication (Chaffey et al., 2009).

Integration of online and offline communication channels to build brand together with value-added products are initial aspects in catching attention and establishing long-term relationship with customers. The integrated marketing communication is a cross-functional process for planning, executing and monitoring brand communications. Every cases when the customers get in touch with corporate website, advertising and physical store lead to the formation of brand image (Strauss – Frost, 2009). According to Solomon et al. (2008) the role of marketing communication

is to help to create and strengthen professional image, informs customers about new offers, reminds them about past transactions, convinces them to use one product instead of other.

Social media tools

The term “Web 2.0” was generated by O’Reilly (2005). It refers to technologies that allow individuals to interactively participate with information and with other individuals, and to build networks based on mutual personal or professional interest. Web 2.0 facilitates social networking therefore is also referred to as the social media. Surowiecki (2005) defined that social media is to make use of the “wisdom of the crowd”. Group of people are better at problem solving, fostering decision making than individuals alone. Thus the availability of these tools that provide new ways of inspiring and exploiting knowledge sharing are forcing organizations to expand their knowledge sharing technologies and practices (Mentzas et al., 2007).

It is important to note that these technologies - blogs, video sharing, presentation sharing, social networking service, instant messaging service and groupware - foster a more socially connected platform (Anderson, 2007). It can also be considered as a tool that facilitates intra- and inter-organizational activities including collaborative product development, learning and creativity (Pepler – Solomou, 2011), corporate dialog implementation (Bonson – Flores, 2011), and knowledge sharing community creation (Yates – Paquette, 2011). Social media tools are collaborative online technologies which enable and encourage participation, conversation, openness, creation and socialization amongst a community of users (Bowley, 2009), web-based tools and practices enabling participation and collaboration based on individuals’ activities (Storey et al., 2010).

Vuori (2011) characterizes social media by considering the extent to which they support communication, collaboration, connecting, completing and combining (5C) (Jalonen, 2014):

Communication

- Blogs (Blogger), Microblogs (Twitter): managed by specified author(s), who publishes posts, that are dated and shown in reverse chronological order.

- Video sharing (YouTube): allows users to upload, view, share videos and display a variety of individual or corporate video.
- Presentation sharing (SlideShare): web-based slide hosting service, where users can upload presentations privately or publicly.
- Instant messaging service (Skype, Viber, Messenger): online conference tool, which can promote communication and knowledge sharing between community members.

Collaboration

- Wikis (Wikipedia): website that enables easy creation and editing of Web pages.
- Groupware/shared workspaces (GoogleDocs): supports collaborative creation of knowledge, used for sharing documents without sending them via e-mails.
- Communities of practices (MeetUp): online portals that facilitate group meetings in various localities around the world.

Connecting

- Social networking services (Facebook, LinkedIn): enables for a community to create a profile (groups) with the aim to share information to the followers (partners, customers).

Completing

- Visual bookmarking tool (Pinterest): process of adding keywords (tags) to pieces of different types of media (photos, videos, documents, links).
- News aggregator (Digg): website that collects, collates, and organizes syndicated web content, creating a customized site where all desired content is centralized.

Combining

- Mash-Ups (Google Maps): application that uses and combines data from one or more sources to create new services.

In 2016, according to Hootsuite (2017) survey, there were 3,77 billion Internet users and 2,79 active social media users all over the world (Figure 1).

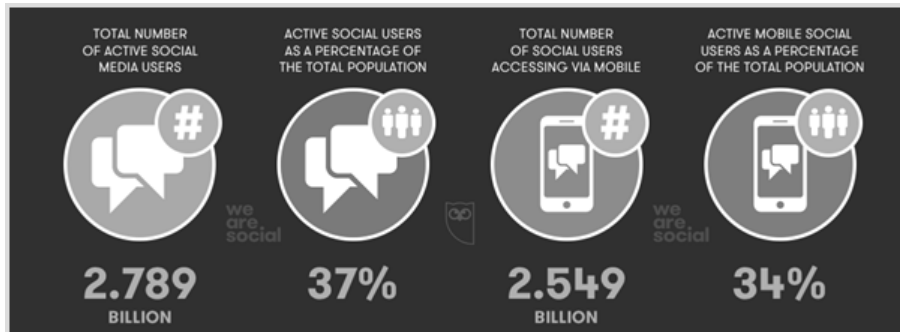


Figure 1 Global social media use
 Source: Hootsuite, 2017

Organizations have urgent need to pay specific attention to effective knowledge transfer, which is vital importance for their success and to achieve competitive advantage. One of the solutions for that is the networking sites. They connect members of community in different ways but the aim of every networking site is to allow members to communicate and connect. There are social networks for meeting peoples, sharing information, entertainment and are widely used by marketers for advertising purposes. By creating professional network, the number of people that organization can reach is increasing when it comes to share information and experience about the organization and its product, services.

Research framework

The “Knowledge-based networking tools among Hungarian leading family businesses” research is supported by the UNKP („Supported BY the ÚNKP-17-4 New National Excellence Program of the Ministry of Human Capacities”) for the period from September 2017 till June 2018 (totally 10 months). In order to understand deeper the fieldwork, qualitative, interpretative and exploratory approach is used through collection of primary and secondary data.

Research objectives

This research aims to carry both theoretical and empirical researches in order to answer following questions:

- Do leading family businesses belong to formal business social network?
- What are the different platforms of social media used by leading family businesses?
- What are benefits and challenges of social media for leading family businesses?

The major objectives of this study are to explore the business social networks of leading family businesses and to examine the characteristics of the knowledge-based networking (social media) tools used by leading family businesses. Other objectives of this research are as follows:

- to explore the relevance and usage of knowledge-based networking tools,
- to ascertain the benefits and challenges,
- to compile a good practice in order to develop some recommendations for other businesses.

Data collection

During the research, primary and secondary data were collected and analyzed. In order to have in-depth investigation, the author decided to use multiple data gathering techniques, such as personal interviews, secondary sources and observations. As primary data collection, using the semi-structured interview the researcher focuses on specific subject matter to explore, has several prepared questions and ready to ask questions that could assist in organizing received information. An interview questionnaire guide was designed to support the research. In the short introduction it was stressed that the responses remains strictly confidential, no names or identifying information are included in the final report and only used for the purpose of the study. The interview questionnaire was divided into seven sections: personal background; organizational background; social media tools; reasons and purposes; monitoring; benefits and challenges; social networking.

As secondary sources, observations were an important approach to gather and analyze activities of different social media and leading family businesses' corporate websites. In this research sampling was purposive and

concentrated on relevant individuals to whom the investigated fieldwork was well-known. Due to the specific target group the researcher chose a small sample and invited the owners of 8 leading family businesses via her social relations to participate in this research. The author had called them by phone and then sent an e-mail with the questionnaire guide requesting 15-20 minutes of their time to fill in it. In order to get deeper view, semi-structured interview was conducted on Skype/Mobile with some of the owners. The Internet interview was convenient due to different geographic location of interviewer and interviewee. The interview was executed in Hungarian and sometimes in English when using some specific words and phrases; and lasted almost 60 minutes.

Participants

In this paper evaluation of 6 leading family businesses are involved (Table 1). These family businesses operate in different industry sectors, such as retail, energy, agriculture, IT, food and beverages. All family enterprises are in business more than 25 years, all of them is under the second generation (in two cases managing together with the first generation). Concerning the respondents' background, most of respondents belong to the "Y" (born between 1980-2000), only two leaders belong to the "X" generation (born between 1965-1979) but they were born in 1977 (near the border of 2 generations). Five respondents are working as a CEO, one is marketing manager, but all of them are member of the family.

	Founded	Active generation	Industry	Respondent	Generation
"A"	1989	2nd	Retail	CEO	Y
"B"	1990	1st & 2nd	Energy	Marketing director (2nd)	Y
"C"	1981	1st & 2nd	Agriculture	Managing director	Y
"D"	1991	2nd	Retail, IT	CEO	X
"E"	1993	2nd	Food and beverages	CEO	Y
"F"	1989	2nd	IT services and education	CEO	X

Table 1 Description of Case Studies

“A” family business

“A” family business is the Middle-East European region’s biggest plant trade company group, it naturalized the notion of garden center in Hungary, operating in a franchise system. They have the widest variety of indoor plants and assessorial goods and a huge assortment of nursery trees. The wholesale units provide indoor and nursery trees, plant holders and lawn carpets, keeping the retail stores supplied. “A” family enterprise is in business from 1989 with total number of 130 employees. The firm is in the second generation, the CEO belongs to the Y generation and joined the family business in 2003. “A” family business has a Facebook page, an Instagram page, an active YouTube channel with videos, a website, an online magazine and the followers can sign up for monthly newsletters.

“B” family business

“B” family business is an environmental enterprise, specialized in bioenergy sector for ensuring continuous sustainable development, throughout producing alternative energies, which can replace the classical finite fossil fuels and dangerous nuclear power. The main profile of the company is supplying second-generation bio-energy sector, by providing the complex process of implementation of reverse logistics from the waste collected. The used cooking oil collection, procession and import of purified vegetable oils provides raw material supplies for biodiesel plants in Hungary and neighboring countries also. “B” family enterprise is in business from 1990 with total number of 100 employees. The firm is in the second generation, leading together with the first one. The CEO belongs to the “Baby boom” generation, but the respondent, the marketing manager is “Y”, who is also the member of the family. She joined the family business in 2013. “B” family business has a Facebook page, a YouTube channel with only one video and a website.

“C” family business

“C” family business is one of Hungary’s leading wine producers with a hotel and restaurant. Their winery produces only quality wines, most of which are sold to Hungarian gastronomic and wine outlets. “C” family business’s estates are situated in the south of Hungary. The family has been producing wine in the Villány wine region. “C” family business operates as a family concern from 1981 and has 100 employees together in the 3

divisions. The 1st (Baby-boom) and the 2nd generation (Y) run the company together. The respondent, who is the Chief winemaker (managing director) joined the business in 2002. “C” family business has a very attractive and active Facebook page, a YouTube channel together with the Hotel providing several videos, a Twitter site, Instagram, a corporate website, an online magazine (twice a year), online prospectus and newsletters.

“D” family business

“D” family business is a company with multiple divisions and brands in retail industry like bicycles, household appliances and IT service delivery solutions. Several bicycle and accessory brands are distributed in Eastern Europe. Besides the core small domestic appliance brands, they are the distributors of big consumer electronics brands. Third division mixes traditional business consultancy and coaching with IT service delivery solutions. “D” family business operates from 1991 with total number of 60 employees. Now only the second generation leads the business, the CEO belongs to the X generation and joined the family business in 2001. “D” family business has 3 Facebook pages (all divisions have their own), LinkedIn page, Twitter, Google+ and websites.

“E” family business

“E” family business is one of the largest dietary supplement manufacturers for sports. They are on the market since 1993 offering high quality food supplements, like protein powders, dietary products and over 40 vitamin products, the product variation consisting of over 600 products. 700 employees and 130 franchise stores and a distribution network that covers about 70 countries. “E” family business is under the first and second generation. One of the CEOs belongs to the “Baby boom”, the other one to the “Y” generation. “E” family business has a Facebook page, a very active YouTube channel, Instagram, Twitter, a website and newsletter.

“F” family business

“F” family business is offering developing technologies and solutions for information protection, data loss prevention and data recovery and has an academy, which is an educational institution for adults, with corporate events and trainings. They offer innovative solutions for eliminating the

consequences of IT disasters, and for preventing disasters, abuses and system problems. Their information management division is one of the key players in the Hungarian market, and benefits from the experience it has gained from literally hundreds of successfully completed IT security projects. Their incident management team boasts unique expertise and a range of inhouse-developed solutions in ethical hacking, log analysis and network investigation. “F” family business operates from 1989 with approximately number of 60 employees. The second generation leads the business, the CEOs (in both divisions) belong to the X generation and the respondent joined the family business in 2003. “F” leading family business has Facebook pages, LinkedIn pages and websites (both divisions have their own).

Research results

This research sought to examine the social media tools and applications to understand why family businesses have incorporated it into their marketing activities. The researcher did not intend to generalize the survey findings but obtain detailed information; also the data of the research are not set out to test hypotheses.

Social media landscape of leading family businesses

According to the answers, all examined family businesses use “groupware” for collaboration and “social networking services” for connecting, four leading family businesses integrated “blogs/microblogs” and “video sharing” for communication and “mash-ups” applications as a combination of different tools. Only two of them agreed on using “instant messaging services”. None of them mentioned “Presentation Sharing”, “Wikis”, “Communities of Practices”, “Visual Bookmarking Tool” and “News Aggregator”.

From other forms they all mentioned “e-mail” and most of them use “press releases” or organize “events” and two of them indicated “webinar”. Short for Web-based seminar, a webinar is a presentation, lecture, workshop or seminar that is transmitted over the Web using video conferencing software. A key feature of a Webinar is its interactive elements, the ability to give, receive and discuss information in real-time. Using Webinar, participants can share audio, documents and applications with webinar attendees. While the presenter is speaking they can share desktop applications and documents. Today, many webinar services offer

live streaming options or the ability to record webinar and publish to YouTube later.

One of the interviewees added to the list some other interesting platforms like: TV, radio spots, Out-Of-Home (OOH) and Below The Line (BTL) advertising and digital marketing tools. OOH advertising is focused on marketing to customers when they are “on the go” in public places, in transit, waiting (like in a medical office), or in specific commercial locations (like in a retail venue). OOH formats fall into six categories: billboards, street, roads, highways, transit, alternative. BTL is a strategy in which a product is promoted in mediums other than radio, television, billboards, print and film. Types of BTL commonly include direct mail campaigns, trade shows and catalogs, and targeted search engine marketing. Digital marketing extends the marketing process through channels such as the Web, video, mobile and social applications, point-of-sale terminals, digital signage and kiosks.

Regarding to the most comfortable tool, all respondent agreed on “Facebook”, the next popular tools were “LinkedIn” and “Instagram”, and one of them mentioned Viber and Google suite. According to the survey of MediaQ (2017) the total number of active social media users in Hungary are 5,5 million people (the total population of Hungary is 9,8 million), so more than half of the population use social media. The most popular social media platforms and sites are Facebook, Messenger and YouTube (Figure 2).

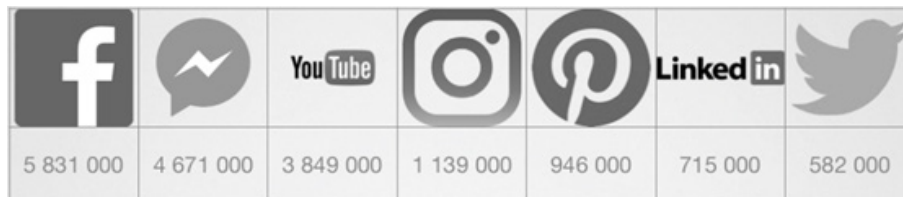


Figure 2 Social media usage in Hungary (numbers of users)
 Source: MediaQ, 2017

While answering the question “What social media tools do you want to learn more about?”, one of the interviewees indicated all social media tools, two of them highlighted “Twitter” and “LinkedIn”. One respondent mentioned G+/Google+, which is a social networking service from Google. It integrates all Google services and displays a new Google+ menu bar on other Google services when someone is logged into a Google account. The leader of “F” leading family businesses is interested in a brand-new

social media tool, “musical.ly”. It is a social media platform for creating, sharing and discovering short music videos. The app allows users to create videos recorded in 15 seconds or less and share them across the musical.ly community.

One of the leading family businesses was also interested in social media influencers. They have large followings on social networks, and are often hired by companies to promote their brands. This type of advertising, which is similar to a product placement in a show, is considered more personal and less invasive than traditional advertising. Influencers use a wide variety of social platforms, but a recent survey by influencer platform Zine (Williamson, 2018) found that Instagram was the favorite. Instagram, which had 800 million monthly active users, offers a simple and visual way for influencers to deliver messages via single photos and short videos. Traditional blogs remain surprisingly relevant, thanks to their dedicated followings, however, YouTube, Facebook and Pinterest are not attracting influencers. The reason can be that YouTube videos require more time to produce, Facebook prioritizes family and friends, and Pinterest is more frequently used for pinning personal interests than following influencers. From the survey of MediaQ and Zine, it seems that leading family businesses should learn much more about Messenger, YouTube and Instagram, because most of the Hungarian people (the potential customers) are familiar with these tools.

Reasons and purposes of usage

The majority of the interviewees indicated that they have been using social media more than 6 years ago (one of them, “F” family business, 18 years ago). Overall, the participants highlighted practically the same reasons. The most common reasons using social media were: “improvement of effectiveness in work”, “majority of their customers feel comfortable using these tools” and these are “useful networking tools”. Two leading family businesses mentioned that social media is an “effective communication tool”, and also two respondents felt the “pressure of the competitors”. One of them highlighted that social media provides his company an “improvement in employer branding”.

The main purpose of the usage for all studied family businesses was to “increase brand awareness”. Five of them mentioned, that they can “reach new potential customers” and “improve the relationships with them”. According to the half of the interviewees, using social media can “increase traffic to their website”, “reduce expenses” and “improve sales”. Only two respondents agreed that social media “develop business

partnership”. Five of the leading family businesses have already integrated social media strategy into their marketing strategy and two of them also defined a separate plan. Only one company has not created any social media strategy yet. All participated family businesses evaluate the effect of social media primarily through “the number of subscribers and followers” and half of them measure the “website traffic”. “D” family business also counts “video views, facebook post organic reach, share and interaction”, while “F” family business investigates the activity of the community.

Benefits and challenges of usage

Overall, two of the leading family businesses did not face any challenges while using social media. For others, the answers showed that the most challenges were to “respond to customers in real-time” and they felt “difficult to maintain the communication” with them. “E” family business faces challenges in “building brand awareness for export markets”.

Concerning social media benefits, all strongly agreed that social media tools “increased brand awareness”. According to four of them “new customers were attracted”. Some of them also mentioned as an advantage the “increased traffic to the website”, “reduced expenses” and “improved sales”. Only one of them said that social media “improved relationships with customer” and it is also interesting that none of them believed that it grow business partnership.

Social networking

While answering the question “Does the business belong to any formal business network?”, five of the six respondents indicated the membership of the same network, the “Family Business Network Hungary (FBN-H)”. FBN is the world’s leading family business organization. It is a safe, shared-learning space for enterprising families to flourish across generations, through the exchange of excellent, innovative and impactful practices. It was founded in 1989, it is headquartered in Lausanne, Switzerland. The community spanning across the world brings together over 3,400 business owning families covering 65 countries. FBN organizes annually 750 activities in its chapters, internationally, regionally or locally. It seems that for leading family businesses this network can be a possibility to communicate and cooperate. Family businesses agreed that they can “exchange ideas, cultures and practices” and “sharing information and

knowledge” in this network. One of them mentioned that this network can offer good opportunity to exchange experiences, participate conferences and business events, for them it has an added value to be the member of a community and of course a good choice just for networking.

The respondents mentioned other networks, which can be connected to the certain industry, like Business Council for Sustainable Development Hungary (BCSDH), Association of Environmental Enterprises, Wine Rout Association, ICT Association of Hungary (IVSZ).

Summary

Analyzing the interviews, the researcher might conclude that social media plays important role in leading family businesses. They are using social media tools by integrating it into their business and marketing activity. The results show that social media are easy to use and effective tool. However, businesses face different challenges by using these complex but accessible communication platforms. The social media landscape is split into operational groups: relationship building platforms, content, entertainment and monitoring. In order to increase online presence, it is better to include in social media activities, for example Facebook, Twitter and LinkedIn. To have better interaction with the customers, the company can choose such social contents as Instagram, YouTube (for product presentation) or blogs (for brand humanization).

According to the Eurostat (2017), the statistical office of the European Union, almost half of all EU businesses (46 %) in 2016 used at least one social media channel: most common were social networks (such as Facebook, LinkedIn), for Hungary this rate is only 37%, less than the average of EU (Figure 3).

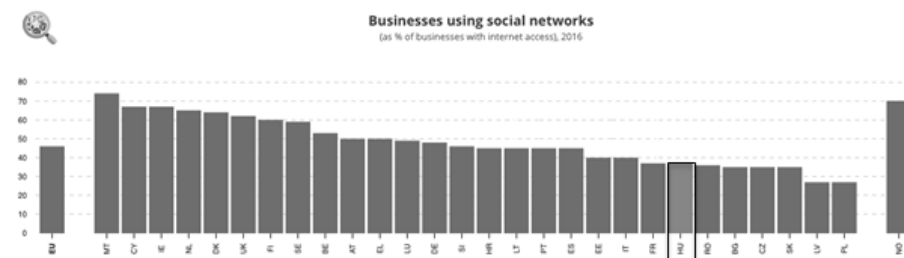


Figure 3 Businesses using social networks in Hungary (numbers of users)
Source: Eurostat, 2017

On the other hand, in the EU, 63% of internet users aged between 16-74 used social networks in 2016. Among the Member States, this share was highest in Hungary (83%) (Figure 4).

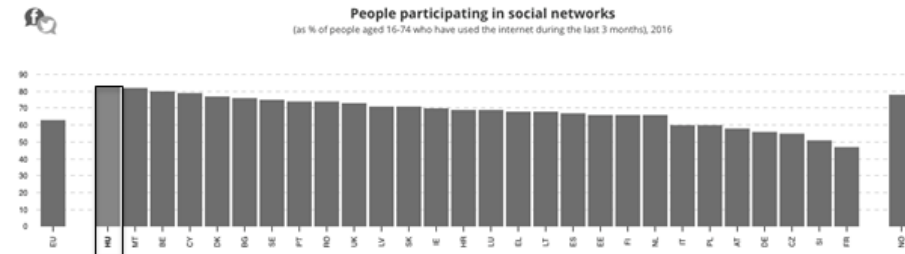


Figure 4 People (16-74 age) participating in social networks in Hungary
 Source: Eurostat, 2017

In Hungary, 88% of internet users read news online, 61% listen to music online, 68% watching video content from commercial or sharing services, 88% looking for information online, 92% send/receive e-mails, but only 44% do internet banking, and 29% use services related to travel and accommodation (Eurostat, 2017).

Based on the findings the author can conclude that social media bring knowledge and information sharing, communication and marketing to the new level and benefit both business and customers. It gives a great opportunity of high exposure at low cost; it offers a possibility to set interactive communication with customers and to get more information on their needs. But in this ever changing online environment and growing convergence, the leading family businesses face the challenges to follow the trends. Using social media is not always as easy as it seems, it requires new ways of thinking, engagement and interaction.

There are some issues to measure social media performance, to respond immediately to customers and to incorporate transparency into their business operations. Measuring social media performance, it is time consuming, but it is crucial to take the time to collect necessary data and then to assess all found patterns of social media experience. These can help to identify the most important for company metrics that can show potential results.

The research findings also show that Facebook is the most popular social media platform. It was also found that email is also widely used. Such sites as LinkedIn and Instagram are taking more and more attention and wished to be more thoroughly explored (as the survey of Zine showed). Leading

family businesses also have to consider about using Youtube videos as this is the third most favorite social media tool in Hungary. Today's online landscape is a connection point. Online participants create connections or keep it alive. The leading family businesses have a chance to create long-term relationships by engaging customers. Here they target specific audience, deliver exclusive offers, and important constant messages for their existing and potential customers.

During the research process the author had several ideas for further study of this fieldwork. As almost all respondents belong to the same network, FBN Hungary, it would be also useful to do the research within this network, and analyze social media for all members.

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FEKETE-BERZSENYI HAJNALKA

SETTLEMENTS' COMPETITIVENESS IN THE BALATON REGION – MAPPING RESIDENTS' VIEW (PMR 2019/3-4)

The Balaton Region plays a key role in the social and in the economic life of Hungary, which is why it is an important and topical issue to take into account the opinions of the people living there when making settlement decisions. In the examination of local settlement factors, it is worth examining not only their perceived importance or satisfaction with them, but both factors. The aim of the study is to examine the settlements of the Balaton Region in terms of which settlement factors the local community (including permanent residents, second home owners, and those working or studying in the area) perceive important and how satisfied they are with each factor. The variable groups of the 27 factors examined are municipal services, factors related to economy, factors related to leisure and tourism, demographic factors, and settlement features. The methodology of questionnaire processing allowed the GAP analysis. The results identify which are the settlement factors where the difference between importance and satisfaction is the greatest. Knowledge of these can help to guide regional and settlement/local development decisions and development resources to improve the well-being and quality of life of the local community in the Balaton Region.

Introduction

Among the tourist regions of Hungary, after Budapest, the Balaton Region handles the second largest traffic in terms of guest nights spent by Hungarians and foreigners. The area is the most significant destination for domestic tourism. In 2019, the number of guest nights spent in commercial accommodation was 10,704 thousand in Budapest, while 5,953 thousand in the Lake Balaton Touristic Region. In July and August, more guest nights are registered at Lake Balaton than in Budapest (HCSO, 2020).

Subsequently, the area plays a key role in the country's social and economic life, thus it is important and topical to examine the opinions of population of the region about their settlements.

The literature on competitiveness generally measures competitiveness through "hard" factors: income, revenue, incoming taxes, and the production of goods and services. However, competition between settlements is not only about this, but whether or not the inhabitants like living in the settlement, beside their welfare, their well-being is also important, which is a "soft" category that is more difficult to measure. The aim of the current research is to map "soft" factors via a questionnaire survey in the Balaton Region, from the perspectives of local residents, of those who have secondary homes, and of those working/studying in the area.

The main research question was which settlement factors are important for the population and how satisfied they were with those factors. From the differences in the importance and satisfaction among individual competitiveness factors of the settlements, we can draw conclusions about which factors need to be improved in order to increase the satisfaction of those involved in the survey, and so to support their quality of life and well-being.

The area studied

The area studied is the Balaton Region that is determined by a government decree. Instead of being a natural spatial unit, it is considered a region from the perspective of regional development, tourism, and economic development.

According to the situation assessment (2013-2014) of Lake Balaton Development Council (in Hungarian: Balaton Fejlesztési Tanács), the boundary of the area is uncertain in terms of how long inhabitants form some kind of cultural entity, since the area does not only include waterfront settlements. No. 429/2016. (XII. 15.) Government decree on the definition of touristic regions and priority touristic development regions lists the settlements belonging to the Balaton Region in detail. Current research deals with the 174 settlements of the Balaton Region defined in a government decree, which are located in three counties (Veszprém, Somogy, and Zala) (Gyórfy, 2017).

tourism, economic development and environmental protection issues, based on shared responsibility and interest, instead of being the spatial shaping characteristics suggested by Nemes Nagy.¹

Tourism as the most important sector of the Region

Lake Balaton, the largest freshwater lake in Central Europe, is one of the most important resources of our country. After Budapest, it is the second most visited tourist destination in Hungary, and thus a prominent player in the domestic economic scene. “The key to the development of a given place is the existence of locally available resources and special capacities” (Marton, 2013), the presence of which is indisputable in the case of the Balaton Region. Due to the special features of the area, tourism is one of the most significant economic sectors in the Region, which is important as the gross added value of the accommodation and hospitality section from 2016 to 2017 (7.4%) exceeded that of the total national economy (4.0%) (HCSO, 2017).

In 2017, the Balaton Tourism Region ranks:

- first with 32.5% of the total number of tourist rooms,
- second with the 14.1% of foreign guest nights (after Budapest – Central Danube Region, 61.8%),
- first with 28.1% of domestic guest nights,
- and second at national level with 21.3% of the total number of guest nights (after Budapest – Central Danube Region, 36.7%).

Based on the number of guest nights per settlements registered in commercial accommodations, the settlements in the Balaton Region take a prominent place in the national list: immediately after Budapest, Hévíz is ranked 2nd, 5th, 6th and 7th are Siófok, Balatonfüred and Zalakaros, and 18th is Keszthely (HTA, Hungarian Tourism Agency, 2017). The Balaton Region is a unique and colourful tourist destination. The Balaton Region defined in the government decree includes not only settlements on the shore of Lake Balaton (which are waterfront destinations), but also other types of Aubert’s (2011) destinations: urban (e.g. Veszprém), mountain (e.g. Eplény), and health tourism (e.g. Hévíz). The attractiveness and competitiveness of the region as a whole and its individual settlements have significant economic impacts on the national economy.

¹ According to Nemes Nagy (1998, 2016) the spatial organisation and shaping characteristics of a region can be:

- spatial unit
- spatial characteristics (landscape-natural homogeneity)
- social-economic characteristics
- cultural identity or ethnic, linguistic peculiarities in sociology
- the functions of territorial administration in public administration science.

Literature review

Measuring settlement competitiveness

Competitiveness is a flexible and widely applicable concept, interpretable to all basic units of economy (company, industrial branch, region, nation, macroregion). According to regional sciences, the competitiveness of regions and towns is more than the productivity of inputs, as it means economic growth that can be realised with high employment and, as a result, the average standard of living improves. (Lengyel, 2000, 2016)

There are several models in territorial competitiveness literature, most of which (e.g. competitiveness cylinder, competitiveness tree, pyramid model) use some kind of top indicator to measure competitiveness. Such top indicators are, for instance, output, GDP, employment, productivity, or income.

The competitiveness cylinder

From a variety of approaches to define competitiveness, the Cambridge University research group highlighted that some certain issues should be included in the analysis of regional competitiveness as distinctive features. These factors are synthesised by the four-tiered competitiveness cylinder (Figure 2.). For the purposes of the present research, regional competitiveness factors located on the rim of the cylinder, and the secondary factors outside the rim that determine them are the most important.

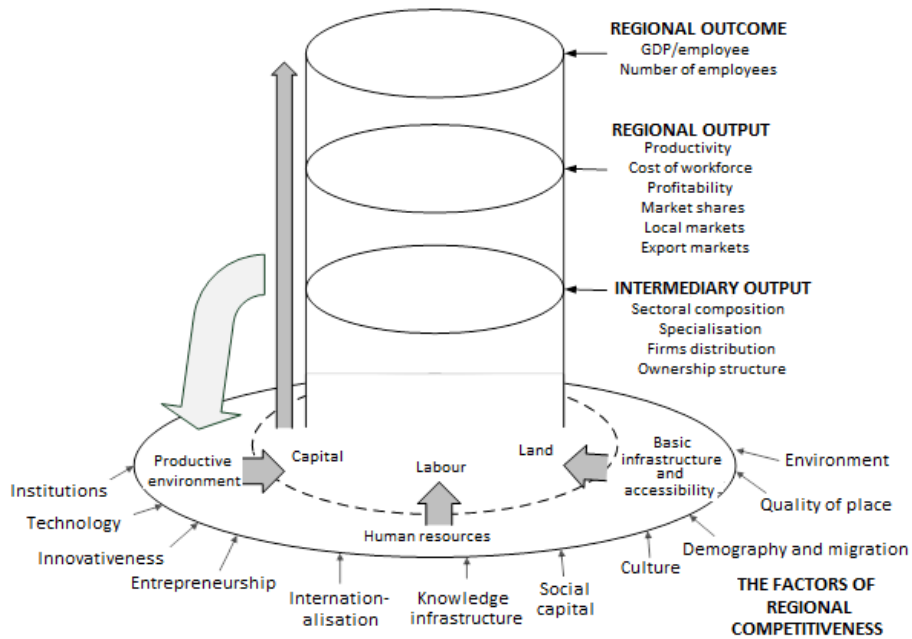


Figure 2 The competitiveness cylinder
Source: Own edition based on Lukovics, 2008

The competitiveness tree

Lukovics (2008) describes very expressively the metaphor of the competitiveness tree created by the ECORYS research team: “the quality of soil, and efficient functioning of the roots, trunk and branches determine the strength of the tree and the quality of the crop. It is a dynamic process, as the fertility of the soil is partly determined by extent to which the fallen fruit revitalise it.”

- The roots in the soil are the factors of competitiveness, the inputs: talent, innovation, connection (communication, infrastructure, networks), and entrepreneurship.
- The trunk and the branches are the fundamentals of competitiveness: the trunk is the industrial structure and productivity, the branches stand for outputs, such as employment, profit, and taxes.
- The fruit itself is competitiveness, such as well-being, social care, environment, health, place of residence, culture, sustainability.

The competitiveness tree presents the interdependence of factors; the inputs emerging from the roots show the possible future developments as well. It should be noted that certain categories of the competitiveness tree (e.g. food, and sustainability) are difficult to define and measure.

The pyramid model

The best-known competitiveness model in Hungary has been developed by Imre Lengyel. The levels of the renewed pyramid model:

- At the top of the pyramid, there is the aim, which is the improvement of the well-being and quality of life (QoL) of those living in the region.
- On the level below, the indicators for measuring realised competitiveness take place: income, labour productivity and employment.
- The realisation of the above issues is determined by various drivers (research and technological development, human capital, physical capital, agglomeration advantages, strategic control and institutions). These are economic factors that can serve as a base for regional economic development programmes.
- The long-term, mainly non-economic factors at the bottom of the pyramid determine the above levels (economic structure, innovation activity and entrepreneurship, regional availability and infrastructure, social capital, social structure, decision making centres, the quality of the environment, regional identity). These can be influenced by regional development policies (Lengyel, 2016).

Koltai's studies on the residential opinions about the competitiveness of Hungarian towns and cities

In several of his works, Koltai sought to answer, through representative questionnaire surveys, which quality aspects affecting the competitiveness of towns are preferred by the population when choosing their place of residence. In his research, Koltai (2016) classified competitiveness factors into four factors by means of factor analysis:

- service factor: health care, education, urban roles;
- living conditions factor: infrastructure, transportation, employment, leisure time, housing;
- environment factor: living environment, natural conditions;
- human factor: history-traditions, demography.

There are a lot of similarities between the factors used by the individual authors. With regard to the so-called “soft” factors, Koltai’s competitiveness factors fit best with the objectives of the present research. Koltai (2005) states that the methods of analysing the competitiveness of settlements on a statistical basis are well-complemented by questionnaire surveys, as they are able to present the underlying socio-economic processes as well.

Sipos’s competitiveness factors

The greatness of Sipos’s (2002) method lies in its simplicity; in his work on the comparative analysis of the micro-regions of Pest County, he worked with the percentage differences from the average of the values of various selected factors. The analysis was based on the following factors: business life and enterprises, tourism, unemployment, standards of living, occupational structure, infrastructure, demography, and availability.

- In his analysis on competitiveness, he defined various regional types:
- Primary α region – value high above county average (above 133%)
 - Secondary α region – value above county average (111-133%)
 - $\alpha\beta$ region – value that corresponds to the county average (91-110%)
 - Secondary β region – below county average (67-90%)
 - Primary β region – far below county average (below 67%).

Research methodology

The aim of the current research is to which factors of settlement competitiveness are considered important by the inhabitants of the Balaton Region and how satisfied they are with them in their settlements.

In the present research, economic indicators are not analysed together with data from “hard” databases, but through a questionnaire survey, the population’s perception of certain economic factors are examined such as the cost of living, job opportunities, real estate prices, and, as for social factors, human relationships, the existence of community and the friendliness of the population.

Thus, “hard” categories (such as output, GDP, employment, productivity, and income) are not observed in this study. The fundament of models – completed by these top indicators – is built upon factors the residential examination of which can yield valuable and interesting results, and their quality may contribute to the well-being experienced by the population and to the improvement of the quality of life (e.g. infrastructure, conditions of living environment, quality of the place of residence, and quality of social and health care).

In the course of the empirical research, a questionnaire was compiled. Field work was done personally (printed questionnaire), and electronically/online. Main segments of the sample (local community of Lake Balaton area) are:

- local residents: living and working or studying in the Region (48.3%);
- local residents: living in the Region but working or studying somewhere else (16.1%);
- second home owners (21.1%);
- those living elsewhere but working or studying in a settlement of the Region (14.4%).

Altogether 776 respondent's answers have been analysed.

Respondents were asked how important the listed settlement factors are to them, and how satisfied they are with the factors (regarding their settlements). During the course of selection of the settlement factors – the variables of the questionnaire –, factors stated in the literature of competitiveness provided the basis, and they were supplemented and modified according to the specifics of the Balaton Region.

Respondents rated the following factors on a five-point Likert-type scale, in terms of importance (1=not important at all, 5=very important) and satisfaction (1=very dissatisfied, 5=very satisfied):

Settlement services:
• Accessibility
• Infrastructure (e.g.: gas, water, sewerage, road conditions, street lighting)
• Local public transport
• Parking facilities
• Presence of a sidewalk
• Existence of a bicycle path
• Provision of public institutions
• Health care, health services
• Quality of public safety
• Educational institutions
• Conditions of living environment (e.g.: green areas, cleanliness, tidiness)
• Calmness
Economic factors:
• Job opportunities
• Shopping facilities
• Costs of living
• Favourable real estate prices
• Continuous improvements in the settlement
Demographic factors:
• Age and ethnic composition of the population
• Human (family, friends) relationships, community
• Friendliness of the population
Factors related to leisure and tourism:
• Recreational facilities (wellness, amateur sports)
• Entertainment opportunities, night life
• Offered cultural programmes
• Number and quality of sights
• The quality of restaurants and hospitality
• Beaches
Settlement characteristics:
• Natural conditions of the settlement
• History and traditions of the settlement

Table 1 Questionnaire variables
Source: Own edition

As Lengyel (2003) points out the importance of regional specialisation, settlement factors were completed by tourism related factors. As the Balaton Region – although including not only the shore areas – is a highly tourism-specific region, thus related factors that are relevant to the quality of life of those who live there were also included in the questionnaire (See above: factors related to leisure and tourism.).

In the reliability analysis of the internal consistency of the questionnaire, Cronbach's alpha was used that is the most frequently applied internal consistency measuring index. The index expresses how consistent the statements in the scale are with the measured concept, with a minimum value of 0.6. (Sajtos – Mitev, 2007) In the questionnaire the Cronbach's alpha is 0.871, so we can say that the questionnaire is consistent, the scale measures correctly.

The measurement level of variables in the questionnaire determines the applicable analytical methods (Molnár – Barna, 2004). Several publications have been published regarding the evaluation of Likert-scale responses (e.g. Sajtos – Mitev, 2007, Zerényi, 2016, Parker et al., 2002, Chimi – Russell, 2009, Brown, 2011, Kehl, 2012). In the current study, it would be really illustrative and well-presented if the settlement factors would be ranked using the average of given scores. Due to the doubts in literature, for the evaluation of questionnaires, in terms of applicable analytical methods, the strictest scale, the nominal scale is assumed. Accordingly, not the average score for each factor, but their total score is used.

Results of the questionnaire survey

Ranking of the settlement factors by importance

Not surprisingly, in terms of importance, public safety comes first, followed by the infrastructural conditions of the settlement, but the quality of the conditions of the living environment, calmness, accessibility and health services also take prominent places. Each of the first six factors belong to the settlement services variable group. Settlement development policy can affect their improvement. When considering the need for developments and improvements, it is worth taking into account how satisfied those in concern are with them.

Settlement factors	Total given score
1. Quality of public safety	3 662
2. Infrastructure (gas, water, sewerage, road conditions, street lighting)	3 575
3. Conditions of living environment (e.g.: green areas, cleanliness, tidiness)	3 563
4. Calmness	3 553
5. Accessibility	3 508
6. Health care, health services	3 479
7. Costs of living	3 432
8. Natural conditions of the settlement	3 374
9. Human (family, friends) relationships, existence of community	3 330
10. Friendliness of the population	3 327
11. Continuous improvements in the settlement	3 325
12. Recreational facilities (wellness, amateur sports)	3 283
13. Presence of a sidewalk	3 282
14. Shopping facilities	3 259
15. Provision of public administration	3 236
16. Job opportunities	3 227
17. Quality of restaurants and hospitality	3 199
18. Educational institutions	3 183
19. Number and quality of sights	3 113
20. Favourable real estate prices	3 110
21. Offer of cultural programmes	3 086
22. Parking facilities	3 054
23. Existence of a bicycle path	3 016
24. History and traditions of the settlement	2 926
25. Local transport	2 839
26. Age and ethnic composition of the population	2 821
27. Entertainment opportunities, night life	2 765

Table 2 Ranking of the settlement factors by importance
Source: Own edition

It is an interesting result that in a region with outstanding tourism, the entertainment and nightlife factor takes the last place. According to the author's opinion, the perception of this factor can also be related to the

quality of public safety, which is the number one priority for respondents in terms of importance. Here, it should be pointed out that, in terms of importance and satisfaction, the calmness factor, which can be oppositely associated to night life, takes the prominent 3rd and 4th places.

Ranking of settlement factors by satisfaction

There are several factors among the last that can influence not only the quality of life of the local community but also the tourism to the Region. These include entertainment opportunities and nightlife at the penultimate place (although this factor, as mentioned above, is not determining in terms of importance), or shopping facilities, parking facilities, and last but not least, health services.

Settlement factors	Total given score
1. Natural conditions of the settlement	3 662
2. History and traditions of the settlement	3 575
3. Calmness	3 563
4. Accessibility	3 553
5. Quality of public safety	3 508
6. Human (family, friends) relationships, community	3 479
7. Educational institutions	3 432
8. Provision of public administration	3 374
9. Age and ethnic composition of the population	3 330
10. Friendliness of the population	3 327
11. Conditions of living environment (e.g. green areas, cleanliness, tidiness)	3 325
12. Number and quality of sights	3 283
13. Local transport	3 282
14. Quality of restaurants and hospitality	3 259
15. Infrastructure (gas, water, sewerage, road conditions, street lighting)	3 236
16. Job opportunities	3 227
17. Existence of a bicycle path	3 199
18. Offer of cultural programmes	3 183
19. Recreational facilities (wellness, amateur sports)	3 113
20. Costs of living	3 110

Settlement factors	Total given score
21. Continuous improvements in the settlement	3 086
22. Presence of a sidewalk	3 054
23. Health care, health services	3 016
24. Parking facilities	2 926
25. Shopping facilities	2 839
26. Entertainment opportunities, night life	2 821
27. Favourable real estate prices	2 765

Table 3 Ranking of settlement factors by satisfaction
Source: own edition

From the satisfaction ranking of all settlement factors, current study highlights the fundamental role of settlement services, as the first six factors of importance belong to the area of settlement services.

Ranking by importance	Variables of settlement services	Ranking by satisfaction
1.	Quality of public safety	5.
2.	Infrastructure (gas, water, sewerage, road conditions, street lighting)	15.
3.	Conditions of living environment (e.g. green areas, cleanliness, tidiness)	11.
4.	Calmness	3.
5.	Accessibility	4.
6.	Health care, health services	23.

Table 4 Ranking of settlement services variable group by importance and satisfaction
Source: own edition

With the exception of the calmness and accessibility variables, all variables are significantly lower ranked by satisfaction than by importance. Out of the settlement services variables, health services, infrastructure, the conditions of the living environment and the quality of public safety are the most important factors to be influenced by development decisions, out of them, due to the large difference, health services and infrastructure need to be highlighted.

In the ranking of satisfaction, among the settlement condition variable group, the natural conditions and the history and traditions of the settlement factors are in the first place (Table 3), ahead of settlement services that comes first in order of importance. It should be noted that these factors do not take prominent places in terms of importance, especially history and traditions that are among the last. In terms of satisfaction, it is not surprising that in the case of a region with such a beautiful natural environment, the natural conditions are in the first place.

Overall, factors related to leisure and tourism were similarly ranked by satisfaction as by importance. At the same time, the importance and satisfaction differences in the variable group are noteworthy. Recreational facilities, where the opportunities for wellness and amateur sports were ranked, were seven places lower in the satisfaction ranking, which is an interesting result due to the tourism orientation of the Balaton Region.

Ranking by importance	Factors related to leisure and tourism	Ranking by satisfaction
12.	Recreational facilities	19.
17.	Quality of restaurants and hospitality	14.
19.	Number and quality of sights	12.
21.	Offer of cultural programmes	18.
27.	Entertainment, night life	26.

Table 5 Factors related to leisure and tourism in terms of importance and satisfaction
 Source: own edition

All factors related to economy are higher ranked by importance than by satisfaction. Among them, shopping facilities and real estate prices are outstanding that come last in order of satisfaction. The provision of shopping facilities is an important issue not only to the population but also to tourism, which draws attention to local development issues.

In terms of satisfaction, real estate prices come last in the ranking. Here, it should be noted that the Balaton Region is one of the most expensive areas in Hungary, after the capital, and the growth rate of real estate prices in Veszprém and Somogy Counties is above the national average. Among the settlements in the resort area, real estates in Siófok and Balatonfüred are the most sought after and the most expensive.

Ranking differences of importance and satisfaction factors

Examining the place of a settlement in terms of importance and satisfaction – significant differences can be found. First, those are highlighted that have been ranked significantly higher by importance than by satisfaction:

Settlement factors	Ranking by importance	Ranking by satisfaction
Health care, health services	6.	23.
Infrastructure	2.	15.
Costs of living	7.	20.
Shopping facilities	14.	25.
Continuous improvements in the settlement	11.	25.
Presence of a sidewalk	13.	22.
Conditions of living environment	3.	11.
Recreational facilities	12.	19.
Favourable real estate prices	20.	27.

Table 6 Variables with the highest negative importance-satisfaction ranking difference
Source: Own edition

Fortunately, however, there were not only negative differences in ranking, but there were several factors that were ranked much higher in terms of satisfaction than in terms of importance.

Settlement services	Ranking by importance	Ranking by satisfaction
History and tradition of the settlement	24.	2.
Age and ethnic composition of the settlement	26.	9.
Local transport	25.	13.
Educational institutions	18.	7.
Provision of public administration	15.	8.
Natural conditions	8.	1.
Existence of a bicycle path	23.	17.
Offer of cultural programmes	21.	18.
Quality of restaurants and hospitality	17.	14.

Table 7 Variables with the highest positive importance-satisfaction ranking difference
 Source: Own edition

If you look at the table, you can see that positive differences in ranking are, unfortunately, lower ranked in terms of importance. It was a surprising result that local transport moved from the 25th place to the 13th. It was really welcome that educational institutions at the 18th place in terms of importance are ranked 7th in terms of satisfaction.

Health care and infrastructure

As a result of the population questionnaire survey, health care and infrastructure were the two factors with the largest difference in importance and satisfaction, so these should be further analysed. In the following, some relevant indicators available in the Hungarian Central Statistical Office's (HCSO) databases are analysed.

Health care, health services

Table 8 shows that the number of patients per General Practitioner (GP) is 2.8% higher in the Balaton Region than the national average (however, one resident appears 4.7% less times in GP practice). The HCSO database contains indicators for permanent residents, but there is no information about the number of temporary residents and holiday home owners. In the

field of general practitioners, development is recommended in the light of these results, as only the ratio of permanent residents is higher than the national average, moreover, the large number of holiday home owners and also tourists may need greater or lesser medical care, which would further increase the workload on GPs.

The situation is better in the case of working/active hospital beds, the number of residents per hospital bed is lower than the national average (9.9%), but the number of actual nursing days per capita (15.9%) is higher than the national average.

The number of residents per pharmacy is also lower than the national average (by 15.8%). Although demand for the latter is particularly important for the evaluation of results, as holiday home owners and tourists may also demand the services of pharmacies.

Factor related to health care	Balaton Region	Hungary	Population per item	
			Balaton Region	Hungary
Number of GPs and home paediatricians (person)	205	6 219	1 630	1 585
			resident/doctor	
Number of working hospital beds (pcs)	2 550	68 301	131	144
			resident/bed	
Pharmacies + branch pharmacies (pcs)	118	3 004	2 832	3 281
			resident/pharmacy	
Total number of attendance in GP and Paediatric Care (cases)	2 182 279	67 442 846	6,53	6,84
			case/resident	
Actual number of nursing days in hospital (days)	755 233	18 677 364	2,26	1,90
			day/residence	

Table 8 Some factors related to health care in the Balaton Region and Hungary

Source: HCSO (figures for 2016), own edition

Infrastructure

According to the results of the questionnaire, the second largest difference between importance and satisfaction was with the infrastructure variable. The questionnaire included factors such as gas, water, sewerage, road conditions and street lighting. In connection with these, on the basis

of HCSO data, comparisons were made on the Balaton Region and the averages of Hungary. The results show that the Balaton Region is slightly better equipped with public utility networks than the country as a whole (drinking water pipeline, sewerage network, electricity distribution network, gas pipeline network per 1 km²).

For the public utility supply of homes, the proportion of homes connected to the public water supply is slightly lower than the national average, presumably due to the greater presence of residential properties in the Region, such as vineyards or out-of-town weekend homes, where water supply may not be available.

In terms of roads and spaces, indicators of public spaces, green areas, playgrounds, outdoor gyms, resting places, and bicycle paths are slightly better than nationally. In relation to roads and spaces, two factors should be highlighted in the Region that are weaker than the national average: the length of municipal road network and public spaces and state roads per 1 km², and the length of municipally built sidewalk per 1 km². This “hard” factor is also confirmed by the results of the questionnaire survey, as out of the 27 questioned factors, the presence of a sidewalk is at the 7th place in the ranking of the negative differences of importance-satisfaction.

Roads, spaces	Balaton Region	Hungary
Regularly cleaned public areas as % of total areas	0.13	0.10
Total green areas as % of total areas	0.08	0.07
Number of playgrounds, outdoor gyms, resting places per 1 km ²	0.12	0.10
Length of built municipal roads and public spaces and state roads per 1 km ² (km)	0.74	0.84
Length of municipally built bicycle paths, common footpaths and bicycle paths per 1 km ² (km)	0.05	0.03
Length of municipally built sidewalk per 1 km ² (km)	0.33	0.47

Table 9 Some factors related to infrastructure
 Source: HCSO, 2016, own edition

When it comes to data from statistical databases, both for infrastructure and health care factors, it should be noted that these are quantitative indicators, not qualitative, for instance the length of roads given in kilometres does not express the quality felt by the population.

Conclusions

The present study assessed the importance of individual settlement factors for residents, employees and students, and those with second homes in the Balaton Region, when considering their settlements – and how satisfied they are with these factors.

During the research, the individual settlement factors were ranked in terms of perceived importance of the surveyed population, as well as in terms of satisfaction, based on the rankings achieved and the total score.

In the course of the research, the ranking of settlement factors shows a partial overlap with Koltai's (2005) research on Hungarian towns and cities. The most important settlement factors in the Balaton Region are: the quality of public safety, infrastructure, the conditions of the living environment, calmness, accessibility, and health care. In Koltai: settlement and transportation infrastructural conditions, employment conditions, health care services, and the condition of the living environment.

Important conclusions can be drawn from the differences between importance and satisfaction as perceived by the respondents, as they reveal the factors that are considered important by the population in connection with a settlement, and how satisfied they are with the individual factors. The factors that are considered important, but their level is not satisfactory, may have an awareness-raising effect on regional, county- and settlement-level decision making and the distribution of development resources in terms of in which areas their inflow would increase the satisfaction of the population, and the development of which areas is expected to improve the quality of life and well-being.

Based on the results of the questionnaire survey, among the factors with the largest difference in the importance-satisfaction ranking, which may be influenced by regional or settlement-level decisions are:

- health care,
- infrastructure,
- shopping facilities,
- continuous improvements in the settlement,
- presence of a sidewalk,
- conditions of the living environment.

In terms of the two key areas, health care and infrastructure, the “hard” data from HCSO also confirmed the results of the questionnaire survey. As far as health care is concerned, GP, in terms of infrastructure, primarily the length of built pavement, and after that the length of public roads were the weakest points.

When making settlement development decisions, these factors are suggested to be treated with priority in order to increase the well-being of the population.

In the course of the questionnaire survey, based on the importance–satisfaction rankings, the factors that the population felt strong are:

- history and traditions of a settlement,
- educational institutions,
- number and quality of sights,
- natural conditions of the settlement,
- existence of a bicycle path,
- offer of cultural programmes.

These implications can be the focus areas of regional and local-level marketing.

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ANNAMÁRIA SASNÉ GRÓSZ – KATALIN LŐRINCZ
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ASPECTS OF LIFE-QUALITY AMONG INTERNATIONAL AND NATIVE STUDENTS (PMR 2020/1)

In our globally cosmopolitan world that we are living right now, no matter where we come from, what language we are speaking, what kind of career we have, we all want to improve our lives in hope that it would be continuously becoming better and better. Obviously, it is true that every human-being on earth wants to have a life filled with comfortability and ability to enjoy life events. Through this sentiment a so-called “quality of life” is a key tool which particularly identifies how people live their lives as well as the experience of an individual. Therefore, quality of life is immensely subjective since people define the concept differently based on material, physical, spiritual, emotional, intellectual, and social well-beings. This paper explores the role of social network, sleeping quality and external conditions that might trigger stress in international and native students’ quality of life at a European institution. Furthermore, it studies how these basic elements are connected to each other and it discovers our students’ feelings, experiences and expectations. Based on the primary research structured focus groups interviews were conducted among international students from different countries, especially at bachelor level. The findings suggest that international students’ problems related to their quality of life also have a strong impact on changing the higher education institution. Based on the results we can improve our students’ quality of life, thereby retain them, and ultimately, we will be able to extend student’s lifetime value.

Introduction

Hungary is a fascinating place attracting many (international) students to study here every year. No matter whether the student’s status is exchange, full-time or Erasmus, there are plenty of options to choose from. In terms to students’ quality of life is the most important factor for maintaining a happy, safe and satisfied life throughout their academic studies. If students

develop a sense of belonging to the institution they are studying in, they may have a satisfied university life.

In connection with *life as a university student*, earlier research has shown that ULQ (University Life Quality) is shaped by the factors related to university together with the academic and social experiences gained as a result of the students' involvement in university life. If students experience psychological comfort at the university, feel safe and unthreatened by their environment, it can be assumed that they have a high *quality university life* (Ayşe et al., 2019). The factors are:

- *Social satisfaction*: includes relationships with friends; a student's leisure time; family and health condition of the student; health state of the student's family; the level of family income; university career; student's financial condition and friendships acquired during university studies (Sirgy et al., 2007). The satisfaction with the accommodation facilities of the campus, the international programs and services, the spiritual support of the programs and services, the clubs and parties, satisfaction from sporting, the recreation activities are involved in the framework of social satisfaction.
- *Academic satisfaction*: involves satisfaction with the university; instruction methods; the classroom environment; the workload in the class; the academic standards of the university and appreciation for the diversity of the institution (Kesici - Çavuş, 2019).

Apart from what we mentioned above, *tourism* plays an important role in student's quality of life. Moreover, tourism is also a crucial experience through learning things and engaging actively in different actions. It is important because if students are happy and gain a lot of experiences, they will be more satisfied with their lives and travel often to get more positive experiences (Gondos, 2014).

More researchers stated that collecting different experiences from tourism services and attractions (such as health tourism, visiting friends and relatives, business and leisure), in destinations promote the improvement of happiness and quality of life (Cho, 2005; Bayrakdar et al. 2017). It is also evident that sociology, psychology and health are interrelated in the models of quality of life (Kopp - Pikó, 2006).

Researchers tried to map the relationship between tourism and quality of life along the following five factors: 1. visiting/visitor's motivation; 2. characteristics of travelling; 3. impact of tourism; 4. characteristics of tourism/destination; 5. travelling as assessment of activity (Kovács, 2007). Based on this approach "studying abroad" belong to the visiting motivations (2) factor.

Reasons and difficulties of studying abroad

The reasons why students choose to study abroad are well known. These include discovering another culture, learning another way of behaving and thinking, making new friends and developing intercultural knowledge and skills (Andrade, 2006; McClure, 2007).

However, if institutions do not pay sufficient attention to the special needs of international students, they may become frustrated and dissatisfied. Earlier researches have shown that international students face many challenges: cultural differences, language problems, study and funding issues, interpersonal issues, racial discrimination, lack of social and community support, alienation and homesickness, academic, personal adjustment to a new life, and socially building new friendships (Yeh - Inose, 2003; George et al., 2019).

It is unanimous that university years seem to be a stressful time for students. During this period, students face challenges such as separation from their family and friends, dealing with rules, and building relationships. One of the main issues in this period is the threat to students' emotional well-being and psychological distress of adjusting to a new life (Roberts - Zelenyanski, 2002). Therefore, university years are considered to be as one of the most stressful periods (Cress - Lampman, 2007; Chao, 2012) and somehow leads to anxiety.

Due to *cultural differences*, sometimes international students are misunderstood by local people. Finding the similarities between local culture and foreign culture is extremely important, which will be helpful to reduce culture conflicts when facing local relevant affairs or dealing with problems with local people (Li, 2015). For example, when showing gratitude by saying "Thank you" to the person who provided help, they would response "No need to thank me" in Chinese way. In the European culture, that would sound odd. Therefore, in local area, it is especially important to realize the cultural difference, and also avoiding these cultural conflicts as much as possible is essential in the daily life.

Moreover, international students are not a separated group of people. They study in the same facilities as Hungarian students, but behave differently and have distinct expectations: so the cultural shock is inevitable. Especially for the newcomers who will face cultural differences and assimilating to them is a rather time-consuming process. It is common and understandable that they might have some misunderstandings in the beginning of their time studying abroad. (Zhou et al., 2008).

Therefore getting to know the local culture is beneficial for international students as it strengthens their local identity. Their attitudes towards the host country are heavily related to their local identities; a better attitude

and understanding towards the local community will make it easier to integrate themselves into the local life (Zhou et al., 2008).

Beyond cultural difference, international students often feel lonely. This loneliness means not only the lack of family and friends from home, but also the lack of a familiar cultural and/or linguistic environment (Adelman, 1988; McClure, 2007; Sawir et al., 2008; Zhou et al., 2008; Ip et al., 2009). For those who are far from home and do not get any social support network via family or friends, they might not be interested in anything. Consequently, they feel lonely or isolated from the social network (Baier, 2005). Furthermore, social isolation is highly connected to loneliness, which is defined as the inability to reach the desired level of socialization, and can contribute to a poor health condition (Pressman et al., 2005).

To summarize, community support and community network are very important for ensuring international students to be successful in the new environment. The number of friends of an international student is a significant factor in success in a new environment (Furnham - Alibhai 1985; Sam 2001). There is a strong need to be aware of such problems in order to provide international students and their host institutions with effective and enriching experiences.

Satisfaction with quality of life among international students

Quality of life involves the physical functions, psychological state, social relationships within and outside the family, effects of the environment and beliefs of an individual as well. According to Maslow's hierarchy of needs, a good level of life quality for people has been summarized under five categories. 1. Basic needs. 2. Safety need. 3. Love and belonging. 4. Esteem. 5. Self-actualization (Bayrakdar et al., 2019). In order for people to live a happy life, in harmony with themselves and the environment, they need to have a life of good quality.

The quality of life indicators are the state of physical and financial wellbeing, satisfaction gained from activities which allow individuals to participate in social life, spare time activities, psychological state, functional skills, state of emotional, mental and gender wise well-being, satisfaction from relationships with family, friends and community and orientation about the future differ in line with the individual's character, perception of life and sociocultural habits (Telatar, 2007).

Studies supported that satisfaction with family life and friends are positively connected with life satisfaction (Dew - Huebner, 1994; Greenspoon - Saklofske, 2001; Maton, 1990; Seibel - Johnson, 2001;

September et al., 2001). The results suggest that satisfaction with one's significant other is another crucial factor. Finally, better living conditions (i.e., physical condition of the place of residence and the people with whom the respondents live) are significantly and positively related to life satisfaction among these university students. It resulted that the more a student is satisfied with his/her life, the higher his/her quality of life index is.

Life satisfaction (SWL) is one of the three components of subjective well-being (Andrews - Whitney, 1976) and embodies the subjective aspect of well-being (Neto, 1995). It does not match happiness, which is part of the affective / emotional dimension of well-being. Diener et al. (1999) suggest that although some components of well-being are closely correlated with each other, each component should be examined in its own right.

According to researchers, problems of international students are very similar to those of domestic students, and international students are much more "students" than "foreigners" in their ways of adapting (Cormack, 1968; Walton, 1968). Other researchers emphasized that these problems are unique to foreign students. Bochner et al. (1977) identified four main sources of problems: (1) cultural shock (2) the role of 'ambassador' (acting as an informal representative of the individual's country); (3) adolescent emancipation (the process of becoming an independent, self-reliant member of society); and (4) academic stress (stress arising from higher education requirements). The first two problems are unique to international students, the third presents in the lives of every young adult and the fourth displays in the lives of all young adults in higher education.

Researchers suggested that institutions should contribute to leisure activities that encourage and help students to make friends, improve their health condition and advance them in their career. The campus should also be qualified, and students' spiritual life, psychological, social, physical and cultural activities should be supported. Additionally, academic development of students should also be advocated in a good-quality higher education institution and this can be carried out by directing students towards scientific congresses and participating in seminars. The remedies and instructional technologies that enable students to be active in the classrooms should be used and classroom setting should be organized in accordance with teaching. In addition, they should incorporate certain characteristics to their open and hidden elements of the curriculum so that they increase the quality of life of students (Kesici - Çavuş, 2019).

Additional factors influencing students' quality of life

However, it is clear from former researches that students do not just spend their days inside the institution. Beyond studying, *fun and leisure activities* are important for a well-balanced study. University or local community should support students by providing relevant help, and encourage them to participate in activities that are conducive to physical and mental health, instead of going to pubs and becoming addicted to drinking. This question was investigated by Keri (2018) with her colleagues at their university. They found that satisfaction with external factors (those out of the university's reach or influence) has a greater impact on loyalty to the institution, and thus to the settlement, than satisfaction with the university itself. From our viewpoint, this means that we must explore and improve the quality of study-related and out-of-university life so that students are more likely to pursue their studies in our institution.

International students cannot live without *social networks*; these are truly important for them. They are characterized by multidimensionality and complexity in the host countries, the impacts of social networks on international students are not distinct and obvious (Pusztai et al., 2019). Lack of social networks can result in a poor health condition; thus, it is important even for first-year students to build relationships with others. Since small social network size can easily turn into psychological problems, such as loneliness, not only the formulation of contacts but also expansion of them is important (Pressman et al., 2005).

In the adjustment process, international students establish social networks with other persons with a similar cultural background or nationality and form ethnic communities within the context of the university (Al-Sharideh – Goe, 1998). Baier (2005) found, that socializing with those who have the same cultural background is helpful for international students to overcome culture stress, furthermore they are more socially connected with each other.

International students tend to form three different social networks: monocultural, bi-cultural and multi-cultural friendships. Firstly, they have a strong connection only with their compatriots, so that they might keep their own original cultural behaviours. Secondly, they have interactions with local students or teachers, so they can learn local culturally relevant skills. Thirdly, they have good friendships with some non-compatriot foreign students, and they can help each other and participate in activities. Furthermore, international students can psychologically, socially and academically benefit a lot from their relationships with local students or teachers (Zhou et al., 2008).

However, a new problem arises: *adjustment, identity crisis* can result in psychological stress. It may occur when students are far from home. According to Young-Chul (1996) suffering from all the psychological feelings and struggling with cross-cultural adjustment, expatriates may fail to fulfil their tasks and, depending on individual personality factors, become depressed. Therefore, social support plays an important role in international students' life, it helps them overcome loneliness (Newsome - Cooper, 2016). In addition, social support from both the hosts and conationals is an effective tool to help international students to enhance their wellbeing, and also helps to reduce their homesickness (Zhou et al., 2008).

Besides social support, *social interactions* can have positive impact handling the stress and increase a further element of life-quality influenced by stressors: quality of sleeping. Sleeping quality is an important factor in determining life-quality, and it can be measured by the sense of coherence, which is an inner sense of safety against internal and external stressors. During the first months, due to the adjustment to different time zone and adaption to a new environment, international students might have sleeping issues (low sleeping quality). However, if it lasts longer, gradually they will suffer from insomnia. As a result, the student's performance diminishes and the person becomes irritable, which has an impact on his university and social life, thus creating a vicious cycle. Based on the findings we discussed above, a simple model of students' quality of life was created (Figure 1).

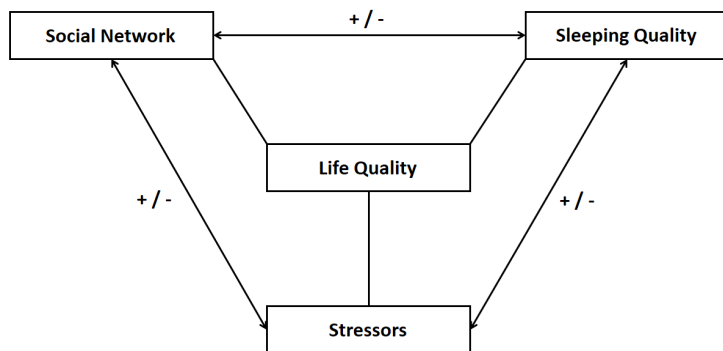


Figure 1 Research model of students' quality of life
 Source: own editing

Research method

We applied focus group interviews for our research. The advantage of this methodology is that it often yields unexpected discoveries from freely conducted group discussions. Furthermore, an interpersonal moderator is needed to conduct the discussion efficiently. An observer is also required to watch the participants' behaviour with regards to the analysed topic.

The respondents in this research are international and native full-time students. We compare these two groups in quality of life, so that the similarities and differences between them are discovered and examined. Focus group interviews were recorded by voice recorder, with the permission of participants. Under the relaxed and informal atmosphere, time duration of interviews was between one and a half and two hours, depending on the size of the group, with the members ranging from three to 12 people.

There were four focus group interviews conducted at the university. As illustrated in *Table 1*, we have collected participants' basic data, including their genders, education levels, specializations and home countries. Based on Li's suggestion (2015) one group-moderator was a foreign student. The aim was to avoid international students telling favourable words instead of the truth, so the collected information is more reliable and reasonable.

	Number of Students	Gender	Educational Level	Specialization	Countries
Focus group 1	12	M (3)	Third-year bachelor (12)	Business Administration and Management (3)	China (5)
		F (9)		Catering and Tourism (5)	Cambodia (4)
				Applied Economics (1)	Laos (1)
				English and American Studies (3)	Nigeria (1)
					Ghana (1)
Focus group 2	4	M (2)	First-year master (4)	Tourism Management (3)	Morocco (1)
		F (2)		International Economic Relations (1)	Romania (1)
					China (1)
					Laos (1)
Focus group 3	3	F (3)	Second-year bachelor (3)	Commerce and Marketing (3)	Hungary (3)

	Number of Students	Gender	Educational Level	Specialization	Countries
Focus group 4	5	F (5)	First-year master (2)	Management and Leadership (3)	Hungary (5)
			Second-year master (2)	Tourism Management (1)	
			Phd (1)		

Table 1 Study sample
 Source: own editing

We assessed the trustworthiness of the research by applying sets of criteria from former studies (Anney, 2015). *Table 2* demonstrates that data and analyses meet these criteria (such as credibility, transferability, dependability, confirmability, integrity).

Trustworthiness Criteria	Method of Addressing in our Study
<i>Credibility</i> Confidence that can be placed in the truth of the research findings	<ul style="list-style-type: none"> Investigator triangulation: four research team members during data collection and interpretation Engagement in field: two student-researchers among team members Member checks: respondents were informed about the first interpretations and could give comments Result: better understanding of core issues; participants were involved in interpretations
<i>Transferability</i> The degree to which the results of qualitative research can be transferred to other contexts with other respondents	<ul style="list-style-type: none"> Detailed description of method and sample Purposive sampling Result: description allows comparison of our context to other possible context; greater in-depth findings
<i>Dependability</i> Stability of findings over time	<ul style="list-style-type: none"> Stepwise replication: two researchers analysed the same data and compared the results Peer examination: During the research researchers continuously discussed the process and findings with colleagues Result: inconsistencies could be eliminated; peers contributed to deeper analysis

Trustworthiness Criteria	Method of Addressing in our Study
<i>Confirmability</i> Interpretations and findings clearly derived from the research data	<ul style="list-style-type: none"> • Triangulation • Reflexive journals, discussing preliminary theories • Result: reduce the effect of investigator bias
<i>Integrity</i> Ensure that data were not fabricated by the informants	<ul style="list-style-type: none"> • Interviews were professional, of a nonthreatening nature and anonymous • Result: participants were not trying to misinformate and evade the discussed issues

Table 2 Trustworthiness of the study and findings
Source: Based on Anney (2015), own editing

Results

What does quality of life mean for our students? At first, we got the answers which we can read in books: „it is mental, physical and spiritual wellbeing”, „you live actively every day in your life”, „there is no wasted time”, „having the opportunity for self-actualization”. But if we dig deeper, we find out that there are factors, circumstances and affairs affecting our students' life quality. Based on the model we showed in Figure 1, we grouped the answers.

Stressors

In case of native students, we can say that there is some difference between the factors influencing their quality of life according their ages. Younger students who are not independent yet and are supported by their family, consider the university and friends as the main factors in this term. However, students who lives with support of their families and independent students mentioned the same main stressors.

First of all, the *university has a huge impact* on the life of the students in both positive and negative ways. The *home assignments, exams and deadlines* can be a source of stress for them but on the other hand, the friendly environment and the attitude of teachers can make a positive influence. For example, some MA students did not go to other university after finishing their bachelor but stayed here because of these reasons. Five foreign participants explained that they felt stressed due to lots

of homework and exams, including students from China, Nigeria and Cambodia. Participants complained that they had to put a lot of effort into the exams and home assignments. The close deadlines made them stressful.

Another important stressor is the *transportation*. Some of the native students still live at home with their parents which means that they commute every day between the university and their hometown. Regarding this, they mentioned that sometimes they have to wait for the bus or train to get home which takes time, or they have free time between two classes and cannot go anywhere or the last bus or train of the day leaves too early. However, for financial reasons they choose to live at home and commute between the two places. Transportation is a big issue for foreign students as well, but with a different meaning. They need to travel within the city especially when they need national food. It upsets Asian students that they couldn't find any Asian ingredients or food nearby and the selection of vegetables is too narrow.

Another component of quality of life is – as one of the participants mentioned – *the work-family-study triangle*. Even for those who are not living at home with their parents, family can be a stressor which influences their performance at work or study causing more and more stress. For younger students, it is a challenge to find a job which they can do along with the university unless they work in their families' businesses. The older ones try to perform at their workplace or to find a job for the future which meets their parents' expectations and they hope not to make a wrong decision about this. In addition, it is also crucial whether they are qualified enough for the job which requirements seem to be too high for them.

Moreover, there are many expectations in several areas of life which students have to face. On one hand, they say that: „in all of the areas of life, they think that this is primary for you” whether it comes back to work, study or anything else. Beside the expectations of other people, they also make requirements for themselves. In case of younger students, we talked about it in terms of the performance at the university but MA students are more concerned with their future. They have the urge to build a career and establish their independence.

Among foreign students we could find additional aspects:

- Six participants *feeling homesick* since they studied abroad, including students coming from Laos, China, and Cambodia. Especially the sense of missing home was the strongest at the early stage, but later it turned out to be a short-term feeling that did not last long. For those students who hold a scholarship, it was not enough to travel or cover monthly life spending, thus they might seek for a job or ask parents to get more money.

- Another factor causing stress is *discrimination*. A participant coming from Morocco mentioned that when he walked on the street, there were some people staring at him, but they didn't talk to him and even didn't know him.
- As for the *closing time of stores and public services*, a participant coming from Laos mentioned that after 6pm, there were less and less people walking on the streets and stores were closed from this time, the best place for dinner would be McDonald's, because sometimes it's open for 24 hours.
- A participant coming from Romania complained about the *attitude of public servants*. "They are rude, they don't speak English". Immigration office is the place where every international student must go to apply for or expand residence permission. The participants hope that the attitude of employees and the English level of the office workers will improve.

Sleeping Quality

Lack of *quality sleeping* causes low efficiency during classes, students can't focus on their studies enough. Low grades for homeworks or exams might be the consequence of it. Most of the native students live at their parents' home but others chose to live in the dormitory or rent a flat in the city. For them, it is important to have enough space and adequate circumstances for learning and sleeping. In addition, leaving the family home improved their quality of life because of the newly acquired independence and self-reliance.

Students, who choose the dormitory, have to deal with further issues. There used to be parties like local-language Karaoke, held often at accommodation facility or next to it until midnight or till dawn. Some students wanting to go to bed early found it difficult to fall asleep due to the noise which greatly affected their sleeping quality. There were four participants who experienced a deterioration in sleep quality, including students from Cambodia, Morocco and China.

Social Network

It turned out that *social networks* play an important part in the life of students especially for younger ones. For them, it is necessary to have friends around them to do their job and make their life easier at the

university. One of the master students mentioned that she does not like living in the capital because of the lack of company.

Social network is truly important for international students. Making friends with people from different countries makes it easier to learn about different cultures and share information by establishing social networks. However, *language* becomes the barrier to communicate with each other. There were 16 participants who can't speak the native language, but also there were 11 participants who didn't take any English proficiency exams before coming to the university, including students from China, Cambodia, Laos and Ghana but they reportedly knew some basic English (speaking and writing).

However, *local residents often don't speak English* which many times make it difficult for international students to communicate and interact with them when going shopping, etc. As one of the participants commented: "Sometimes, I find difficulties to communicate with the reception and everything. Because there is only one who speaks English, only one." More importantly, *international students socialize with compatriots and other international students much more than with native students or residents* due to the language barrier. A participant coming from China expressed that information about student events is usually available in Hungarian which makes it hard for them to get the necessary information, details of events that might have led to missing out on them. Other respondents couldn't agree more with the complaint, they suggested that the information about the students' activities provided by university should be much more international.

Conclusions and implications

The expectations of students regarding university life have a significant impact on raising the university's quality and service standards. The findings of this research revealed that there are some factors influencing the quality of life of both native and both international students, but it also proved that there is a significant difference between them.

We can state that social network is an important factor for both groups, however international students sometimes have some difficulties with communications due to the lack of language knowledge. For this reason, having other students from their home nations around them can improve their well being.

While there are some stressors which were mentioned by both of the groups, such as the university obligations and expectations of other people, for international students' acculturation cause serious problems.

Cultural shock, discrimination are present in their life, sometimes they feel homesick and also financial difficulties were emphasised among this category. They even have problems with the public services.

Due to the literature we collected, we also featured the sleeping quality as an important influence factor of life quality however we did not get much information about this. Some international students mentioned that events organised in the dormitory, sometimes disturb them at nights.

Based on these results, we can state that for improving the quality of life of international students, universities have to focus on the social aspects. For this purpose, universities can organize tolerance trainings for native and international students, and also some special events and programs to explore the wider area of the university / country, plus to get to know others' cultures.

In case of stressors, the university can facilitate the administration processes for international students by better cooperation with the city government and service providers. Also, local events could help residents accept the foreigners.

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ILDIKO VIRAG NEUMANN – BARBARA VARGA-DANI

THE PRINCIPLE OF CIRCULAR ECONOMY IN TOURISM AT LAKE BALATON¹ (PMR 2020/1)

The Balaton region is the most popular tourist destination in Hungary among domestic travellers, and the second most visited destination for foreign guests. The largest lake in Central Europe awaits visitors all year round, with a tourist offer to each seasons, unique natural and cultural attractions and programs as well. Seasonality is still a major problem. The goal is to find solutions to ensure a high quality of life and working environment for the local residents living and working in the region throughout the year and also to increase the length of stay of tourists visiting the Lake Balaton area and the development of institutions and organizations that can respond flexibly to changing needs. The concept of Circular Economy has possibilities for tourism industry to achieve higher sustainability in hotel, food and spa services and the material flows of energy and water. The tourism industry has to address environmental problems and carry out the transition to a circular economy. The outbreak of the pandemic has been putting unprecedented pressure on EU tourism ecosystem as well. The implementation of Circular Economy principles can contribute to more positive impacts in tourism industry.

Introduction

We need to emphasize the importance of sustainability in tourism for the future of Europe. “A Circular Economy” (CE) can be defined as a purposefully designed “socio-economic system inspired by natural systems, regenerative of human and natural capital that works long term for all stakeholders” (Ellen MF, 2012). It is an innovative economy model which is aimed towards diverting waste from landfill by way of reuse or recycling raw materials and products so that they can be used or sold again, therefore reducing waste and the need for the constant consumption of valuable

¹ The present publication has been implemented with the support provided from the National Research, Development and Innovation Fund of Hungary, financed under the project no. 2019-1.3.1-KK-2019-00015, titled „Establishment of a circular economy-based sustainability competence center at the University of Pannonia”.

natural resources. The concept of CE defines a theory for production and consumption, different from the linear “take-make-dispose” growth model based on volume growth (McCarthy et al., 2018).

The concept of Circular economy

In the circular economy action plan (Commission, 2015), the circular economy is explained as an economy “where the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste is minimized”. It requires a broader design of alternative solutions over the life cycle of products (Kirchherr et al. 2017). It allows manufacturers to learn about the performance of their product in the market, and improve subsequent product versions (Gössling et al., 2015). The CE relies on value creation, restoration, regeneration and reuse of resources and radical change. (Kunwar, 2018)

The innovative approach has potentials for tourism industry with the idea “reuse instead of building new, reduce, recycle more effectively” should be applied in tourism as well. (Manniche et al. 2017) The industry is interlinked with multiple key resource flows, including agriculture and food, built environment and transport industries. (Einarsson et al. 2020)

Many legislative proposals and targets have been set by the EU with the aim of reducing waste and creating long term aims for waste management. (Commisison, 2015) In December 2015 the European Commission set about bringing new ambitious waste management goals into legislation with the release of the action plan “Closing the Loop”. In the circular economy action plan CE is explained as an economy “where the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste minimised”. (Commisison, 2015) Creating a further value from existing products as long as possible and turning them into resources lies at the core of the concept which involves innovation. (Barbudo et al., 2019)

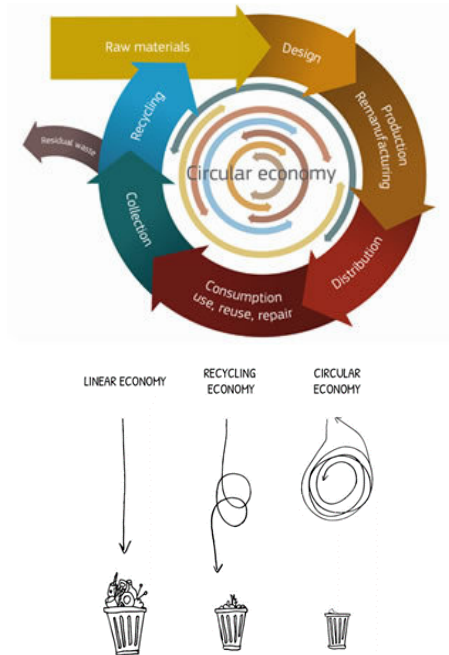


Figure 1 Circular economy²

Source: euoparl.europa.eu; Towards a circular economy:
 A zero waste programme for Europe

This package outlined the main Circular Economy ideals and plans for the coming years and revised four legislative proposals mainly targeting waste (Commission, 2015)³. The Circular Economy action plan includes many of new goals such as increasing recycling of municipal waste to 65 per cent and recycling of packaging waste to 75 per cent by 2030, new measures promoting food waste prevention and a ban on landfilling of separately collected waste amongst many others (Commission, 2015). The countries now face and put growing emphasis on sustainable waste management, circular economy models should be encouraged across the country in as many establishments as possible.

² [https://eur-lex.europa.eu/legal-content/HU/TXT/PDF/?uri=CELEX:52014DC0398R\(01\)&from=HU](https://eur-lex.europa.eu/legal-content/HU/TXT/PDF/?uri=CELEX:52014DC0398R(01)&from=HU) Towards a circular economy: A zero waste programme for Europe/* COM/2014/0398 final

³ European Commission, Closing the loop, New Circular Economy Package , 2015).

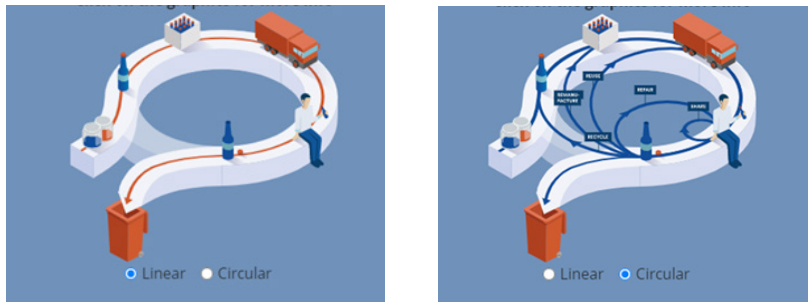


Figure 2 Model of linear and circle economy
 Source: EUROSTAT: „Discover the ‘circular economy’” (2018)

It means management of resources: single use plastic, green energy, electricity, water; textile, chemicals, raw materials. (Rios, 2020)

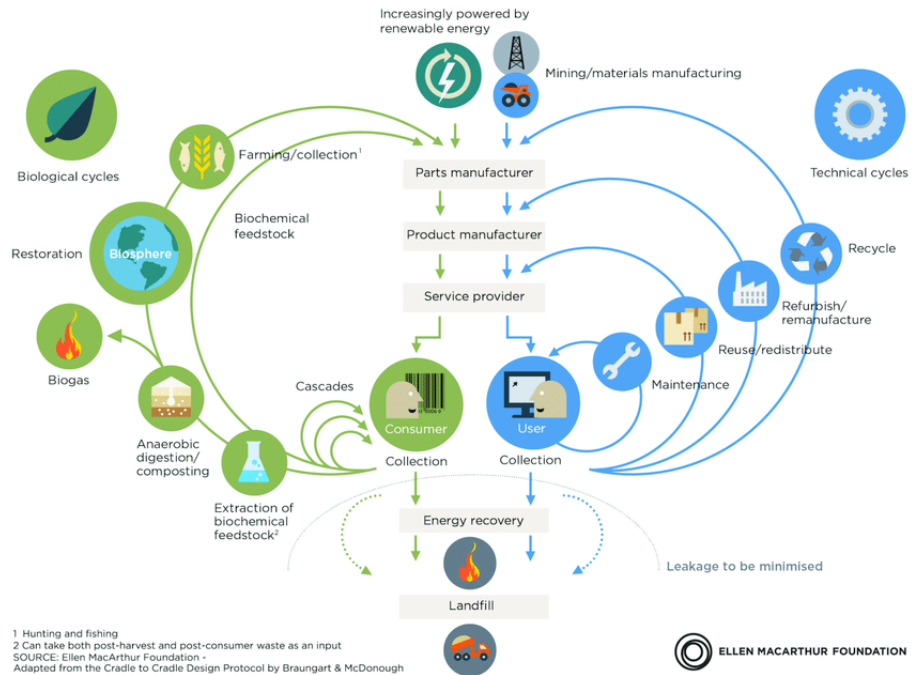


Figure 3 Circle economy: Butterfly diagram
 Source: Ellen MacArthur Foundation

The most publicised illustration of the CE framework is the Butterfly diagram (Figure 3) published in 2012 by Ellen MacArthur Foundation (EMF 2012). “It describes resource flows in an economic system driven by energy from the sun (renewables), where linear product and material flows are replaced by circular flows in two separate cycles - a biological cycle and a technical cycle, and where value is generated through ‘circular business models’” (EMF, 2012). In order to reach the targets of the 2030 Agenda for Sustainable Development, and make a significant shift towards truly sustainable tourism, we should recover value in resources again. (Borrello et al., 2017)

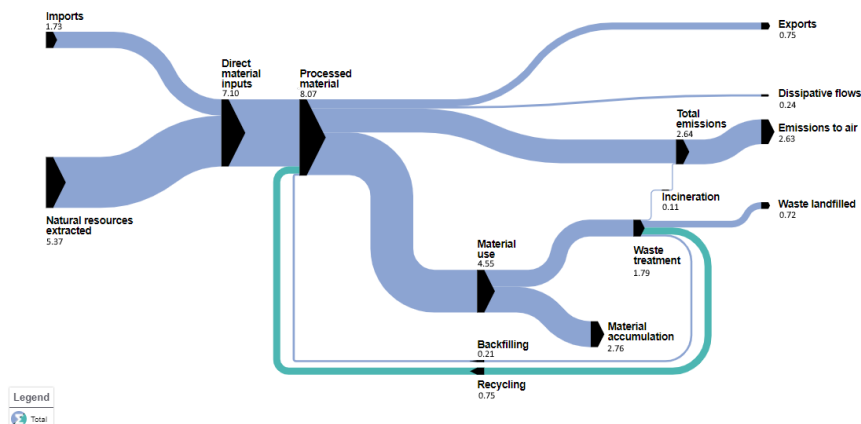


Figure 4 Material flows in the economy (EU-27, 2019)
 Monitoring the circular economy in the EU27⁴
 Source: Eurostat

On the picture (Figure 4) we can see how materials enter, flow within and leave the economy. This material flows diagram shows all raw materials throughout the economy, from their extraction until they become waste.

⁴<https://ec.europa.eu/eurostat/web/circular-economy>
https://ec.europa.eu/eurostat/web/products-datasets/-/env_ac_mfa
<https://eur-lex.europa.eu/legal-content/HU/TXT/PDF/?uri=CELEX:52018DC0029&from=IT>

Lake Balaton tourism

The Balaton tourist region plays a key role in Hungarian tourism and national economy, too: about one third of tourism related revenues of the country is generated in the area. One of the most important destinations of Hungarian tourism is the region of Lake Balaton.

The most important tourism attractions of the region are the following:

- Fresh water lake,
- Areas of nature and landscape preservation – Balaton Uplands National Park, diverse natural environment,
- National monuments, castles and fortresses, built environments and traditions – Benedictine Abbey of Tihany, Festetics Castle of Keszthely, Veszprém Castle, Szigliget Castle, Sümeg Castle, Somogyvár National Memorial,
- Lake Balaton wine regions - open cellars, Lake Balaton wine routes (Badacsony, Csopak, Balatonlelle), historical wine regions, wine-related culture,
- Lake Balaton gastro revolution, local products, novelties (beach food, slow living, life style, lavender, wine cinema),
- Adventure parks (Zalaszabar, Balatonboglár, Balatonfűzfő)
- Numerous musical, theatrical, gastronomic and sports events and festivals: such as Balaton Swimming Race, “Valley of Arts” Cultural Festival and the BalatonSound, Veszpremfest, Jazz Picnic, Anna Ball, Blue Ribbon competition,
- Thermal water resources: spas and health resorts of particular/national importance (Hévíz, Zalakaros, Kehidakustány),
- Golf (Balatongyörök, Balatonudvari, Zalacsány),
- Hévíz-Balaton Airport,
- Monuments of folk architecture, historical and cultural traditions, craftsmanship.

Based on the preliminary data of the Hungarian Central Statistical Office (HCSO), it can be stated that tourism on Lake Balaton is on a growth trajectory: it shows a continuous increase in terms of both the number of guests and the number of guest nights. Tourism in the Lake Balaton region shows the following characteristics⁵: the actual high season is limited to four to six weeks in July and August (depending on the weather) and the average stay is three to five days (the so-called long-weekends are preferred).

⁵ Economy & tourism regional economy <https://balatonregion.hu/en/magunkrol/balaton-regio/turizmus/>

Analysing the tourism of Lake Balaton destination with descriptive statistics

In 2019 the commercial accommodation establishments registered 2,018,480 guest arrivals and 6,197,854 spent guest nights - compared to the previous year, there was an increase of almost 3 per cent in terms of the number of guests, and stagnation was observed in guest nights. Last year, the destination of Lake Balaton was visited approx. by 1,551 thousand domestic and 467 thousand foreign guests – this remained the second most popular destination in Hungary after Budapest.

According to the latest statistics, until 2019 the tourism flow of Lake Balaton showed an increasing trend. In 2019, the destination attracted 16 per cent of all the guests in the country and 20 per cent of all the guest nights (Table 1). It should also be highlighted that more than three quarters (77 per cent) of the guests in the destination were domestic guests, with 68 per cent of all the guest nights (Table1).

Variable	2018	2019	
			Change 2019/2018
All the guests	1 961 845	2 018 480	102,9%
Number of foreign guests	456 743	467 318	102,3%
Number of domestic guests	1 505 102	1 551 162	103,1%
All the guest nights	6 172 885	6 197 854	100,4%
Number of foreign guest nights	2 022 793	1 995 852	98,7%
Number of domestic guest nights	4 150 092	4 202 002	101,3%
Average duration of stay at all tourists	3,15	3,07	97,6%
Average duration of stay at foreign tourists	4,43	4,27	96,4%
Average duration of stay at domestic tourism	2,76	2,71	98,2%

Table 1 The guest traffic on commercial quarters in the Lake Balaton destination in 2018-2019

Source: HSCO (Hungarian Central Statistical Office database)

The marked increase in the number of domestic guests per night is remarkable: in 2019, +54 per cent more guest nights were realized in the destination, compared to the data of 2010. There is also a positive trend in inbound tourism: examining the period from 2010 to 2019, the number of guest nights spent by foreigners increased by 21 per cent.

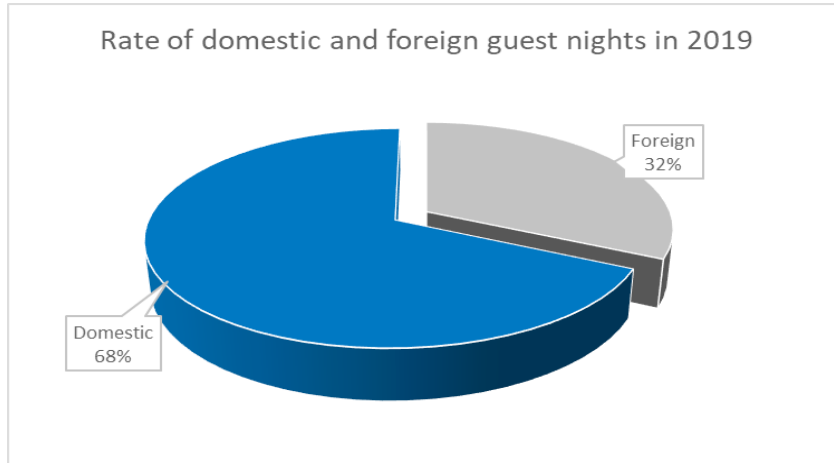


Figure 5 The rate of domestic and foreign guest nights in 2019 in the Lake Balaton region

Source: HSCO (Hungarian Central Statistical Office database)

In the last 25-30 years, there has been a restructuring of tourism in Lake Balaton: instead of mass tourism with a highly seasonal profile (exploiting the waterfront opportunities), the services have expanded and risen to a higher standard (not least in the field of wellness).

Wine and gastronomy, quality, authentic offerings, slow living and Lake Balaton life style have become of high importance as an independent attraction. The lake tourism and the gastro tourism are connected, that's why it would be possible to hold more big gastronomic programs at Balaton and our bigger lakes (wine festivals, fish bakings, pig cuts stb). (Sulyok, 2014)

A significant development in the structure of the destination accommodation was first experienced in the establishment of boarding house-sized accommodation establishments, and then in the area of quality hotel developments (four-star accommodation establishments). There has also been a definite development in the leisure, sports and cultural program

offers at the settlement level. Renewed public spaces, promenades, parks have appeared, several marinas have opened their doors, and the offer has been expanded on the beaches with the expansion of services.

Guest arrival of commercial accommodation establishments (2010-19)

Analysing the data series of the last ten years, it can be said that from 2010 onwards, there were a significant, stable increase in the number of guest nights at Lake Balaton in commercial accommodation establishments till the COVID-19 effect. In 2019, 42 per cent more guest nights were realized in the region compared to 2010 data. In 2013, the number of guest nights already exceeded the data measured before the crisis (2009), and in 2014, more than five million guest nights were already generated in commercial accommodation in the destination.

The marked increase in the number of domestic guests per night is remarkable: in 2019, 54 per cent more guest nights were realized in the destination, compared to the data of 2010. There are also positive changes in inbound tourism: looking at the period from 2010 to 2019, the number of guest nights spent by foreigners increased by 21 per cent.

A total of 467,318 foreign guests spent 1,995,852 guest nights in the Lake Balaton destination in 2019, which means a +2 per cent increase in the number of guests and a -1 per cent decrease in the number of guest nights compared to the same period in 2018.

Number of guest nights at commercial quarters			
Year	Domestic	Foreign	All together
2010	2 732 723	1 643 993	4 376 716
2011	2 816 298	1 688 048	4 504 346
2012	2 865 754	1 747 837	4 613 591
2013	3 113 272	1 879 501	4 992 773
2014	3 331 984	1 819 539	5 151 523
2015	3 516 597	1 803 319	5 319 916
2016	3 860 778	1 843 545	5 704 323
2017	3 979 467	2 033 498	6 012 965
2018	4 150 092	2 022 793	6 172 885
2019	4 202 002	1 995 852	6 197 854

Table 2 Number of guest nights on commercial quarters 2010-19
 Source: HSCO (Hungarian Central Statistical Office database)

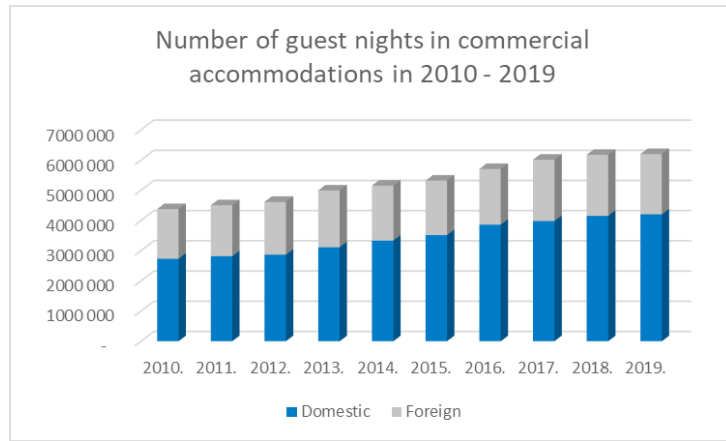


Figure 6 Number of guest nights in commercial accommodations in 2010-19.

Source: HSCO (Hungarian Central Statistical Office database)

In terms of the most important sending markets, most people came to the Lake Balaton from Germany (97 thousand people), Austria (56.9 thousand people), the Czech Republic (57 thousand people) and Russia (25.6 thousand people) the four sending areas together accounted for half of the region's foreign visitors (50 per cent).

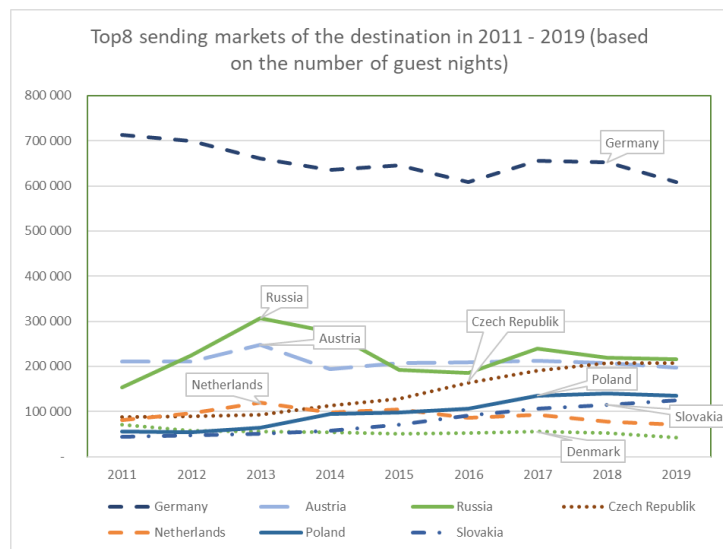


Figure 7 (left-bottom) Top 10 sending markets of the destination between 2011 and 2019 (based on the number of guest nights)
 Source: HSCO (Hungarian Central Statistical Office database)

The most visited towns in the destination of Lake Balaton (2019)

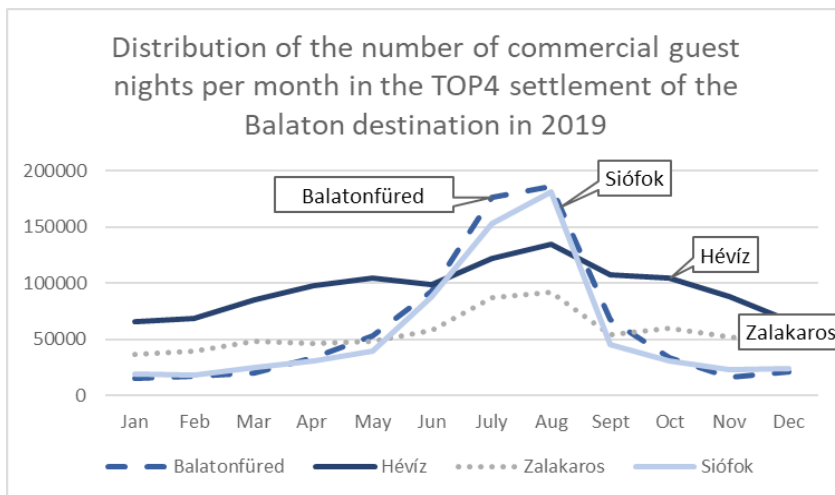


Figure 8 Distribution of the number of commercial guest nights per month in the TOP4 settlement of the Balaton destination in 2019
 Source: HSCO (Hungarian Central Statistical Office database)

The popularity of non-coastal attractions can go a long way to equalize seasonality, as there is a much more balanced guest traffic here, which has expanded extremely dynamically in recent years. (National Tourism Development Strategy 2030)

It can be clearly seen from diagram that the guest arrivals of the TOP Four settlement accounts for half of the guest nights of the whole destination (52 per cent). In terms of the number of guest nights, Hévíz was still the first place among the towns of Lake Balaton last year, however, it is noteworthy that Balatonfüred overtook the data of Siófok with its guest arrivals data.

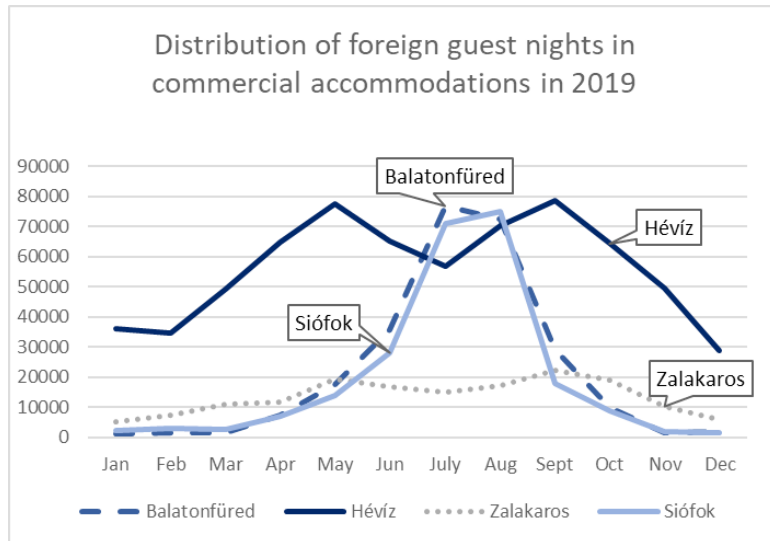


Figure 9 Distribution of foreign guest nights in commercial accommodations in 2019
Source: HSCO (Hungarian Central Statistical Office database)

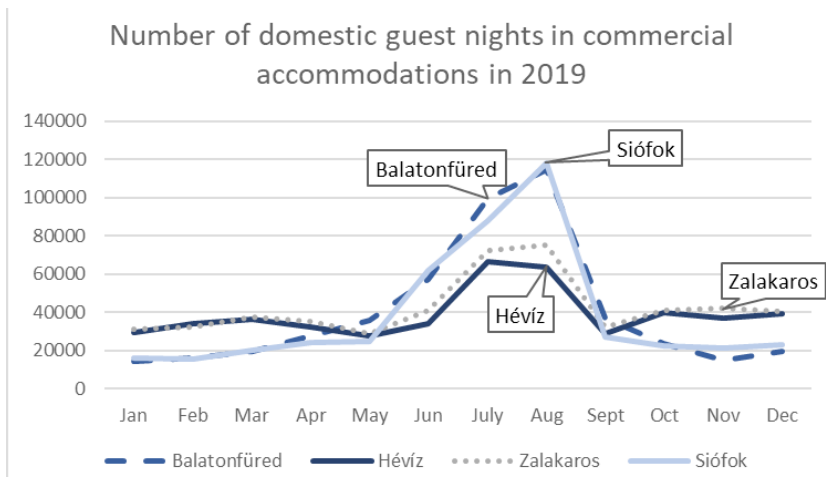


Figure 10 Distribution of domestic guest nights in commercial accommodations in 2019
Source: HSCO (Hungarian Central Statistical Office database)

It is interesting that in 2019, among the largest guest cities in Lake Balaton, the seasonality was the least felt in the tourism of Zalakaros and Hévíz: circa 30 per cent of both foreign and domestic guest nights realised in the high season, most of them in the off-season months at commercial accommodation. In the case of Balatonfüred and Siófok, the time concentration of tourism has clearly decreased in recent years.

As it was examined, Siófok has the largest total commercial accommodation capacity in the Balaton destination (11,948 units), followed by Balatonfüred (7,725 units), Hévíz (6,567 units) and Zalakaros (4,295 units).

Analysing the foreign and domestic guest arrivals' data, the above diagrams show that the seasonality (the distribution of guest nights) is more balanced in case of Hévíz and Zalakaros. In that area, where the conditions of touristic hospitality are given in autumn and winter as well, and the attractions are open all year round, the distribution of guest nights is even more balanced, the tourism is more sustainable and predictable.

Characteristics of tourism at Lake Balaton-Seasonality

In the destination of Lake Balaton, in connection with the tourist infrastructure, the geographical, natural, landscape, cultural and transport conditions of each tourist micro-region are different. Due to the developmental and historical characteristics of tourism, a strong spatial concentration of tourism supply has developed (eg. more than 85 per cent of accommodation establishments are concentrated in the coastal zone), and due to the characteristics of dominant tourism products, time concentration has also been observed. The 80 per cent of the tourists' arrivals on Lake Balaton is generated in the 15 most visited settlements of the Balaton destination. Hévíz which is in the first place, can claim 19 per cent of the guest nights at Lake Balaton.

The Balaton region is able to offer a quality touristic services in spring and autumn, to compensate the seasonality, adapting to the travel trends of the world (the desire to travel several times for a shorter period of time). The degree of seasonality - that still exists - (due to four-season wellness hotels, the development of uplands attractions, and marketing messages to domestic travellers) has decreased.

Diversifying tourism offerings and quality services enable the development of new tourism product packages and open new seasons in spring and autumn. An essential condition for the new seasons is product development filled with attractive content and the formation of an attitude

that the Balaton region is no longer just a summer holiday destination. “The lake and its surroundings play an outstanding role in attracting domestic and foreign visitors to the country, one of its main asset is the water itself that is suitable for bath during the summer months. Based on the available data on guest nights at commercial accommodation establishments, Sulyok et al. provides a detailed overview of the destination’s seasonality with the help of the well-known Gini index .The analysis focuses on the composition of the temporal concentration and its development during the period 2008 to 2014”.

One of the biggest challenges of the period following the change of regime was the dissolution and reduction of concentration and seasonality. The main problem areas were: concentration over time; the extremely unequal territorial distribution of tourist capacities; concentration of traffic in the Lake Balaton region on shore; the seasonal environmental overload of Lake Balaton as a natural lake and the seasonal congestion of the transport network.

Among the three most popular cities of the destination that register the most guest nights - Hévíz, Balatonfüred and Siófok - unsurprisingly, thanks to its health tourism offer, Hévíz can claim much less seasonality. In the case of Balatonfüred and Siófok, the time concentration of tourist arrival has clearly decreased in recent years, which shows that these destinations are increasingly positioning themselves outside the summer period, and at the same time an important feedback on the developments in recent years.

Among the settlements with the highest turnover of Lake Balaton, Hévíz, Zalakaros and Hévíz had the least seasonality: 30 per cent of both foreign and domestic guest nights appeared in the high season, the majority of them spent in the off-season months. In the case of Balatonfüred and Siófok, the time concentration of guest traffic has clearly decreased in recent years, which shows that these micro-destinations are increasingly positioning themselves out of the summer period.

The large-scale development goals to be realized in the tourist destination of Lake Balaton in the near future are the development of bicycle paths and the e-bicycle network, port developments, the establishment of new adventure parks, visitor centers, and the development of castles and chateaux.

The development of hotel services, the development of more than just coastal attractions, and marketing messages to the traveling public have significant potential. The developments confirm the marked shift in the guest traffic, the trends indicate a dynamic development trajectory.

The Hungarian Tourism Agency (MTÜ) draws attention to the fact that “the experience of Lake Balaton is inexhaustible, as the lake and its

surroundings are a four-season destination that hides wonderful treasures regardless of the season and reveals thousands of new colors to visitors at all times of the year⁶.

The main tourist product of the region is, family holidays, based on the water activities. The region primarily attracts families with children, young adults and young people. Guest traffic shows a significant concentration over time. Major events, festivals and the rethought gastronomy and wine culture of Lake Balaton go beyond local events as independent travel motivations. In addition, the region has a significant offer in both active tourism and health tourism. (National Tourism Development Strategy 2030)

Possibilities for transitioning to the circular economy within the tourism and hospitality sectors

- As far as heating and cooling are concerned a ground water based climate system is needed. Within the closed system, ground water meets with air and the temperature difference between the two elements allows for the cooling of the hotel during the summer.
- An advanced building climate control system can be connected to the booking system of the hotels so that the room temperatures will depend on their usage. Through such mechanisms heating, cooling and air ventilation is at an absolute minimum when the room is not booked.
- On the outside, the hotels can be covered in solar panels.
- A smart system can be installed to control lighting and water-saving.
- Hospitality businesses should buy used or remanufactured furniture. Typical remanufacturing operations are: replacement of worn parts, refinishing of metal or wooden surfaces, remanufacturing used products and reselling them (Mannich et al., 2017) Those firms that supply products with looping services, offering their consumers economically efficient end-of-life product returns and recycling practices.
- Reusing textiles: converting damaged textiles into useful items.
- Expanding the types of products available as remanufactured or reused.
- Reusing bottles and glasses.

⁶<https://bbj.hu/budapest/travel/sights/hungarian-tourism-agency-launches-balaton-campaign>

- Intelligent room functions are available through new technologies, promoting the rational use of energy and reducing power consumption. (Sloan et al. (2013)
- Circular waste treatment focuses on separating different types of waste in order to increase their reuse value. An example is the separating and collection of used oils in the kitchen. (Mannich et al., 2017)
- The treatment of greywater, i.e. used water that is no longer potable, but which has been treated to remove potential disease-carrying microbes and redistributed to non-potable systems. (Mannich et al., 2017)
- New technologies which minimise the use of water in the laundering process.
- The sustainable modes of transport at lake Balaton for example between the individual attractions are proposed to be developed otherwise they become inaccessible during critical periods. (long weekends, summer peak season)
- Infrastructural investments in transport development, environmental protection, economic development and, last but not least, human development are of primary importance, as well as education in addition to further integrated accommodation and network attraction developments. (Mannich et al., 2017)
- Selection of the most sustainable tourism service providers that adhere to the principles of the circular economy.
- Selecting the most environmentally friendly transport option.
- Management of selected services: use of locally produced food, handicrafts and adopted environmentally friendly measures such as waste management, energy water saving, etc.
- Infrastructure or season-extending developments at Lake Balaton for example (winterization of water blocks, sauna world, construction of swimming pools, creation of event space), projects implementing family-friendly services and improving the conditions for leisure sports.
- Strengthening the tourist attractiveness of the region through the integrated development of products and services in tourist-frequented areas.
- Supporting the local economy and actively contributing to the preservation of nature and culture.
- All operating activities should be made environmentally sustainable.

- Encouraging tourists to buy products, materials and services that have a renewable and sustainable, recyclable or reusable biodegradable property.
- At Lake Balaton another problem is the railway and roadway that separates the waterfront from the recreation areas and causes a significant environmental load. The road transport system around the lake is overcrowded, especially in the high season. Thanks to infrastructure investments in recent years (eg construction of the M7 motorway, bypasses, junctions), the situation is more favorable, but both road, rail and water transport require further development. Road traffic on the northern coast of Lake Balaton is overcrowded, train traffic is of a critical standard, the section between Székesfehérvár and Balatonfüred is currently being electrified by the northern coastal railway, which results in a significant improvement in the accessibility of the destination.
- At Lake Balaton however, the entry and exit points of the destination, the flow of visitors to the accommodation and the TOP attractions, the sustainable modes of transport between the individual attractions are proposed to be developed in parallel, otherwise they become inaccessible during critical periods (long weekends, summer peak season) and experience is negative.

Conclusion

Tourism in the Lake Balaton region has undergone significant qualitative and quantitative changes in recent years. Domestic tourism has become dominant, while inbound tourism has restructured.

Following the previous negative trends in tourists' arrivals on Lake Balaton, the number of both foreign and domestic guest nights started to grow steadily from 2013 onwards.

Thus, in the field of developments, infrastructural investments in transport development, environmental protection, economic development and, last but not least, human development are of primary importance, as well as education in addition to further integrated accommodation and network attraction developments.

Examining the volume and concentration of guest arrivals together, it can be seen that the development of hotel services, the development of non-coastal attractions, and marketing messages aimed at the domestic travel audience have significant potential. The data of Hévíz and Balatonfüred confirm the developments of the cities.

Due to the more favorable distribution of traffic and conscious professional attention, as well as responsible water management, the biological overload of the lake does not cause any further problems, the amount of water is adequate and the water quality is excellent. In the last ten years, the use of development funds has accelerated and large-scale attractions have been made that can attract a significant number of visitors: for example, the Festetics Castle in Keszthely, and the historic downtown II in Balatonfüred. In addition, the Lavender Visitor Center in Tihany and the Tavas Cave Visitor Center in Tapolca. In addition, the accommodation developments required for the capacity of the hostel are continuous, either on their own or with the involvement of a European Union source, which has doubled the number of beds (four stars, four stars superior) in the high quality accommodation category.

It is important to see that domestic tourism provides an increasing share of the ever-growing guest traffic on Lake Balaton every year. As such, it is an indispensable segment of Lake Balaton tourism, a qualitative development that ensures the renewal of the region. Another key to the development of tourism in the region could be the strengthening of inbound tourism.

In the field of developments, infrastructure investments (transport development, environmental protection, economic development, human development, etc.) and further integrated attraction developments are of primary importance.

Overall, it can be stated that the concentration of accommodation establishments in the Balaton destination is concentrated in 3 micro-regions: Western Balaton: Hévíz and Zalakaros; Balatonfüred, and Siófok's area.

In the accommodation structure of the destination, there is a significant development in the establishment of accommodation the size of a pension, resp. experienced in the field of quality hotel developments (four star accommodation).

It is generally the case that a high number of guest nights is increasingly generated where there is high traffic and large seating capacity and vice versa.

There is a fundamentally strong correlation between the quality of attractions and the number of visitors throughout the region.

In recent years, the spatial and temporal concentration of tourist arrivals has clearly decreased, thanks to the developments of recent years and the slow living offer of non-coastal settlements, as well as the quality services of the destination. Out of the three settlements that register the most guest nights - Hévíz, Balatonfüred and Siófok - Hévíz can claim much less seasonality due to its health tourism offer.

The outbreak of the pandemic which has hit the entire planet has been putting unprecedented pressure on EU tourism ecosystem as well. Businesses in tourism are facing a severe crisis. Analysing the persons in commercial accommodations at Lake Balaton, in Hungary we find that there is a decline in 2020 of 40-50 per cent from January to April compared to the same period in 2019. COVID-19 has impacted heavily on tourism demand, and hospitality industry, which is highly sensitive to shocks. How will the industry recover after COVID-19 and how the industry can be made sustainable? Applying the Circular Economy framework and opportunities we can reach a sustainable, resilient recovery of the tourism industry. Overtourism, GHG emissions issues will not automatically disappear once the COVID-19 crisis is over. We need to rebuild a more resilient, economically and environmentally sustainable tourism industry. It also encourages different stakeholders in the tourism ecosystem to rethink their existing (most often linear) business models in a more holistic way. (Einarsson et al., 2020)

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FANNY LISKA

CO-CREATION RELATED EXPECTATIONS IN SERVICES (PMR 2020/1)

Co-creation in the economic sense manifests itself in the interaction between the company and the consumer. This research presents a qualitative study of consumer decision-making in the service market, exploring the co-creation content in user preferences. The research investigated two areas. One is the beginning of the service selection process, important aspects emerging in the information gathering and consideration phase, with a focus on service products in the tourism and HORECA sectors. Empirical research is based on focus group interviews, where the deeper context of the transcripts was explored using text analysis software. In examining the texts, it was revealed that the occurrence of concepts related to co-creation was remarkable. Based on the code structure in the text, the following user expectations for co-creation can be associated: communication, value proposition, availability, flexibility and experience. In addition, service complexity affects the customer's expectations of co-creation and the expectations of potential consumers separate according to their personality. The results of the research have been built in a proposed model to identify co-creation expectations. From the point of view of service marketing theory, it can be concluded that co-creation is a combination of adaptation and active client policy. At the same time, the revealed model gives the company the opportunity to improve quality management.

Introduction and research purpose

The value of services is a somewhat abstract concept in consumer decision making. This is because the basis of consumer decisions' is typically not the holistic value of the service, but services are being evaluated according to certain properties and attributes that are considered important to consumers. Thus, in the case of the very same service, different consumers may consider the process as a positive or negative experience based on their different perspectives. In the longer run, however, most

consumers have a picture in mind about the perceived value of the service, which is mostly related to the value created by the service. First, Zeithaml and his co-authors (1985) identified the inseparable property of services in the so-called HIPI principle, that is, “production” and “consumption” require both the customer and the service provider. This so-called real-time collaboration is captured by the concept of value co-creation. As Vargo and Lusch (2004) stated in the 6th premise of Service-Dominant Logic theory: the user is always a value-creating partner in the service process.

The aim of this study is to contribute to a deeper understanding of the nature of shared value creation between consumers and service providers. The article explores the *decision-making processes of consumers during service-choice decision, through a qualitative analysis*, paying particular attention to value creation aspects in consumer preferences. It is important to examine these “soft” factors because, although the ultimate value of a service is shaped by the interdependence of the user and the service provider, value creation is predominantly controlled by the service provider and/or service personnel and staff. So if we can model the components of common value creation, it represents the benefits associated with relationship management in the marketing of service providers.

Literature review

Like many other concepts, common value creation appeared much later in the theory of corporate economics than in practice. The cooperation of the customer / consumer in the improvement of the company’s performance is an obvious solution in several corporate functions, and a number of early application examples can be mentioned. Mention should be made of the former practice of Southwest Airlines in the United States, where frequent flyers were involved as active customers in the process of selecting cabin crew (Veres, 2009 p. 267). Thus, the concept of common value creation can be examined not only from a management perspective, but also from the perspective of consumers and other stakeholders (Ind, Coates 2013). Co-creation has basically contributed to the development of the company in two main directions. The first aspect is the generation of new product/ service ideas, actually innovation and development; the other area is the continuous improvement, such as quality improvement by exploring typical complaint situations. The latter is particularly typical in the service market, where targeted qualitative research methods provide the necessary input. Such methods include focus groups to explore service quality scope, as well as front-line audit (Jäckel, 2016) or the Critical Incident Technique (Veres, 2009). The so-called proactive market research, however, is also

unknown in product innovation (in Witell, Kristensson, Gustafsson, & Löfgren, 2011), in addition, the concept of common value creation also appears in the Japanese kaizen approach to quality management (Belal, Shirahada, & Kosaka, 2013). It is to note that organizational market co-creation research has intensified in recent years (see among others Preikschas, Cabanelas, Rüdiger, & Lampón, 2017; Ruiz-Alba, Soares, Rodríguez-Molina, & Frías-Jamilena, 2019; Berenguer-Contri, Gallarza, Ruiz-Molina, & Gil-Saura, 2020; Ramaswamy & Ozcan 2020).

A study by Vargo and Lusch (2004) with a paradigm shifting intent appeared in the early 2000s, in which the exclusive dominance of services over the traditional marketing approach based on the classical product-service dichotomy was emphasized. The 6th premise outlined in their theoretical concept states „The Customer Is Always a Coproducer”. This approach follows the management concept formulated by Prahalad and Ramaswamy (2000, 2002, 2004), according to which economic value creation takes place in the interaction between companies and consumers. Following the logic of Ramaswamy (2011), mutual value creation is a common extension of value, where the source of value is the consumer experience and the experience is manifested through interactions. Here, however, the role of the consumer also changes (Cova & Dallı, 2009, Cova, Dallı, & Zwick, 2011). Research by Gustafsson et al. (2012) has also shown that the mechanism of effective service innovation is based on consumer communication, and differs according to whether the innovation is comprehensive or partial only. In a broader sense, ‘value co-creation’ takes place between different economic actors, which constitutes certain types of service systems, in which they integrate their resources for value creation (Edvardsson, Tronvoll, & Gruber, 2011; Vargo & Lusch, 2008; Skålén, Pace, & Cova, 2015; Oertzen, Odekerken-Schröder, Brax & Mager, 2018). The context of the present research is based on those formulated by Grönroos (2011), that common value creation is a kind of direct interaction between the company and the consumer, in which actors unite through their coordinated activities in an integrated process in which both parties are active, learn together and from each other, while also directly influencing each other. Grönroos’s cited article is also significant in a way that it breaks the mainstream consensus with analyzing and partially redefining the elements of Vargo-Lusch’s premises on a critical basis, which leads to a deeper understanding and better interpretation of co-creation. The main new premises are as follows:

- Common value creation is the basis of economic transactions in which service provision plays an intermediary role.
- Basically, the consumer is always a value-creator.
- Basically, the company is a facilitator of consumer value.

- The company's activity is not limited to the value proposition, but it provides the opportunity to directly and actively influence consumer value creation.
- Value accumulates in the process of value creation.
- The consumer perceives the value individually, empirically and in context.

Although the focus of common value creation is at the heart of the servuction model (Eglier & Langeard, 1991), there are different models in the literature. Analyzing these, De Koning et al. (2016) distinguish four approaches. The "raw" interpretation of common value creation between economic actors is a kind of common *area, overlap*, where value creation is created as input-output values. Other models follow the structural thinking, ie that common value creation can be defined along such spectra as an *area of innovation* (low level of cooperation, little impact on product / service design, innovation output) or common value creation can be a method of *participation and cooperation in product/service planning*. Some authors view common value creation as a *process* and define the steps during which value creation takes place. Models that differentiate the types of co-creation define 5 areas. According to this, personalized offers; real-time self-service; mass customization; co-design and community design represent the views of the business and scientific perspective on the types of co-creation. There are researches which examines the concept of co-creation from a user perspective, providing insight into consumer experiences and the determinants of co-creation situations. Some studies mention co-creation as a defining element of a holistic service experience (Kelemen-Erdős, Mitev, 2016).

In the Hungarian co-creation research, the work of Ercsey (2015, 2016, 2017) should be highlighted, who primarily examines the topic in the context of service marketing. The result of her research is to prove a model that captures consumer co-creation behaviour in a multidimensional structure. Mention may also be made of Adrienn Papp (2014, 2019), who investigated the innovation-supporting role of co-creation.

The present research examined the co-creation phenomenon from the users' point of view and sought the answer to how the assessment of common value creation appears in the choice decision and in the evaluation of services.

If we combine the complexity and difficulty of the service with the dimensions of general and individual complexity, we obtain a framework that identifies the complexity of services in four categories.

According to the nature of complexity:

- *complicated*: multiplicity (the service consists of a large number of components) and / or coherence (high level interaction between components);
- *difficult*: significant financial or intellectual resources are required to perform the service and / or it is characterized by uncertainty, ie it is not possible to make accurate forecasts or rely on any information.

According to the source of complexity:

- *general*: in this case, the type of service is characterized by complexity, thus, any firm wishing to provide a particular type of service must deal with the same level of complexity;
- *individual*: the complexity of each service provider, so different companies operating in the same type of service represent different levels of complexity. This may be derived from the decisions made by the company or the environmental factors in which the company operates.

The characteristics that determine the complexity of the service are summarized in Table 1, highlighting in italics the aspects that refer to the common value creation of the service provider and the consumer.

Markets and products

1	<i>The service is highly individual.</i>
2	The service has low commodity content.
3	<i>The service is offered according to many differentiated options.</i>
4	<i>The needs and wants for the service are very heterogeneous among the firm's customers.</i>
5	<i>The customer requirements for the service are difficult to interpret.</i>
6	<i>The customer requirements for the service are subject to change.</i>
7	The timing and level of customer demand for the service are uncertain.
8	<i>The customers tend to look for new offerings for the service all the time.</i>
9	<i>The service delivers many different functions / addresses a wide range of customer requirements.</i>
10	The service delivers sophisticated functions / addresses sophisticated customer needs.
11	The service is infrequently purchased.
12	The service has a short life cycle.
13	The service has a high risk of obsolescence.
14	The service contains a high number of sub-services.

- 15 The service contains very heterogeneous sub-services.
- 16 The service contains highly interrelated sub-services.
- 17 *The service involves an ongoing interaction between the customer and the service, so that the customer can make decisions.*
- 18 *The service requires a high degree of customer knowledge.*
- 19 The outcome of the service is difficult to predict.
- 20 The outcome of the service is difficult to monitor.
- 21 *The service is affected by information asymmetry between the client and the service provider.*
- 22 The service organisation offers many different services.
- 23 The market for the service is highly competitive.
- 24 The service is new.
- 25 The service entails some innovation that is perceived as being difficult to understand and use.
- 26 *The process of service innovation involves suppliers and customers.*
- 27 The service is delivered at many different locations (geographical dispersion of the firm's domain).
- 28 The service is delivered across multiple channels.
- 29 The service is offered to many different groups of customers (heterogeneity of the firm's domain).
- 30 The customer will purchase the service based on credence qualities, i.e. supplier reputation and relationship with supplier.
- 31 The service is difficult to understand for the customers.
- 32 A large amount of information is needed to specify the attributes of the service in enough detail to allow potential buyers to make a selection.
- 33 The customers lack the technical knowledge to evaluate the service.

Technologies

- 34 The service is offered according to sophisticated options, e.g. with the purchase of new technology, more advanced infrastructure.
- 35 The service uses new and sophisticated technologies.
- 36 The service uses rapidly developing technologies.
- 37 The service delivery involves several different technologies.
- 38 *The service incorporates a variety of distinct knowledge bases, skills and competencies.*

Production processes

- 39 *The service requires a high number of interactions between the service provider and the customer during the service delivery process.*
- 40 *The service involves a high interrelation of activities taking place between the service provider and the customer during the service delivery process.*
- 41 *The service requires the customers to be in the system for a high percentage of the time it takes to serve them, i.e. high customer contact.*
- 42 *The service needs to be carried out cooperatively with the customers, i.e. high customer involvement.*
- 43 *The service is delivered in a process that is to be tightly integrated into the business processes of customers (industrial services only).*
- 44 The service is delivered through assembling sub-services offered by a pool of seller candidates, which provide complementary as well as substitutive services.
- 45 *The service is delivered through a network consisting of a complex web of direct and indirect ties between various actors, all delivering value either to their immediate customer or to the end customer.*
- 46 The delivery network for the service comprises actors each of whom might be involved with multiple other delivery networks, each with their own demands.
- 47 *The delivery network for the service involves different parties that depend on each other to accomplish their tasks.*
- 48 Material and data flows exchanged between partners in the service delivery network are affected by uncertainty.
- 49 A high number of steps are required to produce the service.
- 50 The service is produced through a high number of steps.
- 51 Highly interrelated steps are required to produce the service.
- 52 The service is produced through highly interrelated steps.
- 53 *The service process requires intensive input of human labour.*
- 54 The input of human labour in the service process is predominantly intellectual.
- 55 The cost and quality of the service, i.e. the relationship between input and service output, are affected by changes in the environment.
- 56 Tolerance on the time it takes to produce the service is low.
- 57 *The service requires a variety of inputs.*
- 58 The provision of the service involves use of shared resources.
- 59 *Operations relative to the service involve a high number of people.*
- 60 *The process of service production may need to adapt non-routine procedures and methods.*
- 61 *The service does not rely on established bodies of knowledge, yet it requires new solutions.*

- 62 The provision of the service is based on judgement as the service involves tacit, as opposed to declared, information.
- 63 *The service can be produced according to a number of alternative paths.*
- 64 The service involves a great deal of specialised knowledge to undertake the service tasks.
- 65 The production and delivery system for the service involves a high number of feed-back loops.
- 66 The service is difficult to provide in a cost-effective and efficient manner.

Administration and management

- 67 The service requires intensive investments.
- 68 The service has a high cost.
- 69 The service involves complicated commercial arrangements, such as stage payments, penalty clauses, and performance bonds.
- 70 Management takes responsibility for the entire task of providing the service through a performance-based contract.
- 71 *The contractual relationship between the service provider and the customer is highly individual.*
- 72 A variety of pricing structures are available for the service or different pricing structures exist for different customer groups.
- 73 The pricing structure for the service changes frequently.

Service ecosystem

- 74 *The value network of the service comprises a high number of actors with which the service provider has to manage a relationship.*
- 75 The service involves conflicts between multiple stakeholders.
- 76 The service is subject to a pressing regulatory environment.

Table 1 Characteristics determining service complexity
Source: Own editing based on Benedettini & Neely (2012)

If the properties of service complexity are classified into the above groups, Table 2 is obtained. The number of properties significant for co-creation was also highlighted in this. It is striking that most of the factors are clustered in cells associated with overall complexity, hence the high number of service components, the interactions between them and the

complexity inherent in a particular type of service can be a challenge in most cases. The complexity of services is also interesting in terms of where they have a co-creation relationship. The features presented above illustrate that complexity also justifies common value creation, and that co-creation itself brings complexity into services.

	<i>Complication</i>	<i>Difficulty</i>
<i>Individual complexity</i>	3, 4, 22, 27, 28, 29, 44, 45, 46, 47, 50, 52, 58, 71, 72	21, 34, 48, 69, 70, 73
<i>General complexity</i>	1, 9, 14, 15, 16, 17, 26, 37, 38, 39, 40, 42, 43, 49, 51, 57, 59, 63, 65, 74, 75	2, 5, 6, 7, 8, 10, 11, 12, 13, 18, 19, 20, 23, 24, 25, 30, 31, 32, 33, 35, 36, 41, 53, 54, 55, 56, 60, 61, 62, 64, 66, 67, 68, 76

Table 2 Classification of service complexity properties
Source: own editing, based on Benedettini & Neely (2012)

The purpose of consumers and customers is to maximize the value that can be acquired. If the purchased product or service meets or exceeds the consumers' expectations, a satisfied customer is expected to buy again. Regarding Rekettye's (2018) description of (customer) value, it can be agreed that satisfaction is not independent of the price of the product / service, or - remaining in the service topic - from the effort and expense made during its use. However, it should be treated with caution that the buyer would always be interested in obtaining the highest possible value with the least possible expenditure or effort. From a co-creation point of view, there is a service where the (extra) added value is that the customer participates in the process by higher activity and deeper involvement. Because there are segments that prefer activity, as assumed by active client policy in service marketing theory (Veres, 2009 p. 264). What utility factors a user can identify in a service, and what it considers necessary, plays an important role in what the perceived value will be. From a practical point of view, it is also an important question *what are the components of the value perceived by the consumer*.

Research problem statement

The change in the value orientation paradigm at the turn of the millennium (Rekettye, 2019) also had an impact on the management philosophy suggested that value being created for customers and owners is in the focus of corporate thinking. A product or service must represent value for the customers, making them feel that the goods are worth choosing

(Chikán & Demeter, 1999). According to the classical decision model value of an action variant is determined by its utility as well as the probability of its occurrence (Samuelson, 1947). The relationship of consumers to the utility of co-creation is the so-called co-creation preference, meaning that in the case of a customer finds a co-creation solution more useful - as opposed to the non-co-creative way -, he/she prefers it. For this reason, it may be interesting to see whether co-creation-related preferences appear in the consumer choice decision and expectations, and whether the market shows any kind of grouping in these preference dimensions. Are there any overlaps or possibly contradictions between them? Does it cause tension in the customer if he/she doesn't have any opportunity for co-creation activity? For some linear process services e.g., such as a cruise in tourism, where the service structure is tight, such a constraint may occur.

Marketing is also a business philosophy and toolkit (Rekettye, 2019), so the present research examined two areas. One is the important aspects that emerge at the beginning of the service selection process, at the stage of information gathering and consideration. Related to this, participants in focus group interviews discussed issues such as:

1. Do consumers choose between services or service providers?
2. What are the important viewpoints of service choice decision?
3. What could be the 3 most important aspects of service choice decision?
4. How do consumers make a decision during a complex service choice?

Criteria for value creation have already emerged during the discussion of the general selection criteria, which were addressed in the second half of the interview in order to gain a deeper understanding. The meaning of the co-creation concept of the service was explored partly along the elements of the HIPI principle (Zeithaml, Parasuraman, & Berry, 1985).

- 5.a. Services are *heterogeneous*, among other things, due to the human factor. Based on what, a consumer can assume that once he/she has purchased a service, he/she will get exactly the same result from it - or with a very small difference - the next time he/she has already once received it? Can it be taken as an evidence as long as a customer not confronted anything else?
- 5.b. Services are *intangible*. How users get information about the service so they can imagine what it is like?
- 5.c. Services are *perishable* (e.g. an unrented accommodation from the previous week may be experienced by the buyer as a "lost offer"). How does this affect the choice of consumers?
- 5.d. Provision and use of the services are *inseparable in time and space*. This results in a kind of quality performance risk. How this

- may affect consumer decisions? Can the next service purchase be affected if a co-creation process starts during the service process? For example, the consumer highlights the development of a service attribute that may be necessary but was not thought of by the service provider (so-called co-development, co-operation).
6. What risks may arise when using a service on the service provider and on consumer side?
 7. What does the value of a service mean to a consumer?
 - a. The value of the service is functional or emotional?
 - b. In case of a choice, releasing the non-selected options, how much it 'hurts' to give them all up?
 - c. How does the nature of cooperation in the service process affect the consumer?
 - d. Does the convenience of the decision matter?
 - e. Does it matter to the consumers that others see what service they have chosen?
 - f. Does it matter to a consumer whether he/she can have a say in shaping the individual elements and parameters of the service?
 8. What does the consumer expect from common value creation with the service provider?
 9. When a service provider and a consumer create a new service parameter together - so there is a co-creation interaction - what is its perceived advantage?

Research method

The results of the multi-module research discussed in this study are explored using focus group studies and qualitative text analysis software. In the first phase of the research, mini-focus group interviews on service market choice decisions and co-creation preferences were conducted. The consecutive series of interviews (6 by number) were transacted by a professional moderator, based on a semi-structured guide over three weeks, with two interviews each week.

Regarding the profile of the respondents, the subjects of the focus group interviews were selected from the university student base. As an incentive 5 extra points could be redeemed at the end of the semester at a given course. The surveyed sample has a mixed gender composition, ranging in age from 18 to 24 years. Table 3 shows the gender distribution of focus groups. Restricting the age of the participants to the undergraduate age group in the qualitative, exploratory research phase is not expected to result in a significant loss of information.

	Focus 1	Focus 2	Focus 3	Focus 4	Focus 5	Focus 6
female interviewee	4	3	5	3	4	4
male interviewee	1	1	0	1	0	2

Table 3 Gender distribution of focus groups
Source: own editing

During the interviews, in addition to the concrete answers, we also gathered experiences, which showed that in many cases the respondents' parents paid for the services (for accommodation, restaurant, healthcare services), thus, the preferences of the respondents are less distorted by the price, but at the same time they are strongly involved in the choice decision-making process. After six interviews, we assessed the topic as sufficiently explored by saturation testing.

Transcripts were subjected to a content analysis after repeated readings using MAX Qualitative Data Analysis (MAXQDA 2018) software. The applied MAXQDA text analytics tool is widely used in scientific marketing research projects (Wymer, Boenigk, & Möhlmann, 2015; Petr, Belk, & Decrop, 2015).

Defining research area

The present study focuses on those types of services where higher co-creation appears at individual levels, as common value creation, the creation of a service together by "co-creators" really prevails in this area, in the case of mass services the mechanism is more limited. In addition, the research approaches the topic only from the consumer's side, the service provider side can be the subject of further research. The first two focus groups started from the scope of tourism services, but as the focus groups developed, other services also appeared in the sample of respondents, the scope expanded to other service types and also widened to services in general. Although during the first two focus group interviews respondents were requested to share examples from the field of tourism, the topic expanded on these occasions as well, as cultural and/or leisure services, which mostly overlap with tourism, also appeared in the answers/opinions/stories, such as the concerts, adventure parks, entertainment industry. The co-creation content of the research was strengthened by the fact that the participants involved experiences from several service areas, so there was no strict service area restriction from the third focus group. As a result,

the interview was further broadened towards different types of services, thus providing an opportunity to generalize the results. In addition to the thematic dominance of tourism and HORECA, respondents were identified from a total of nine other areas: banking, vinery, hairdresser, concert, entertainment, cosmetics, massage, healthcare services, psychologist. It can be seen that services with a relatively high co-creation content, which are personal in nature, such as hairdressing, cosmetics, massage, medicine, psychology, have also appeared. The high and low content of professional and experience-based content of the services can be summarized according to Table 4.

	<i>dominant professional content</i>	<i>dominant experience</i>
<i>wide room for adaptation</i>	aesthetic procedures	tourism
<i>narrow adaptation margin</i>	medicine	massage

Table 4 Adaptation and content matrix
 Source: own editing

Some services want to develop experiential content and the service provider is a partner in creating it. For example the technology of tourism services is not so specific to limit the consumers' own activity, which is why there are more opportunities in tourism to make 'consumption' more enjoyable for consumers, as opposed to a hairdresser or a doctor. In the latter service situations, the customer's need for experience may arise, but he may not have understood the service technology to such an extent that it can be shaped according to his/her ideas by the service professional. At the same time, tourism is an area where there are many more individual opportunities for the consumers' to increase their own experience. This makes tourism special from the point of view of co-creation, and the leisure industry can be closely related to certain service categories, for which a high degree of personalization and adaptability can be imagined within convenient activities.

The service structure shown in Figure 1 appeared in the interviews. The figure was obtained by drawing the conceptual relationships of the service types mentioned in the focus group interviews, using the data visualization tool of MAXQDA software. The figure shows what concepts the services were related to when the respondents explained their service choice and decision considerations. In addition, service experiences based on their previous consumer experience were shared with the moderator.

Although the research was initially limited to the tourism focus, due to the abundant partial results available in the topic, we think it can be extended to other service areas. Thus, the model described at the end of the study is considered generalizable, as not only the typical services of the HORECA sector appeared in the qualitative research, but several interviewees spoke several times in general, mentioning the word “service” as Figure 2 illustrates in the ‘Results’ chapter.

Results

We examined and visualized the contexts of the transcripts in terms of the proportion of concepts related to co-creation, content related to other service features, concepts related to online space, and terms related to service performance such as positivity and quality, negativity, and risk. (Figure 2). It is striking how much of the terms related to common value creation appear in the choice of services.

The focus group interview series examined the criteria on the basis of which consumers choose services and whether the co-creation preference appears among the aspects of service choice in relation to service attributes. Figure 2 illustrates how markedly the concepts related to co-creation appear in the choices and service experiences. The visualization of the output is colourful in the original MAXQDA output, but due to printing reasons it has been grey tinted.

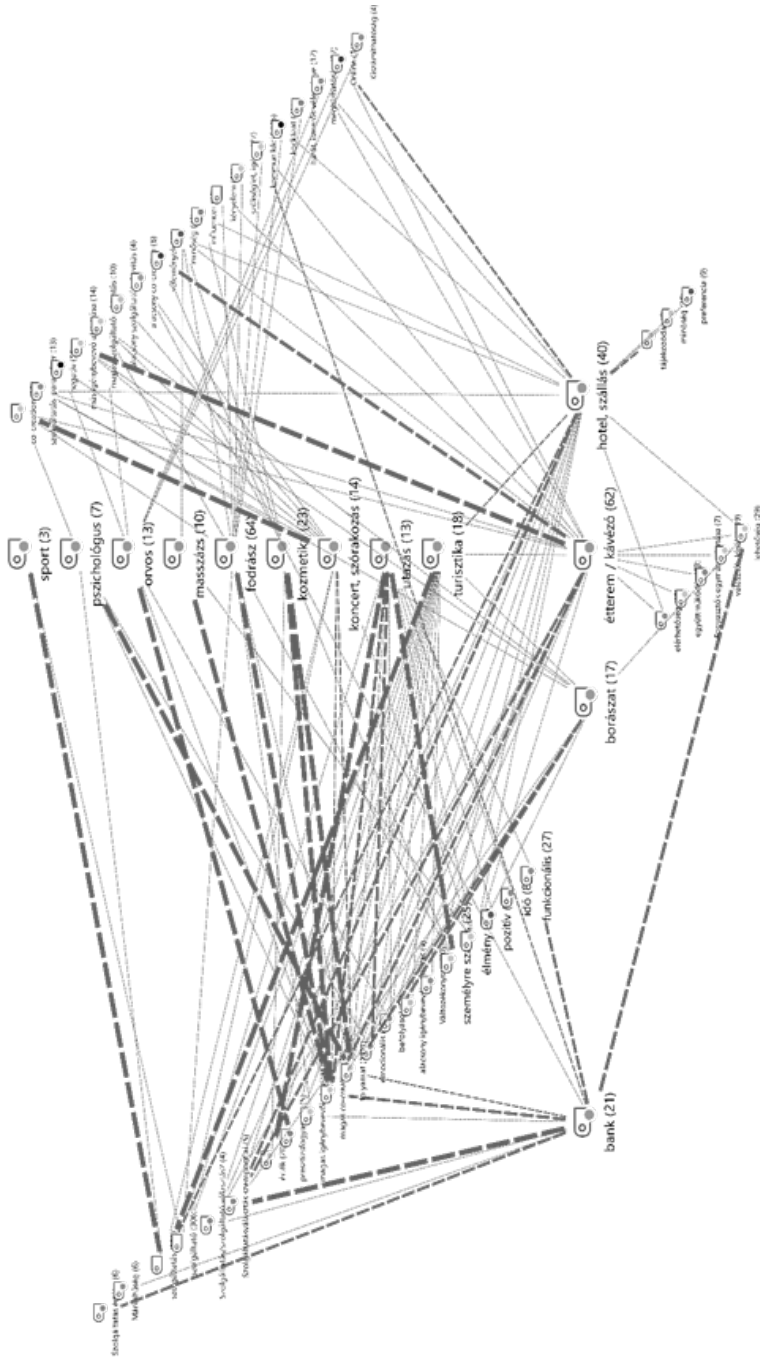


Figure 1 Types of services and related concepts that appeared in the interviews
Source: Own editing, MAXQDA

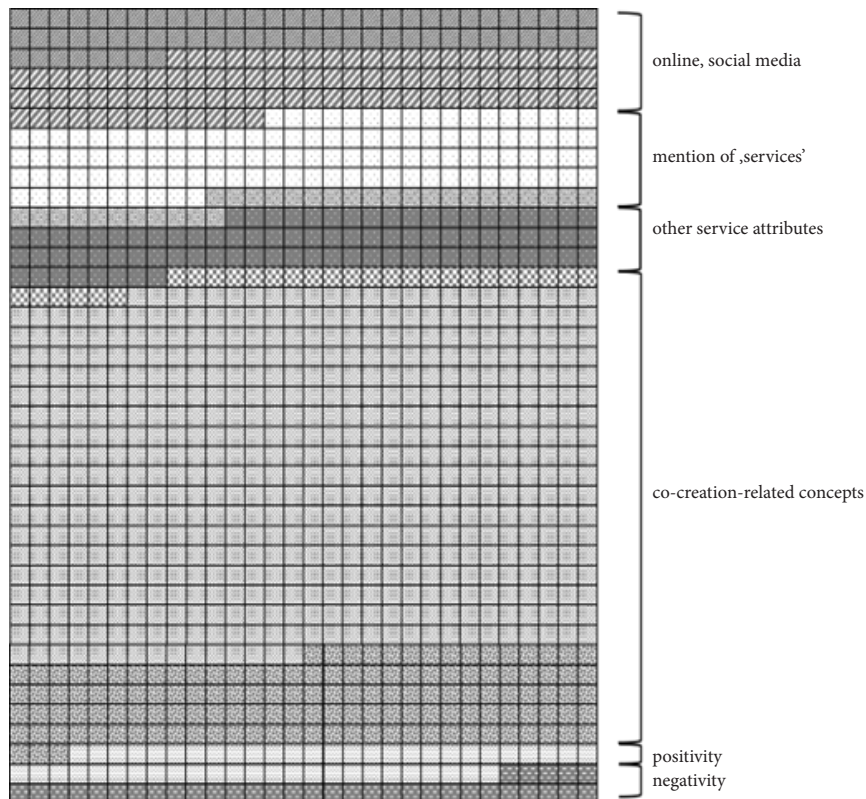
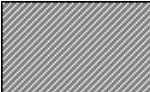

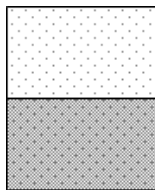


Figure 2 Context visualization
Source: own editing

The different patterned sections in Figure 2 are plotted based on the frequency of the keyword codes that appear in the transcript text, and should be interpreted as follows:

	<p><i>Online, social media</i></p> <p><i>Thin stripes:</i> social media, tags, blocked reviews, Facebook reviews, online, website.</p>
	<p><i>Thick stripes:</i> factors strongly influencing the consumption of 18-24 year olds, such as online media content, opinions of friends and/or acquaintances on the Internet, prestige consumption, influencers, personality.</p>



Mention of 'services'

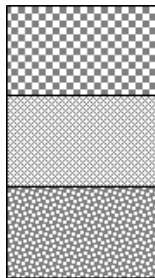
Dots on white: concrete mention of the word 'service'. This is significant in the sense that this term refers to mentions when a service or service provider was spoken of in general, thus supporting the generalizability of the study.

Dots on grey: When a service type was specifically stated.



Service attributes

Price, predictability, reliability, time, value, brand loyalty, functional or emotional value, image, service parameter, variability.

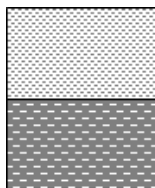


Co-creation related concepts

Chessboard pattern: comments related to service personnel.

Greyscale: mention of the word co-creation, where to find information in the selection decision process, service process, personalization, experience, opportunity, activity and behaviour of other users, communication, cooperation, flexibility, high user and / or service provider activity.

Grainy pattern: co-creation aspects that appear in terms of service choice, FOMO , the interaction of consumers, the value of the service.



Positivity / negativity

Specifically, the emergence of some positive or negative example in the field of service experience related to co-creation.

Already at the beginning of the interviews, it became clear that it could not be clarified whether the choice of service or provider is the first step. Some consumers choose a service first and then consider which service provider offers the best design, package offer, or simply sympathy for one where the supply is "good enough" based on their perceptions.

„I think first about what I really need, then I look at the providers and then I decide which one knows what I want.” (Focus transcript, 4, M)

„I think I choose service first. Then I look at which provider has the best offer, do customers like it. (...), how's the quality. That's how I choose.” (Focus transcript, 432, F)

For other consumers, choosing a *service provider* is the first decision point.

„(...)I take a look at the service first, then on what the service provider offers at all. I'm checking whether I like it or not, how's the environment, what's the mood of the place – and if it's positive, I'm giving it a try and going inside.” (Focus transcript, 204, F)

According to some participants, the primary choice of *service provider* already indicates a certain degree of brand loyalty.

„When it comes to brand loyalty, I think we choose the service provider itself.” (Focus transcript, 432, F)

And there are those who *cannot generalize*, but orientation and information seeking in the online space immediately come up.

„I often look at the reviews and criticisms that people said about the service or the provider. Those 'starts' and stuff. It depends on what kind of service I'm about to choose. It may come up in case of a restaurant, I guess.” (Focus transcript, 201, M)

In connection with the release, 'waiver' appeared not among services but among service attributes.

„We usually prefer the beach to be close to the accommodation during vacations. This comes first for us. After that, other things come... This year we just booked an apartment off the map, so despite the beach was really close, we had to drive through the city for the shopping. So as for the closeness of the beach, we stroked it, but there was a kind of sacrifice to be taken with the shopping part.” (Focus transcript, 446, F)

Examining the 14,826 words in the 33,751-word transcript, the terms “service, service provider, he, they, me, me, the user” were omitted in addition to the conjunctions and explanatory words, as they were used with outstanding frequency due to the topic, however, they do not provide precise information for modelling. The remaining service-choice-related vocabulary can be divided in two co-creation related segments.

- One group contains the *classical mix elements of service marketing* (product, place; people; process) except for the physical environment and price (in relation to the latter, it was specifically requested during the interviews not to be considered as a decision factor).

- The other group of concepts refers to *consumer's feelings related to co-creation*. Here we can see the followings coming up: availability, activity, communication, the nature of the process and common activity (before and during the service process), choices and the human factor. The words “positive” and “negative” are appearing with high frequency, and the mention of those always appeared during the development of some kind of co-creation service experience. The interviews revealed, that co-creation

does not appear only in service development (so-called pre-consumption) processes, but an aspect of digital marketing can also be included in this section when consumers express their opinions through online interfaces.

The concept of co-creation was defined at the very end of the interviews, throughout, the phenomenon was only circumscribed so that the concept does not distort the mindset of the respondents. Repeated reading of the transcript and analysis of word frequencies have already suggested, what the consumer expects from co-creation. The text file has been tagged with a code structure, this can point out the presence of a deeper, intrinsic patterns in the text. More than 2,600 codes were manually placed in the transcript text along the key phrases in the text.

The code structure can also be drawn in a matrix with MAXQDA, though this cannot be displayed in the present study due to the size limitation, however, the more pronounced results are presented.

Based on the analysis, the user expectations related to co-creation can be well identified, which are communication, value proposition, availability, flexibility and experience (the list is also a frequency order based on the number of occurrences of the terms, however, it cannot be considered as a preference order, as it varies individually):

- *Communication*: cooperation with the service provider, transparent literacy, consistency of verbal and nonverbal communication in the behaviour of service staff;
 - „(...)communication should be regular and the service process should be tracked accordingly (...)” (Focus transcript 41, F)
 - (...)man goes to a therapist (...).There you only will start the service process, (...) as you start speaking, that’s the basis of the service, you need to communicate to even start the service. (Focus transcript 154, F)
 - „(...)we wanted to go on a wine tour and I contacted the winery by email. It was very unsympathetic that they answered after a week, succinctly. Literally 3 words, not more. They did not write in the way as I would have expected (...)” (Focus transcript, 884, F)
 - „(...)primarily I think the service provider is the one who should initiate the communication.” (Focus transcript, 57, M)
 - Can you imagine a situation like this that a service process starts, the customer does not feel good, but he/she initiates some kind of cooperation with the service provider, as a result communication is developing and a better service is created. (Focus transcript 895, F); We remodelled the living room at home. There was such a thing with the furniture design,

several members of the family had a word several times during the design so that we could find the best possible solution, we constantly discussed out ideas with the service providers, plasterboard, carpentry, and finally everything really came together nicely. The service providers were really wholehearted, they just didn't always understand what we wanted and then you had to say it several times, make phone calls many times, negotiate different parameters. It didn't always go smoothly, but in the end it perfectly met our needs. (Focus transcript, 896, F)

- *Value proposition: authentic and representative presence, especially the opinions expressed by word-of-mouth in online media and the service provider's response to them;*
 - *„If there's positive criticism, so the service provider could use the information. IT's not like „ugh, it was bad” or horrible” or even „I won't come here anymore”, but it is explained why do I not come here again, this is a useful comment from an unsatisfied consumer .” (Focus transcript 176, M)*
 - *„I think when such a negative review arrives for a service, it is best for the provider to respond there immediately. So for example I like those comments when someone comes up with a problem or negative experience and after that the service provider immediately responds like 'yeah, we apologize for this and that happened'...and then they explain how they're intend to fix the given problem.” (Focus transcript, 190, F)*
- *Availability: availability in space and time, predictability;*
 - *„For example, if I take the fancy of a restaurant, so it could be a nice place to have a meal, but then I realize that it's quite far away. I won't go that far for a dinner.” (Focus transcript, 16, F)*
 - *„Private, because there, if I apply for an appointment in advance, the doctor knows he/she has to take time for me. And we pretty thoroughly my case – what's the problem, where does it hurt and so on... While in hospitals I think the hurry goes on massively and the doctors barely have time to carefully listen to my complaint. They might just move on like „OK, another hysterical woman here”. (Focus transcript, 214, F)*
- *Flexibility: possibility to change the service parameters;*
 - *„The preliminary appointment came to my mind. If something comes up that restrain me, I can call the service provider and we transfer the appointment.” (Focus transcript, 903, F)*

- *„I am thinking now that if a travel agency offers to have a tour to Tihany and have a 3-hour free program, offers a boat trip, walking on the beach and having an ice-cream, then I think I would be better off choosing the right one for me. If there'd be only one program offer, I'm not sure that I'd like it. Because let's just say I don't drink wine because I'm abstinent.” (Focus transcript, 370, F)*
- *„Flexibility on both sides and a willingness to compromise.” (Focus transcript, 154, F)*
- *Experience: perception of the service process, other consumer(s) and/or the service provider's activity.*
 - *„If we return to the concert example, if someone there drank a little too much next to me and starts 'biological processes' next to me that are not very nice, I think it spoils the experience and service as well. And the service provider doesn't have to contribute to that to make me feel worse.” (Focus transcript, 394, M)*
 - *„(...)in case of a restaurant or a cafe, the experience depends a lot on the human factor.” (Focus transcript, 425, F)*
 - *„Many times small simple places can provide much better quality, a more pleasant atmosphere, and an extra service experience.” (Focus transcript, 1067, F)*
 - *„It will end up as a good service, as long as a consumer leaves with positive experiences, and it will be worth the service provider too, if a well-behaved consumer comes in, who eats the food with good appetite, behaves nicely, doesn't shout, their kids doesn't yell, so everything's good. It's actually some kind of collaboration, even if it's tacit. Here's this cool service, we'll do our best to make you feel good meanwhile you behave properly and then everything will be okay.” (Focus transcript, 53, F)*
 - *„If we don't get what we expect for example, if we book a specific room and get another, it will greatly affect the choice next time.” (Focus transcript, 498, F)*

The list items above describe user expectations for co-creation. However, this is only one set of components that determines the overall co-creation perception. In addition to the criteria listed, co-creation expectations are determined by the degree of complexity of the service, the expected activity and personality of the co-creators. The *degree of complexity* of the services can affect the co-creation needs listed above.

According to some consumers, the less complex the service structure, the easier it is to choose, and the convenience of decision is represented by reasonable and transparent service alternatives.

„I think transparency is also strongly related to a comfortable decision, so we don't have to spend hours online to find out what conditions we have to meet, what we should expect from the service provider, what the service provider promises, what it undertakes in the process, what it accomplishes, and what it entails.” (Focus transcript, 1082, F)

However in case of wide range of service alternatives a greater sense of personalization results in a positive feeling for some consumers, which is positively assessed in all cases. Wider choice range also means for consumers that if the service experience is positive, they are more likely to experiment with another service package later at/with the same provider.

The next area identified that defines co-creation expectations is the *activity expected* in the service process. On the one hand, this is an expectation on the part of the consumer towards the service provider *„In the restaurant, I also expect the waiter and the chef to behave properly (...)” (Focus transcript, 396, F)*, at the same time, users are aware that there is an expectation of activity on the part of the service provider in the process *„In the case of value creation, I do have expectations but so does the service provider; and we have a common goal that we want to achieve somehow (...)” (Focus transcript, 411, F)*.

The degree of activity expected may vary, which may affect subsequent co-creation perception. However, there have also been raw opinions about communication, such as: *„The service provider should obviously communicate kindly, but I won't be happier about that, I expect him/her to care why am I there. But emotionally, it won't move me.” (Focus transcript, 78, F)*

Feedback has also emerged as an expectation of activity that can help customer-oriented development of services. *„Because from a service provider's perspective, you can really learn from negative feedback as well, because this way they'll know that, for example, they need to be better prepared for pets, couples with a child/children or for any kind of special extra services (...)so, the service provider should be prepared for these. Then, if there is a correction or the service provider builds in an extra service item based on the feedback, these can also be communicated transparently.” (Focus transcript, 849, F)*

There were different answers to the question of whether it's an advantage or disadvantage if the service provider tries to govern customer activity (the degree of co-creation):

„Not necessarily. This is not a problem. That's why they're the professionals and they know how to do it. (...)I don't want to have a say in the technical part of the service (...)” (Focus transcript, 1015, F)

„Maybe in the process of personalization, if everything were always freely customizable, we would spoil what we consider to be a fundamentally good service.” (Focus transcript, 1016, F)

There was a consensus among the respondents that the degree of co-creation of services and customization can be excessive, so the service provider must be able to control the processes very precisely, because if the customer gets too much free movement, it can even worsen the quality of service. *„Things may come to their reverse outcome: we keep on interacting and communication what we want during the service until the end we don't even get what we paid for (the original service idea).” (Focus transcript, 1017, F)*

It has also been shown that the need for co-creation can vary not only with the complexity of the services, but also with the personality type of the potential customer.

„Well, whoever is an introvert will not co-create. He/she just coasting along. And whoever is an extrovert wants to take control and act.” (Focus transcript, 162, M)

„But he who is introverted also has needs, so he/she, too, on some level, will somehow express his/her needs..” (Focus transcript, 163, F)

Respondents stated that according to the level of co-creation, services with relatively high and low co-creation needs can be distinguished. The degree of the customer's activity in the process can also be a high or low co-creation propensity. It was generally considered typical, that a consumer with introverted attitude is more likely to choose a service where face-to-face co-creation is minimal. Open and communicative people (with an extraverted attitude) prefer to initiate co-creation opportunities. There was a consensus in the focus group discussions that it is the responsibility of the service provider to monitor the evolution of the needs, which are linked to the value creation in accordance with the consumer expectations listed above. As a result services may have high co-creation potential for one consumer and a low one for others.

Figure 3 outlines a possible framework for identifying the dimensions and parameters along which the consumer's relationship to co-creation can be identified. The model shows the qualitatively explored co-creation elements explained earlier.

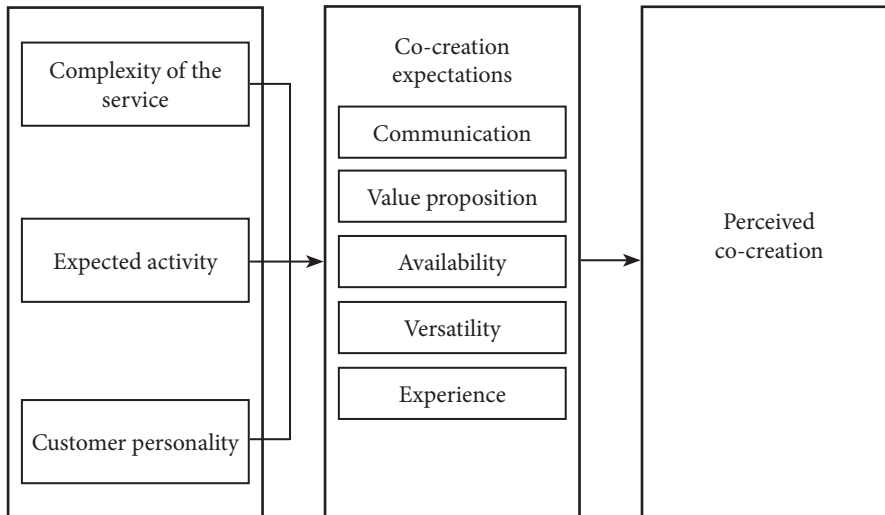


Figure 3 Model of co-creation expectations
Source: own editing

Based on the antecedents, the customers' perception of common value creation can be modeled according to Figure 3. The formation of expectations in the middle box may be influenced by the three identified areas seen in the box on the left: the extent of complexity of the service, the expected activity (the consumer's expectation towards the service provider and vice versa) and the consumer's personality. The *extent of complexity* of the service synthesizes the complexity and the common value creation content (relatively high or low), the expected activity indicates the degree of willingness to create common value. In addition, *personality of the customer* moves not only along the dimensions of introversion-extraversion, but also attributes such as emotional stability versus neuroticism, flexibility versus rigidity, and femininity versus masculinity.

Co-creation expectations in the middle box, such as communication, value proposition, availability, flexibility, and experience, define perceived common value creation differently for each consumer. Each area of expectation appears to a different extent in the assessment of value creation. Assessing value creation is different for a customer who participates in a simple service process with low activity expectations, with a phlegmatic personality factor, as opposed to a consumer who experiences a complex service process with high activity expectations, and a strongly choleric fundamental nature (Eysenck, 1975).

The model is a hypothetical structure based on qualitative research, which was validated by the quantitative research presented below. However, since the model was compiled on the basis of a gross textual data set (more than 1,000 speech records in the transcripts of the focus group interviews), it probably describes the phenomenon acceptably.

Limitations of the research

Although focus group interviews reveal consumers' underlying, ie. stable preferences for co-creation, in real-life situations there may be other contributing contextual factors that play a role in purchase choice decision, such as the consumer's external and internal opportunities or environmental impacts. Context-dependent changes of preferences can be explored with further experimental research. This way it is possible to approximate the results to real decision situations.

The study sample can be treated with reservations as attitudes may change with age. However, this is not a significant age characteristic, but rather a personality-based feature. As a result, it can be said, that there is little loss of information in focus group interviews, thus, although somewhat limited, the results can be generalized.

The objectivity of the present qualitative exploratory research may be reduced by the fact that these are so-called presumptions. And there is always a 'gap' between perceived and actual consumer behaviour, since the consumer has to judge himself/herself during questioning, which almost always carries a kind of implicit bias. This research tried to avoid this by formulating the questions in general, thus not specifically for the interviewees but for the consumers / customers in general. Nevertheless, in many responses, personal perspectives inevitably emerged, however, due to the qualitative, exploratory nature of the research, it is not considered to be significantly distorting.

There may be sensitive areas in co-creation that respondents in the focus groups are reluctant to say in front of each other because of their possible inhibitions or fears. The emphasis on prestige consumption may have contributed to the topic, therefore, respondents presumably mentioned services and providers that they are proud to use. It may also be important that during the conversation, they presumably evoked situations in which they did not feel uncomfortable sharing their experience of consumption.

The outlined model can be generalized to all services with a good approximation, but it is to note that the emphasis may be elsewhere for each type of service, so the role and weight of each dimension may depend on the type of service.

Conclusions, applications and further research directions

From the consumer behaviour point of view, the buyer typically has unique needs. If consumer's expectation is not a simple standard purchase, but some kind of individually customized one, the possibility of co-creation arises. For customers with unique requirements, the co-creation preference usually appears in the service selection viewpoints. Services may vary based on co-creation content. In this regard both positive and negative experiences were mentioned by the participants of the focus groups, so both the consumer's personality and the type of service can influence the positive or negative outcome of the co-creation. It cannot be ignored whether or not it is a 'trendy' thing to be a co-creator in today's modern consumption philosophy.

Placing the research topic in the theory of services marketing, it can be stated that co-creation is a combination of adaptation and active customer policy. It also provides an opportunity for companies in the development of quality management. Based on the model, it is possible to reveal what is negative in terms of quality perception in the service process, and thus these can be preceded in provision. In this way, the chances of complaint situations can be reduced with co-creation tools. Development of new services, new service attributes can also be incorporated when creating co-creation elements that are important for the consumers. Based on the model it could be a key in service management to rethink the style of communication with the customer. After all, the less standardized the service, the greater the scope for performance, the more it is possible to determine how the service will develop during the common creation of value with the customer.

To sum up, the focus group discussions identified the elements of consumers' service expectations for co-creation and their structure. According to this, the expectations related to mutual value creation can be described by five dimensions - communication, value proposition, accessibility, flexibility and experience, with determinant variables like the complexity of the service, the activity expectations of the consumer and personality types. This coherences are worth considering in service management. It can be concluded from the model that on the service provider side, the development of co-creation and the development of service management faces difficulties by the numerous consumer segments with different activity levels. This may vary with the inherently high or low co-creation content of the services, or the personality type of the consumers carrying introversion or extraversion as dominant features. It follows that

segmentation policy plays an important role in the management of common value creation, which can be eased by the creation of personas related to each consumer type.

As for further research directions, the validation and generalizability of the personality typology and co-creation attitude model could be tested through a quantitative survey. One of the key questions for further quantitative analysis is whether co-creation attitude segments can be distinguished. From the qualitative results, it can be perceived that there are some consumers who really take co-creation opportunities into consideration while choosing a service, and willing to co-create in the service process, others do not. It is expected to be detectable on a sufficiently large sample. The subject of further investigation may be that if the model is seen by a service provider, what do he/she prefers in management, where do he/she places the emphasis? Moreover, in the context of another series of focus group interviews, for the purpose of model validation, it is also worth asking consumers whether they find this structure acceptable or whether there is anything that could be added to it. In addition, the research can be extended to other age groups, because although there is not assumed a significant loss of information in the present exploratory research, it is possible that the inclusion of additional age groups moderates the existing results. Perhaps, to explore how value creation or potential negative co-creation (so-called destruction) appears in online communities as a special service area, netnographic research could be conducted.

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ⁱ „Fear Of Missing Out“ is an acronym made up of an English term. Indicates a mentally or emotionally stressful condition in which an individual is afraid or anxious to miss something, miss out on something.

ⁱⁱ The citation reference is indicated by the number of the speech record created by MAXQDA and the gender of the respondent. E.g.: Focus transcript, 4, M = the 4th record of the transcript, male respondent.

JUDIT SULYOK

INTRODUCTORY THOUGHTS ON QUALITY OF LIFE (PMR 2021/3)

Quality of life has an increasing role in present-day world. Numerous researchers from different scientific fields try to capture the phenomenon, and provide a valuable piece of mosaic to the picture. Stakeholders have already long ago revealed that money does not make us happy – better saying increasing income level supports a better quality of life only up to a certain limit, after that more money does not bring more happiness or satisfaction. The concept of quality of life goes back a long time. An important consensus regarding the phenomenon is that it has an objective (measurable, called also welfare), and a subjective (not easy to measure, called also wellbeing) dimension. After WWII, not surprisingly the objective pillar was in the focus of researchers and stakeholders in order to fulfil people's basic needs. Nowadays one can see a strong shift towards the subjective pillar, namely how people feel and evaluate their life.

The boom in the mobility – transportation of goods, mobility of persons, international travellers – also put a greater pressure on places in attracting temporary visitors, locals or potential investors. In a highly competitive environment, providing a good level of quality of life can be a differentiating feature, unique selling point (USP). The globalization has resulted in that numerous developments, infrastructure can be easily 'copied' or re-made in different destinations, however the sense of the place is something not transferable. Because at the end, people 'make' places as they are.

Mapping available data sources – often related to the welfare pillar of quality of life – may lead to misleading understanding of quality of life, or even more challenging to understand the differences between countries, cities etc. And at this point, the role of the subjective evaluation comes into the focus. Wellbeing also shows correlation with welfare factors, such as higher level of income or education has a positive role on quality of life – also on the subjective pillar.

Different roles in the society – e.g. being a family member, student in school, employee at a company, owner of a company, decision-making stakeholder, member of special interest groups – result in increased attention from numerous scientists, researchers. This way, there are studies on how quality of life of these groups can be supported. In case of tourism industry, local inhabitants who form the environment should have a certain quality of life in order to attract temporary visitors. Being hosts, and this way being proud of the destination may be a success factor for tourism areas. Service providers involved in the tourism value chain put a lot of emphasis on supporting employees' quality of life in order that better working environment has an impact on the travellers, as well. Because the 'moment of truth' comes when visitors arrive to a destination, and meet local hosts. Parallel with that, there are a growing number of researches addressing with the benefits of travelling on quality of life which is mainly the wellbeing pillar.

Recently, covid-19 pandemic situation hit strongly our life. Although undoubtedly, tourism is among the sectors mostly impacted, the lockdown had an effect on everybody's quality of life. One important – and sad – impact in 2020 is that more and more people suffering from mental illness/problem, so first of all wellness industry may have the responsibility and potential to change this. Making an 'inventory' how the pandemic has affected our life, probably it has more negative than positive issues. However, as in case of all crisis, it is also an opportunity for change, re-think, and re-shape our future. So, sharing knowledge and best practices among a wide range of stakeholders supports a better understanding of quality of life.

In line with its growing importance, at the University of Pannonia significant efforts on research on quality of life has been put during the last few years. Within the framework of the project of *Sustainable, intelligent and inclusive regional and city models*, one element of the comprehensive research program focused on quality of life, where the destination was the Lake Balaton, including locals, second home owners, and tourists. In September 2020, a three-day international conference – organized online due to the covid-19 situation – ensured platform for knowledge sharing among researchers addressing with quality of life where both positive and negative aspects of tourism were discussed.

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THE LABOUR MARKET OF THE BALATON REGION – LOCALS' OPINIONS (PMR 2021/3)

The geographical focus of the research is concentrating on the Balaton highlighted tourism development region located around the largest lake (Balaton) of Central Europe. The research aims to answer the following research questions (Q): Q1. How do locals perceive the labour shortage that characterizes tourism? Q2. Is there a significant relationship between the local job opportunities and the overall satisfaction with the settlement, or it being recommended as a residence or holiday destination? Data from a primary questionnaire survey were used for the analyses. The field work was conducted in 2018-9 and resulted in an evaluable sample of 1201 people. As for the method to assess Q1, the answers were categorized to the related open-ended question: those who perceived the labour shortage in local tourism were asked to provide an example of this. As for the method for answering the more complex Q2, relationship analyses (Kendall's tau and Cramer's V) were applied between the closed answers. Based on the results the following theses (T) can be formulated in response to the research questions: T1. There has been a significant labour shortage in the Balaton region in recent years. This affects the quality of services, which in some cases is already perceived by guests. T2. There is significant relationship between the local job opportunities and the overall satisfaction with the settlement, or it being recommended as a residence or holiday destination.

Introduction

The subject of the research is the Balaton region of Hungary, as defined by the governmental decree of 2016 (GOV, 2016). This area is located around the largest lake (Balaton) of Central Europe, and it must be noted that it does not correspond to the Balaton highlighted resort district (GOV, 2000).



Figure 1 Map of the Balaton tourism development area,
as the subject of the research
Source: Banász – Biermann, 2020

There are 174 settlements in the region (see Figure 1), which are very diverse, both in terms of their size and their distance from the shore of Lake Balaton, as well as their geographical, economic, and social characteristics. Lake Balaton is the second most important tourism destination in Hungary after the capital Budapest, and without doubt the number one destination in terms of domestic tourism. The region offers attractions to every tourism segment, and is especially popular with families and young people. The attractions these two segments are looking for by the lake are typically beaches (with animation programmes), adventure parks, aqua parks and party places (Az ifjúsági turizmus fejlesztési stratégiája, 2010), all of which are labour intensive. Before the COVID-19 pandemic the Balaton region was characterized by significant labour shortage, especially in the tourism and hospitality industry, partially due to the uneven seasonal demand.

The main aim of our research was to find responses to two research questions (Q): Q1. How do locals perceive the labour shortage that characterizes tourism? Q2. Is there a significant relationship between the local job opportunities and overall satisfaction with the settlement, or it being recommended as a residence or holiday destination?

The novelty of the research is that no study has yet been conducted in the Balaton region interpreted in this way, which would have answered the above research questions.

Theoretical background

The focus of the study is the labour market at Lake Balaton. Demographic trends and the resulting working-age population play a key role in influencing labour supply (Tóthné, 2012). In Hungary, the population has been steadily declining since 1980, but at the same time the proportion of the elderly, the rate of the dependent population, and the aging index are increasing (Földházi, 2015; KSH, 2018). The demographic processes in the Balaton region are similar to national trends (Banász – Biermann, 2018). The change in the population of a country or region is influenced by three factors: the number of births, deaths, and migration. Births and deaths change only very slowly, in contrast, migration can lead to large-scale changes in the population of both the generating and receiving regions in a short period (Földházi, 2014). Settling in the Balaton area is not primarily motivated by labour market benefits (Bálint – Gödri, 2015). More and more foreigners are moving to the Balaton region, mainly the Western European seniors (retirees) prefer this area (Gödri, 2015). In the Balaton region, the number of in- and out-migration is almost the same in the settlements along the shore, and the same is true for other settlements of this region. (Banász – Biermann, 2018).

Employment is a key determinant of quality of life as well as of the competitiveness of settlements and regions. The best known competitiveness model developed by Lengyel (2000) also highlights the importance of employment. Lengyel (2000) argues that competitiveness is a flexible and widely applicable concept that can be interpreted to settlements and regions as well. According to regional sciences, the competitiveness of regions and settlements is more than the productivity of inputs, as it means economic growth that can be realised with high employment and, as a result, the average standard of living improves (Lengyel, 2016).

In a similar research, Koltai (2016) classified competitiveness factors into four factors, including:

1. service factor: health care, education, urban roles;
2. living conditions factor: infrastructure, transportation, employment, leisure time, housing;
3. environment factor: living environment, natural conditions;
4. human factor: history-traditions, demography.

Employment opportunities are highly influential in the competitiveness of regions, so regions with good employment options are attractive for people when choosing their place of residence.

As stated before, the tourism sector and the hospitality industry are highly labour intensive. Parallel to this statement it must also be acknowledged that one of the most important economic impacts of tourism is the ability to create jobs in a region (Horváth, 2007; Zopiatis et al. 2014; Papp – Formádi, 2013). Trained and skilled workforce are key factors of high quality service provision in the service industry (Sulyok – Biermann, 2017). Recently – before the COVID 19 pandemic – it has become a challenge for the tourism service providers to find and retain the workforce with the right skills and competencies (Hajmási, 2019). Seasonally operating tourism enterprises are in a particularly difficult situation, as they can provide work for the employees only for a specific period of the year (two to three months or five to six months occasionally). The study will approach the question of employment opportunities and labour shortage from the point of view of local residents to assess how these notions are perceived by people who live or work or study in the region.

Methodology

The research is based on a primary questionnaire survey conducted in 2018-9, which aimed to assess various aspects of quality of life in the Balaton region. 1201 (n) questionnaires could be evaluated (n₂₀₁₈=844, n₂₀₁₉=357). As for the method for answering Q1, the answers were categorized to the related open-ended question. This question was only included in the questionnaire in 2018: those who perceived the labour shortage that characterizes tourism in their settlement were asked to provide an example as well. As for the method to assess this complex Q2, relationship analyses were applied between the closed questions listed in the research model (Figure 2).

The strength of the relationships between the questions indicated in the research model is measured by Kendall's rank correlation coefficient (τ) and Cramer's V, depending on whether they can be measured on a nominal or ordinal scale. τ produces a statistic that ranges from -1 to 1, the sign of τ indicates the positive or negative nature of the relationship. Cramer's V varies between 0 and 1. For both indicators, its absolute value gives the strength of the relationship. If this absolute value is below 0.2, the relationship is regarded as weak, if it is at least 0.7 the relationship can be considered strong (Sajtos – Mitev, 2007).

B) Potential explanatory variables, as independent variables			A) Variables to explain, as dependent variables	
2018-9	Measured on a scale of 1 to 5: B1) How important are your settlement's job opportunities for you? <i>1: not at all important</i> <i>5: very important</i>	Kendall's $\tau = ?$	2018-9	Measured on a scale of 1 to 10: A1) How satisfied are you with the settlement altogether? <i>1: completely dissatisfied</i> <i>10: completely satisfied</i>
	B2) How satisfied are with your settlement's job opportunities? <i>1: not satisfied at all</i> <i>5: completely satisfied</i>			A2-3) Would you recommend the settlement to your friends as A2) place of residence? A3) holiday destination? <i>1: not at all</i> <i>10: completely</i>
2018	B3) Did you perceive the labour shortage characteristic of tourism in the settlement? <i>yes / no</i> B4) If you plan to move within 1 year, what is the reason? <i>job opportunities / school / change in marital status / other</i>	Cramer's $V = ?$		

Figure 2 Research model
 Source: own editing

4. Results

4.1. Descriptive statistics

Table 1 contains the averages of the variables measured on the ordinal scale (A1-3, B1-2).

Type of attachment to Balaton region	A1) Overall satisfaction with the settlement (1-10)	Recommend the settlement to friends as		B) Local job opportunities	
		A2)	A3)	B1)	B2)
		residenc (1-10)	destination (1-10)	importanc (1-5)	satisfaction (1-5)
Locals: lives here					
and/or works/ studies here	7.6	8.0	8.6	4.3	3.1
but works/ studies elsewhere	7.4	7.7	7.8	4.0	2.7

Type of attachment to Balaton region	A1) Overall satisfaction with the settlement (1-10)	Recommend the settlement to friends as		B) Local job opportunities	
		A2)	A3)	B1)	B2)
		residenc (1-10)	destination (1-10)	importanc (1-5)	satisfaction (1-5)
Lives elsewhere					
but works/ studies at the given settlement	7.8	7.9	8.4	4.3	3.5
but has a secondary home here	7.9	7.1	8.5	2.6	2.8
Total	7.6	7.7	8.4	3.9	3.0

Colour key by columns:



Overall mean

Table 1 Averages of the variables measured on the ordinal scale, 2018-9, n=1201
Source: own editing

The means of the dependent variables (A1-3) show a favorable picture of people's satisfaction with the settlement. Considering the independent variables (B1-2), second (holiday) home owners – as previously expected – rated job opportunities as less important. For the other categories of respondents this was important, but at the same time, they were less satisfied with it. This may be related to the number and location of jobs (mainly in smaller settlements), and seasonality (especially in settlements on the shores of Lake Balaton), as well as to the characteristics and working conditions of existing jobs.

Only the 2018 questionnaire included questions about the respondents' intention to move. The responses showed that the majority like to live here, only 110 respondents (13%) were indicating that they plan to move, however, half of the sample would move elsewhere within the settlement or Balaton region. The most important reason for the relocation plans was job opportunities, followed by the change in marital status, and finally education (B4).

Also only 2018 questionnaire contained the question based on which Q1 could be answered. (How do you perceive labour shortages in tourism?) Almost a quarter (23%) of the sample stated that they perceive this (B3).

Respondents perceive labour shortages mainly in the hospitality sector, in both skilled and unskilled jobs. Indirectly, this is indicated by the large number of job advertisements that appear during the summer season, as well as the information received from their acquaintances working in this sector. Direct perception is provided by closed catering units, frequently changing staff, longer waiting times, and poorer service than usual.

Respondents were given the opportunity to suggest local improvements in response to an open-ended question. 892 of the 1201 sample gave a meaningful answer to this question, i.e. 74% of the sample wanted to contribute to local development with their opinion. Among them, the proposals related to labour supply can be divided into 3 categories:

- in general, expanding and creating local job opportunities (by supporting local businesses or creating industrial areas),
- creating not only seasonal but also full-year jobs,
- striving to keep young people in the settlement (by more entertainment options and workplaces). Within this, there is a need to create jobs suitable for higher-skilled young people (e.g. by setting up research institutes), because “a lot of young people go away, (e.g. after university) because there is no favourable job opportunity, only unskilled factory jobs”.

4.2. Relationship analyses

With the help of relationship analyses, Q2 can be answered, as shown in Table 2.

				2018-9		
				A1) Overall satisfaction with the settlement	A2)	A3)
					Recommend the settlement to friends as	
				residence	destination	
2018-9	B1)	Local job opportunities	importance	$\tau = \text{n.s.}$	$\tau = 0.087$	$\tau = \text{n.s.}$
	B2)		satisfaction	$\tau = 0.239$	$\tau = 0.228$	$\tau = 0.167$
2018	B3)	Did you perceive the labour shortage characteristic of tourism in the settlement?		$V = \text{n.s.}$	$V = \text{n.s.}$	$V = 0.159$
	B4)	If you plan to move within 1 year, what is the reason?		$V = 0.151$	$V = 0.170$	$V = 0.188$

Color key: n.s.: not significant, weak relationship, moderate relationship

Table 2 Results of relationship analysis

Source: own editing

4 out of 12 examined relationships are not significant, thus, the answers to the following pairs of questions are not related:

- Overall satisfaction with the settlement (A1) is not affected by the following:
 - the importance of local job opportunities (B2)
 - whether or not a labour shortage characteristic of tourism has been perceived (B3).
- There is no relationship between recommending the settlement to friends
 - as a residence (A2), and perception of tourism labour shortages (B3)
 - as destination (A3), and the importance of local job opportunities (B1).

6 out of the 8 significant relationships are only weak, and the remaining 2 cases are moderately strong. Each of the strongest relationships is tied to satisfaction with local job opportunities (B2). This has a moderately strong effect on overall satisfaction with the settlement (A1), and the recommendation of the settlement as a place to live.

Conclusion, implications

Based on the primary research conducted in the framework of this study the following theses (T) can be formulated in response to the research questions:

- T1. There has been a significant labour shortage in the Balaton region in recent years. This affects the quality of services, which in some cases is already perceived by guests.
- T2. There are significant relationships between the local job opportunities and overall satisfaction with the settlement, or it being recommended as a residence or holiday destination. The latter relationship is only weak, while the former two are moderately strong. All three relationships are positive, meaning that the more satisfied someone is with local job opportunities, the more satisfied they are with the settlement as a whole, and the more they would recommend the settlement, either as a place to live or as a destination.

We can draw the following conclusions and suggestions: local job opportunities play an important role in the complex assessment of the quality of life and the sustainability of the area, thus great emphasis must be placed on this. In addition to the seasonal predominance of tourism, efforts must be made to create jobs that result in full-year employment. On the other hand, the expansion of jobs for graduates should be encouraged. Innovative organizational solutions, flexible forms of employment, and technological developments can provide a solution to businesses to reduce labour shortages.

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**UNIVERSITY COMMUNITY'S CULTURAL
AND EMOTIONAL ATTITUDES, LOCAL
IDENTITY AND QUALITY OF LIFE WITHIN
THE VESZPRÉM-BALATON 2023 ECoC
(PMR 2021/3)**

Veszprém as a medium-size city with the nearby Lake Balaton region, won the title of European Capital of Culture (ECoC) for 2023. This is a cultural, social and economic opportunity for the locals and the nation as well. The University of Pannonia, as one of the main alliance institutions of the ECoC (VEB2023) is a driver and an active participant in realising the programs. Therefore it is important to know the community's attitude. The main goal of the present research is to explore the role of the university community (students, educators and non-educator staff), local identity, quality of life, cultural and emotional intelligence. In this study, the first results are presented as part of an ongoing longitudinal study. Altogether 190 full responses could be analysed out of the 542 received answers. Based on this regarding local identity people were most satisfied with the natural endowments, history of the settlement, attractions, public safety and calmness of the city. At the same time, they were the least satisfied with entertainment opportunities, local public transport, health care, parking and real estate prices. Concerning emotional intelligence, it was no difference on the average level, but significant differences were detected in the self-control dimension between the students and the academic employees. Regarding cultural intelligence, the weakest factor was the cognitive dimension. Furthermore, a significant difference was detected between the students' and the academic employees' cognitive and metacognitive dimensions.

Introduction

Veszprém and the Balaton-Upland region won the title of European Capital of Culture (ECoC) in 2023. As the University of Pannonia plays enormous roles in the city's cultural, social and economic life, it is vital to trace the effect of the changes during the preparation years. Our research group (formed at the Faculty of Business and Economics, University of Pannonia), therefore, aims to contribute to these measurements.

Attracting well-educated target groups ("talent") plays an important role in the life of settlements and regions (Florida, 2002). This is investing in the future residence and can be interpreted from the point of view of both recreational and tourist behaviour. The main targets of today's mobility processes are cities (Glaeser – Mare, 2001), especially larger cities, which is accompanied by a decrease in the population of smaller settlements and the emigration of young people. It is a severe challenge for municipalities with universities to retain those who complete their studies at a given institution (Sokolwicz, 2019; von Proff et al., 2017).

The internationalisation of higher education institutions is reflected in both teacher and student mobility. An increasing number of international students and lecturers are arriving in Hungary, including Veszprém. The number of research on university communities, especially students and international students, as a target group, is increasing. In addition studies on the generated consumption, the economic effects as future residents, the tourism and recreation activities (Xie – Ritchie, 2019), and cultural influences (Chatterton, 2000) are also frequent.

The number of the community of the University of Pannonia (students, educators and non-educators staff) represents a significant proportion of the city of Veszprém population. The university is also becoming increasingly popular with international students (about 300 students and lecturers). The identity of students and university workers influence the cultural, economic, and social life of the region. The present study aims to give an overview of the university community's local identities, emotional and cultural intelligence and quality of life.

Literature review

The following is a brief literature on some of the factors that cover the complex research, such as settlement marketing, local identity, recreation and tourism mobility, emotional and cultural intelligence local attitude.

Place marketing

As the marketing of geographical areas, place marketing is to be interpreted as a dynamically developing branch of marketing science and practice. It basically addresses several target groups with different messages and tools, which are: the people and institutions that influence the success of the area/place through their decisions. Settlement marketing is often referred to as a kind of “miracle weapon” that is the key to the successful implementation of the settlement and regional development. The central element of settlement marketing is the area itself, the place, i.e., all the features, values, opportunities, experiences, and services offered by the settlement that the consumer (local population, commuters, local service providers, and tourists arriving in the destination, hikers) allow them to satisfy particular needs (residence, living space, school, workplace, rest, recharge). Identity-based approaches are becoming more and more well-known in settlement marketing (Urbánné Treutz, 2017). Uniqueness and diversity are the factors that appear in the interpretation of local identity in both international and domestic literature (Piskóti, 2012). According to Proshansky (1978), place identity means the contribution of place attributes to self-identity. Eberle Gramberg and Gramberg (2004) approach the concept of identity from a psychological and anthropological personality theory perspective. It is assumed that there are five pillars of urban identity: cityscape, quality of life, values, job and earning opportunities, financial resources, and burdens.

The target groups of settlement marketing are diverse, and the research involves the individuals of the local population (students, university staff) and temporary users of the city.

Local identity and quality of life

Local identity is created by combining local behaviour, cityscape, city performance, and conscious communication. The two dimensions of this are the internal identity of the inhabitants and the external identity, which means the attractiveness and uniqueness of the settlement (Piskóti, 2012). Place attachment, which is a condition for the formation of place identity, consists of three main constituents: person, place, process. Local identity and its strength can best be measured by the population's intention to remain local, which in turn is strongly influenced by satisfaction with the local quality of life (Piskóti et al., 2012). Erik Allardt sets up a model in which he tries to visualise three levels of quality of life at the same time, both its objective and subjective judgments (Table 1).

	Objective indicators	Subjective indicators
Having material and non-personal needs	objective measurement of living standards and environmental conditions	subjective feelings: satisfaction/dissatisfaction with living conditions
Loving social needs	objective measurement of relationships with others	satisfaction/dissatisfaction with relationships
Being personal development needs	objective measurement of relationship between society and nature	a subjective feeling of alienation or personal fulfilment

Table 1 Allardt Quality of life model
Source: Allardt, 1993 in Kovács, 2007

This research examined the relationship between the person and place components out of the three elements of Scannell – Gifford (2010) place attachment in the above theoretical summary, highlighting the role of cultural consumption as objective and subjective indicators of the “having” (material and non-personal needs) level of Allardt’s quality of life model among the community of the University of Pannonia.

Emotional and cultural intelligence

Foreign visitors to Veszprém and the Balaton Uplands, as well as lecturers, staff, and students to the University of Pannonia (domestic and international), pose new challenges to the university community, whose cultural intelligence (CQ) and emotional intelligence (EQ) are crucial for future success. (Crowne, 2013). The identification plays a key role in the development of the cultural and emotional intelligence of individuals, which provides an opportunity for developmental intervention (Lin et al., 2012).

A previous survey of students at the University of Pannonia showed that students with high EQs are assertive, optimistic, motivated, more adaptable, happier, and successfully support personal relationships (Kővári, 2011) than their peers with medium or low EQs. Furthermore, a study examining the level of emotional intelligence of Veszprém residents (Kővári, 2013) found that the level of emotional intelligence of 747 respondents was 5.16, which is average, but higher than the average of emotional intelligence among university students (4.89). In the present research, we would like to assess emotional intelligence research by complementing it with a mapping of cultural attitudes.

By cultural intelligence, we mean the ability to interact and collaborate effectively with people from other cultural backgrounds (Earley – Ang, 2003). While EQ helps the individual express our emotions and understand or even influence others' moods, CQ puts these interpersonal situations into the cultural context (Pásztor, 2020). CQ has behavioural, motivational, cognitive, and metacognitive aspects, which can be measured and developed. People and communities with higher CQs adapt more quickly to other cultures and are much more successful in community life (Moon, 2010) because CQ can be defined as an ability to understand and interpret the different cultural setups (Karma – Vedina, 2009).

The *Cognitive* dimension shows the available cultural knowledge of the individual (e.g., traditions, laws of other cultures). The *Metacognition* dimension shows the consciousness and the strategy of the application of cultural knowledge. The *Behaviour* dimension shows the individual's adaptability when they encounter intercultural interaction (e.g., change of tone and speed of speech, nonverbal communication, gestures). The *Motivation* dimension is the most critical aspect because the individual has to be motivated to collect cultural knowledge. Later, they have to apply this particular knowledge in interpersonal situations to succeed. As one of the most essential aspects of CQ, this dimension has a significant relationship with job performance abroad (Chen et al., 2010). Thus, *Motivation* has to be high in the student's case if they want to gain professional experience abroad or build an international career. The average CQ of a society can show how the county will treat the immigrants (Dagher, 2010). The level of CQ can be measured by the Cultural Intelligence Scale (CQS) and it can be developed quickly, mainly by cultural exposure (Pásztor, 2021).

Aim of the research

Regarding the locals, the university community is a special target audience, a "creative group," which brings a new economic force and creative social capital for the settlements (Zenker – Beckmann, 2013).

The main goal of our research is to assess the role of the university community (students, educators, and non-educator staff), exploring their emotional, cultural attitudes, and local identity. The research team is aware that examining a community may limit generalizability; however, we believe the university community overlaps with local and regional populations. The following research questions have been formulated in the three-year (2020–2022) longitudinal study.

Basic questions about attitude:

- a) What is the level of cultural and emotional intelligence that characterises the university community? What is the relationship between EQ and CQ?
- b) What is the difference in the cultural attitudes of different generations?
- c) What kind of tourism mobility can be characterised by the examined target group?
- d) During the years of preparation for the ECoC, how will the attitude of the university community(ies) change?

Basic questions of identity:

- a) What are the economic and social impacts of the recreational and tourism consumption of the examined target group in the area of Veszprém 2023?
- b) What is the perception of the examined target group about Veszprém 2023?
- c) How do identity and quality of life relate to settlement factors, specifically in terms of cultural consumption?

In this study, the partial results will be presented. We analysed the respondents' attitudes toward the attachment to Veszprém and their satisfaction with the city. The possible effect of the ECoC status of Veszprém has been measured as well. We analysed the level of cultural and emotional intelligence that characterises the university community. Three groups have been made to make the analysis more detailed: students, academic staff (lecturers, professors, and researchers) and non-academic employees.

Methodology

Complex, qualitative exploratory methods have been planned to be used in the first step, followed by quantitative methods. Quantitative research using mathematical-statistical methods (online questionnaire) was carried out with the participation of the community of the University of Pannonia. Field work happened Autumn 2020, and Spring 2021. In the course of the research, the data collection is supplemented by structured interviews,

focus group interviews, and content analysis. During the analyses, we used descriptive statistics. In this study, we focus on the partial results of the questionnaire.

The research group members collected data on paper, and the online version has been sent to the students and staff via email as well. Participants received written instructions about how to fill the survey, which took approximately 20 minutes.

The online questionnaire contained 49 questions in five main parts: local identity and place attachment, emotional intelligence (EQ), recreation and tourism mobility, cultural intelligence (CQ), and demographics. It was not compulsory to fill in all parts of the questionnaire, so partial responses were also attained. The local identity and place attachment part received 318, the EQ, CQ, and the demographics 190 answers.

Results

Our research has both scientific and practical significance. As the research applies a complex (qualitative and quantitative, longitudinal data collection) methodology, we expect to contribute to the successful implementation of the Veszprém 2023 ECoC in a scientifically substantiated way. The research also has theoretical and practical significance.

First of all, we sum up the demographic characteristics of the respondents. Altogether 542 persons started to fill in the questionnaire, of whom 190 persons completed it fully, and the remaining 352 persons did it only partially. As the demographic questions were at the end of the questionnaire, there is a relatively high proportion of those who have not been completed this part.

There were 28.57% males and 71.43% females in the sample. As for their age, the mean value was 32.76 (SD = 12.51; min = 19; max = 66 years). According to their residence, 39.15% of the respondents lived in Veszprém, 60.85% lived elsewhere. The respondents also provided data from their connections with the University of Pannonia. The majority of them were students (55.61%), followed by the group of the non-academic staff (23.47%) and the academic employees (20.92%) The 74.07% of the students studied at the Faculty of Business and Economics, 11.11% studied at the Faculty of Engineering, 8.33% studied at the Faculty of Modern Philology and Social Sciences and 6.48% studied at the Faculty of Information Technology. As for the non-academic staff and academic staff, the biggest group of respondents worked at the Faculty of Engineering (52.17%) and the Faculty of Business and Economics (19.57%).

Local identity

After the demographics, the respondents provided information from their attachments toward Veszprém. We intended to map their general way of feelings related to this town with two questions: “*Would you recommend Veszprém as a place to live to your friends and acquaintances?*” and “*Would you recommend Veszprém as a destination to your friends and acquaintances?*” (based on a seven-point Likert scale, where 1 = “not at all” and 7 = “fully”). Based on the results, the respondents seemed satisfied with Veszprém. The mean value was 5.61 (SD = 1.481) in the case of the residence. As for the destination, the mean value was 5.90 (SD = 1.452).

Respondents were asked to evaluate their satisfaction with different factors regarding Veszprém (based on a seven-point Likert scale, where 1 = “not satisfied” and 7 = “totally satisfied”). The people were most satisfied with the following based on the mean values: natural endowments, history of the settlement, attractions, public safety, and calmness of the city. The least satisfactory factors were: entertainment options, local public transport, health care, parking, real estate prices.

Veszprém as European Capital of Culture

There were some questions in connection with the European Capital of Culture (ECoC) programme’s reputation. The absolute majority of the respondents (97.75%) heard about the fact that Veszprém won the ECoC title for 2023. Respondents had the possibility to highlight those areas that would affect their lives as a result of the ECoC title (Figure 1).

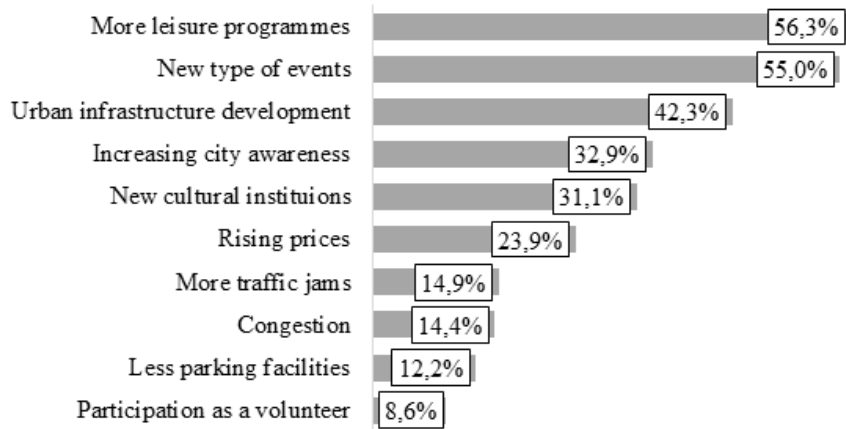


Figure 1 Areas that could affect the life of the respondents
 Source: own data, based on the online questionnaire

Figure 1 shows that respondents thought that leisure programmes, new events, and urban infrastructure development projects would be the most decisive. Respondents also chose those development projects and programmes that are welcomed by them the most regarding the ECoC (Figure 2). Based on the results, respondents wanted more programmes, a new tidy and clean settlement and road network and infrastructure projects.

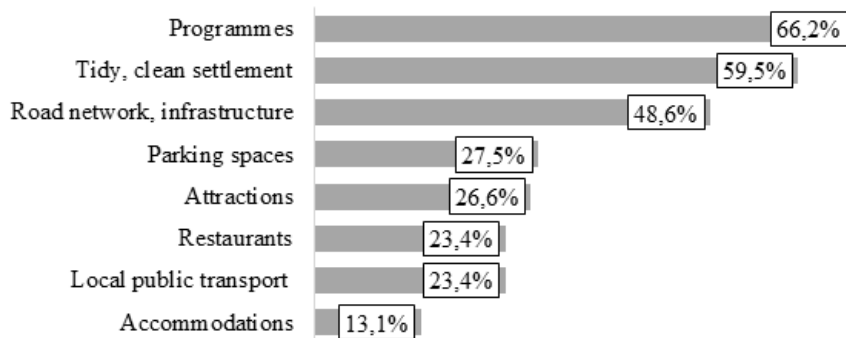


Figure 2 Needed development projects by the respondents
 Source: own data, based on the online questionnaire

Emotional intelligence (EQ) of the community of the University of Pannonia

Emotional intelligence has been measured by the Hungarian version of TEIQue (Petrides, 2001), translated by Göndör and Komlósi (2012). This scale measures the EQ of the individual based on their personality traits. The TEIQue contains 30 statements rated by participants on a seven-point agreement scale, ranging from completely disagree (1) to completely agree (7). The TEIQue items are clustered under four different factors: *Self-control*, *Well-being*, *Sociability*, and *Emotionality* (Petrides, 2009). In the present study, trait-EQ's internal consistency was 0.88; the five traits were 0.82 for Well-being, 0.55 for Self-control, and 0.62 for *Emotionality*, 0.75 for *Sociability*.

There were no significant differences between the groups regarding the total average score of EQ. The whole community's average EQ is 153.81 ($SD = 21.75$, $min = 98$, $max = 205$). As Figure 3 shows, the EQ's weakest dimension was the *Sociability* dimension ($M = 4.68$), followed by *Self-control* ($M = 4.76$). *Emotionality* reached 5.24 on the seven-point Likert scale on average. At the same time, the most significant EQ dimension was the *Well-being* of the respondents ($M = 5.59$).

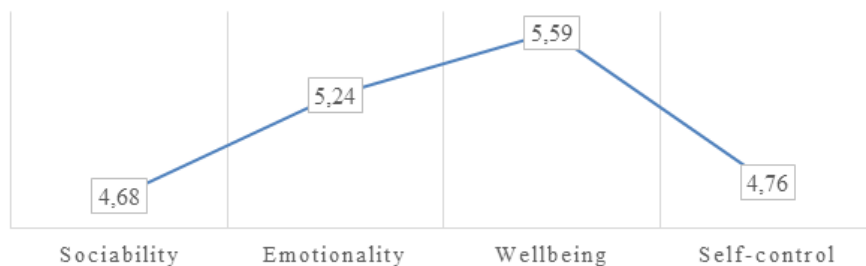


Figure 3 Mean value of EQ dimensions
Source: own data, based on the online questionnaire

Significant differences showed in the Self-control dimension between the students and the academic employees ($F = 4.499$, $p = 0.012$). The academic staff had higher self-control scores than the students. The average scores of each group are presented in Table 2.

Groups		EQ total score	EQ dimensions			
			Well-Being	Self-control	Emotionality	Sociability
Students	Mean	150,48	33,04	27,57*	41,03	27,60
	SD	20,18	5,82	5,37	6,39	6,23
Academic employees	Mean	159,51	34,29	30,07*	42,66	29,49
	SD	22,02	5,86	5,04	6,83	6,49
Non-academic employees	Mean	156,61	33,96	29,46	43,39	28,02
	SD	24,01	5,92	4,65	7,08	7,46
Total	Mean	153,81	33,52	28,54	41,92	28,09
	SD	21,75	5,85	5,23	6,69	6,60

Notes: * $p < 0.05$

Table 2 Average EQ (and EQ dimension points of each group)
 Source: own data, based on the online questionnaire

Cultural intelligence (CQ) of the community of the University of Pannonia

Cultural intelligence has been measured by the Hungarian version of the Cultural Intelligence Scale (CQS) (Ang et al, 2007; Balogh, 2011). The CQS contains 20 statements rated by participants on a seven-point agreement scale, ranging from completely disagree (1) to completely agree (7). The CQS items are clustered under four different factors: *Cognition*, *Metacognition*, *Motivation*, *Behaviour*. In the present study, CQ's internal consistency was 0.94; the five traits were 0.89 for Motivation, 0.90 for Behaviour, 0.89 for Cognition, and 0.87 for Metacognition.

CQ's total score ranged between 20 and 140 points, the average score was 90.57 ($SD = 22.66$, $min = 20$, $max = 138$), and significant differences have been found between the groups. The weakest dimension of CQ was the *Cognitive* dimension ($M = 3.88$), which indicates that the community of the University of Pannonia has not enough cultural knowledge; this dimension can be developed quickly by lectures related to cultural differences. The *Metacognitive* dimension has been more substantial ($M = 4.48$), followed by *Motivation* ($M = 4.81$). The most significant dimension was the *Behaviour* ($M = 5.07$ on a seven-point Likert scale), which indicated that the community was open to new cultural experiences and ready to adapt to the different intercultural situations (Figure 4).

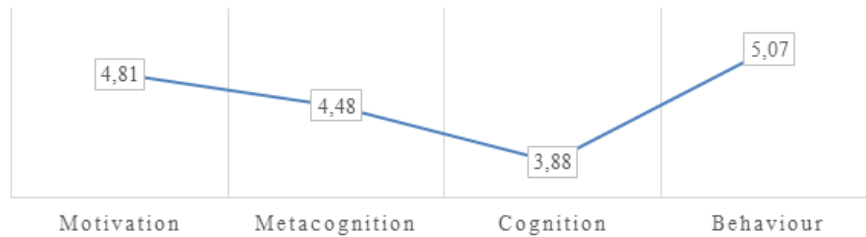


Figure 4 Mean value of CQ dimensions
Source: own data, based on the online questionnaire

Table 3 summarises the average CQ total scores and the dimensions as well. We found no significant differences regarding the total score of CQ of each group. The scores between students and academic employees (lecturers, professors, and researchers) indicate significant differences in the *Cognitive* ($F = 7.659, p = 0.007$) and *Metacognitive* dimensions ($F = 4.019, p = 0.019$) as well. The age of the two groups could explain the differences because age and CQ correlate significantly ($r_{Cognitive} = 0.215, p < 0.05, M_{Metacognitive} = 0.183, p < 0.01$).

Groups		CQ total score	CQ dimensions			
			Motivation	Behaviour	Cognitive	Meta-cognition
Students	Mean	87,61	23,92	24,44	22,06**	17,18*
	SD	22,44	7,03	7,88	7,59	5,68
Academic employees	Mean	98,12	24,59	27,12	26,36**	20,05*
	SD	23,72	7,80	7,81	7,07	5,24
Non-academic	Mean	90,87	23,85	26,00	23,30	17,72
	SD	21,07	7,77	5,73	7,11	5,46
Total	Mean	90,57	24,04	25,37	23,26	17,91
	SD	22,66	7,34	7,47	7,53	5,63

Notes: * $p < 0.05$, ** $p < 0.01$

Table 3 Average CQ (and CQ dimension points of each group)
Source: own data, based on the online questionnaire

Summary

The present study's aim was to explore local identity, quality of life, emotional and cultural intelligence of the University of Pannonia community (students, educators and non-educator staff) in order to understand the satisfaction and preference which enables or restricts people from cultural consumption and quality of life. The first results indicate interesting phenomena that need to be further analysed in order to state generalisable statements. Based on 190 fully completed questionnaires, the respondents are most satisfied with natural endowments, history of the settlement, attractions, public safety and calmness. On the other hand, respondents want more programmes, a new tidy and clean settlement and road network and infrastructure projects. Regarding emotional intelligence, there were no significant differences between groups' levels of EQ. However, significant differences are found in the *Self-control* dimension between the students and the academic employees. The academic staff had higher self-control scores than the students.

Regarding cultural intelligence, significant differences have been found between the groups. Cognitive dimension turned out to be the weakest factor, which indicates that the community of the University of Pannonia has not enough cultural knowledge. The strongest dimension was the *Behaviour*, which indicated that the community was open to new cultural experiences and ready to adapt to the different intercultural situations. The research team is aware that examining a community may limit generalizability; however the university community is a significant part of the local and regional populations.

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ASYMMETRIES ON MOBILITY NETWORKS (PMR 2021/4)

Linking network theory and economic models is always a challenging task. At the same time, linking network and economic models can make it possible not only to describe the network properties but also to explain them with economic models. In this study, we introduce a novel indicator for measuring the asymmetry of weighted networks and we define an economic null model that can capture and explain this indicator in different structural levels. Economic null models are proposed to explain the asymmetry in static and in dynamic network analysis. In the proposed application and occupation mobility network, the mediating and retaining role of institutions has been examined via asymmetries on mobility networks.

Introduction and literature review

Although the social network analysis (SNA) is looking back (at least) two decades, there are a lot of applications from social science (Lubbers et al., 2020) from neural sciences (Girvan – Newman, 2002), even till to cosmology (Krioukov et al., 2012). This epoch-making theory is just slightly used in economic and business studies and until recent years these studies are rather than descriptive. One of the reasons for barely using social networks in economic studies may be that the theory of SNA simplifies economic phenomena too much. For example, costs of links (such as transactional costs, traveling costs, shipping costs) are usually cannot be neglected in the case of analysis of supply chain networks, company ownership networks, or networks of foreign trade relations. Novel studies already use distance dependency models to describe (Barthélemy, 2011) and explain (Gadár et al., 2018) the links between players (i.e. nodes in a network). However, distance can be only a proxy for explaining transaction costs. Namely, part or all of the transaction costs can be independent of distance.

The understanding of the migratory behavior of higher education customers has been considered of crucial importance to the managers of institutions, and to policymakers that attempt to promote regional integration or regulate the supply of higher education. The socioeconomic and cultural characteristics of regions are important determinants of migratory behavior. Intuitively, districts with a larger population in the relevant age group tend to have greater outgoing flows in absolute terms (Dotti et al., 2013). They also tend to have greater incoming (Beine et al., 2014) as the abundance of educational services is positively correlated with population size. Regions with lower unemployment and greater economic opportunities also tend to attract and keep a greater absolute number of students (Dotti et al., 2013), as the latter often anticipate remaining in the region once they graduate. Students also moved by consumption motives, and so regions with greater opportunities for rich sociocultural experiences are likely to be more attractive (Franklin – Faggian, 2014). However, such regions also tend to be more densely populated and, therefore, costlier to live in. The characteristics of the institutions are also found to affect flows. Measures of the quality of the institution are usually introduced to capture this. Quality is often measured by proxies such as the employability of graduates (Sá et al., 2012; Lourenco – Sá, 2019), teacher to student ratios (Sá et al., 2004), the proportion of honors students (Dotti, 2013), research intensity (Adkisson – Peach, 2008) or the place in international rankings (Ciriaci, 2014).

The mobility network is one of the great opportunities to combine network and economic science theories. We propose an economic-network approach to model application and occupation mobility via network asymmetries and revealed preferences.

Methodology

Data employed

Several specific data sources are involved in the study. One of the main databases is the Hungarian central system for tracking graduates' careers (HCSTGC). HCSTGC includes all the anonymous graduated employees' residence location (subregion-NUTS4), the city of their higher education institution (HEI), the county and the subregion of their workplace, and starting salary, who earned their absolutism or graduation between intervals 01/09/2014–31/01/2015. Among them, the research focuses on those who got a job until May 2016. This represents 47,165 graduate students. The next applied database is the student application database (2006–2017),

which contains anonymous data from the applicants and the HEIs. The last included data sources are already found in all countries in the European Union (such as in Eurostat), and most countries in the world. Gross Domestic Income per capita (GDI/cap) of a location (subregion) between 2006–2017 comes from the Hungarian Central Statistical Office (HCSO). From the Hungarian National Employment Service, the mean of the salary for all the 19 counties and the capital city (Budapest) was gathered for the years 2015 and 2016.

Applied models

The mobility network can be described as a directed graph is an ordered pair $G = (V, E)$ comprising: where V is a set of vertices (also called nodes i.e. locations); $E \subseteq \{(x, y) \mid (x, y) \in V^2 \wedge x \neq y\}$ a set of edges (also called arcs) which are ordered pairs of distinct vertices (i.e., an edge is associated with two distinct locations in a mobility graph). And the number of movements between locations is associated with the edges. \mathbf{E} is the adjacency matrix of the graph G , where the elements of the matrix indicate whether pairs of vertices are adjacent or not in the graph.

Denote e_{ij} as the matrix element of the adjacency matrix \mathbf{E} of the mobility graph G . We used a gravity-like economic null model to estimate the matrix elements of the adjacency matrix.

$$p_{ij}^{\text{ECO}} = \gamma d_{ij}^{\delta} \prod_{k=1}^N m_{i_k}^{\alpha_k} m_{j_k}^{\beta_k}, \quad (1)$$

where m_k is a k -th economic value, such as gross domestic product (GDP), gross domestic income (GDI), or other economic quantity of the location of the node i . d_{ij} is the distance between location i and location j . α, β, δ are the importance parameters of locations and the distance between locations. They estimated by regression analysis.

We consider a directed weighted network specified by the (non-negative) weight matrix \mathbf{E} , where e_{ij} indicates the weight of the directed from node i to j node. In case of no connection from i to j , $e_{ij} = 0$. \mathbf{E} can be specified as the sum of symmetric (\mathbf{P}) and skew-symmetric matrix \mathbf{Q} , where $\mathbf{P} = \frac{1}{2}(\mathbf{E} + \mathbf{E}^T)$, $\mathbf{Q} = \frac{1}{2}(\mathbf{E} - \mathbf{E}^T)$.

The asymmetry matrix is $\mathbf{A} = \mathbf{P}/\mathbf{Q}$. And the null model of matrix element can be specified as follows:

$$a_{ij} = \frac{e_{ij} - e_{ji}}{e_{ij} + e_{ji}} \sim \rho_{ij}^{\text{ECO}} = \frac{p_{ij}^{\text{ECO}} - p_{ji}^{\text{ECO}}}{p_{ij}^{\text{ECO}} + p_{ji}^{\text{ECO}}} . \quad (2)$$

The asymmetry matrix can be transformed into a preference matrix: for example, eA is a multiplicative preference matrix, therefore, if the asymmetry matrix can be modeled via economic models, the preference of application can also be explained.

Results

Predicting asymmetries on application mobility

The way is to combine gravity-based economic models and null models from the network science and the revealed preferences are to model asymmetry with economic null models (see Eq. (2)). Table 1 shows the parameter estimation Eq. (2). The results of the gravity models in Table 1 have shown that a more preferred HEI, which has a higher number of applicants, has a lower unemployment rate, higher GDI per capita and better rank position (smaller rank order value) in faculty excellence. The results show us, that a HEI is more preferred if the prospects of living there are more favorable (higher GDI per capita, lower unemployment rate) and there are better HEIs, which is in line with the results of gravity models (see Table 1). Nevertheless, this model also shows that the differences in the importance of faculty excellence of HEIs are increasingly evened out.

Variables	Coefficients	2011	2013	2014	2015	2016	2017
$GDI/capi / GDI/capj$	$\tau_1 = \alpha_1 - \beta_1$	0,056	0,048	0,042	0,016	0,027	0,105
URi / URj	$\tau_2 = \alpha_2 - \beta_2$	-0,043	-0,035	-0,031	-0,005	-0,019	-0,026
$RANK(HEIi) / RANK(HEIj)$	$\tau_3 = \alpha_3 - \beta_3$	-0,106	-0,081	-0,071	-0,062	-0,042	-0,047
	R^2	0,606	0,528	0,478	0,476	0,438	0,485
	\bar{R}^2	0,606	0,528	0,478	0,475	0,437	0,485

Table 1 Results of asymmetries
Source: own editing

Where a good fit is found for asymmetry, it is worth comparing the real and modeled values. In this case, we can answer the question of how well the order of preference formed based on the application and the order modeled based on economic, unemployment, faculty excellence data correlate with each other (see Table 2). Since the asymmetry matrix can be transformed to a preference matrix, the revealed preferences can be estimated. Therefore, all applications and, more importantly for institutions, all first-place applications can be estimated.

Revealed preference order	Estimated preference order	HEI	GDI/cap (HUF)	ÚR (%)	RANK (HEI)	Applicants	Estimation of applicants	All applications
1	1	ELTE	1 929 477	4,12	1	15 339	13 461	44 213
2	3	DE	1 542 460	9,10	3	12 552	10 437	39 965
3	2	SZTE	1 528 263	6,18	2	11 953	10 653	37 603
4	6	PTE	1 555 151	8,03	6	10 803	9 212	34 045
5	7	BCE	1 929 477	4,12	8	9 605	8 263	28 383
6	18	BGF	1 929 477	4,12	41	7 388	5 778	28 274
7	10	SZIE	1 696 694	4,67	13	8 056	7 583	26 884
8	9	BME	1 929 477	4,12	11	8 580	6 858	23 165
9	5	NYME	1 392 972	2,07	3	6 582	6 232	19 524
10	14	ME	1 484 443	11,94	9	5 308	5 005	17 189

Table 2 Estimation of application preference
 Source: own editing

The impacts of asymmetries on occupation mobility

Combining network science methods with gravity models the impact of HEIs can be further investigated. The asymmetry on occupation mobility can be calculated for the subregions, and they can be ranked. Table 3 shows the top 10 most attractive subregions.

Rank	NUTS-4	Is there any HEI	Graduated		Graduated	
			incoming	outgoing	incoming	outgoing
			employers*		employers*	
1	Budapesti	Yes	17 656	4 163	68 672	66 263
2	Gödöllői	Yes	2 148	300	3 624	3 305
3	Győri	Yes	742	778	6 348	5 045
4	Székesfehérvári	Yes	619	887	4 850	4 389
5	Veszprémi	Yes	407	579	3 727	3 679
6	Kecskeméti	Yes	439	642	4 369	4 051
7	Tatabányai	Yes	348	350	2 806	2 679
8	Szegedi	Yes	708	1 140	5 976	5 204
9	Pécsi	Yes	549	1 096	5 510	5 150
10	Egri	Yes	407	723	3 107	2 620

* without loops, it means the source and the host location must be different.

Table 3 Top 10 most attractive subregions for freshly graduated employers (2015)

Source: own editing

In line with the former results, it is not surprising, that at first, ten subregions have (at least one) HEI. It resonates to the former results, and highlight the role of the HEI. Only the first two subregions have a positive balance of graduated employers. The first one is the capital town of Hungary, the second one is also located next to the Budapest. The other subregion already has a negative balance. While if only all peoples' mobility is considered, this balance is positive in the first top subregions. Nevertheless, the lack of freshly graduated employers can make a problem for the subregion already in the medium term.

Summary and conclusion

The data-driven career tracking offers new insight for scholars to analyze the application and occupation mobility. This database represents the whole population of graduated employers and the applicants, therefore more reliable models can be proposed. This database even important for potential applicants to choose a HEI. A pilot web page is already accessible in <https://www.diplomantul.hu> (retrieved: 29/04/2019), where potential

applicants can see the potential salaries by occupation categories and the added values of HEIs. Nevertheless, it is a good research question, that how it further reinforces the asymmetry that already exists in the mobility networks.

The combination of network and economic models, on one hand, can cross-validate the results and offers a technique for model triangulation. On the other hand, the economic models can explain the formation and the properties, such as asymmetries of mobility networks. Besides, the combination offers a better explanation and estimation of revealed application preferences. Explaining network properties with economic models can open new horizons because it is possible to move from descriptive statistics on network properties to explanatory models and thus we can better understand the mechanism of the formation of networks.

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STRUCTURAL QUESTIONS AND OTHER CHALLENGES OF INNOVATION ECOSYSTEMS

(PMR 2022/1-2)

Researches on innovation ecosystems explain the role of these systems in enhancing the innovation performance of the regions. The importance of innovation, research and development in today's dynamically changing economic environment is even stronger than before. At the same time, it can also be seen that the management of innovation ecosystems goes beyond traditional management systems and classical approaches in many respects. Particularly interesting and instructive is the approach from the side of complex adaptive systems, which points to the real challenges of innovation ecosystems. The aim of the present paper is to present the current results of the authors' research on innovation ecosystems, with a special focus on issues related to the structure of innovation ecosystems. The second part of the analysis deals with the operational issues of innovation systems, especially the aspects related to the cooperation of the actors. Finally, as a further research direction, the paper points to an approach based on previous research findings, which discusses the sustainability themes of innovation ecosystems in a business model approach.

Introduction

Nowadays more and more innovation ecosystems are emerging in various forms (technology parks, industrial parks, incubators). The basis for exemplary operation is to develop the whole ecosystem in a conscious and structured way from the very beginning. This is why the present research area and the problem addressed are actual. It is also influenced by the global changes in the world economy, which have led to new directions

in value creation, while the outcome of these processes remains open. Some of the changes that have taken place have triggered new forms of cooperation and related operational models. In this dynamic environment, cooperation-based systems and their specific forms, innovation-based ecosystems, are more important than ever.

Researches on innovation systems are mainly dominated by institution-oriented approaches, which typically focus on the structural aspects of innovation systems. However, this is only to a limited extent to describe a really functioning innovation system, as it does not take into account its complex nature of dynamics. The theory of complex systems can offer an alternative perspective for understanding and describing innovation ecosystems. This kind of perspective, based on complexity theory, takes into account not only the complex but also the dynamic feature of the system. Based on the literature findings, the development of complex dynamic, non-hierarchical systems are not so much about finding the right composition of elements, but rather about interpreting their relationships and interactions in a non-linear and non-hierarchical way. It is not a question of defining the system and its boundaries, but of facilitating the self-organization of the actors and the behaviour of the system based on multiple interactions. In its first part, the paper intends to give a general overview on complex systems from point of view of complexity theory, with conclusions on the innovation ecosystems.

Under definition of innovation systems, most researchers used to prefer institution-oriented approaches, as these systems are usually based on structured foundations driven by the players of the innovation initiatives. This approach is based on a classical literature of the Triple Helix concept worked out by Etzkowitz - Leydesdorff (2000). However, this approach is not completely adaptable to the functioning of a dynamic innovation ecosystem in the challenging environment nowadays, as it does not take into account the critical complex social dynamics. An approach that provides a more comprehensive understanding of innovation systems (Jucevicius - Grumadaite, 2014) is the concept of the complex adaptive systems approach (CAS). It is based on complexity theory and takes into account the dynamic characteristics of the system. The complexity theory was introduced at a meeting of economists in Santa Fe in the spring of 1987, where ten physicists defined its principle as follows:

“Complexity refers to a state of the universe that is integrated but too rich and varied to be understood in simple mechanical or linear terms. In this way, we can understand many parts of the universe in certain ways, but we can only approach larger and more complex interrelated phenomena in terms of principles and patterns, not in terms of details. Complexity is concerned with the nature of emergence, innovation, learning and

adaptation”. One of the main characteristics of complex systems is the special behaviour as the whole system cannot be predicted from the analysis of the parts alone (Vicsek, 2003).

In addition, other approaches also have been developed to understand key features of complex systems. Some references are mentioned here to outline the relevant characteristics. Complexity can be defined as the heterogeneity or diversity of socio-political or technological factors of customers, suppliers and other stakeholders in a particular business environment (Chae - Hill, 1997). Turbulence, on the other hand, refers to the dynamism of changes in the environment, which results in rapid and unpredictable changes (Conner, 1998). This feature is more relevant than ever before, considering the serious technological and social changes of current times. The complex and turbulent environment led to the concept of Complex Adaptive Systems (CAS). According to some authors (Mason, 2007), complex systems are on the edge between chaos and equilibrium, or unpredictability is observed in their functioning, but this does not mean that they are completely chaotic (Cilliers, 1999). It is important therefore to differentiate complex and chaotic or complicated systems. Complexity theory is not particularly focused on the future, but more focuses on the present, at the same time striving for identifying what needs to change to make current processes more efficient. This implies that such systems especially require creativity, continuous learning and a complex attitude of leadership and management. It is therefore still a big dilemma of the actual researches to determine what is complex and what is not. Complexity theory is really about the study of complex or complicated situations. While typical business, social and industrial systems are at high level of complexity, organisations themselves prefer simplicity.

The purpose of the current paper is to give an overview of the actual status of the authors in the topic of innovation ecosystems. The paper follows the structure of the research areas.

The three objectives of the innovation ecosystem research are:

- To research the specificities of knowledge and competence-based business cooperation

Within this sub-theme, the specific objective of the research is to explore what distinguishes a higher-level innovation ecosystem from a set of organisations and actors operating in a given location; what patterns can be observed among innovation ecosystems (for example: actors more likely to perform similar or different activities, sectoral concentration or diversity).

- Research of value creation in complex systems

Within this sub-theme, the specific objective of the research is to explore how value creation can be characterised in an innovation ecosystem; what are the factors that facilitate or inhibit cooperation between actors and what are the specificities that describe the value creation system (for example: analysis of the actors' relations; the role of knowledge and technical capabilities).

- Research of dynamic business models and management tools based on multidimensional value creation structures to adapt to the constantly changing environment

Within this sub-theme, the specific objective of the research is to explore how the effectiveness of innovation ecosystems can be measured, what development strategies can be developed and what business structures and models are appropriate for this purpose. Exploration of ecosystem life cycles; performance strategies (for example: revenue, headcount, outcome orientation); interrelationship of business model elements along the time-dynamics-R-D-I-driving force axes.

The following chapters summarize the actual results of researches in these three areas. The description includes a literature review, results overview and discussion, conclusions at each chapter. Finally, an overall status overview and general conclusion close the paper.

Research Area 1

The specificities of knowledge and competence-based business cooperation in innovation ecosystems

Literature review

Over the past decades, the concept of innovation ecosystems has become popular in the related researches, but, typically with a business and strategic origin and focus (Gomes et al., 2018). The history of the innovation ecosystem concept is substantially different from the conceptual history of the innovation system. The more intensive use of the expression started after the publication of a Harvard Business Review article of Adner, which contained one of the most widely used definitions of innovation ecosystems (2006). It defines the innovation ecosystem as „collaborative arrangements through which firms combine their offerings into a coherent, customer-oriented solution”.

The new approaches shift the focus from competition to collaboration about the shift from the concept of business ecosystem to innovation

ecosystem. Granstrand and Holgersson (2020) introduced a new definition of innovation ecosystems in their publication. According to this paper, an innovation ecosystem is a set of actors, activities and products, as well as institutions and relationships, including complementary and substitute relationships, that are important for the innovative performance of an actor or group of actors.

The innovation ecosystem approach provides the conceptual basis for science and innovation parks. The “Triple Helix” knowledge model, developed by (Etzkowith - Leydesdorff, 2010), emphasises three “helices” which are intertwined in the innovation system: academia/universities, industry and state/government. Under this model, Etzkowitz and Leydesdorff described “university-industry-government linkages” and networks, with a particular focus on three-party and hybrid networks where the concerned helices overlap. As also the key challenge today, the main interest and outcome of knowledge-based innovation ecosystems is the creation of new knowledge through joint research work, collaboration or development of the knowledge base.

When studying an innovation ecosystem, one of the basic questions is how to qualify the single members of they are integrated part of the system or not, in other words, how to define the system boundary. A study (Xiuqin et al., 2018) investigated features of various key characteristics of research and development organizations and identified three categories of them:

- R-D service providers,
- Knowledge-Intensive Business Services (KIBS),
- New Technology-Based Firms (NTBS).

The three types of classification show that in complex innovation value chains it is important to take a multi-faceted view, as the spectrum from classical innovation to simple R-D to high level knowledge-based perspectives requires a multi-perspective perspective. Therefore, building on the classification presented by Xiuqin et al., the paper show and examination how the approach can be used, and whether it can be applied, to the evaluation of actors in an innovation cooperation system (2018).

Research method

This classification was taken as a basis (Toth, 2020) and an assessment approach was developed to evaluate features of an innovation-based ecosystem. The following factors were evaluated through various sub-criteria: knowledge characteristics, origin of organization, location, business activity, position related to innovation, internal innovation. The classification can be made in a two-way method, first a preliminary assessment then an interview approach to complete and align the profiles

based on the view of the assessed organizations. The analysis was made for eight players related to the ZalaZONE research and development environment which is a specific ecosystem related to a large-scale automotive proving ground for classic and autonomous vehicles. The advantage of this method, further developing concept of Xiuqin et al., that a matrix logic applied to get profile on both the R-D-I nature of the single organizations and in the same time, get perception on ecosystem level (2018). It is important to emphasise that classification in to the three categories is not exclusive, so the mix of the three characteristic groups is the real information.

Results and discussion

The results of the survey are shown by Figure 1.

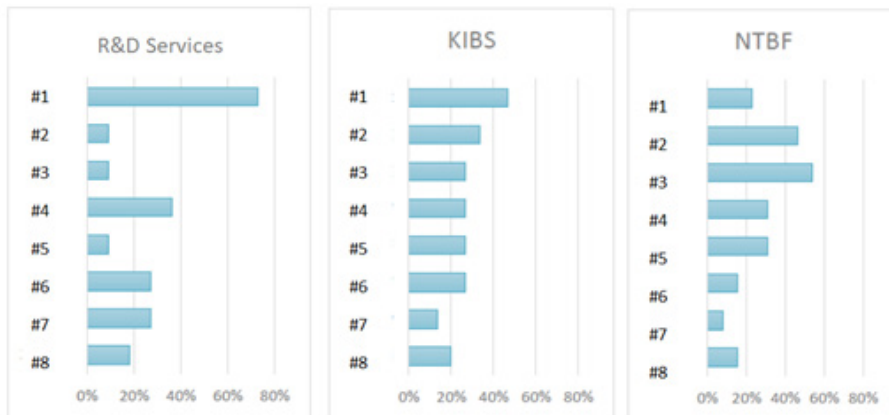


Figure 1 Characteristics analysis of an innovation ecosystem (ZalaZONE example)
Source: own editing

The results show that firms and organisations operating in an innovation ecosystem can be identified and analysed in terms of their contribution to technology and innovation. It is optimal to have a proportional distribution between the type of R-D-based firms, the type of knowledge-intensive business services and the type of new technology-based firms. As it can be seen, there is still a majority of new technology-based initiatives in given innovation ecosystem, so the other functions are still room for further strengthening the presence of such players. The KIBS model well demonstrates the different organization types typical in an innovation

ecosystem. This leads to the question whether a more homogenous structure is beneficial or a more focused one is the effective. To evaluate this aspect, another study suggested that a key structural feature of an innovation ecosystem is the range of sectors of focus in the ecosystem. It is important for an innovation ecosystem to have a professional focus, which is one of the basic conditions for knowledge-based structures. However, a too narrow professional focus is not advantageous for cooperative systems, especially not a profession-sterile system built around a single actor. The related studies of the authors therefore seem to suggest that a sectoral distribution that is focused but allows for cooperation while maintaining a coherent professional scope may be the most preferable. Figure 2 shows the distribution of the NACE-codes of players in the innovation ecosystem.

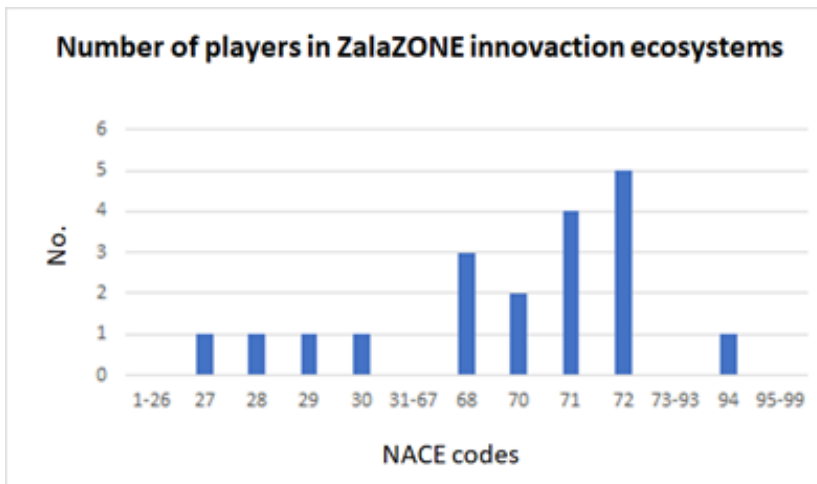


Figure 2 Distribution of actors based on the fields of activities (ZalaZONE example)
Source: own editing

Conclusions

Sectoral focus can be examined using the following figure and method. The theoretically possible combinations of the various options distinguish 4 groups, which identify the actors in innovation ecosystems along two aspects which are called sectoral concentration and sectoral focus. The former shows how dominant each activity is in the ecosystem, while the latter shows the diversity of the range of activities. Characteristics and considerations of the four distinct groups are:

- a small sectoral focus in an ecosystem where no dominant sector is observed is not a realistic option, as it would not allow a system to function and could only lead to chaos,
- an ecosystem can be developed with intention to have no dominant sector but having many sectoral actors represented,
- the third type, ecosystems with few sectors but concentrated, i.e. with a sectoral focus,
- the fourth option is about to create an ecosystem where several different sectors are present while dominant sector also can be identified, leading to a so-called science and innovation park structure.

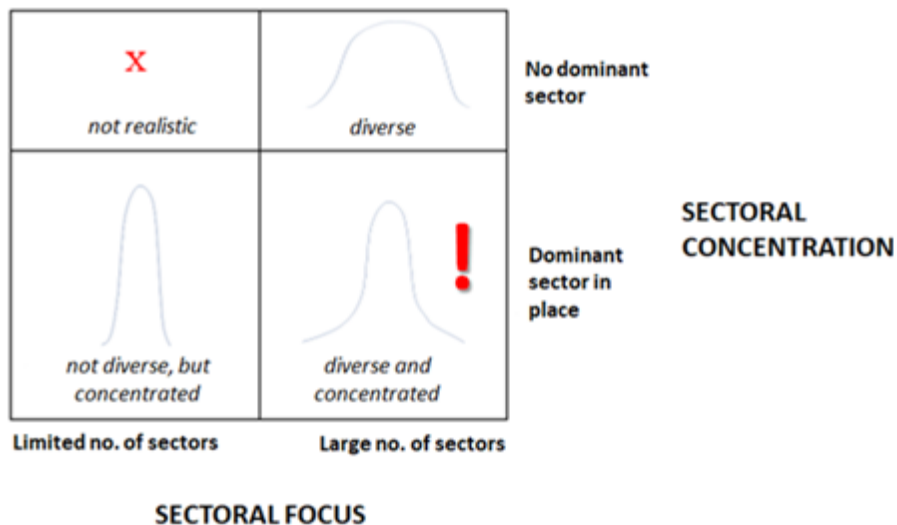


Figure 3 Potential sectoral focus of an innovation ecosystem
Source: own editing

Research Area 2

Value creation in complex systems

Literature review

The efficiency of a sustainable knowledge-intensive innovation ecosystems is highly tied to universities or other similar competence bases. As principle of cooperation of different fields and actors in these

ecosystems, the provision of services must be reconsidered accordingly within the framework of the relevant service model. Therefore, it is important to differentiate the value-driven cooperations from traditional R-D collaborations (Kulcsár, 2015).

A business model of innovation-driven collaboration arose some questions like: How does a company need to organize innovation? What ensures that innovation based on the available resources really creates competitiveness for a company? Innovation activity is a continuous and complex task, so it is not a one-time activity. In innovation-based cooperations, strategic decisions of the managerial behaviour play a key role in terms of sustainable competitive advantage. The relationship between entrepreneurial and managerial behaviour and knowledge-based skills might cause an unstabilized relationship, which is partly caused by managerial behaviour and partly by the inappropriate appearance of knowledge within the organization. In addition, a correlation between managerial behaviour and innovation intensity needs to be established in order to sustain technical innovation and strengthen thinking in the overall innovation portfolio (Piskóti, 2016).

The area of services themselves play a generally key role in innovative value chain systems. So, the service-oriented approach is relevant for such value-creation features. The output of a service can be, by definition, a tangible physical product or a service product. The nature of value chain differs at the two types of supply chain systems, namely Service Only Supply Chains (SOSC) and Product Service Supply Chains (PSSC). In the case of SOSC, the product is essentially a pure service while physical products play no role. In the case of PSSC, the service is provided by delivering a physical products service (Wang et al., 2015).

Amor, et al. (2018) gives an overview on the comparison of classic industrial organizations (IO) and product-service systems (PSS), see Figure 4. PSS players usually develop products or services utilizing potentials of ICT technologies and striving for high market value from point of view of customers, financials and satisfaction. In PSS models, the basic value-chain components are the products, the service, the knowledge as capital. In contrary, the classic IO models look at the products and services and basic output. PSS, against IO, opens clear communication channels with partners and customers, ensuring trust, transparency, risk sharing while integrating positive externalities.

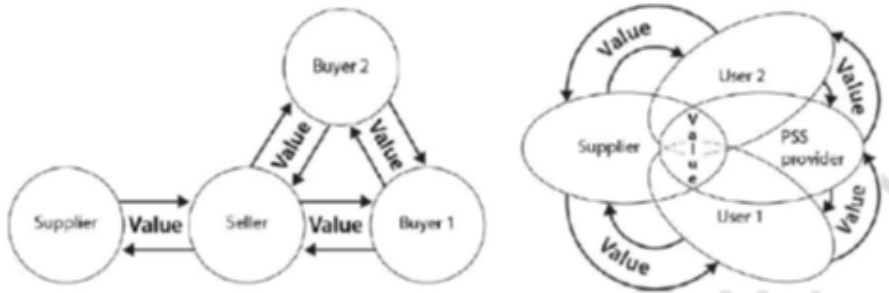


Figure 4 Comparison of classic IO and PSS concept
Source: Amor, et al. (2018)

The classic value chain approach provides the background for exploring the relationship between corporate activities that contribute to the production of a final product which meets consumer demand and thus adds value. The spread of value chain model was created after Michael Porter's work, who introduced the concept of value chain in his classic work "Competitive Advantage" (Porter, 1985). The company-level value creation is analysed in his model that is still widespread and widely accepted in supply chain profession. The value chain model defined by Porter identifies the value the company provides to its customers as a competitive advantage (Figure 5). However, the value provided to the end user is a coordinated group of the value of activities, including all value components created by each activity of the company. Porter's value chain model identifies activities that contribute significantly to value creation, by breaking down all activities into primary (direct value creation) and secondary (supportive value creation) functions.



Figure 5 Porter's value chain
Source: Porter (1985)

Since its publication, the base model of Porter has been interpreted by many researchers, also examining its applicability in different fields. In the followings, there are some relevant key sources referenced. More than two decades have passed since the development of the Porter value chain model, and although its principles still remain relevant, the application of the model became limited in some areas due to the changed business environment. The basic concept of the model provides analytical opportunity mainly for vertically integrated manufacturing-type companies, primarily from the perspective of the expected values to deliver by the company.

Activities in the value chain form a sequential, linear group that are connected to each other through the flow of information, material, resources or finance. Each organization focuses only on its own activities, knowing the previous and next activities in the process, but ignores the importance of how they affect the whole chain and what value-creating interactions can be observed between each activity (Herrala - Pakkala, 2009).

Even, inter-company value chain aspects are not considered in the Porter model. Nowadays, the acceleration of technological development and global processes, the change of market demands requires a much more complex value system approach from companies. There is a strong consensus among researchers and corporate professionals that innovative products drive technological, industrial, and social change (Schoenmakers - Duysters, 2010). From a micro perspective, the application of a new innovation affects a company's existing resources, skills, knowledge, ability or strategy, while affecting all activities in the whole value chain. In

innovative industries, there is a need to develop a value chain framework that provides a multi-directional and systematic approach by identifying, measuring and developing the novelty of technology and knowledge-base on each value process.

In recent decades, many authors and researchers have been involved in expanding the classic value chain approach in line with these thoughts. According to the researches of Feller et al (2006), the value is a subjective experience that depends on its organizational context. Therefore, the same product or service does not represent the same value in different situations, different markets or different value chains. Additionally, the value is created when the customer demand is met through the provision of products or services. Finally, the value is the real experience that is perceived by the customer. Due to the different functions and definitions of value, it results in the necessity to integrate product lifecycle management, supply chain management, and customer relationship management, innovation management into the value creation processes. Among the relevant approaches, it is important to mention the Value Chain Operations Reference Model (VCOR), which was developed as a value chain framework that integrates the concerned management processes. This opens up opportunities for the development of an integrated value chain end-to-end, creating the basis for the successful implementation of service-oriented, innovative value creation (Ouzrout et al., 2018).

In the changed economic environment, in innovation-driven industries, knowledge-based and competence-based collaborations are gaining more and more prominence. At the end, this will lead to the needs for innovation ecosystems as suitable environment. One of the main catalysts for high value-added activities is the mixed value generated by human knowledge and technological knowledge. The knowledge, as one of the most important sources of competitive advantage, clearly appears as an essential condition for value creation, and as an essential component of innovative value chain models. The knowledge-based value chain model published by Lee Yie Yang (2000), building his approach on the basic framework of the Porter value chain. According to him, the knowledge value chain consists of knowledge management infrastructure, knowledge management process activities and knowledge performance. These infrastructure components and activities are the building blocks by which a company creates a knowledge-intensive product and provides value to its clients. According to the knowledge-based value chain theory, all elements of activities can create change, and then all values flow to the end point of the business value chain, as finally interconnecting and thus, creating the total business value of the company. At a knowledge-based value chain, the added value is resulted in by the specific knowledge chain. Value chain

models vary from industry to industry, so it can be distinguished between products, services and markets. While Porter examined value creation in a chain mainly from a single firm perspective, the currently used complex value models provide a broader perspective and value flows from the perspective of multiple firms, essentially based on examining customer-supplier relationships and innovation partnerships. Therefore, at these models, the exploration of multidirectional value creation processes is crucial. There are several approaches of such value chain models in the literature. Evans and Berman's (2001) model focuses on the creation of a value-oriented corporate strategy and the role of customer management is of key importance in terms of the total created value. According to Al-Mudimigh et al. (2004), an organization's value chain management model builds value-creating processes on the strategic goals, the organization's mission, and organizational culture, making it suitable for analysing ever-changing customer needs and adapting to the changing environment.

Over the years, value chain thinking has gone beyond Porter's original concept of analysing a firm's internal activities and their interrelationships within a systematic approach (Bovet - Martha, 2000). Current processes and business challenges look at value creation as multidirectional and network-based rather than linear, with the result that successful companies increasingly develop a multifaceted value chain. Value-creating networks allow organizations to go beyond borders through collaborations and further improve their efficiency. Inter-company and collaborative networks offer companies the opportunity to create partnerships that can complement a company's existing competencies to produce greater added value. As one of the classic approaches in this topic, Normann and Ramírez (1993) developed the concept of value constellation, according to which different actors of the value chain continuously generate value. Contrary to Porter's view, activities are not performed one after the other, but simultaneously, and the value is created as effort all together. In this new value network approach, the focus of organizations is on the value-creating system itself, as opposed to the processes of the company (Peppard - Rylander, 2006). The actors in the value networks might be connected with each other to perform the "right" activities so as to be able to provide the fastest, cheapest performance and create value for all parties. Parolini (1999) further researched the findings of Normann and Ramírez on the assumption that value systems are seen not only as a set of economic actors but as a series of activities that jointly participate in value creation. In Parolini's model, the focus is on the value creation system and the necessary network of activities and actors.

Bovet and Martha (2000) also made relevant researches, which has been defined as a partnership network. According to them, a dynamic, high-performance network between customer and supplier partnerships are needed with the flow of information aiming at implementing value-creating processes. In contrast to the classic value chain model, value in the value network is created through the interconnected activities (sub-competencies) of several companies. In this approach, the value is not only affecting the customers of the network, but also society and other companies are participating in the network, so, the ecosystem of the value chain also occurs. Pil and Holweg (2006) used the method of the value network to map multidirectional value-creating processes. In their view, there are a number of new ways to increase performance in the value network framework. Value creation processes can be vertical (companies explore opportunities toward adjacent levels of the value chain; top-down or bottom-up), horizontal (companies identify new opportunities), or even diagonal (companies are integrated between value chains and various levels to connect the right performance and reduce the risk).

As concluding the findings of above detailed literature review, after examining traditional and available models, one of the most important challenges today is that in a complex and dynamically changing economic environment, the value chain can implicate effects in several ways at the same time, with multiple values, sub-value chains, and different added value levels. This part of the research makes attempt to draw up some preliminary concepts for evaluation of translational impact of innovative research ecosystems. In this work, earlier experiences and learnings from other researches in the field of value chain as shown above, were also considered. A survey is also used to demonstrate early conclusions in this topic. According to the base concept, the basis of a business activity is the value model provided to the customer, which gives the primary value creation line, as it is indicated in Figure 6. To achieve this competitively, related services and products are needed, like the usual vertical value chain structure can still be typical. The role of knowledge and thus, the mix of human and technical added value is a subject to analyse. Finally, the whole business and research environment is influenced by the innovation ecosystem around the value chain or value network.

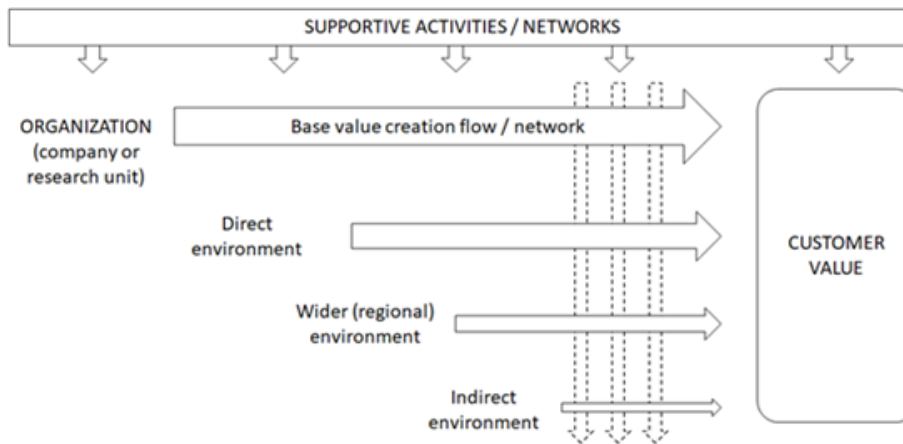


Figure 6 Concept of the horizontally and vertically integrated value chain
Source: own editing, based on Hary et al. (2020) – ISDRS 2021 Conference

The basic supposition of the concept is the so-called catalyst-type activities of innovation, together with the emergence of additional business and research activities in a park, region or environment, having the capability to increase the competitiveness and innovation level while generate impacts in the direct, broader, and indirect environment. The vertical integration is also multiplied, so that the value chain or network still remains two-dimensional but becomes multifactorial. In this perspective, the support activities that are necessary for the normal value creation are also included. The horizontally and vertically integrated value-creating model is relevant where a business or research activity has a spill-over effect (translation) or, conversely, it can fulfil its value-creating potential through the related activities. In the shown concept, the translational economic, innovation and business impact is what gives new dynamics to the classical, horizontally and vertically integrated model. In such cases an activity typically generates further projects both for the affected customers and suppliers, partners and research institutions not only in a territory-concentrated way, but in a larger geographical area, essentially influencing a whole sectoral environment. Thus, both the traditional horizontal and vertical value chain models become multifactorial, making necessary a complex and systematic description of the value chain and its innovation environment, calling it innovation ecosystem. The need for both horizontally and vertically integrated value chains or networks is interesting, especially when integration also has a translational effect at high

value-added, innovation-oriented and development-sensitive activities. In these situations, knowledge can be defined not purely as a vertically appearing service element (education), as most probably it provides the basis for the key success factor and driver. Adding this perspective to the model is therefore necessary as a third factor; although it is interpreted as a non-material element, its location is not a given place, nor does it mean a highly dynamic element of integration, together with all the challenges of its management.

Research method

With regard to innovation ecosystems, or collaborative systems in general, the question arises as to where the value creation of the entities, industrial actors and research institutes and other organizations comes from. In a classic way, the value can be produced by an organization by means of “outcome of production”, i.e. by means of an objectified nature (machines, labs, real estate, etc.) or soft assets (personnel, competences possibly based on intangible assets, know-how, etc.). On this basis, the areas of tangible assets, intangible assets and personnel costs as accounting categories can be clearly examined. These three groups are the subject of this research, accepting that all of these three items have different characteristics but still reflects, in a way, the sources of value creation of an ecosystem.

During the research, 16 ecosystem locations were selected in Hungary, the specificities of which were examined on the basis of the publicly available balance sheets and reports of their individual actors (a total of 756 organizations). For sake of data presentation, the examined ecosystems (including advanced industrial parks, technology parks, science parks, business incubators) are marked with numbering from 1 to 16. Based on the audited accounts of each organization, the balance sheet lines of actors in the assessed ecosystems were analysed in the years of 2017-2018-2019: tangible assets, intangible assets, personnel costs. Based on the above explained introduction, the research (presented in GBC2021 conference by the authors, Toth et. al, 2021) examined the following research questions:

- How dominant is various indicators compared to turnover: fixed assets, intangible assets, personnel costs?
- What is the relationship between these characteristics, what features can be defined?
- What can be concluded based on of all these examinations?

Results and discussion

The data examined was plotted in a diagram form showing the 16 ecosystems on the horizontal axis. The vertical axis displays a specific feature of actors within different ecosystems as outcome of statistical processing. Each data block shows the minimum and maximum values, the lower and upper quartiles, and the median value. The ecosystems are ordered based on their similar patterns, so that the graph-illustrations show the values of the examined entities. The results are shown by Figure 7.

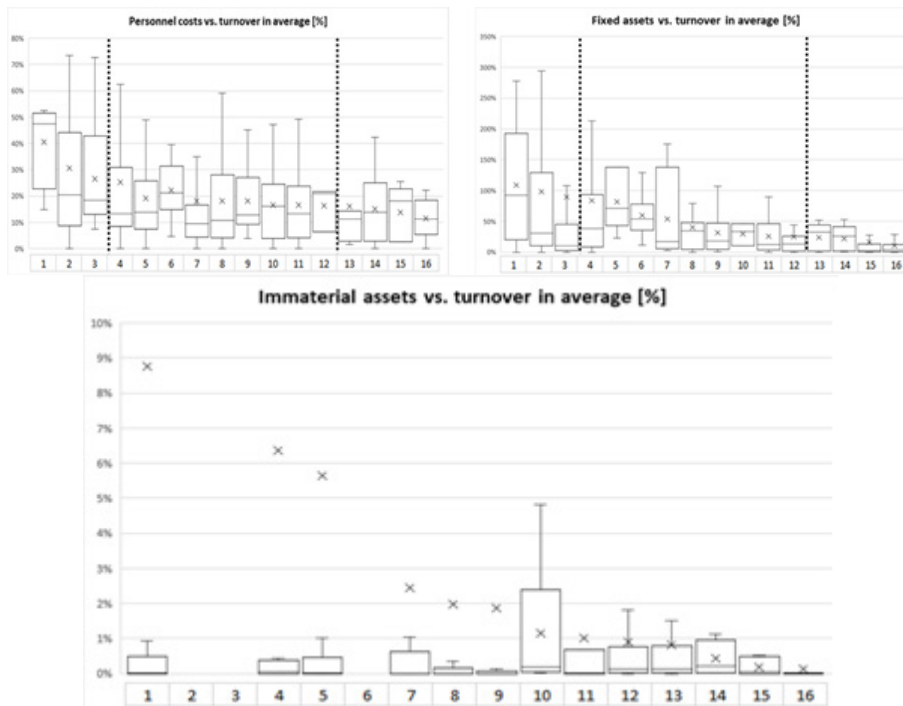


Figure 7 Pattern of the ratio of various indicators to the turnover
Source: own editing (Toth et al., 2021 – GBC2021 conference)

The ratio of personnel costs to total turnover varies considerably from around 10% to 50%. There are ecosystems where up to half of the turnover is spent on personnel costs and there are also ecosystems where this is relatively low. The high personal cost may be related to higher value-added activities, while the low value in the figure showing the proportional development of the fixed asset. However, if the higher personnel cost is

combined with a relatively significant tangible asset value, it may be more of a feature of for example, asset-sensitive value creation. A remarkable trend is the low personal cost ratio with a significant asset pairing, which may also refer to a modern technological environment. An interesting pattern is shown by intangible assets compared to the turnover as significant variance can be observed of the ecosystems. Removing the outstanding items makes the data easier to interpret, but it still does not show a remarkable trend. In terms of absolute values, the ratio of intangible assets ranges from a few tenths of a percent to one percentage, which is a very low value, having difficult to make conclusions from the current research.

Conclusions

The presented survey was organized in order to reach better understanding of origins of the value creation sources. Based on analysis of selected Hungarian ecosystems, the dominance of technology versus personnel resources was investigated in view of comparison to turnover figures.

Figure 8 contain aggregated data of the organizations included by the ecosystems examined. Consequently, it is possible to draw conclusions from the data on the nature of the value creation background of an ecosystem.

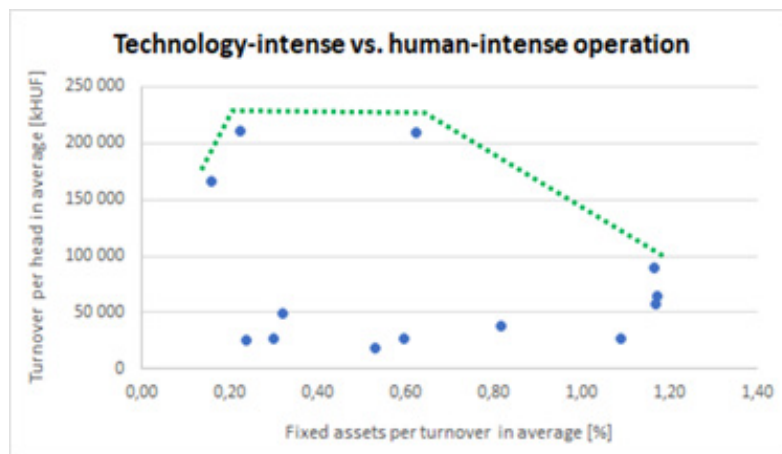


Figure 8 Source of value creation: human or technology
Source: own editing (Toth et al., 2021 – GBC2021 conference)

The results and conclusions of the survey are well illustrating the source of the value created. The value of the fixed asset compared to turnover is considered to be the technological ratio, the personal cost compared to the turnover is the human ratio. The figure can be used to classify individual ecosystems and determine the nature of value creation systems there.

As a summary of conclusions, the general model shown in Figure 9 can be outlined, which gives a principal framework on nature of science and innovation parks based on high added value versus technology-intensive activities. As preliminary hypothesis, the innovation ecosystems are strived for “upwards” in the curve. It means that in terms of personal and technological intensity, optimal maximizing of the two dimensions (or their combination) is typical characteristic for the value creation circumstances of an innovation ecosystem. This way, the authors defined an innovation boundary curve as a characteristic feature for the specific innovation ecosystems. On this basis, further researches are possible and necessary to assess the intensity of technology and human intensity within an innovation ecosystem and further understand the value creation basics in these systems.

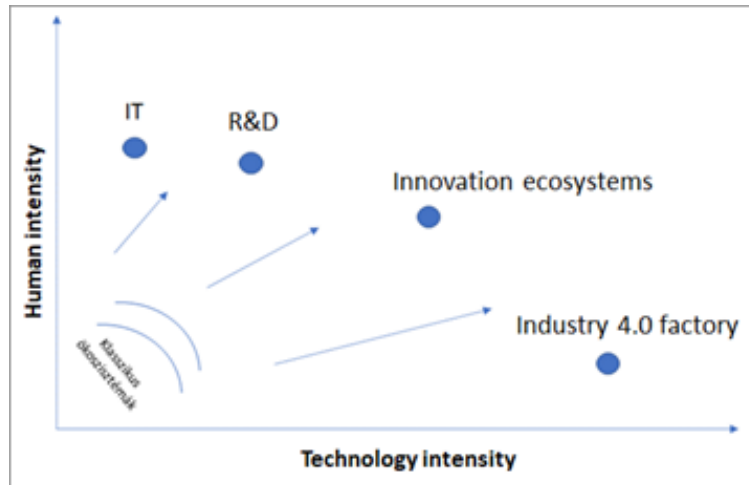


Figure 9 General model for the balance of human and technology in value creation
Source: own editing

Research Area 3

Dynamic business models and management tools based on multidimensional value creation structures to adapt to the constantly changing environment

Literature review

After having the base profile on the R-D-I nature of the players, the business perspective is analysed using the business model concepts. For this purpose, the classic business model approaches were studied in detail and, by using the methodology of synthesis, an integrated and upgraded model was developed, taking into account the features of the innovation ecosystems and the players assessed.

The concept of a business model is very important in management, but there is still no consensus in researches on what exact content an optimal business model should have been used for managing innovation ecosystems. Classic business model descriptions are based on the traditions of strategic approach in order to link performance of operational processes with different parts of corporate strategy. A traditional definition emphasizes the value-creating function of a business model: “A business model describes the plan or architecture and mechanisms of the value creation, delivery, and capture. The essence of the business model is to crystallize the needs and ability of customers to pay and provide value to it. It makes consumers to pay for value and converts those payments into profit to enable the various elements of the value chain so as to be properly designed and operated” (Alt & Zimmermann, 2014). A similar definition was given by Wirtz and co-authors in their publication (Wirtz, 2015). The concept of business model be interpreted in four perspectives by another paper (Liu & Mannhardt, 2019):

- the business model is a tool with its main purpose to create value for business, capture it and transfer it,
- the business model is an intermediary between technological innovation and the market as a means of trading new technologies with new or adapted business models,
- the business model is seen as set of strategic variables that are sources of competitive advantage,
- the business model is a value network that goes beyond the activities of a central company including its customers and partners.

Emerging technologies in the current technology revolutions and the increasing use of the internet are also encouraging organizations to compete and attract the attention of customers. Using the right business model firmly impacts customers' confidence. So, the key to the right business model is to prioritize the sustainability and growth objectives. This aspect is very important for innovation ecosystems where players are typically young organisations, start-ups or spin-off companies (Bednár & Tarisková, 2018). The various elements of the business model are interlinked, helping the management to determine the right business framework, building on the value creation system as described in the previous chapter. The business model should provide an answer to the main challenges of the targeted market so as to maximize customer satisfaction. Based on researches of Shi, Manning (2009), the business model framework includes four basic and interrelated elements: the change model, the organizational model, the resource model, and the financial model. The change model describes the added value that a firm offers to other economic actors in the market, including customers, suppliers, complementary organizations, and competitors. The organizational model includes roles and responsibilities, activities, and business processes that enable the flow of product, information and money, thereby updating exchanges between the firm and the stock market with partners. The resource model incorporates the diversity of firm resources that are needed to mobilize and thrive in the organization. The financial model defines the objective functions of the company that combine the other three elements of the business model (Shi & Manning, 2009). The business model also supports each innovation to create a new market or strengthen the competitive advantage against the competitors (Micieta, et al., 2020). In fact, key competencies tend to dominate employee performance over managerial functions and organizational culture, while valuable competencies are hard-to-replace factors that all become key sources for success. At the end, these all make a competence basis that competitors cannot easily follow. Innovation ecosystems as direct physical business environment have crucial role to contribute to this aspect of business success. To embrace digital change, strategists, managers, and operational management also need to deeply understand the business model and work together to further develop it as Tewes et al. (2018) stated. The future 9x9 business model developed by them provides the framework for this concept. The latest trends and their implications are integrated into individual components of business models, with view on how to be successful in the future (Tewes et al., 2018).

Today's modern R-D and innovation environment, attractive to science and with high added value, can provide the right space and infrastructure for industry, universities and knowledge-intensive businesses to generate

new impacts and projects. Innovation ecosystems are suitable drivers for cooperation and contribute to giving adequate answers to the technology challenges. The term ecosystem usually refers to a group of interacting businesses that influence each other's activities. The various researchers have highlighted different aspects of the ecosystem depending on the respective purpose of the research. The overview of Jacobides et al. (2019) provides a detailed discussion on classification of ecosystems into categories as business ecosystem, innovation ecosystem or platform ecosystem. The classification of Katri (2015) is also in line with this, mentioning business, innovation and knowledge ecosystems. A business ecosystem usually focuses on market-based companies, with the aim of providing a competitive environment for the actors. Following the analysis of Teece (2007), this type of ecosystem can be considered as a community of organizations and institutions, having impact on the operation of enterprises, their customers and their infrastructure. This ecosystem type can be seen as a community of interacting economic actors. The innovation ecosystem focuses innovation and the structures that support it. From this point of view, it is important to interpret business model mindset not only on actor-level but also ecosystem level. The extent to which firms cooperate with each other through different agreements affects the ability to jointly create value for their customers (Adner, 2017). Thus, in innovation ecosystems, independent or interdependent actors interact to create and market innovations that benefit the end user.

What distinguishes real ecosystems from market-based agreements is that they include producers or service providers who are linked by certain interdependencies. In this sense, ecosystems are different from pure networks. Powell (2003) examined in detail the formal or informal networks of organizations. Ecosystems are made unique by the interdependence of actors tends to standardize, creating a need for new skills within ecosystems (Helfat - Raubitschek, 2017). Industrial parks are often mentioned in connection with the concept of business or innovation ecosystems. Numerous studies have examined the mechanisms by which geographically concentrated organizations can benefit from localized operation and thus and their collaboration (see Claryssen et al., 2014; Coughlan, 2014). In this way, classical industrial park structures can lead to a knowledge ecosystem, where the main result of which is new knowledge as a multiplied market potential (Quinn et al., 1998).

Based on the shown references above, it can be seen that measurement of innovation ecosystems is still subject of wide range of researches. Therefore, the authors make attempt to use basic financial and operation data of players and interpret the results on strategic level based on specific research.

Research method

The current chapter shows two relevant researches of the authors. The first one is about a conceptual model focused, the second one is an empiric survey.

Method of Research 1 Based on the literature research work and analysing the identified relevant business model approaches, a framework model was intended to outline, that combines the elements of the examined business models, and finally integrates them into a customized model developed in a new structure, taking into account the specifics of innovation ecosystems also described in previous chapters. (Table 1)

The summarized contextual elements of the examined models based on literature review	Model areas of the proposed business framework, identified by the authors using clustering technique
Determination of value Value proposition	<i>Value proposition</i>
Defining customers Target market segment Product or service palette Revenue generation model Outgoing offers Mission Determining the size of the market	<i>Market and customers</i>
Abilities Competences Entrepreneurship Activities	<i>Competences and abilities</i>
Marketing channel Branding Differentiation Distinction in competition	<i>Marketing channels</i>
Network control Connection with the ecosystem	<i>Networks and ecosystem connectivity</i>
Key activities Organizational efficiency Processes Adaptability System of activities Business processes Operating model	<i>Operational model and organizational processes</i>

The summarized contextual elements of the examined models based on literature review	Model areas of the proposed business framework, identified by the authors using clustering technique
Key resources Capital Influence of resources Tangible resources Intangible resources Appropriability Sustainability Human resource Employee value	<i>Resources and capital</i>
Key Partners Customer Contacts Value Chain Value Networks Customer information Product and service flow Supplier value Customer value Partnerships Relations with stakeholders Multi-value configuration Distribution channels	<i>Create value</i>
Cost structure and model Profit Financial aspects Low operating costs Premium pricing Effective use of assets Capital employed	<i>Financial model</i>
Sectoral technology trends Boundaries Competitors	<i>Trends and impacts</i>

Table 1 Synthesis of the studied models into an innovation-specific business framework
Source: own editing

The defined business model elements can be structured along two aspects. One of the axes is the dynamics of the ability to react to R-D-I circumstances, like how quickly it is possible to introduce the content of the given element into the organizational operational processes. The other axis is the intensity of R-D-I driving force, which reflects the intensity by which it is related to field of research and development, how much it triggers and how much the real driving force is shaping the processes and performance that strengthen contribute to higher level research and development outcomes.

Method of Research 2 With regard to innovation ecosystems, the question arises in relation to the performance and business effectiveness of the players, industrial actors and research institutes and other organizations operating within the framework of the ecosystem. The innovation ecosystem might have different structures, as shown above by a wide range of preferred researches and their explanations. The currently shown survey was made in Hungary, where the range of high-performing innovation ecosystems is relatively limited. Therefore, the innovation ecosystems concept can be derived from industrial parks, incubators and some Science Park initiatives. These three groups of ecosystems are the subject of the current research. Although all of them have different operating models and structures but still carry certain theoretical characteristics of innovation ecosystems in practice, making feasible them for the final conclusions. During the research, 16 innovation ecosystem locations were selected, which were examined on the basis of the publicly available business report of their individual actors (a total of 756 organizations). The principle of selection of the examined ecosystems was taking into account the theoretical feature of ecosystems building on the literature findings on the innovation ecosystems. The selection was made in a representative way, some examined ecosystems have been in operation for several decades, as well as involving those who started their activities a few years ago.

The basic questions of research methodology are to find answers on the following questions: what are the typical patterns that can be observed in terms of turnover, profit or loss and headcount for entities operating in an innovation ecosystem. On the basis of the survey conclusions, the authors attempt to formulate conclusions on the following areas:

what is the business attractivity of a given ecosystem, in view what extent do performance indicators increase or decrease? what are the typical patterns that can be observed in the innovation ecosystem from business perspective? how can the aggregated average indicators used to evaluate the innovation ecosystem?

The survey results were presented by the authors on the ICET-M 2021 conference.

Results and discussion

Results of Research 1 Considering dynamics of changes in technology and business environment, it is found that time factor is also should be involved into the model frameworks. For this purpose, the future-oriented elements of the 9x9 operating model of Tewes et al. (2018) were studied in detail and a customized set of elements was defined, specifically taking into account innovation ecosystem environment as it is summarized by Table 2.

Business model framework elements	Future-oriented content elements
<i>Trends and impacts</i>	Industry 4.0 new mobility New technologies
<i>Value proposition</i>	A new dimension of value
<i>Market and customers</i>	Experience-based products Customization
<i>Competences and abilities</i>	Creativity Personalized development Innovation-oriented skills
<i>Marketing channels</i>	Digital interaction interfaces Virtual devices
<i>Networks and ecosystem connectivity</i>	Sharing knowledge Lifelong learning
<i>Operational model and organizational processes</i>	Flexible organization
<i>Resources and capital</i>	ICT infrastructure Intellectual property and resources Problem-solving thinking
<i>Create value</i>	Value-based ecosystem Importance of information
<i>Financial model</i>	Dynamic pricing Flexible cost model Solution as Service

Table 2 Future-oriented elements of ZalaZONE research environment in the developed business model framework
Source: own editing

As the first interpretation of the research results, which are the actual, but not completed results state of the running researches of the authors, the new innovation ecosystem-oriented business model framework model can be summarized as shown by the Figure 10. The basic frame of the model elements and their contents with the classic and future-oriented features give a guide for business management in contextual level when setting up management structure of innovation ecosystems.

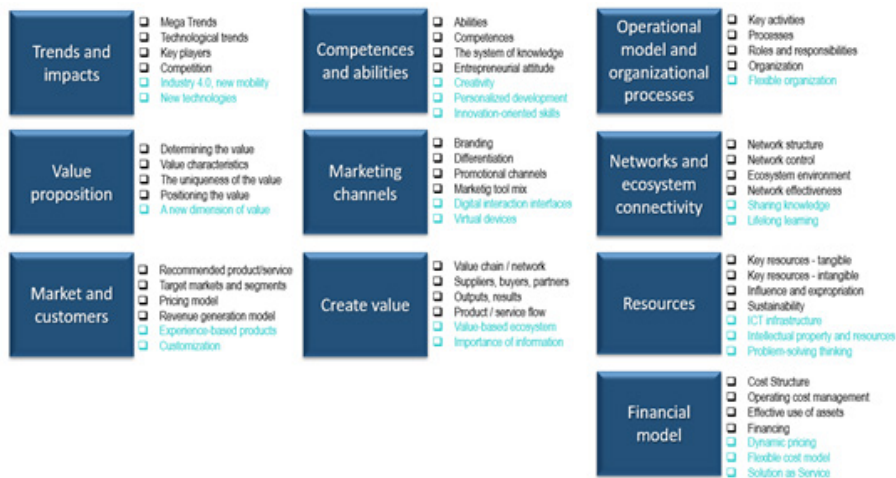


Figure 10 Elements and content of the developed business model framework
 Source: own editing

The ten elements defined in the model, includes sub-areas to describe the structure of a business model in more detail. These are based on classic elements of business models, further expanded with future-oriented elements in a customised way, aligned with the given application environment of the specific innovation ecosystem. As an outcome of this paper, this approach then describes a general business model framework that is future-oriented, dynamic, and knowledge-based in the same time.

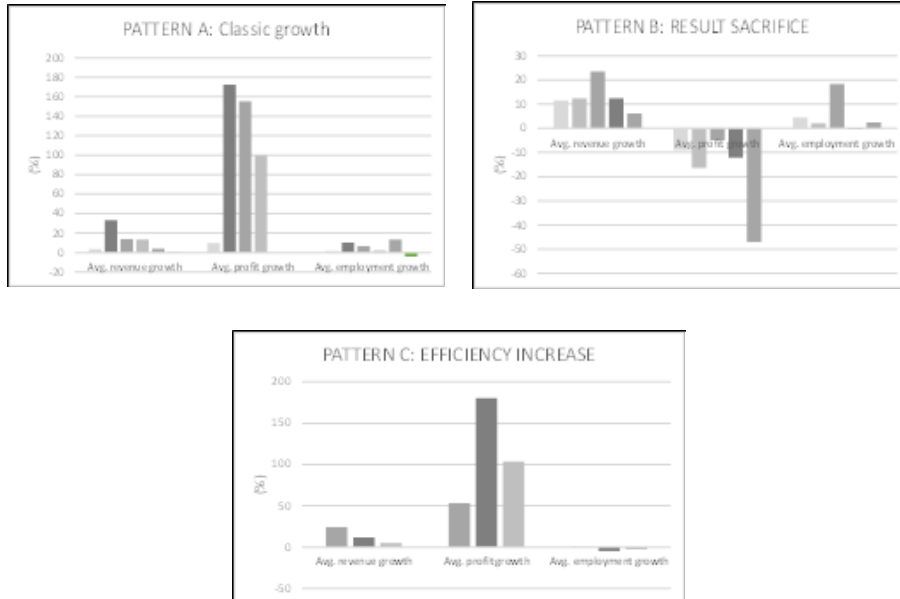
Results of Research 2 On the basis of the study assessing 756 organizations in 16 innovation ecosystems, it is supposed that the typical set of the performance measures may be a characteristic of the given ecosystem. Therefore, it is necessary to analyse not purely the specific measures alone, and not even taking the ranking of them, but also the combination of all the three characteristics: average turnover, profit, employment as aggregated

measures of innovation ecosystem. Accordingly, based on the trends of the characteristic measures, different patterns suggesting the success of the given ecosystem is possible to identify. Looking at the examined ecosystems from this point of view, Table 3 shows the trend summary of the three measures, indicating positive or negative trends based on median value. Based on the data interpretation, the examined ecosystems were grouped into three categories as shown in Figure 11. Two parks have been eliminated from these charts, one due to the extreme good (start-up), the other one as extreme negative result caused by specific actors. The content of the marking is:

- Pattern ‘+++’: The case of classic growth where turnover, profit and employment increase together. This is the ideal growth path which is rare, but six of the ecosystems examined show trends like this.
- Pattern ‘+-+’: The case where profit is sacrificed for certain purpose.
- Pattern ‘++-’: The case where business results increase without increasing headcount, for example, indicating a classic operation or growth efficiency trend.

Examined park, ecosystem	Trend of the measure		
	Revenue	Profit	Employment
1	+	+	+
2	+	+	+
3	+	+	+
4	+	+	+
5	+	+	+
6	+	+	+
7	+	-	+
8	+	-	+
9	+	-	+
10	+	-	+
11	+	-	-
12	+	+	-
13	+	+	-
14	+	+	-
15	-	+	-
16	-	-	+

Table 3 (left bottom) Summary of the survey results
 Source: ICET-M 2021 Conference (Hary et al., 2021)



Figures 11 Typical performance patterns by the survey results
 Source: ICET-M 2021 Conference (Hary et al., 2021)

Conclusions

The defined business model elements can be ordered along two axes. One axis is the dynamics of responsiveness to R-D-I, meaning, how quickly the content of a given element can be introduced into the organisational operational processes. The other axis is the R-D-I driving force intensity, reflecting the intensity with which R-D-I is linked to triggers as a real driver for shaping processes and research and innovation performance. Based on the literature research, a framework model was developed that combines the elements of the examined business models and integrates them into a new structure, taking into account the characteristics of collaborative R-D-I systems as concluded in the previous chapters. The new model builds on the content of the following models examined by several researches: Liu - Mannhardt (2019), Lindgardt, et al. (2012), Shafer, et al. (2005), Shi - Manning (2009), Micieta et al. (2020), Liu - Mannhardt (2019), Crave (2011), Tewes et al. (2018).

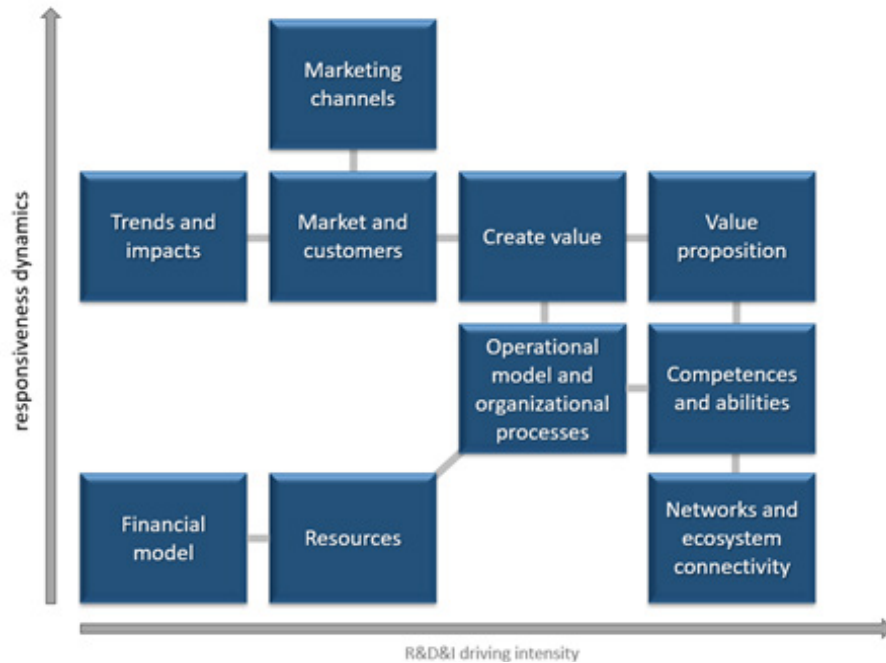


Figure 12 Structure of the proposed model for innovation-based ecosystems
Source: own editing

The success of any business model is measured through key business indicators. The survey presented here used revenue, profit and employment level for this purpose. As final conclusions of this part and the essence of the presented survey, the three basic performance characteristics can be used to describe the various innovation ecosystem performance level and differentiate nature of them. Through this classification, the possible theoretical combinations of trends of measures can be identified, see Table 4. The table also contains those combinations which have not been found during the above explained survey. The patterns identified this way, might be in line with the success of an ecosystem, while each different pattern results in different characteristics in park dynamic. This correlation can be the subject of further discussions and researches.

<i>Identified patterns</i>	<i>Aggregated average growth in revenue</i>	<i>Aggregated average growth in profit</i>	<i>Aggregated average growth in employment</i>
BASIC PATTERNS			
Classic growth	+	+	+
Results sacrifice	+	-	+
Efficiency increase	+	+	-
POTENTIAL FOR TURNAROUND			
Revenue potential	+	-	-
Result and employee potential	-	+	+
Result potential	-	+	-
UNHEALTHY BUSINESS PERSPECTIVE			
Business lose	-	-	+
All lose pattern	-	-	-

Table 4 Measurement of success of business model – typical patterns
 Source: own editing

The presented method can be used for evaluation of innovation ecosystems. There is an assumption that the pattern might be in line with the ecosystem development dynamic, but it needs further researches. Through this, it is possible to have a better understanding on the development path of innovation ecosystems in line with their historical cycle. The strategic business perspective of the specific patterns can contribute to the strategy creation and balanced management of innovation ecosystems as summarized in Fig. 13.

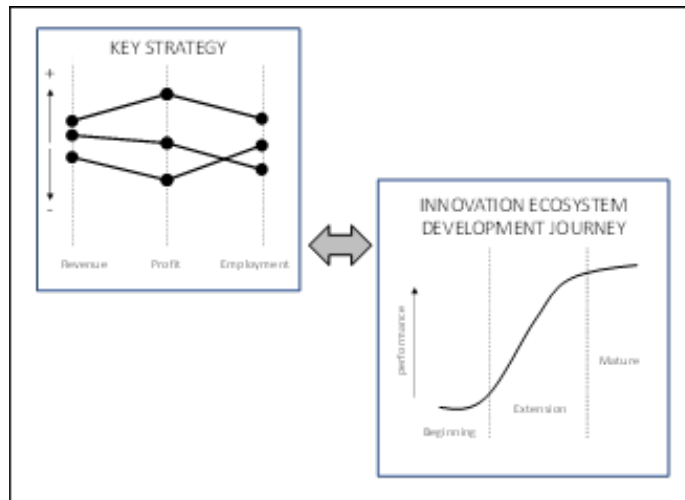


Figure 13 Business strategy of an innovation ecosystem management
Source: own editing

Final conclusions

The rapid technology changes lead to dramatic changes in several sectors, influencing not only the way of management and requiring new methods, but also affecting the complete business models. The current paper specifically focused on various aspects of an innovation-based, research and development-oriented ecosystem environment. The paper is a status summary of the authors' researches in the related fields. In line with this, the three research areas have been shown, after relevant literature review at each chapter, the research results and conclusions were presented.

The first research area is about the characteristics and specific patterns of innovation ecosystems. As an actual status of the researches, the conclusions based on KIBS approach were discussed in detail as well as concluding the importance of the sectoral focus of an innovation ecosystem. The authors outlined the possible options of sectoral focus of an innovation ecosystem.

The second research area addresses value creation features of an innovation ecosystem. After detailed analysis of relevant literature and research findings, an empiric survey was presented in the topic. As a conclusion of the survey, the authors gave conclusions related to sources of value creation in an innovation ecosystem, considering the balance of human and technical assets. An innovation boundary curve was introduced

which might be characteristic for innovation ecosystems.

The third research area brings the findings to the system-level of innovation ecosystems. The authors concluded a business model structure being also adaptable for ecosystem-level interpretation. Further researches related to specifics of the three axes of the presented model and the interrelations of them are in process. The model in its current shape is applicable for creation of general business strategies in the given dimensions so as to define innovation ecosystem-level strategy (Figure 14).

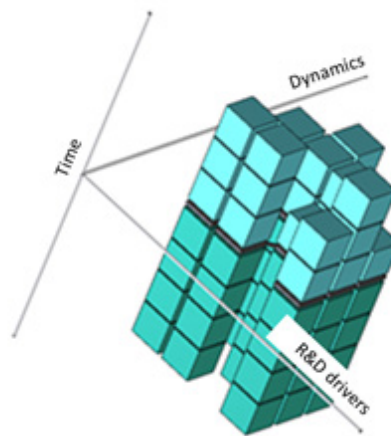


Figure 14 General concept model for innovation ecosystems
Source: own editing

Based on the discussions and conclusions discussed, the functioning of innovation ecosystems in changing environments is rather similar to the business models expected in the future. These can be built on the basis of the theory of complex adaptive systems (CAS). Therefore, characteristics of CAS are feasible for further researches of innovation ecosystems:

- **self-organization**, which means that complex systems are characterized by self-organization, the development of independent processes. As a result, the model has an integrative power, ie the system receives new information, members, inputs.
- **striving for an unbalanced state**, the level of the complex system must fall away from the equilibrium state, constantly moving at the boundary. The source of the imbalance is the driving force that underpins the whole system, and so is the power of the catalyst.

- **feedback**, which is important for the flow of information in a complex system, as the diversity and imbalance of the system entails the slowness or complete absence of information exchange.
- **co-evolution**, the development of two species in interaction with each other, in the case of complex systems, it depends on the range of founders.
- **regulation**, a structure that cannot be achieved in a complex system due to the role of the previously mentioned imbalance, but it is also important to create simpler rules.
- **maintaining relationships**, relationships between actors are essential because some kind of relationship develops between units operating in a single system while operating in a common ecosystem.
 - it follows from this the definition of the **interdependencies**, that is, the search for variables with which to define the co-operations and relations between the actors, because the role of co-operation is very important.
 - **knowledge building**, which influences the possibility of developing relationships between actors, so that the changing attractiveness of individuals, the uniqueness of the ecosystem, can be exploited.
 - **the history of the origin** of the ecosystem and the defining characteristics of its formation are important, determining which characteristics predict the developmental stages and trend line of the functioning of the ecosystem.
 - **the system is a complete whole**, all elements of the model are essential, this is a basic assumption for a system, an ecosystem, the actors cannot be discriminated against because of their quality, but each individual is an important part of the big whole.
 - it is observable in the development of systems and ecosystems, that the so-called **pattern creation** that develops on its own, similar to the self-organization resulting in a chain of successive events that evolve as the ecosystem evolves and follows specific patterns.
 - The fact that complex systems **cannot follow a linear path** in their development trajectory reflecting the efforts to maintain the previously unbalanced state.
 - it follows that trends in a complex system are **very difficult to predict** because the behavioural consequences of a given change are modified to predict the future of the ecosystem.
 - the **dynamic nature** of complex systems resulting in resources may need to be recombined from time to time to create a new strategy.

- starting from the history of the ecosystem, the **operating environment** of complex systems determines if they can achieve the goals the leaders have set themselves in the short term. An essential element for clear goal setting and visioning is the orientation of the ecosystem and the existence and quality of its sectoral focus.

Based on the analysis and the results discussed in the previous chapters, the model of the authors on innovation ecosystem (Tóth, 2020) have been continuously developing in line with research findings.

As final outcome of the related researches, the actual innovation ecosystem model based on the above detailed considerations can be seen in Figure 15.

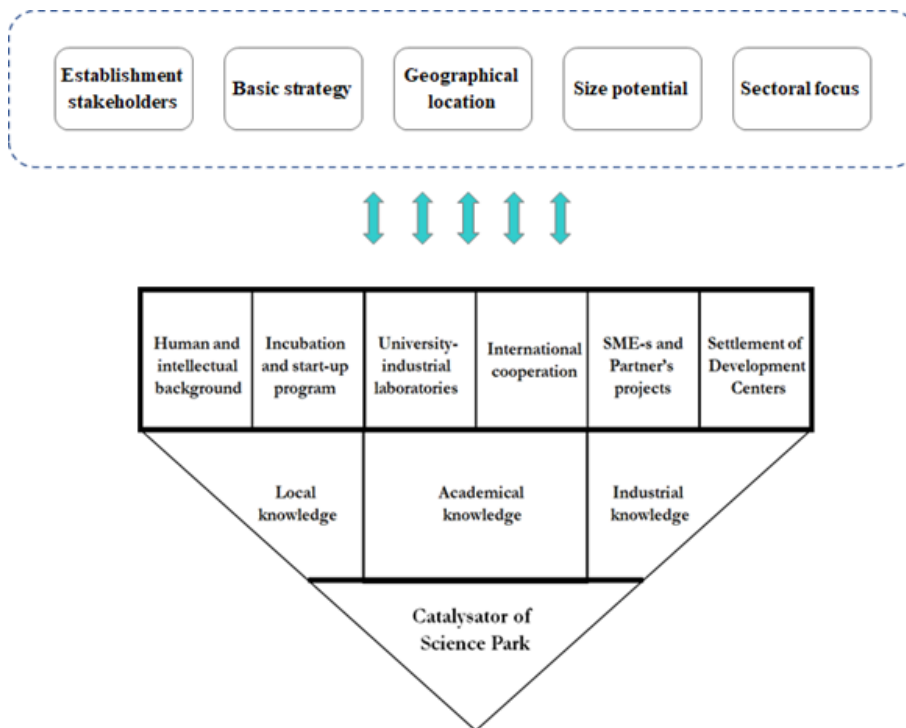


Figure 15 Functional model of innovation ecosystems
 Source: own editing, based on ICEM-M Conference 2021
 (Toth - Hary, 2021)

The paper gave an overview on researches of specific aspects of innovation ecosystems. Based on the literature review, selected researches were applied to make an analysis of the descriptive factors of innovation ecosystems, including R-D-I characteristics of actors, sectoral focus of the ecosystem, balance of human and technological assets in value creation and ecosystem-level business measurement and strategies. Finally, the innovation ecosystem model of the authors has been presented which is feasible to outline further researches in the topic. The possible future researches can be organized both horizontally and vertically in view of the three research areas. Research focus is needed to understand deeply the reasons behind the preliminary findings presented in this paper.

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