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Corporations' Adaptation of Green Strategies in the EU: Transformation of Oil and Gas Companies

Bartalos, Éva[1]

Abstract: The purpose of this study to assess the adaptation of the oil and gas companies' green strategies under the influence of ambitious EU's and Paris Agreement's climate initiatives. The primary aim is to elaborate more on the literature which were reviewed to provide analytical framework for the green transformation of the oil and gas companies and highlight how could they be applied in the above-mentioned research scheme. Furthermore, the study reveals at what extent the EU policies are affecting sustainable strategies of oil and gas companies compared to those entities which are outside of the EU. At this phase of the research 6 companies have been already analyzed: Orsted, Neste, Shell, British Petroleum and OMV and PKN Orlen. These companies are clustered according to their pace and maturity in green transformation. In the next phase of the research these companies are going to be grouped by their spendings on green projects, and their maturity in the green transformation will be categorized based on the portion of the green capital expenditures and divestment of carbon-heavy products.

Keywords: *energy transition, sustainability, oil and gas companies, green investments, EU*

JEL Codes: *Q56, Q53, O13, O16, O19*

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Introduction

The rapid climate change is urging policy makers and nation states to shape their decision-making processes and to introduce regulations to mitigate uprising environmental conditions and trigger net-zero economy. The impact of global warming has been proven by extreme weather conditions of the last two decades. The Greenhouse Gas (GHG) emission is not only affecting the Arctic regions where the ice scientists – Nathan Kurtz and Rachel Tilling – (Koo et al., 2023; Mersmann, 2022; Tilling et al., 2018) have been continuously analyzing the level of melting ice, but also all the continents with severe floods, typhoons, forest fires and hurricanes. In the recent years, Europe was hit by unusual weather conditions, and the rising temperature triggered that the European Union (EU) has been becoming the frontrunner in climate policies on reducing CO_2 emissions, especially after the Paris Summit of 2015. The global parties, 181 countries agreed on to keep temperature increases below 2 Celsius degrees, preferably to 1.5 Celsius. Moreover, the European Commission has been upgrading its climate ambitions in the frame of the Green Deal to reach net-zero economy by 2050. It is articulating the 2030 climate goals and energy framework and the 2050 long-term strategy (European Commission, 2020). Not only the member states, but also the corporations are incentivized to fulfill requirements in the frame of solid policy and fiscal instruments presented in the European Green Deal, and in detailed program of Fit for 55 package (European Parliament, 2018).

The goal of this paper is to provide an overview about the literatures which assess the green transition of the oil and gas companies and highlight the most relevant theoretical frameworks to explain the relations between multinational, national actors, and entities. The reason is why I have been choosing the oil and gas (O&G) industry because they are contributing indirectly and directly roughly 50% to the CO_2 emissions (Beck et al., 2020). Therefore, any change in their operations to become sustainable has significant impact on the environment. The green transition, the corporations' adaptation to the EU's climate initiatives are the focal point of this study. The green transition is quite debatable topic, several theories are dealing with it, especially from the corporations' point of view. In the next chapter I am going to provide an overview of the literature highlighting the role of the EU to set climate goals and their adaptations by the companies.

Literature Review

Climate policies and sustainability are representing those dimensions where both economic and political factors need to be closely investigated in the frame of the research scheme. In terms of sustainability the one of the most critical areas are the energy companies where the transition is essential for climate protection. The policy makers both domestic and international ones have the power to influence the strategies of these entities. Lindenberg's concept stating that climate policies cannot be analyzed without incorporating social and economic dimensions (Lindenberg & Bruno, 1993). My aim is to provide an extensive analysis over the triggering points of the green transformation of oil and gas companies and to elaborate further on the regulative instruments which might speed up the transformational path.

Relevant concepts for green transition

The recent research contains some important concepts such as net-zero economy, decarbonization, Green Deal, Taxonomy, Fit for 55, the EU's climate policy (European Commision, 2020) and transformation of oil and gas companies. The environmental impact of the EU directives has significant results already in both economic and social dimensions. The European Commission (EC) is the frontrunner to take huge leap towards commitments and implementations of net-zero economy. Based on the last few years assessment it is obvious that EC is nurturing more intense and faster transition by increasing reduction targets from 40% to 55% by 2030 compared to the level of 1990. The European Council has also contributed to the unified actions in the climate and energy policies by introducing the framework of the energy union which might provide common standards for each of the member states regarding energy security, fully integrated energy market, improving energy efficiencies, climate actions towards decarbonization and research, innovation for remaining competitive. These strategic points can support the main pillars of energy and climate policies of the EU (Kengyel, 2020). The research as it is in progress, requires deeper analysis related to policy making process within the EU institutions. The theory of Multilevel Governance (MLG) supports the analysis in relation with the complex decision making within the institutions in the international and domestic arena. Furthermore, it is used to highlight how do the corporations' approach the EU institutions to express their interests with the support of domestic governments. There is a popular platform

which is used for certain level of the lobbyist activities called EU public consultations where the major companies can express their interests and evaluations regarding the regulations which also fits to the above highlighted polycentric view.

The Green Deal concept is one of the most important policy frameworks which is supporting to achieve the ambitious targets to achieve climate neutrality for Europe by 2050 and to ensure realistic implementation of net-zero economy from economic, social, and environmental aspects (Wolf et al., 2021). The set of policy initiatives tends to be supportive pillars to enhance the achievements of the well-defined targets. The corporations' transformational paths are framed by various newly introduced dominant instruments such as EU Taxonomy, updated Emission Target Systems (ETS), and dimensions like circular economy and Carbon Capture and Storage (CCS).

The EU Taxonomy is supposed to become the most efficient instruments which supports the implementation of sustainable projects and clearly identifies the dimensions, quotas, and ecolabels for the green investments. Taxonomy is the newest tool which promoting sustainable development and ensuring that corporations are capable to adapt climate change as sufficiently as possible. It has a classification system which categorizing the sustainable activities. This tool is aiming at forging the investors, corporations, and policy makers during the transformational path, and helping to the corporations to avoid greenwashing acts while mitigating economic fragmentation and inducing developments where it is the most needed (Kooth, 2022). The Taxonomy was launched to establish a clear framework for the sustainable activities and support the corporations to boost their climate-friendly initiatives (European Parliament, 2023). These specific guidelines might eliminate the different understanding of sustainable activities and might accelerate successful transformations. However, this instrument was criticized from different angels, because the recommended KPIs are quite difficult to implement and measure.

Up to this point majority of the corporations were creating their own sustainability reports without commonly acknowledged indexes. As the below table is presenting the Taxonomy matrix including various dimensions, however the critics stating that the transport section is well-established and constructed with indicative measurable items while the other ones are not so transparent and clear. The criteria can be applied either on firm or project levels for instance linked to new power plant, production facility, or building (Wolf et al., 2021).

Environmental Economics

In the green transition, it is important to consider the cost-benefit analysis of the climate initiatives especially for industries which are heavily involved with the emissions. William Nordhaus (2019), an American economist, Nobel prize winner attempts to calculate the Social Cost of Carbon (SCC) which is representing the economic cost of every additional ton of carbon-dioxide emission. It is evaluating the discount rates on consumption denominated with current consumption per unit of additional current emissions (Nordhaus, 2019). However, the literature which is assessing the estimation of the price of any additional CO_2 emissions are quite scattered, there are quite big uncertainties regarding the economic impact of the cost of climate change (Bergh, 2004). On one hand, policy makers in different industries are tempting to apply the SCC to estimate the benefits of decreasing CO_2 emissions. The targets for CO_2 reductions could be set based on cost-benefit analysis (CBA) including discount rate which shows the economic benefit over specific timeframe (Bergh, 2015). According to Nordhaus (2011) any green investments should be accepted and considered with the lowest yield compared to other projects. On the other hand, there is also a debate whether the recent level of growth can be maintained for longer time or in case of the sustainable projects low and negative return can be accepted for the sake of protecting our environment (Bergh, 2015).

The aim in the empirical part of my research is to examine the level of adaptations of climate goals in the oil and gas corporations' short- and long-term strategies based on the EU climate regulations and directives. For this purpose, the multilevel governance theory of Hooghe and Marks (2020) where different level of decision-making process among supranational, national, and corporate actors' could be analyzed. Furthermore, the green transition is going to be measured based on the investments in green projects according to the articulated green strategies of the corporations.

Business ethics are also important notions, any action of corporations is formulated based on social norms, identities, and interests. To conclude, the transformational process of the corporation could apply the normative approach of constructivist theories, however, I would not gauge the driving factors behind the transformation neither from universal nor contextual point of views towards ethical questions (Buckley, 2013). I have purposefully avoided business ethics strain as it might result in 'indeterminate' outcome (Buckley, 2013).

Degrowth Theories

As the climate change arises attention of the society, policy makers on both international and national arenas, the corporations need to face the new reality, the conscious acceptance of degrowth. The trends of the recent economic growth cannot be kept without major negative impact on the environment, therefore a new concept, sustainable degrowth are gradually becoming the new reality for the corporations (Hankammer et al., 2021). Technological innovation was a trusted notion to further maintain the recent pace of growth, however, there are some limitations concerning our environment. Downscaling instead of descaling is the primary approach among the degrowth scholars (Schneider et al., 2010). The degrowth theory not only involve economic dimensions, but it also considering the social aspect of the changes in potential wealth by the green transition (Kallis, 2011). As the GDP is declining it is a consequence of a societal decision (Schneider et al., 2010), therefore, not only the corporations, but also the society, consumer behavior has essential impact on a success to reach net-zero economy.

Energy Transition Theories

Wide ranges of theorists are dealing with concept of energy transition. According to Václav Smil (2022), our civilization is fossil-fueled based where the transformation cannot happen within the determined time frame which opposing the EU's well-defined targets to reduce CO_2 by 55% by 2030 and to become net zero by 2050. He is quite critical about eliminating fossil fuels on a global scale which would be essential from the environment point of view. Four basic commodities were highlighted – ammonia, steel, concrete and plastics which are heavily dependent on fossil fuels. The net-zero economy will not be achieved without highly advanced technical achievements. The Canadian-Czech professor has stated that slow transformation of the companies is more realistic in line with the changes in the mindsets of the consumers (Smil, 2022). These two notions are interconnected and cannot be separated from each other. Another representative of energy transition theories is Benjamin K. Sovacool who is dealing with the timing concept of the transition on both national and international level (Sovacool, 2016). Time scale in energy transition is quite crucial element, as the EU is setting very specific goals in set timeframe for reducing CO_2 emissions, therefore Sovacool's findings are highly considered. On the other hand, the International Energy Agency announced the immediate actions need to be taken, if the transition does not occur

fast, it might be too late to make any effort to change climate trends (Sovacool, 2016). Sovacool has an opposite view with Smil's statements that energy transition can happen quite speedily in certain cases. Stanford scientists Rubio and Folchi stated that fast transition is possible only in small scale or unique cases (Sovacool, 2016). While the concept of climate protection is growing Chilvers and Longhurst (2016) highlighted the importance of the participation of the public in the green transformation, and more focus on the social aspects of this change instead of focusing on technical dimensions.

Multi-level Governance Theory

One of the most relevant theoretical implications which has been found in the reviewed literature is the Multi-level Governance Theory which provides framework for analyzing decision making process and lobby actions in the EU institutions. All parties not only its member-states, but also the non-state actors and the citizens are obliged to follow the climate initiatives. As the requirement of green transformation are affecting multiple actors on various layers in the international arena, therefore the Multi-level Governance Theories by Gary Marks and Hooghe is chosen to characterize the process of policy making and execution of certain directives. The polycentric view explains how the state and non-state actors shape the climate policies, especially when the corporations are using either the EU institutions or the national governments as a platform for lobbying (Hooghe & Marks, 2003). The EU public consultations providing forums for the non-state actors to express their interests and critics about any regulations, directives and law which might be introduced. The corporations might use these forums to express their views regarding the policies which were implemented, and they can suggest improvement areas or highlight any gaps that might be occurred. However, the statistics over the successful claims need to be further investigated. As the climate policies are formulated on multiple levels including interests of different lobbyist groups and subnational actors, therefore the polycentric structure could clearly support the analysis of different layers of policy- and decision-making process. Schakel (2016) and Stephenson (2013) both highlighted that the theory has been applied widely by the academic literature, therefore it is essential to find in detail the multiple layers not only between the EU and governmental relations, but also understanding of evolution of the governance within the state.

Compliance Theories

One of the most relevant theoretical implications related to the corporate sector are the Compliance Theories (Etienne, 2011) which might be considered as the most relevant one in relation with the corporate world. As the compliance or non-compliance approach tackle complex behavioral standards, the transformation of the oil and gas companies might be fitted the most into this framework. The compliance notion helps to pursue goals which are aiming at fulfilling moral behaviors or highlighting areas where actors are following rules due to fear to be penalized financially by not complying with certain standards. According to empirical evidence of certain compliance theorists the most typical motivational factors to comply with the regulations rooted in the combination of material, emotional and normative goals (Etienne, 2011). The logic of consequences and logic of appropriateness are the main characteristics of the actors in action along certain regulations and incentives. These combined motivations consist of cost-benefit calculations and moral indicators, former is generated by the regulators and latter one by the consumers and shareholders (Etienne, 2011). These dimensions are suitable to analyze the adaptation process of the oil and gas companies towards the climate policies. Along with the increasing carbon prices and the social pressure to become sustainable, the transition is very much triggered and accelerated in the past few years. The notion of compliance along with the impact of the regulations is extensively and empirically proven in the academic world, one of the greatest examples are Lindenberg's goal framing theories which representing the heterogenous motivations of the actors in parallel with the decision-making processes. In case of climate policies there are very strong convergences between social and economic dimensions, where the rational choice might be applied to explain social actions (Lindenberg & Bruno, 1993). The climate change as a social issue triggering multiple economic and market related actions via regulations, therefore the actors in these conditions are choosing heterogenous goals which are triggered autonomously or by the pressure of the environmental changes (Etienne, 2011). The level of commitment of the oil and gas companies towards the net-zero economy and the motivational factors are situated in the crossroads of hedonic gains and normative goals. Another essential angle is highlighted by Scholz in his contractual compliance theory which indicates the procedural justice might trigger effective applications of policies, as some of the actors are fulfilling the obligations if they are coerced (Scholz,

2003). In the transformational process the procedural justice offers estimations whether the cost of fulfilling the environmental obligations will be exceeded with the long-term benefits related to saving our planet and preserving the environment (Scholz, 2003). Thus, it is important to distinguish between national and multinational implications of the policies and directives for CO_2 reductions.

Essentials of the Theories

All in all, there are three main factors, the economic development, technological innovation and policy change which can support a successful energy transition. According to Cherp only the meta-theoretical framework can support the deep analysis of energy sector's transition as it implies national security, economic development, and sociological aspects of consumer behaviors. Some of the sectors can apply relatively faster transition then others. Oil industry belongs to the ones which cannot only accelerate new technologies or new economies of scale, reconfiguration is the dimension what is ultimately needed (Cherp et al., 2018) which supports the assumption of the relatively slow transition compared to other sectors. Additionally, corporations as rational actors being profit-oriented need to be incentivized financially either with subsidies for green investments which are quite capital heavy or with penalties by not fulfilling set targets for greener operations. The EU plays an important role in the green transition by incentivizing the acceleration of green projects and penalizing the CO_2 heavy operations. Besides financial incentives, quite complex structural changes required at the oil and gas companies. One of the greatest examples for the portfolio shift is divesting the heavy infrastructure of Upstream sector which requires quite long time until it has no effect on the environment.

There are two aspects in the reviewed literature which have not been elaborated sufficiently, one is the impact of the EU climate initiatives on the short- and long-term strategies oil and gas companies and the other one is the clustering global and national oil and gas corporation to assess the maturity of the green transition within and outside of the EU. While many studies have been focusing on the EU climate policies and instruments, however, fewer studies took into consideration the industry analysis regarding the transformational path to fulfill those ambitious targets. The adaptations of the climate initiatives in case of corporate sector are essential to assess because the transformation will result in real impacts on our environment. Though there have been already some great examples

where the green transformation has reached a mature level. The biggest challenges are the implementation of domestic climate policies at the lowest cost possible (Böhringer, 2014). This implies the importance to examine the regional specifications from industrial and economic point of views. Additionally, there are extensive ranges of debates which are highlighting the gaps in the EU climate policies and real environmental impacts initiated by the companies resulted in emerging concepts such as greenwashing and carbon leakage. Majority of these articles appearing in non-academic sources, however, a few of them have already been published on the academic level as well. Greenwashing refers to activities when the corporations are communicating green activities without any positive impact on the environment (Vries et al., 2015). The framework and specifications about the green activities is essential to eliminate the concept of greenwashing where companies' narratives and marketing include more the sustainability than their real actions. That is why the attempt from the EU to categorize green investments per industries in the framework of Taxonomy is a great advancement. Multiple articles are criticizing the existence of carbon leakage where the biggest issue is that developed countries outsourcing their production to developing states. Since introduction of Green Deal in 2019 some of the CO_2 heavy production were placed outside of the EU. The carbon intensive products are imposed to taxes within carbon border adjustment to find the most optimal solutions for all international and domestic actors (Mörsdorf, 2022). The strict monitoring approach is essential regarding GHG emission from production and consumption point of view as well (Nielsen et al., 2021) to reduce CO_2 heavy production and accelerate the green transition on global scale.

The recent research is intending to address gap in the literature related to transformation of the oil and gas industries and reveal the positive impact of the EU policies and instruments affecting the speed of sustainable transformation. Étienne's combined motivation logic of cost-benefit and moral indications (Etienne, 2011) supporting the analysis of the transitional path of the corporations. Compliance theory is a relevant framework to analyze the transformation process to reach net-zero economy in the corporate sector. The most dominant goals of the companies are the combination of the material, emotional and normative ones (Etienne, 2011). On the one hand, the cost-benefit calculations representing the power of the supranational institutions to enhance environmental actions with regulations and fiscal incentives, penalties towards the oil and gas companies. On the other hand, the moral indication of the transformation is rooted in

the expectations of the consumers and shareholders to create more sustainable operations and offer products which serve the sustainable development. The latter one is started to be dominant industry-wise. According to Étienne the multidimensional factors which influencing actors' behavior cannot be taken individually, the fear from penalties and legal sanctions, the search for gains and fulfillment via social norms should be considered together. These multiple and complex motivational factors need to be considered together to provide relevant framework for actors' decisions and behaviors especially in case of green transition in the international arena (Etienne, 2010).

Methodology

In the previous chapter the diverse literature about green transition was assessed including economic, social, and political aspects of the green movement. It was essential to understand how the interactions between supranational, national, and subnational actors behave and influence in each other during the process of leading such a great change. All the oil and gas companies need to change fully their core, fossil-fuel based businesses to comply with the targets of net-zero economy. The multilevel governance theories and the compliance ones are essential frameworks to understand and evaluate the achievements in green transition and understand the motives of the oil and gas companies in the way how they handle and perform all the green targets articulated in the long-term strategies. It is also important to highlight the responsibility of the supranational organizations such as the EU and the society, consumers in the green energy transition.

The transformation is a complex process which is shaped by social, political and economic impacts as well. Therefore, the energy transition of the companies should be analyzed in multitier framework which allows to apply several disciplines (Cherp et al., 2018). Therefore, extensive theories from different disciplines economics and political sciences, or philosophical background are applicable. In most of the cases the green transition requires longer process. Some of the critical areas are the decomposition of the refineries or change is consumers behavior. The most influential factors in the adaptation process will be analyzed during this research scheme to reveal how the corporations are going through the transformational path and what is the role of the EU policy makers, domestic

governments and the customers, stakeholders, and shareholders in that change. Implementation of sustainable strategy with a real environmental impact is a highly debatable topic.

Theoretical Framework

At the recent study several theories were presented, out of which the most relevant ones for the climate goals' adaptation of the corporations are the multilevel governance, compliance theories and energy transition theories. These could primarily support the theoretical framework of the research which is the green transformation of the oil and gas corporations.

The linkage between the corporations' shifting portfolios and the EU policies is essential to derive how much the oil companies are adapting the EU policies. On the other hand, it needs to be assessed how feasible are the ambitious targets announced by the EU, and whether the short-term gains in the green transformation can be maintained on long-term as well. Therefore, the involvement of non-state actors such as corporations in the target setting is essential on supranational level. The polycentric multilevel governance represented by Elinor Ostrom is highly adaptable for the corporations' potential influence in the international policy making especially around climate initiatives. The center of this approach is that there are multiple authorities at different scales are involved in the decision-making process which generally shifting power away from national governments and supranational institutions (Ostrom, 2010). This would be essential in the transformation process of the corporations which are mostly responsible for the CO_2 emissions. The realistic goals and implementation could be ensured with this extended network of corporate agents where all the aspects of operation, strategy, business, and policy stream could be presented from different angles. The key aspect is not to let the EU institutions to be influenced by the oil corporations, it is more about following both regional and industry specifications in the frame of polycentric approach could result in tangible achievement in climate protections instead of following global goals and treaties (Ostrom, 2010). By the EU's recently introduced instruments. Fit for 55 and Taxonomy with more concrete industrial quotas, specification of green projects, serve the purpose of successful adaptation of climate initiatives (*Figure 1*).

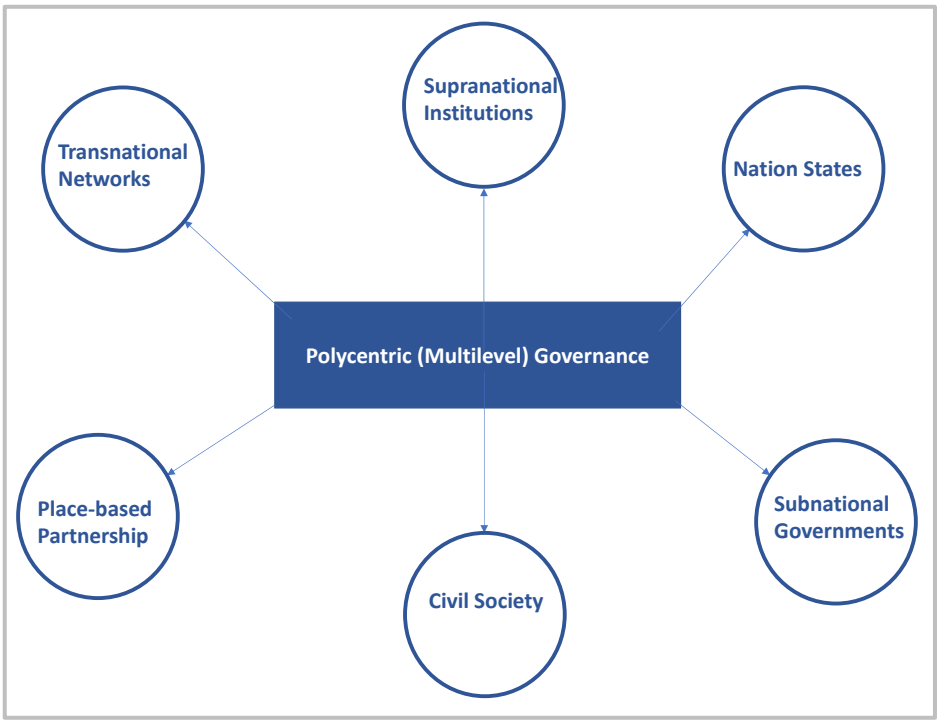

Figure 1: Polycentric (multilevel) governance

Source: Bulkeley et al. (2003)

The adaptation of the 2030 and 2050 climate goals to reduce CO_2 emissions and potentially reach net-zero economy are fitting into the above-mentioned polycentric approach where besides supranational and national actors, also different relevant interest groups, associations and representative of the corporations concerted action aims to accelerate the transition. On top of that, territorial partnership could be induced to enhance corporate green strategies, the best practice could accelerate the transition, and the problematic areas could be tackled together along with common interests which could support future strategy creation at the oil and gas companies.

Qualitative Research Method

In the frame of researching the green transition of oil and gas companies, I am aiming to review strategy papers, and seek correlation between EU instruments and introduction of green project. This article applies qualitative approach to review press news at the corporations' website and strategy

papers to collect how many of those green projects appearing in strategy papers have been launched. The period which serves basis for the analysis is between 2017 and 2022. Along with the 2015 Paris Climate Summit the EU instruments to accelerate green transformation were launched thus climate protection has become a global mission. By comparing the green strategies of the companies, the aim of the research is to analyze the maturity of the transformation of the companies into green operations and evaluate the feasibility of reaching net-zero economy by 2050. To assess the green transformation of the companies I am evaluating long-term strategies whether the companies are choosing projects which are fully green and emitting zero CO_2 such as renewables or choosing a less carbon intensive path like natural gas or hydrogen. These dimensions are gathered via content analysis method in the frame of qualitative research method. As the interpretations are dominant in the process therefore accurate and quality content analysis are essential in the research process (Bengtsson, 2016). Therefore, the research scheme is applying manifest analysis by staying close to the text of the strategic papers which are going to be analyzed in relation with the investment and divestment actions in case of the six companies. Inductive reasoning applied to ensure credibility and derive as accurate conclusions as possible from the collected data (Polit & Beck, 2006).

In the frame of qualitative research specific words in the strategic reports of oil and gas companies supported the following categorization in the green transition. There are two main groups in initiatives one of them represents clean energy while the other group are the lower carbon footprint alternatives. The relationship for this method to collect the categorized words representing strategic directions of the companies are close relation with the polycentric (multilevel governance) theory. The implication of the theory is that forged effort of supranational, national, subnational, and transnational actors could accelerate the transition path of the companies (Bulkeley et al., 2003). The main finding is that the partnership of companies and acquisition of those entities which have an expertise in the building wind and solar farms, or in the recycling technologies have positive effect on green transformation and could transfer the efforts into positive results. The *Table 1* represents and collects the main green dimensions of the companies which are published in the strategic papers for 2030. All of the six companies build their green strategies on wind power, and then solar energy in categories of renewables. From the list of clean alternatives geothermal energy appears only in case of OMV which has high potential to contribute to the planned yearly 10 TWh (Terawatt hour)

energy production from 2030. In the lower carbon footprint categories biofuels, biogas and hydrogen are the most common alternatives. The option of carbon capture storage (CCS) which has significant capacity for CO2 storage appears as alternative strategic elements mainly at the oil majors like Shell and BP, and in case of the medium-sized companies such as OMV and PKN Orlen. Dominant role has a circular economy and high value petrochemical production in the strategic directions of OMV and Neste. All these strategic directions are induced by successful synergies of companies which contribute to the know-how and technological implementation (see in the last column of *Table 1*).

Table 1: Strategic dimensions and their relations to the Theories

Oil and Gas Companies	Green Energy Transition Strategies by 2030		Theory Implications
	Clean Energy	Lower Carbon Footprint Alternative	Polycentric Governance
Shell	Floating wind energy, Solar Energy (45 GW), Electric vehicle (EV) Charging station	Biofuels & Hydrogen, Develop Carbon Capture Storage (CCS) (25 mn t / year)	Acquisition of Sprng Energy, Solar & Wind platform in India, & SBRS (German company) electric charging services for buses, trucks and vans
BP	Wind & Solar Energy (50 GW)	Hydrogen & CCS (10 mn t / year)	Partnership with Equinor for Solar Energy and joint venture with Lightsource bp
OMV	Geothermal, solar & wind (10 TWh)	Sustainable aviation fuel, CCS storage (5 mn t / year), higher value chemical products & recycling, circular economy	Purchasing higher share in Borealis, no. 1 producer of ethylen & propylene in Europe
PKN Orlen	Wind & solar farms (9 GW), small nuclear reactor, EV charging points (+10 000)	Biofuel & biogas, CCS (3 mn t / year)	Acquiring other fossil fuel based company (LOTOS) to increase revenues & thus investments
Orsted	Offshore & onshore wind farms, solar panels (50 GW), renewable hydrogen	Energy storage facilities, green fuels	Stakeholders accelerated green transition; acquisition of A2SEA wind turbine installation company, acquisition of Deepwater wind a leader at offshore wind development & Lincoln Clean Energy onshore wind & solar platform
Neste	Wind power	Circular Economy, recycling plastic waste, Sustainable Aviation fuel, renewable diesel	Joint partnership with Eppendorf, a leading manufacturer of renewable raw materials for lab products

Source: Own Edition based on Annual reports of Orsted (2022), Neste (2022), Shell (2022), British Petroleum (2022), OMV (2022) and PKN Orlen (2022)

Triggering points of green transition

Besides the EU policy instruments, the fiscal incentives induce actively the transformation of oil and gas companies. This topic could be articulated from two angles, firstly, the continuously increasing carbon prices are accelerating the transition path of the companies while secondly the available funds for green projects providing enough incentives for the domestic governments to boost the transformation process in the O&G industry. Additionally, the Environmental, Social and Government (ESG) targets are the newly introduced dimensions at the corporations to measure the achievements in this area. These indicators are continuously raising attention of the shareholders. As it is a significant measuring tool for the performance of the companies which are actively working on the transformation in line with the external factors which are continuously articulated and shaped by the EU institutions. ESG concept supports the compliance of the corporations in relation with the environmental laws and criteria articulated by the supranational organizations. ESG means a safeguard in the recent environmental conscious circumstances for the corporations by contributing to maintain cashflow and boost green investments (Beck et al., 2020). On the other hand, to avoid penalties for carbon emissions the companies are incentivized enough to engage themselves in clean energy transitions and in the alternatives, energy mixes which has lower carbon footprint compared to the traditional fossil fuel.

Results

All the companies in the O&G sector are in the transformation process, however, the corporations within the EU are in the regulatory environment where the transformation are incentivized. Meaningful impacts might be achieved by applying all sorts of instruments: Taxonomy, Fit for 55 and Carbon Capture and Usage. The EU policies, regulations are having essential role in the transformation of the oil and gas companies. The maturity of the green strategies of the European Oil and Gas companies indicate the effectiveness of the EU's active policy making processes.

The literature reviewed about the adaptation of climate policies of the corporations provide wide spectrum from the field of economy, society and policy making. Certainly, the multi-level governance polycentric theory and the transition theories provide supportive framework for the adaptation model of oil and gas companies' green strategies. The ambitious

2030 and 2050 goals can be achieved only with concerted actions among the EU, the national governments and the subnational actors, civil organizations, and corporations. The polycentric approach indicates that applying active discourse about the ambitious climate goals not only on supranational and national level, but also on lower tiers of the society and geographic proximity could lead to a successful implementation (Anfinson et al., 2023). At this stage the EU is a frontrunner at climate protection, however, still essential leaps need to be taken by the domestic and local governments and oil and gas corporations to be able to fulfill 55% reduction targets by 2030 compared to the 1990 level (Delgado-Tellez et al., 2022).

After the extensively overviewed literature it can be derived that the main motivational factors of the oil and gas companies in the green transformation, as Lindenberg's Goal Framing Theory (GFT) is confirming, the combination of the fiscal incentives of Carbon taxes and penalties based on GHG emissions and the compliance towards climate protection (Etienne, 2011). Green transformation strategies of the corporations are triggered by heterogenous motivation of adapting and fulfilling supranational regulations, financial commitments and meeting expectations of customers, shareholders to become green (Etienne, 2011).

Table 2: Comparative Cases of Oil and Gas Companies

Oil and Gas Corporation	Country	EU's MLG	Compliance Theory	Green transformation
Orsted	Denmark	Non-applicable	Heterogenous	Frontrunner
Neste	Finland	Partially Applicable	Heterogenous	Frontrunner
Shell	Great Britain (Netherlands)	Applicable	Heterogenous	Moderate
BP	Great Britain	Applicable	Heterogenous	Moderate
OMV	Austria	Applicable	Heterogenous	Moderate
PKN Orlen	Poland	Partially Applicable	Customers, Shareholders	Moderate

Source: Own Edition based on Annual reports of British Petroleum (2017–2022), Neste (2017–2022), OMV (2017–2022), Orsted (2017–2022), PKN Orlen (2017–2022), and Shell (2017–2022)

The empirical part of this study involves 6 cases and compares their achievements in green transition in line with the EU's climate initiatives. Below table is summarizing in nutshell the selected cases and impact of

the compliance and MLG theories. The companies are listed in relation to the EU where the climate initiatives and measures are analyzed, while in the frame of the compliance theory all the motives were observed behind the companies' action towards green transition (see in *Table 2*). The former was taken based on the news and strategy reports, the latter one from the narratives and communicated mission statements of the companies were extensively analyzed.

Table 3: Strategic Direction of Oil and Gas companies between 2000–2015

Oil and Gas Companies	2000-2009		2010-2015	
Shell	Increased portfolio and proved reserves: Nigeria, Kazakhstan, China, Malaysia and Russia		Upgrades in upstream business: Liquified natural gas, oil sands	Extension of Downstream business: petrochemical capacity
BP	Expansion in the USA market acquiring ARCO lubricants and specialty chemical company, Burmah Castrol	Taking share in Baku-Tbilisi-Ceyhan pipeline to transport crude oil from Azerbaijan	Joint venture with the Russian energy giant Rosneft	Reopening the major North Sea gas field jointly owned with Iran
OMV	VIVA is acquired functioning as filling station shop	Continental expansion of the filling stations	Expanding services at filling stations with Banking service via partnership with Erste Bank and Sparkassen	Investments in Upstream Business
PKN Orlen	Financial stability of petrochemicals, mining and refineries		Developments of petrochemicals, mining and refineries	
Orsted	Coal intensive power generation	Extensions of offshore wind farms	Phasing out coal and investing into offshore / onshore wind energy	
Neste	Strenghten the Operation of Finish Oil Refinery	Renewable Diesel Production	Renewable Refineries in Singapore and Rotterdam	Sustainable aviation fuel

(Dimensions of grey transformational projects are highlighted with green.)

Source: Own Edition based on Annual reports of Orsted (2000–2015), Neste (2000–2015), Shell (2000–2015), BP (2000–2015), OMV (2000–2015) and PKN Orlen (2000–2015)

Based on the summary of the cases above it is derived that the EU's multilevel governance structure and the heterogenous motives of compliance including motives of fiscal incentives have positive impact on green transformation of the companies. Out of the six listed companies Orsted and Neste are outstanding in the green transition from a traditional fossil fuel entity they transferred into a green operation (Neste, 2022b; Orsted, 2021). Certainly, the transition is easier on smaller scale compared to the oil giants such as Shell or BP. Customers and shareholders expectations to become sustainable have a significant positive impact on their green strategies despite of the fact that these entities are out of the influence of the EU, and they are not facing any penalties by not blending enough biofuels or not complying with the GHG reduction targets.

The three phases of time dimensions shown in the *Table 3* and *Table 4* are clearly indicating that only Orsted and Neste companies started to launch projects related to the green transition before the EU started to launch its climate initiatives more actively since 2017. Therefore, in these cases the pro-environmental governments have induced green transformation by supporting companies since the year of 2005. The other four companies Shell, BP, OMV and PKN Orlen have articulated green projects since 2017 mainly with a mixed energy concept after the EU has become frontrunner in energy transition. The multi-level dimensions between the EU and national governments are applicable mostly in case of Shell, BP and OMV, while partially applicable in Neste and PKN Orlen. These companies are at the two different angles in transformation, Neste is among the front runner companies, however, its green strategies are based on energy mix with renewables and less carbon heavy portfolios such as Renewable Diesel production or Sustainable aviation fuel. While the Polish company, PKN Orlen is very slow at green transition, even the EU has accepted some exemptions from the Green Deal, as Poland in a difficult situation due to the dependency on coal and carbon-heavy productions (Kyriazi & Miró, 2022). The developing markets like Poland need to accelerate their energy transformation and find solutions which based on energy mix (Johnston et al., 2020). That is why from the strategy point of view PKN Orlen has been combining renewables and petrochemicals in their green transition. Orsted is the only oil and gas company which was able to fulfill the requirements of the successful green transformation. Based on the above table they started to eliminate their coal

intensive business already between 2000–2009 and turn its portfolio to clean energy business built on offshore and onshore wind farms (*Table 2*).

Table 4: Strategic Direction of Oil and Gas companies between 2016–2022

Oil and Gas Companies	2016–2022			
Shell	**Green hydrogen**	**Biofuel**	**Electric Vehicle** (EV) charging; Renewables solar and wind power to generate electricity	**Carbon Capture Storage** (25 million t CO_2 / year by 2030)
BP	**Green hydrogen**	**Bioenergy** from waste or plants	**EV** charging; renewables from sun and wind	**Carbon Capture Storage** (10 million t CO_2 / year by 2030)
OMV	Electrolyser plant to produce **green hydrogen**	**Reoil Project** – convert plastic waste into oil (16 000 t /year) Sustainable Aviation Fuel	Largest **solar (photovoltaic)** plant in Austria to generate electricity	**Carbon Capture Storage** (5 million t CO_2 / year)
PKN Orlen	**Green hydrogen** production	**Biogas, biofuel and biomethane**	Acquiring Energa to generate **renewable based electricity**	**Carbon Capture Storage** (3 million t CO_2 / year)
Orsted	**Green hydrogen**	**Bioenergy Plants**	Global Leader at offshore wind; onshore and solar farms	Energy Storage Facilities
Neste	**Renewable Diesel** Hydrotreated Vegetable Oil (HVO made from used cooking oil and animal fat) reduces GHG emissions up to 90% compared to fossil diesel	Chemical recycling, **circular** solutions	**Solar panels** generating electricity at the filling stations	**Carbon Capture Storage** (4 million t CO_2 / year)

Source: Own Edition based on Annual reports of Orsted (2016–2022), Neste (2016–2022), Shell (2016–2022), BP (2016–2022), OMV (2016–2022) and PKN Orlen (2016–2022)

The comparative case studies need to be further elaborated to derive firm and accurate conclusions by assessing capital expenditures of these companies related to green projects and deeply investigate the components of green sustainable strategies within two major milestones for the year of 2030 and 2050 when net-zero economy is desired to be achieved.

Limitations and Managerial Implications

The overall aim of the study is to collect data about the strategic directions of oil and gas companies in line with green transformation to understand how these entities would contribute to achieve net-zero economy by 2050. The strategic papers and reports in the annual reports were reviewed. The green narratives of the oil and gas companies started to be analyzed in the frame of manifest analysis where the original source of announced strategic directions were applied in the tables. Despite of the fact that the green energy transition of oil and gas companies are receiving increasing attention from the academia and the corporate world there are little studies which providing adequate case analysis and thorough examination of the green transformation of the specific oil and gas companies. The limitations are important to highlight in this research scheme which is evidently hinder to breakthrough analysis in this topic.

The most important limitations are the confidentiality of the strategic data and information of the oil and gas majors. The measurements and the key indicators of green transition such as the green capital expenditures, divestments are difficult to collect, therefore, to evaluate the recent stage of the green transformation of specific cases are challenging. The meaningful data collection and real implications of the strategic directions hard to analyze and share publicly. Another limitation in the green transition of the oil and gas companies that the external factors like recent Russian-Ukraine war might reshuffle the attention and momentum from green transformation as the energy security overwrites all the climate initiatives. Although this aspect is out from the radar of the recent article.

These factors are completely out of the control of the researcher which indicate that the study will have some levels of limitations though it might present still valuable findings and outputs for the academia. The case based representation of the green transformation of oil and gas companies is an essential contribution to the existing literature and stakeholders' knowledge.

Conclusion

The recent study gauging the adaptation of corporations' green strategies in the academic literature. The empirical part of the research of conducting comparative study approach of the oil and gas companies going to be continued. The analysis is aiming to bridge academic and corporate environment to evaluate policy makers and business leaders' instruments to achieve climate goals and to contribute to environmental protection.

There are several literature and theories about adaptation of climate goals by the companies where different dimensions economic, political, and social aspects are combined and evaluated. Out of the above highlighted theories in the recent studies the environmental economists are contributing to academy by assessing challenges to determine social cost of carbon (Nordhaus, 2011) which is tempting to estimate the cost of any additional CO_2 emission. The theory would be essential for the policy makers to determine penalties or fiscal incentives in case of green transitions. However, the proper unit cost of CO_2 emission is determined at wide scale indicating that the climate protection is quite complex dimension, and it is difficult to quantify in dollar amount the damage caused by pollution.

While the energy transition theories are quite skeptical regarding predefined timing for the climate goals, Smil is assuming more importance for fossil fuels and shifting the dominant role from the corporations to the consumers in the green transition (Smil, 2022).

The MLG and Compliance theories play central role at analyzing the adaptation of corporations' green strategies. The polycentric view (Bulkeley et al., 2003) is essential while assessing the impacts of the green transformation. Multiple channels in shaping climate goals could lead to their realistic implementation especially if platforms are ensured for corporations as well to express best practices and consider regional specifications. Etienne's compliance theory based on the combined heterogenous motives of material, emotional and normative aspects can be applied when analyzing green transformation of the oil and gas companies under the influence of the EU (Etienne, 2011). In parallel with the rapid evolution of the EU's climate policies the strategic shift of the O&G sectors towards green operations is accelerated.

From the above highlighted analysis, it can be concluded that the multilevel governance framework with polycentric view provide an essential theoretical background to boost green transition of oil and gas companies

and support the multitier approach where the EU institutions, national governments and subnational actors ensure successful transition and realistic goal setting to reach net-zero economy by 2050 articulated in Paris Climate Summit (Europe Commission, 2020).

To conclude, all the six selected oil and gas companies are on the transition path, however, the motives behind the green movements are different in each case. According to the analysis the Nordic companies such as Orsted and Neste started the green transformation already before the supranational organizations have taken leading role in it. While the other bigger, BP and Shell and medium-sized companies like OMV and PKN Orlen launched green initiatives in their strategies after 2016 when Paris Climate Agreement was ratified, and climate protection has become a critical dimension for the countries to protect the environment.

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Tourism Marketing & Economic Sustainability of Tourist Destinations: Perspectives of Bale Mountains National Park

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Abstract: The economic sustainability of tourist destinations is crucial for the long-term success and growth of the tourism sector. In this regard, tourism marketing plays a great role in fostering economic growth and ensuring long-term resilience. The study focused on national parks in an effort to determine how tourism marketing affects the economic sustainability of the parks. Mixed research, in line with explanatory and descriptive research designs, was applied to achieve the aim of the study. A sample of 143 was collected from employees of the national park and small and medium-sized enterprises working in the park using the census sampling technique. The study revealed that tourism marketing has a significant impact on the economic sustainability of the national park, with price, place, and promotion having a high correlation with the economic sustainability of the tourism destination, while product has a moderate relationship. Fur-

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thermore, the regression result shows that independent variables have a significant impact on the economic sustainability of the study area. This implies that tourism marketing could act as an enabler for the economic sustainability and well-being of tourist destinations.

Keywords: *tourism marketing, economic sustainability, tourist destinations, national parks*

JEL Codes: *M31, Q01, Z32*

Introduction

The globalization of regional and national economies, the need for change, the growth of the economy, the growth of the population, and industrialization have all made it possible that the natural environment could be harmed in a way that cannot be fixed (Verbeek et al., 2011). The environment has historically been given less priority in development policy and planning, with limited attention only during major disasters such as famines, floods, chemical explosions, or nuclear leaks (Blaikie et al., 2014). However, the escalating occurrence and intensity of human-induced disasters, the mounting population pressures on limited resources, and the persistent poverty that many people in the Third World experience as a result of unequal global political and economic relations have collectively brought the environment into sharper focus as an essential aspect of development (Simon, 1987).

As a result, researchers have been paying close attention to the idea of sustainability ever since the 1980s, making it an area of the research fields with the fastest growth (Hashemkhani Zolfani et al., 2015). The concept has evolved as both a negative and positive response to numerous tourism difficulties (Bramwell and Lane, 2012). It was recognized as capable of bringing about better improvements and securing favorable societal benefits (Hashemkhani Zolfani et al., 2015). Moreover, the United Nations has identified sustainable tourism as one of the strategic initiatives capable of driving the transition to a green economy and making substantial contributions to sustainable development (Butler, 1999; Gunness, 2016). Liu et al. (2013) also asserted that sustainable tourism maintains cultural integrity while protecting the natural environment, promotes

economic advantages, and establishes social integrity by fulfilling the desires of communities for better living conditions both in the long and short term.

In the tourism sector, the concept of sustainability is used to preserve biodiversity and natural ecosystems, enhance the well-being of the community by making the best possible use of what the local economy can offer, and give visitors better adventures and a sense of satisfaction (Plummer & Fennell, 2009). Puhakka and Saarinen (2013) argued that for future sustainable tourism development, tourist destinations and sustainable tourism cannot be separated. Particularly, national parks have huge potential to boost tourism and keep a good balance of environmental, social, and economic conditions on our competitive planet (Sriarkarin & Lee, 2018; Valdivieso et al., 2014). Tourism marketing may produce high-paying jobs for sustainable economic development, alleviate destitution, and inspire environmental stewardship if properly marketed (Watson et al., 2013; Wearing et al., 2016; Ristic et al., 2019). However, there has not been much research on how tourism marketing might enable economic sustainability in tourist areas (Pomering et al., 2011), even though it has a lot to do with the economic sustainability of national parks (Mihanyar et al., 2016).

Specifically, Bale Mountains National Park (BMNP) is the biggest national park with exceptional and extraordinary attractiveness and enormous tourism capacity in Ethiopia (Belayneh et al., 2013; Asmamaw & Verma, 2013). There are 278 distinct bird species in the park, 16 of which are indigenous to Ethiopia, and 78 different animal species, 22 of which are native to the country (Alers et al., 2007). Besides wildlife resources, it has a range of climates and topographies, along with beautiful landscapes and aquatic features, enticing local cultures, handcrafted goods, and indigenous know-how (Welteji & Zerihun, 2018; Watson et al., 2013). Nevertheless, in spite of tremendous opportunity and significance, environmental destruction, rapid settlement construction adjacent to the park, agricultural new settlement, overexploitation, and frequent and prolonged wildfires are becoming serious jeopardy to the existence and sustainability of the national park as well as sustainable tourism in the area (Mamo et al., 2010; Mamo & Bekele, 2011; Teshome et al., 2011).

Furthermore, Hansilo-Tiki (2017) reveals that the park's high level of endemism and species richness has been degraded. Moreover, the deficiency of an effective and efficient marketing management strategy, including tourism products, placing (distribution), pricing, and promotional

activities, are key problems in national parks (Sharpley & Pearce, 2007). This impacts the tourism industry's long-term sustainability in terms of sociocultural, environmental, and economic conditions (Mayer et al., 2010). To minimize this impact, tourism marketing could play a vital part. By promoting responsible and sustainable tourism practices, tourism marketing reduces the negative impact on destinations (Tay et al., 2016). It educates travelers about local customs, conservation efforts, and responsible behavior, encourages off-peak travel to reduce congestion, highlights eco-friendly lodgings and activities, and supports responsible tour operators (Jamrozy, 2007).

Tourism marketing also prioritizes the use of eco-friendly transportation options, responsible tourism guidelines, and partnerships with conservation organizations, with the goal of ensuring that tourism benefits both travelers and the destination while preserving its cultural and environmental integrity (E. E. Aman & Papp-Váry, 2023). Additionally, tourism marketing plays a vital role in generating revenue and job opportunities for destinations while also mitigating adverse effects through the use of appropriate strategies such as focusing on particular tourist segments, broadening its range of offerings, and actively promoting sustainable enterprises (Rahmoun & Baeshen, 2021). Likewise, through the implementation of community participation, infrastructural investment, and regulatory measures, tourism marketing provides a chance for countries struggling with unemployment and poverty to create jobs and generate income for both national and regional socioeconomic growth (Ali, 2021).

This facilitates the improvement of life quality, excellent working conditions, and the sustainability of social, economic, cultural, and natural environments (De Sausmarez, 2007; Reihanian et al., 2012; Shaalan, 2005). However, because short-term economic gains are given more importance than long-term ones, environmental and economic sustainability can be affected by the adverse influences of tourism, especially in developing nations (UNWTO, 2020). Moreover, there is a lack of studies regarding tourism marketing and the economic sustainability of national parks. Also, this study is unique to previous research in two aspects. First, it focuses on national parks, specifically BMNP. Second, the researchers conducted the research from a marketing point of view, using a marketing mix to evaluate how it impacts the economic sustainability of the national park.

This study is primarily valuable because it provides new insights to comprehend the connection between tourism marketing and the economic

sustainability of national parks in light of recent trends toward achieving sustainable development goals. Hence, the primary intent of the study was to find out how tourism marketing impacts the economic sustainability of BMNP. Specifically, the aims of the research were:

- To analyze how tourism products impact the economic sustainability of BMNP.
- To assess the influence of distribution channels on the economic sustainability of BMNP.
- To examine how pricing affects the economic sustainability of BMNP.
- To analyze how promotion impacts the economic sustainability of BMNP.

Review of related literature

The notion of tourism marketing

To enhance tourism in a way that benefits both humans and the environment, it is clear that tourism marketing must be used in a way that optimizes socioeconomic advantages to the community while reducing the social and ecological costs (Benghadbane & Khreis, 2019; Dwyer et al., 2009). Hence, it is imperative to gain a comprehensive understanding of tourism marketing prior to delving into how it affects the economy in sustainable tourism destinations.

Tourism marketing refers to organized and systematic efforts made by tourism sectors at the international, national, and regional levels to increase visitor satisfaction in the face of sustained tourism development (Raju, 2009). The author asserts that it is a collection of interrelated operations, including the management of certain components to generate a customer-satisfying exchange. Furthermore, Ali Akasha et al. (2020) illustrated the concept of tourism marketing as a function of marketing theories and ideas for the leisure, hospitality, and travel sectors. Thus, it is marketing theories and principles that promote, encourage, and transform the tourism sector while reducing resource depletion, pollution, animal extinction, and climate change (Benoumer & Mohamed, 2018).

Moreover, in the literature, the socioeconomic and environmental significance of tourism marketing has also been emphasized. For instance, Sima (2015) stated that tourism marketing plays a crucial role in influenc-

ing economic growth at federal, regional, and local levels since the tourism sector is formed from the travel environment, the hospitality sector, and tourist destination products, including its natural resources, cultural heritage, and cuisines and foods from various cultural backgrounds. Likewise, Albrecht (2016) states that tourism marketing for preservation and viable tourist destinations is understood as pandering to a neo-liberal program that marketing managers use to achieve their goals. Consequently, to encourage more sustainable tourist destinations with minimal negative effects, it is expected that tourism marketing will have a broad impact (Truong et al., 2016).

Sustainable tourism development

The original notion of sustainability involved two fundamental components: social and environmental sustainability (Du Pisani, 2006). However, currently, sustainable development is understood to be the process that aims to enhance the living conditions of citizens, including the delivery of public services, the promotion of the general welfare of its citizens, and the protection of their fundamental rights and liberties (Bebbington & Humphreys, 2018).

Brundtland (1987, p. 292) defines sustainable development as „development that meets the desires of the present without compromising the capacity of future generations to meet their own needs." In the same way, UNWTO and UNDP (2005, P. 12) describe sustainable tourism development as "tourism that takes full account of its current and future economic, social, and environmental impacts, addressing the needs of visitors, the industry, and host communities." Similarly, UNWTO (2013, p. 17) explains sustainable tourism development as "producing optimal use of environmentally friendly resources that comprise a key element in tourism improvement, maintaining essential ecological processes, and helping to preserve natural heritage and biodiversity".

Tourism marketing mix

Tourism products and economic sustainability

In broad terms, a product refers to anything that would meet the needs, wants, or desires of customers (Armstrong et al., 2006). It encompasses a variety of elements, including tangible commodities or goods, events, services, people, activities, experience, assets, places, institutions, concepts, and information (Kotler & Keller, 2014). However, in tourism, attractions and facilities are two main types of tourism products. Attractions are both

man-made and naturally occurring elements that serve to attract tourists to a particular destination (Madafuri, 2018), whereas medical services, public safety, clean water, roads, airports, railways, parking facilities, reliable electricity, and comfortable accommodation options are all examples of facilities (Melese & Belda, 2021).

Collectively, the combination of facilities and attractions creates a collection of subjective and intangible personal experiences for travelers or tourists called a tourism product, which is the fundamental economic engine of the tourism sector (Femenia-Serra et al., 2019). In developed countries, it is considered a crucial factor in the growing footprint (Truong et al., 2016). However, in developing countries, the contribution of tourism products to economic development is minuscule or does not contribute at all. Such an implication implies that the tourism product has been either too narrowly focused or poorly promoted (Gunness, 2016). Based on these reviews of the empirical literature, the following hypothesis was proposed:

H1: Tourism products have a substantial and positive impact on the economic sustainability of a national park.

Pricing and the economic sustainability

Price is the marketing mix element that directly generates revenue (Eavani & Nazari, 2012). It is often based on the cost plus an extra amount that is added to make a profit or gain on the investment (Kim & Lee, 2017). Moreover, it is a determinant of perceived quality, especially for the first-time customer, and while it lasts so, subsequent purchases are much more concerned with the judgment of value for money (Ciriković, 2014). Organizational pricing strategies influenced organizational economic benefits and had a positive influence on an organization's economic growth (De Toni et al., 2017). Hence, the sustainability of destinations is influenced by the use of proper pricing strategies and tactics (Melese & Belda, 2021). The literature mentioned above prompts the following hypothesis to be developed:

H2: Tourism prices have a substantial and positive influence on the economic sustainability of a national park.

Place and economic sustainability

In the tourism sector, Place, also known as a "channel of distribution", refers to the various intermediaries and platforms through which tourism products are marketed to consumers (Kotler et al., 2017). This can include

tour operators, online travel agencies, travel agents, and other intermediaries that connect travelers with tourism providers such as hotels, airlines, and car rental companies (Kotler & Keller, 2014). The choice of channel of distribution significantly influences the overall effectiveness of a product or service (Melese & Belda, 2021). The distribution channel is essential to the success and growth of tourism destinations (Ciriković, 2014). This is because of the complexity and diversity of tourism products, such as flights, hotels, tour packages, transportation, and activities, that need to be coordinated and packaged together (Eavani & Nazari, 2012). The literature mentioned above prompts the following hypothesis to be developed:

H3: Tourism distribution channels have a substantial and positive influence on the economic sustainability of a national park.

Promotion and economic sustainability

Tourism promotion is a marketing concept that involves the development of a strategy to entice a visitor (Fakana & Kumar, 2018). It also provides information that will assist them in deciding to purchase a product or service, create awareness about it, build the brand's image, and determine its positioning in the market (Kotler & Keller, 2014). It is all about making prospective customers aware of the services and products in the tourism area, persuading them to buy, and telling them that they will be happy and better off if they do (Kotler et al., 2010). According to Florido (2022) to persuade people to visit destinations, it should be communicated in the best possible manner. Promotion is the method by which destinations communicate with potential tourists, and it is essential to the economic sustainability of tourist destinations (Eavani & Nazari, 2012). Having analyzed the contribution of promotion in the literature, the next hypothesis was proposed:

H4: Tourism promotion has a substantial and positive influence on the economic sustainability of a national park.

Methods and Materials

The description of the study area

The designated study area for this research is located in the southeast part of Ethiopia, between the latitudes of 6°29' and 7°10'N and the longitudes of 39°28' and 39°57'E (Alers et al., 2007). It is found in the Oromia National Regional State, approximately 400 kilometers to the southeast of

Addis Ababa (Asmamaw & Verma, 2013; Belayneh et al., 2013). As depicted in Figure 1, the national park is a part of the Bale-Arsi massif mountains and covers 2150 km2 and stretches 74 kilometers from south to north and 53 kilometers west to east (Sebsibe & Yihune, 2018). It covers five districts: Adaba, Dinsho, Goba, Dolomena, Harenna Buluk, and Berbere (Forest & Enterprise, 2014). It encompasses the most territory above 3000 meters above sea level in Africa. It is unquestionably placed among the world's most spectacular destinations (Aman & Papp-Váry, 2021), with the largest Afro-alpine ecosystem, the second-biggest moist tropical forest, and the sole rainy cloud forest in the country (Engedasew, 2010). At an altitude of 4377 m above sea level, Tulu Dimtu is the tallest mountain in the Bale Mountains National Park and the second tallest mountain in Ethiopia (Wario et al., 2006) (*Figure 1*).

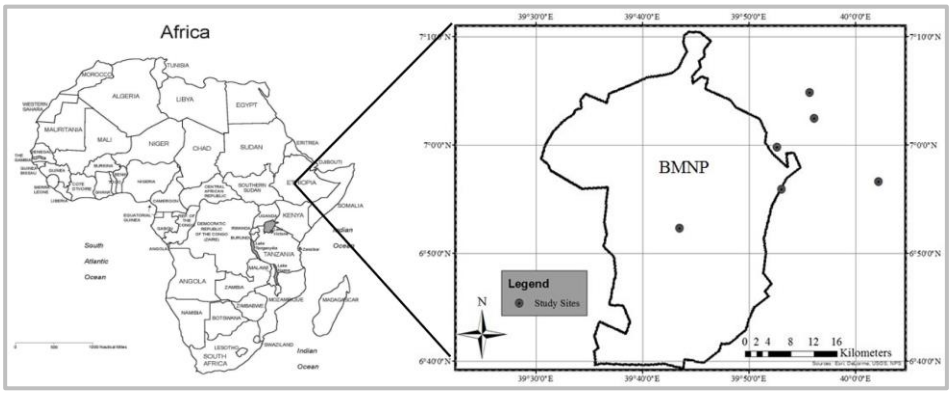

Figure 1: Study area map

Source: Sebsibe & Yihune, 2018.

Research Design

A mixed research approach, in line with explanatory and descriptive research designs, was applied to achieve the aim of the study. The explanatory design was proposed to explain the impact of independent variables (tourism marketing) on independent variables (the economic sustainability of destinations). The descriptive research design gives researchers a profile that describes significant characteristics of the phenomenon of interest from the standpoint of both individuals and organizations (Malhotra et al., 2002). The researchers also employed a descriptive research design to analyze and describe the respondent profiles and the mean ratings of the study variables.

To collect the data, both secondary and primary sources were used. The structured questionnaire was developed using a Likert scale, consisting of response options such as „strongly disagree," „disagree," „neutral," „agree," and „strongly agree." The questionnaire was designed to collect valuable insights regarding the tourism marketing and economic sustainability of tourist destinations, specifically focusing on the case of Bale Mountains National Park. The subject matter is divided into two distinct portions. The first section of this study focuses on the domain of tourism marketing, while the subsequent component delves into the assessment of the economic sustainability of Bale Mountains National Park.

Structured questionnaires were distributed to 143, including employees of the national park as well as different associations in the national park, such as the Nyala and Sanate guides associations, the Horse Renters' Association, the Walinjiregna wood providers, the Jedala Ferda cook association, the Handicraft providers, the Sanate and Dinsho coffee providers, the Sanate honey provider, and the Harenna Lodge, to collect primary data. Since the total number of employees from the national park and all associations was 143, the census sampling technique was applied. Secondary data was gathered through journals, books, other published and unpublished materials, different official documents, and websites.

Additionally, the key informant interviews were selected as a sample using the purposive sampling technique from the manager of the national park, the Bale cultural and tourism office, the Bale zone communication office, the Frankfurt Zoological Society, the Ethiopian Wildlife Conservation Authority, and the Oromia Tourism Commission, depending on the knowledge and skills of experts in the research area for the interview question. The data were collected from January 2023 to June 2023.

Data analysis and model specification

To illustrate the connection between explanatory and endogenous variable variables the following multiple regression model was applied.

$$Y = \beta o + \beta P + \ldots\ldots + Ɛ$$

Where: "Y" is the endogenous variable, "P" are explanatory variables, "β" is the coefficient of exogenous variables, "βo" is the intercept term, and "Ɛ" is the error term. Therefore, in line with the hypotheses of the research, the following multiple regression model was presented:

$$Y = \beta o \pm \beta 1\ (P1) + \beta 2\ (P2) + \beta 3\ (P3) + \beta 4\ (P4) + Ɛ$$

Where: „Y" is the economic sustainability and "P1" represents the product, "P2" the price, "P3" the place, and "P4" the promotion.

The model was tested using the analysis of variance (ANOVA). F-statistic and P-value allowed the model's significance to be determined at a 95% level of the confidence interval.

Validity and reliability

Content validity was employed to assess the extent to which a test or questionnaire measures all aspects of a study's variables. In this regard, all the study subjects were derived from the research of connected scholars and then evaluated by professionals in the field. Cronbach's alpha was utilized to determine the internal consistency of the constructs. The Cronbach's alpha values range from 0 to 1, whereas an acceptable value should be greater than 0.7 for the measure to be considered reliable (Hair et al. 2020). All of the construct's values are above 0.7, which is regarded as acceptable (see *Table 1*).

Table 1: The Cronbach's Alpha Value

Independent variables	α	N
Product	0.713	6
Price	0.785	5
Place	0.700	4
Promotion	0.735	5
Economic sustainability	0.826	7
Overall variable	0.923	27

Source: SPSS (Survey data, 2023)

Ethical consideration

To get ethical approval, the study's goal must be made clear to all relevant groups at all levels. The researcher was told that the information was secret, and the people who gave the information know that their identities and the information they gave will remain confidential.

Results and discussion

Participants profile

There were 143 survey forms distributed in all, 131 (91.6%) of which were legitimate and utilized for statistical analysis. Out of the respondents, the majority were male, accounting for 99 (75.6%), whereas only 32

(24.4%) were female. *Table 2* summarizes the general respondent characteristics.

Table 2: Profile of participants

Variables	Category	Frequency	Percentage
Gender	Male	99	75.6
	Female	32	24.4
	Total	131	100
Age	18-28	5	3.8
	29-39	80	61.1
	40-49	43	32.8
	50 and above	3	2.3
	Total	131	100
Level Education	Certificate (Secondary Education)	64	48.9
	Diploma (Vocational)	56	42.7
	First degree (Bachelor)	9	6.9
	Master's & above	2	1.5
	Total	131	100
Experience	1-2	2	1.5
	3-8	65	49.6
	9-13	48	36.6
	14 and above	16	12.2
	Total	131	100

Source: SPSS (Survey data, 2023)

Descriptive Statistics of Variables

As illustrated in *Table 3*, the study's result reveals that the tourism pricing score average and standard deviation are both higher than the group mean score at 17.4733 and 5.62457, respectively. With a mean and standard deviation of 16.6260; 4.75611 and 14.8855; 4.71273, respectively, the tourism product and promotion had roughly the same value, while the distribution channels for tourism had a lower mean value than the variables' combined mean score.

Table 3: Mean Rating

Study Variables	N	Mean	Std. Deviation

Product	131	16.6260	4.75611
Price	131	17.4733	5.62457
Place	131	11.6947	4.25693
Promotion	131	14.8855	4.71273

Source: SPSS (Survey data, 2023)

Tourism marketing and economic sustainability

Correlation analysis

The relationship between variables is calculated using Pearson correlation. According to Maiwada & Lawrence (2015), a correlation of less than 0.2 is considered to be extremely poor, while a correlation between 0.2 and 0.39 is regarded as modest. If the coefficient value falls between 0.40 and 0.59, the correlation is deemed moderately strong. If the correlation value is between 0.6 and 0.79, it strongly suggests a high correlation, and when it is between 0.8 and 1.0, it strongly suggests an extremely high correlation.

Table 4: Correlations result of the study

Correlations					
		Product	**Price**	**Place**	**Promotion**
Economic sustainability	*Pearson Correlation*	0.567*	0.716*	0.646*	0.758*
	Sig. (2-tailed)	0.000	0.000	0.000	0.000
	N	131	131	131	131
* The correlation is significant at the 0.01 level (2-tailed).					

Source: SPSS (Survey data, 2023)

Table 4 shows the outcomes of the bivariate correlation, which was done to find out how variables are related to each other.

The p-value for the Person correlation table result is 0.000, which is significantly lower than the 0.05 threshold ($p<1$). The coefficient result of 0.567 demonstrates that there is a moderately strong association between explanatory variables (tourism product) and exogenous variables (economic sustainability of the destination). These findings suggest that the more tourism destination products are developed, the greater the economic sustainability of service providers and the profit of the tourist destination. In other words, tourist destinations' economic sustainability plummeted as tourism products fell.

The correlation (r) between price and economic sustainability is 0.716, proving a strong connection between price and the economic sustainability of destinations. This implies that the economic sustainability of Bale Mountains National Park improves when the charged price covers the full cost of the tourist, compensates for damage caused by the visitors, and takes into account what the consumer is willing to pay. However, if prices are not set appropriately, it contributes to a decline in the economic sustainability of tourist attractions.

The correlation (r) between place (distribution channel) and economic sustainability is 0.646, which shows there is a high correlation between price and economic sustainability of destinations. These relationships demonstrate that when a tourist destination's distribution channel performs well, it contributes to the destination's economic sustainability. Conversely, if there is an inadequate distribution channel for the products of tourist sites, it will hurt the economic competitiveness of tourist destinations.

The correlation (r) between promotion and economic sustainability is 0.758, which shows a high correlation exists among variables. These results indicated that, as the tourist destination is well promoted, its economic sustainability is also likely to increase at the same rate. In contrast, if there is not enough promotion of the destination, its economic sustainability will weaken. Overall, the correlation between independent variables (tourism marketing) and dependent variables (economic sustainability) in Bale Mountains National Park was found to be positive and significant.

Analysis of Multiple Regressions

Regression analysis is a mathematical technique that aims to measure the strength of the relationship between an independent variable and dependent variables. Furthermore, it is essential to comprehend how the mean value of the dependent variable varies when one of the independent variables is altered while the others remain unchanged (Tabachnick & Fidell, 2013). Hence, to accomplish the main goal of this research, regression analysis is utilized to determine the influence of tourism marketing on the economic sustainability of Bale Mountains National Park.

The model assumptions and tests

- *Normality Test*
  Skewness and kurtosis are two basic approaches to checking the normality of the data. According to Fatih (2020), positive skewness values

indicate that clusters of data points occur at low levels, whereas negative skewness indicates clustering of data points at high levels. Consequently, the researchers confirmed from histograms, kurtosis, and skewness that the data were normally distributed. Bell-shaped histogram graphs demonstrate normality (see *Figure 2*).

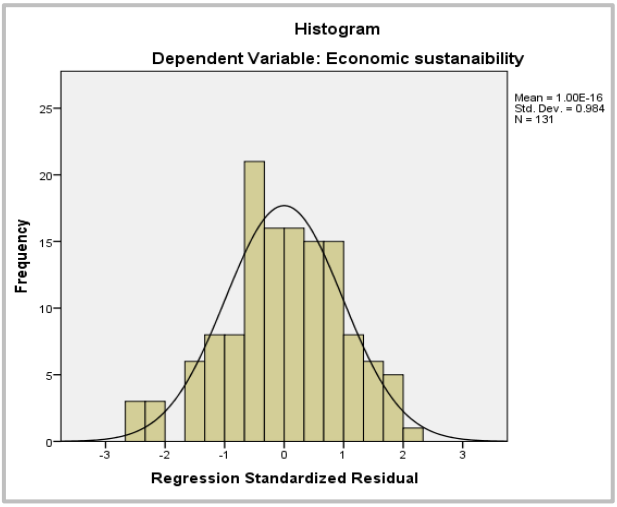

Figure 2: Regression Standardized Residual

Source: SPSS (Survey data, 2023)

If the skewness value is between -2 and +2, then the data is acceptable and normal. Whereas, if the kurtosis value of the data is less than 7, then the data are considered to be normal. An analysis of descriptive statistics was carried out, and the results show that the data is distributed normally (see *Table 5*).

Table 5: Normality test

	N	Skewness		Kurtosis	
	statistic	statistic	S.E	statistic	S.E
Product	131	0.851	0.212	1.114	0.420
Price	131	-0.972	0.212	0.136	0.420
Place	131	-0.547	0.212	-0.690	0.420
Promotion	131	-0.987	0.212	0.256	0.420
Economic sustainability	131	-1.037	0.212	0.239	0.420

Source: SPSS (Survey data, 2023)

- *Test of linearity*
  A P-P pilot test was used to test the linearity assumption of multiple regressions, and it was discovered that the correlation between economic sustainability and tourism marketing is linear. It is considered that a model satisfies the assumption of normality when the data is distributed around the diagonal and moves in the same direction as the diagonal. *Figure 3* demonstrates that the data have a normal distribution.

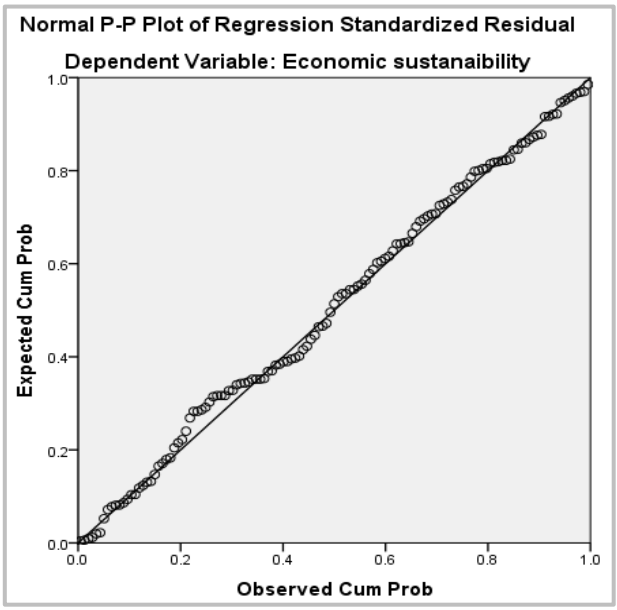

Figure 3: Normal P-P Plot

Source: SPSS (Survey data, 2023)

- *Homoscedasticity test*
  The homoscedasticity assumption asserts that the variation in the residual is fixed at each model point. The normality probability curve of the scatter plot demonstrates this (see *Figure 4*).

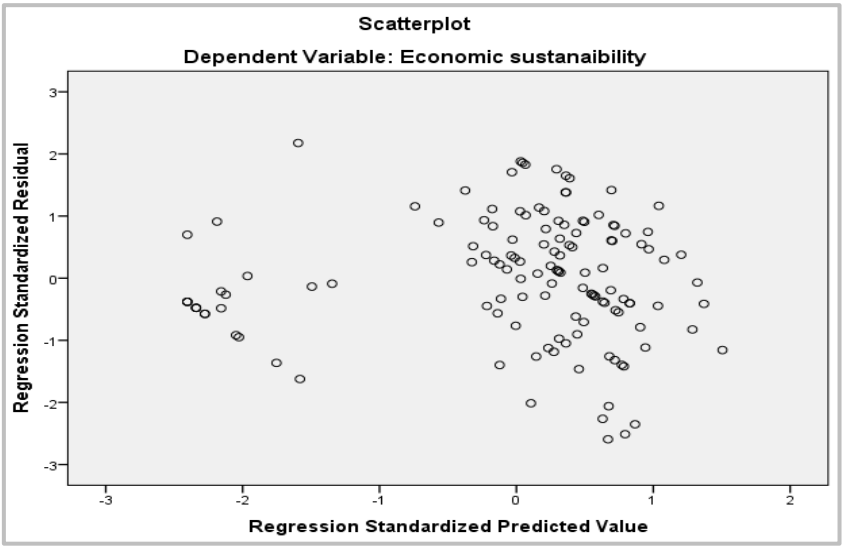

Figure 4: Regression standardized of predicted value

Source: SPSS (Survey data, 2023)

- *Multi-collinearity test*
  Gujarati (2004) defines „tolerance" as the percentage of predictor variance that cannot be explained by other predictors. Hence, extremely low numbers signify „overlap," or the distribution of predictive ability. Both the „tolerance" values exceeding 0.10 and the „variance inflation factor" values below 3 are pretty adequate. Furthermore, multicollinearity occurs when the relationship between the explanatory variables is high (r =0.9 or higher) (Pallant, 2016). *Table 6* demonstrated that the variation in inflation and tolerance exceeded the required score. This reveals that the independent variables are not affected by the multicollinearity issue.

Table 6: Tolerance and VTF result

Coefficients			
Model		**Collinearity Statistics**	
		Tolerance	**VIF**
	Promotion	0.370	2.700
	Place	0.498	2.009
	Price	0.447	2.238
	Product	0.793	1.260
a. Dependent Variable: Economic sustainability			

Source: SPSS (Survey data, 2023)

- *Auto- Correlation*
  The Durbin-Waston test can be used to validate this assumption. If the value is greater than 2, the correlation between the two residuals is negative. Alternatively, if the value is less than 2, a positive association exists (Pallant, 2016). Based on the data shown in the model summary, the Durbin-Watson value is 1.887, which is acceptable (see *Table 7*).
- *Model summary*
  Tourism marketing has a substantial and significant effect on the economic sustainability of Bale Mountains National Park, with an R2 of 0.702 (see *Table 7*). Moreover, Table 9 also revealed that all explanatory variables have a substantial effect on the economic sustainability of destinations.

Table 7: Model summary

Model Summary					
Model	R	R2	adjusted R2	Std. error	Durbin-Watson
1	0.838[a]	0.702	0.692	3.70425	1.887
a. Independent variables: (constant), product, price, place, and promotion. b. Dependent Variable: Economic sustainability					

Source: SPSS (Survey data, 2023)

- *ANOVA Test*
  The analysis of variance (ANOVA) revealed a significant F-statistic of 74,165 with a P value of 0.000, which is statistically significant and implies that the model is well-fit (see *Table 8*).

Table 8: ANOVA result

ANOVA[a]						
Model		**Sum of squares**	**df**	**Mean square**	**F**	**Sig.**
1	*Regression*	4070.623	4	1017.656	74.165	.000[b]
	Residual	1728.904	126	13.721		
	Total	5799.527	130			
a. Independent variables: (constant), product, price, place, and promotion. b. Dependent variables: Economic sustainability						

Source: SPSS (Survey data, 2023)

The coefficient table demonstrates that promotion has a major impact on the dependent variable, followed by product, price, and place, respectively. The beta coefficient implies that when the explanatory variables change by a unit, the average change in economic sustainability of the study area changes (see *Table 9*). Hence, the researchers applied the following model to demonstrate the number of predictions for the determining factor:

$$Y = \beta o \pm \beta 1\ (P1) + \beta 2\ (P2) + \beta 3\ (P3) + \beta 4\ (P4) + Ɛ$$

Where: "Y" is the economic sustainability of a destination, βo = intercept term, and β1, β2, β3, and β4 are the regression coefficients of product, price, place, and promotion, respectively.

Table 9: Regression coefficient of Independent Variable

Coefficients						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**
		B	**Std. Error**	**Beta**		
	(Constant)	0.129	1.358		0.095	0.925
	Product	0.359	0.077	0.256	4.688	0.000
	Price	0.304	0.086	0.256	3.515	0.001
	Place	0.222	0.108	0.141	2.049	0.042
	Promotion	0.528	0.113	0.372	4.660	0.000

Source: SPSS (Survey data, 2023)

Hence, from the above regression equation, the researchers derived β-values as follows:

$$Y = 0.129 + 0.359\ (P1) + 0.304\ (P2) + 0.222\ (P3) + 0.528\ (P4) + \varepsilon$$

The justification for the given equation is as follows:
Assuming all other independent variables are constant, a one-unit increment in the product will result in a 0.359% improvement in the Bale Mountains national park's economic sustainability; a one-unit increment in price will lead to an upsurge in the economic sustainability of the Bale Mountains national park by 0.304 units; a unit increase in place or channel of distribution will lead to an upsurge in the economic sustainability of the Bale Mountains national park by 0.222 units; and a unit increase in a promotion will lead to an upsurge in the economic sustainability of the Bale Mountains national park by 0.528 units.

- *The hypothesis testing*
  Table 10 shows that there is a significant relationship between independent variables (tourism marketing) and dependent variables (economic sustainability of destinations).

Table 10: Summary of hypothesis testing

Hypotheses	Betta Coefficients	p-value	Decision
H1: Tourism products have a substantial impact on the sustainability of destinations.	0.256	0.000	H1: Accepted.
H2: Tourism prices have a substantial influence on sustainability of destinations.	0.256	0.001	H2: Accepted.
H3: Tourism distribution channels have a substantial influence on sustainability of destinations.	0.141	0.042	H3: Accepted.
H4: Tourism promotion has a substantial influence on sustainability of destinations.	0.372	0.000	H4: Accepted.

Source: SPSS (Survey data, 2023)

The relationship between product and economic sustainability is substantial, with $\beta = 0.256$, $t = 4.688$, and $P = 0.000$ at a confidence level of 95%. Therefore, the alternative hypothesis that tourism products have a substantial impact on the sustainability of destinations is supported, and the null hypothesis is rejected. The outcomes of this research are coherent with the prior research done by Karini, 2016; Karnelis, 2017; Supriyanto & Taali, 2018; and Yamawati & Indiani, 2019; all of which concluded that if the services or products given are appeal-

ing, fulfill consumers' requirements and preferences, and are of exceptional quality, then visitors are more inclined to visit the location again and purchase the products. This implies that the availability of tourism products found in the park is crucial to the economic sustainability of the national park.

At a 95% confidence level, multiple regression revealed there is a substantial relationship between price and economic sustainability with β =.256, t=3.515 and p =.000<0.05). Hence, the alternative hypothesis that tourism prices have a substantial influence on the sustainability of destinations is supported, and the null hypothesis is rejected. These findings validate Awinasi & Rastini (2018), Karini (2016), Karnelis (2017), and Supriyanto & Taali (2018), who revealed that price has a favorable and substantial effect on the acquisition and stay intentions of tourists. This implies that the pricing of given goods and services is vital to the economic sustainability of the studied area. However, this study contradicted Karim et al.'s (2021) argument that pricing has no impact on tourism destination development.

The regression result revealed a substantial connection between the distribution channel and the economic sustainability of tourist destinations, with a value of (β =.141, t=2.049, and p =.000<0.05) at a 95% confidence level. Therefore, the alternative hypothesis that the tourism distribution channels (place) have a substantial influence on the sustainability of destinations was supported by the data set, and the null hypothesis was rejected. These results are consistent with those of prior studies by Awinasi & Rastini (2018) and Kavanillah & Ridlwan (2018), which found that channels of distribution have positive impact on product acquisition, revisiting an area, and spending more time in the area. This implies that the presence of distribution channels in the park is crucial to the economic sustainability of the area.

Multiple regressions also show a significant association between promotion and economic sustainability with β =.372, t=4.660, and p =.000<0.05) at a 95% confidence level. Hence, the study concluded that the data set supported the alternative hypothesis that tourism promotion has a substantial influence on the sustainability of destinations, and the null hypothesis was rejected. The results of this study corroborate those of (Awinasi and Rastini (2018) Karini (2016), Mariya and Christos (2019), who discovered that the influence of promotions on consumers' willingness and intentions to make a purchase of a product

or service is positive and statistically significant. This shows that promoting the national park is essential for the park's long-term economic sustainability.

Tourism marketing practices in Bale Mountains National Park

Regarding tourism products, an interviewee from the Bale Zone cultural and tourism office said that the local government has set up several small businesses that make a wide range of products for visitors to Bale Mountains National Park and to help the local economy grow. According to an interviewee, the wide range of tourist attractions in the park enables a rise in local and international visitors to the area and allows the community to offer different services to tourists. An informant interviewee from the Bale Mountain National Park manager also noted that they have seven tourism service provider associations that provide essential services to park visitors. The park and the associations generate revenue from the products and services that they offer. However, the park's revenue has experienced a decline as a consequence of the COVID-19 pandemic, which has led to a reduction in visitor numbers during the preceding two years. Moreover, the interviewee said that there is a lack of infrastructure, particularly roads and transportation, which hinders a lot of local and international tourists from visiting the park. This implies that the park is not making sufficient income from the massive tourism product, despite the fact that it comprises one of Ethiopia's biggest national parks with exceptional and extraordinary attractions, wildlife resources, enticing local cultures, and enormous tourism potential.

Similarly, an informant interviewee from the Ethiopian Wildlife Conservation Authority and the Frankfurt Zoological Society stated that the park has outstanding environmental beauty and is home to endemic flora and fauna, which attracts tourists and helps the community support its economic well-being. The park also has a huge impact on climate change, the local economy, the lives of people, and biodiversity. Bale Zone cultural and tourism office said that the park is providing a water tower and flow regulation for up to 20 million downstream users through the provision of climate stability, the use of renewable assets, including wood, timber, grassland, and forest-based and non-timber products (e.g., wild coffee and honey), as well as substantial, mainly unrealized potential from tourism. This implies that the existence and sustainability of the park provide local and global people with significant environmental, social, and economic benefits.

Based on the interview with tourism experts at Bale Mountains National Park, if the national park uses a different pricing strategy, it will help to cover some environmental damage caused by tourists, generate a respectable amount of income for the national park, and yield an appropriate amount of advantages for the local community. The price the national parks charge is critical to creating excellent tourist experiences and assisting tourists in extending their stays at the destination. However, the price the national park charges for the available tourism product is very low, which affects the survival of the national park. Consequently, the price paid by tourists shouldn't cover all of the costs associated with their trip or promise them a pleasant experience.

Regarding channel distribution (place), the manager of the park stated that the national park is engaged with important stakeholders at different government levels, non-governmental organizations, various tour operators, and travel agencies. The Bale Zone Cultural and Tourism Office states that the availability of parks near Hawassa and Shashemane cities, as well as attractive natural resources and comfortable weather conditions, motivate visitors to the area.

Concerning tourism product promotion, interviewees (an informant interview from the Bale Zone Cultural and Tourism Office, the Ethiopian Wildlife Conservation Authority, the Ethiopian Tourism Organization, and the Oromia Tourism Commission) answered that Bale Mountains National Park promotes its products and services through its websites and different social media platforms. However, the National Park Manager stated the national park is working with both government and private media, such as the Ethiopia Broadcasting Corporation (EBC), the Oromia Broadcasting Network (OBN), Fana, Nahoo, the Oromia Broadcasting Service (OBS), and Walta, to promote and enhance the sustainability of tourism and the national park. All interviewees agreed that promoting the Bale Mountains National Park on broadcast media, social media, and websites enhances and maintains the national park's sustainability and sustainable tourism development. Finally, after comparing the information from the interview and the questionnaires that were collected and analyzed, the researchers came to the conclusion that tourism marketing has a substantial and positive effect on Bale Mountain National Park's ability to maintain the sustainability of tourism and the national park.

Conclusion

This research is intended to assess the effect of tourism marketing on the economic sustainability of a tourist destination in Bale Mountains National Park. Tourism products had modest but significant correlations with the economic sustainability of the tourist destination, while price, place, and promotion had a substantial correlation with the economic sustainability of the tourist destination. Furthermore, the regression results revealed that exogenous variables have a positive and significant effect on Bale Mountains National Park's economic sustainability.

Additionally, the regression analysis's findings indicated that tourism marketing was the first and most imperative element of Bale Mountains National Park's economic sustainability, followed by product, price, and place, respectively. Generally, the research's findings indicate that the independent variables (tourism marketing) could explain 70.2% of the dependent variables (economic sustainability). According to the study's findings and what the researchers observed, Bale Mountains National Park's tourism marketing practices are still in their infancy. Therefore, the following suggestions are expected to have a significant influence on enhancing sustainable tourism at the destination.

Primarily, providing quality tourism products and facilitating good infrastructure in the park could enhance environmental, social, and economic sustainability in the area. Hence, the federal government, regional governments, and local governments should work together to improve the national park's tourism products, such as attractions, medical services, public safety, clean water, roads, airports, parking facilities, reliable electricity, and comfortable accommodation options.

Moreover, the fee charged by the visitors should compensate for the entire expense of their trip, promise a good experience for the visitor, generate a respectable amount of income for the national park, yield an appropriate amount of advantages for the local community, and cover the environmental harm caused by visitors. As a result, to preserve and improve the sustainability of both tourism and the national park, different pricing strategies should be used.

Furthermore, to reach the target customers at the right time, place, and person, the national park should design and develop different means

of channel distribution in collaboration with the local, regional, and federal governments. Lastly, in addition to the current promotional tools, the national park should use digital marketing tools to promote itself.

5. Recommendations and Suggestions for Future Research

The economic sustainability of tourist destinations is the most important part of sustainable tourism. The researchers acknowledged that tourism destinations could benefit from a tourism marketing mix and that using tourism marketing can reshape the competitiveness and sustainability of tourism destinations. This study thus focuses on four traditional tourism marketing mix elements, which include price, product, promotion, and place, to examine the economic sustainability of Bale Mountain National Park.

The researchers acknowledge that including both traditional and modern forms of tourism marketing elements in the study would have resulted in a more comprehensive research result and finding. Nevertheless, we believe that the traditional tourism marketing mix used in this study is still highly representative of the topic and is often regarded as an essential factor in measuring tourism marketing's effect on the economic sustainability of tourist destinations. Future researchers should take all tourism marketing mixes into account and include them in their studies.

Moreover, the research was performed only in Bale Mountains National Park, and the findings might not be generalized to all parks in Ethiopia. Therefore, future researchers could consider the other tourist destinations found in Ethiopia to make the research more statistically significant and infer generalizations from the findings accordingly. On the other hand, the study was conducted only on employee perception and did not include visitor perception. Hence, future researchers could consider customer perception.

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A klímaváltozás hatása Skandinávia síturizmusára

Impact of climate change on ski tourism in Scandinavia

Palancsa Attila[1]

Absztrakt: A 21. század turizmusának egyik nagy kihívása a klímaváltozás és annak rövid, illetve hosszú távú hatása. Ez különösen igaz a síturizmusra, mely turisztikai iparág fokozottan „érzékeny" az éghajlatváltozás jelenlegi folyamatára. A tanulmányban Svédország síturizmusának jövőbeli várható helyzetét vizsgálom, ami egyben a szabadban űzhető, egyéb téli sportokra is értelmezhető. A skandináv állam történetében kulturális jelentőséggel bírnak a téli sportok, éppen ezért tartják rendkívül fontosnak annak kutatását, hogy a klímaváltozás hogyan fogja befolyásolni az ország síiparának jövőjét. A tanulmány alapját az ún. „SkiSim" modell adja, mely az éghajlatváltozás hatását vizsgálja a síszezonokra lebontva, figyelve annak hosszára, a magassági változókra, a sínapok számának változására, a műhókészítési kényszerre stb. A vizsgálat 23 svéd alpesi síterületre vonatkozik, mely elméleti síkon elemzi a 21. század korai – közép – és késői időperiódusát.
A síszezon erőteljes csökkenése természetesen jelentős negatív gazdasági hatással van a középső és déli területek turisztikai forgalmára, mely síszezoni rövidülést a mesterséges hóágyúzással lehetne ellensúlyozni. Ez a síturisztikai desztinációkban veszélyeztetheti az üdülőhelyek működését, bezárásokat, munkanélküliséget eredményezhet, illetve a síterületi desztinációban olyan gazdasági környezeti stresszt okozhat, amely a helyiek különböző mértékű életszínvonal csökkenéshez vezethet. A klímaváltozás hatására az európai síterületek beszűkülnek, és az évezred második felétől Észak-Svédország jelentheti az európai síipar számára az „utolsó menedéket".

Kulcsszavak: *klímaváltozás, síszezon, SkiSim-modell, Svédország*

JEL-kódok: *Q01, Q26, Q51, Q54, Z3, Z32*

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Abstract: One of the major challenges of tourism in the 21st century is climate change and its short-term and long-term effects. This is especially true for ski tourism, which is a tourism industry that is highly "sensitive" to the current process of climate change. In the study, I examine the situation of the future of skiing in Sweden, which can also be interpreted for other winter sports that can be practiced outdoors. Winter sports are of cultural importance in the history of the Scandinavian state, which is why research into how climate change will affect the future of the country's ski industry is considered extremely important. The study is based on the so-called It provides a "SkiSim" model that examines the impact of climate change broken down into ski seasons, paying attention to its length, altitude variables, changes in the number of ski days, the need to make artificial snow, etc. The study concerns 23 Swedish alpine ski areas, which theoretically analyzes the early, middle and late 21st century time periods.
The strong reduction of the ski season naturally has a significant negative economic impact on the tourist traffic of the central and southern areas, which shortening of the ski season could be offset by artificial snowmaking. In ski tourism destinations, this can endanger the operation of resorts, result in closures and unemployment, and in ski destinations, it can cause economic and environmental stress that can lead to a decrease in the standard of living of the locals. As a result of climate change, European ski areas are shrinking, and from the second half of the millennium, Northern Sweden may represent the "last refuge" for the European ski industry.

Keywords: *climate change, ski season, SkiSim model, Sweden*

JEL Codes: *Q01, Q26, Q51, Q54, Z3, Z32*

Bevezetés

A szakcikkek, tudományos publikációk többségének megírása általában személyes motivációjú indíttatás alapján íródnak meg. A svédországi síterületek e századi lehetőségeinek vizsgálatát, elemzését is a személyes motiváció vezérelte. A szerző egy évtizedes svédországi tartózkodása alatt (2009–2019) drasztikus változás volt tapasztalható a síterepek hóbiztonsága tekintetében. Az első pár évben a svealandi területek síközpontjai, helyi sípályái viszonylag hóbiztosak voltak. Ugyanígy nem fenyegette semmiféle veszély a hagyományos és méltán világhírnevet szerzett Vasaloppet megszervezését sem. Azonban a 2015-öt követő években, a szerző lakóhelyének környezetében, hóhiány miatt bezártak a sípályák, és volt

olyan év, amikor a Vasaloppet lebonyolítása is a versenynaptárban kihirdetett időponthoz képest később került megrendezésre, vagy éppen a korábbi versenyútvonalat tették át más terepre és műhavat alkalmaztak a siker érdekében. Mindezek a személyes benyomások késztették a szerzőt arra, hogy – szekunder adatok alapján – megvizsgálja és elemezze a 21. század svédországi síszezonjainak változásait, jövőbeli működésének feltételeit. A tanulmány Svédországgal foglalkozik, de Skandinávia, mint egységes földrajzi fogalom Norvégia és Finnország nélkül nem értelmezhető. Így a tanulmányban többször történik említés a norvég és finn síterepekre is.

Svédország sípiaca sok szempontból alulkutatott. Az ország turizmusgazdasága évtizedeken keresztül „tudomásul vette", hogy jól működik, évről-évre egyre magasabb bevételeket produkál, a síterepeik látogatottsága a lakosság százalékos aránya tekintetében a világ 9. legnagyobb piacát jelenti (Vanat, 2020). A svéd síterepek forgalmát a liftbérletek bevételei jelzik a legjobban. Az alapszinten is stabilan magas látogatási számok növekedése a 2017/2018-as és a 2018/2019-es szezonban 1.709, illetve 1.738 milliárd svéd koronás rekordot értek el (Svenska Skidanläggningars Organization – Svéd Sílétesítmények Szervezete [SLAO], 2021). Mindezt úgy, hogy az Alpok országaiba évről-évre jelentős számú svéd turista utazik el síelni (magasabb hegyek, hosszabb pályák, jó ár-érték arány stb.). A 2019/2020-as téli síszezon piacát is megzavarta a COVID-19 világjárvány[2], és ennek folyamodványa, hogy a svéd sífelvonó bérletek értékesítése soha nem látott bevételt (1.519 milliárd korona) könyvelhetett el (SLAO, n. d.).

A 2020/2021-es szezonban sok svéd síkedvelő nem utazhatott külföldre (beutazási korlátok), ráadásul a Covid-19 ellenes svéd hatósági intézkedések lényegesen kedvezőbbek voltak, mint az európaiak általában. Így a hazai sípályák változatlanul üzemeltek és a felvonóbérletek eladásai 21%-kal, 1.842 milliárdos korona rekordszintre emelkedtek (SLAO). Mindezt elősegítették azok az állami beruházások és támogatások is, amelyek jelentős mértékben hozzájárultak az üdülőhelyek szállás- és vendéglátó-kapacitásának bővítéséhez, új felvonórendszerek építéséhez, az elavultak megújításához. Új elemként pedig a síterepekhez való könnyebb eljutás érdekében megépítették a Scandinavian Mountains Airport-ot

[2] A 2019-es svédországi Covid-19 járvány megjelenését is az Ausztriából hazaérkező síturisták esetében diagnosztizálták első alkalommal.

(SMA)[3]. Ezzel Dániából, Egyesült Királyságból, Németországból és Oroszországból is légi úton könnyebben és közvetlenül elérhetőkké váltak a magashegyi svéd síparadicsomok. A 2020/2021-es szezon volt az SMA első teljes szezonja, de a COVID-19 okán bevezetett nemzetközi kiutazási korlátozások miatt azonban ekkor szinte csak a belföldi turistákra számíthattak.

Azt azért érdemes megemlíteni, hogy Svédország az éghajlatváltozás, a klímahelyzet értékelésének, a klímaküzdelem élharcosának számít nemzetközi kitekintésben. Ennek ellenére a svéd síipar jövőjével kapcsolatos átfogó jellegű kutatások csak az elmúlt öt évben indultak el. Alapját természetesen az adja, hogy komoly, érzékelhető változások következtek be a Föld éghajlati viszonyaiban, és ezek a változások, negatív előrejelzések a svédországi 61° szélességi fok fölötti területre is előre láthatólag érvényesek lesznek, lehetnek (Intergovernmental Panel on Climate Change – Éghajlatváltozással foglalkozó kormányközi testület [IPCC], 2014).

Egy 2015-ben készült kutatás azt erősítette meg (*1. ábra*), hogy Észak-Svédország közép és hosszú távon versenyelőnyben lehet a többi európai síturisztikai régióval (pl. az Alpok országaival, Dél-Svédországgal, Norvégiával, Finnországgal) szemben. Ez potenciális versenyelőnyt jelent a következő évtizedekre, mivel a síturisták a megbízható, havas, jól síelhető pályákat kedvelik. Eszerint Svédország, azon belül is Észak-Svédország lehet az európai síelés *„utolsó mentsvára”* a gyorsuló éghajlatváltozás időszakában (Demiroglu & Sahin, 2015). Ezzel párhuzamosan csökken a *„műhó”* kedvelése, mely jelentős mértékben beszűkíti a sípályás lehetőségeket, a téli környezeti *„deja vu”* érzés szinte teljes elmaradását jelenti, és a látogatószám erőteljes csökkenését. A kutatásokat az a téli sízezonban tapasztalható, szokatlan jelenségek sorozata kényszerítette ki, minthogy a karácsony, az újév, valamint a húsvét körüli főszezoni hetek egyre többször váltak *„zöldekké”*, hónélkülivé. Jellemző, hogy a Vasaloppet[4] lebonyolítása is egyre nagyobb hóhiány mellett történik. Mindezek előre vetítik azoknak a kutatásoknak a megállapításait, melyek

[3] A Scandinavian Mountains Airport (SMA) 2019 decemberében nyílt meg Dalarnában, és négy járat egyidejű fogadására képes. Az SMA repülőtér megépítését, üzemeltetését helyi turisztikai érdekeltségű gazdasági befektetőcsoport kezdeményezte és önkormányzati, valamint jelentős állami támogatás segítségével valósult meg.

[4] A Vasa-futás (Vasaloppet) évenként megrendezett klasszikus sífutó verseny Svédországban. A Dalarna megyei Sälen és Mora között rendezik meg minden március első vasárnapján. A táv 90 km. Az első versenyt 1922-ben tartották.

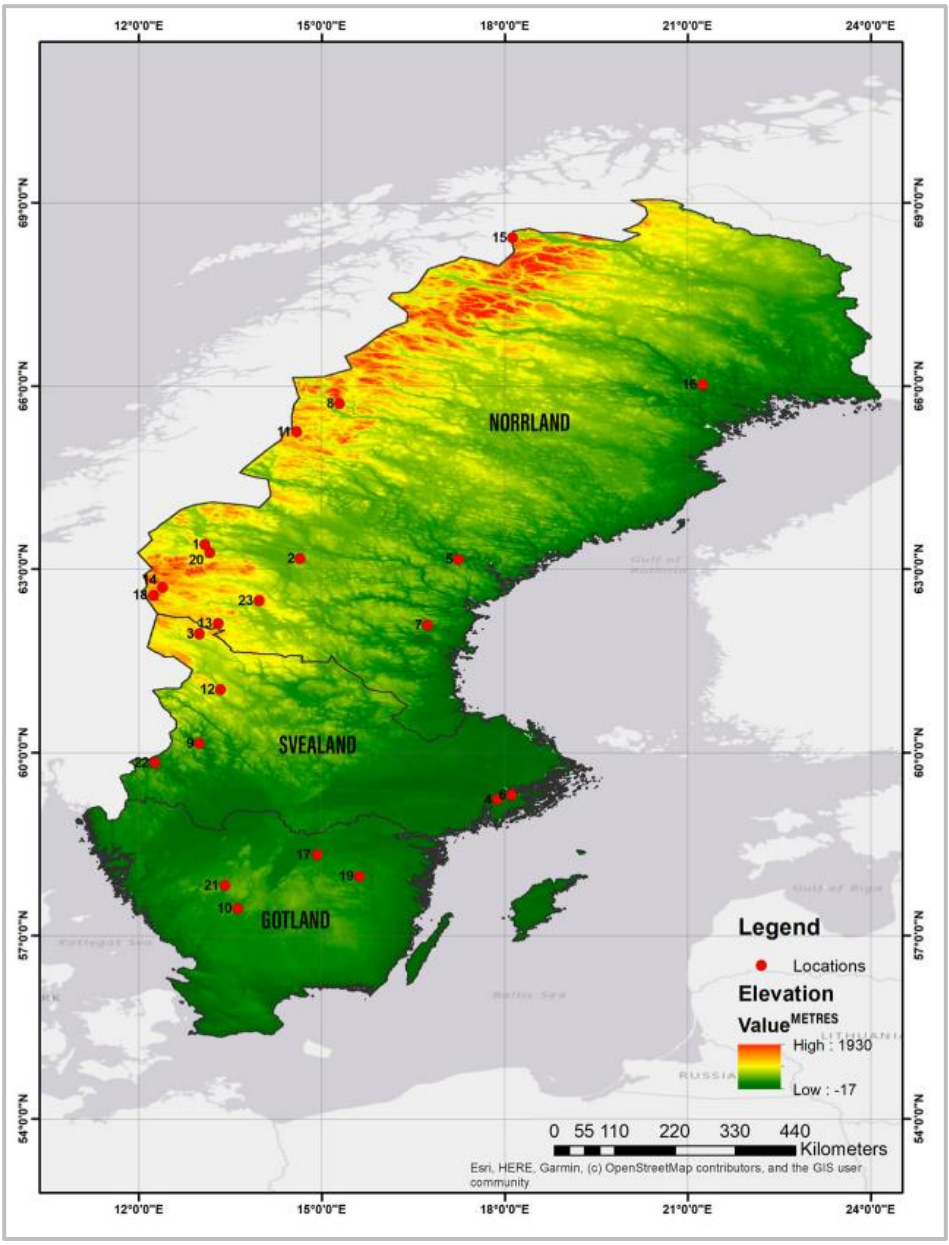
szerint már a század közepére a téli turizmus szerkezeti eltolódása várható az ország legészakibb területei felé (Andersson et al., 2015; Sjökvist et al., 2015).

Ugyanakkor felmerültek olyan technikai kérdések is, miszerint előreláthatóan konfliktus keletkezik a középső és délebben fekvő svéd sícentrumok és az északi üzemeltetők között. Míg az északiak a természetes hó birtokában jelentős versenyelőnyhöz jutnak a mesterséges havat (műhó) előállítókkal szemben, ha csak a víz és az elektromos áram felhasználási mutatókat nézzük és eltekintünk a látógatószám csökkenésétől. Mindez a belső síturisták helyszínválasztását is jelentős mértékben fogja befolyásolni. Törekednek a minél hóbiztosabb területek felé, még annak felvállalásával is, hogy az utazás megdrágítja a síelést.

Kiemelném Moen és Fredman (2007) tanulmányát Svédország síiparával foglalkozó versenyképesség vizsgálatok közül. Habár a témában korai tanulmánynak tekinthető, mely azonban már az éghajlatváltozás lehetséges hatását vizsgálta Közép-Svédországban található Sälen[5] síparadicsomaira vonatkoztatva. Azt jósolták, hogy a 1990–2001 közti időszak átlag 162 napos síelhető szezonja 2070–2100-re 64-96 napra fog csökkeni. Ezeket az eredményeket aztán az egész Svédországban található síterületekre kivetítették, és két forgatókönyvük szerint B2 (alacsony rizikójú éghajlatváltozás esetén) és A2 (magas rizikójú éghajlatváltozás esetén) alapján a síbevételek veszteségét 946,5-1755,3 milliárd svéd koronára[6] becsülték a 21. század utolsó harmadára vonatkoztatva. Azt azonban nem vették figyelembe, hogy a Dél- és Közép-Svédország déli sípályáin (Gotland és Svealand) a síelhető napok száma már a vizsgált időszakban (nem 2070-90 között) alig érte el a 30 napot. Igaz, hogy ahol lehetséges volt, ott hóágyúkat használtak a szezon bővítéséhez.

[5] Sälen 842 lakosú település Dalarna megyében. Kis lakossága ellenére Sälen telente százezres nagyságrendben fogad síturistákat.

[6] 1 SEK = 32,8891 HUF (Letöltve: 2023.04.17., forrás: https://hu.exchange-rates.org/Rate/SEK/HUF)



1. ábra: A tanulmányban szereplő svédországi síterületek elhelyezkedése

Forrás: Rice et al. (2022:2807)

A svéd síiparra való extrapoláció a teljes észak-nyugati hegyvidékre kiterjedően (É. sz. 61-68°) az ország változatos éghajlati és domborzati viszonyai ismeretében nehezen jósolható meg, számítható ki. A gyorsuló éghajlatváltozás korszakában a svéd síipar jövőjére vonatkozó, egyelőre még korlátozott előrejelzések mellett a tanulmány célja, hogy bemutassa:

- A 23 svéd síterületen az éghajlatváltozás hatásait a korai (2030-as évek), a közép (2050-es évek) és a század (2080-as évek) időszakában, alacsony, közepes és magas kockázatú forgatókönyvek alapján (RCP2.6, 4.5 és 8.5).
- Az éghajlatváltozás következményeként elterjedő, a síelést továbbra is biztosító műhókészítést és annak hatásait.
- Betekintést nyújtson a klímaváltozás okozta regionális sípiaci hatásokra, megvizsgálva azt az állítást, hogy a svéd síipar egyes részei kevésbé vannak kitéve a kockázatnak, és akár profitálhatnak is a síturizmus iránti keresletből, az európai síelés Alpokból való átrendeződéséből.
- Ismertesse, mintegy kitekintésként és ismert hatásvizsgálatok nélkül, a magyarországi síterepek lehetséges megoldásait, válaszait.

Módszertan

A síterepek jellemzői

A tanulmány alapjául szolgáló síterepek helyszíneinek kiválasztása a Svenska Skidanlanläggningars Organization (SLAO) által legfontosabbnak tartott síterületeket tartalmazza. A vizsgálatból több száz sípálya kimaradt, mert egyrészt jelentőségük provinciális (települési, intézményi sípályák), adathiányosak, azaz semmiféle hosszútávú mérési eredményeket nem tudnak felmutatni, vagy egyáltalán nem történik mérés. További megállapítás, hogy ezek a sípályák nem tartoznak a síturizmus fősodorba, így sem a nagyszámú belföldi, sem a mérsékelt jelenlétet mutató külföldi síturisták hóhiány miatti elmaradása nem befolyásolja a statisztikai adatainkat. Az *1. ábrán* feltüntetett helyszínek, az *1. táblázat* sípályái által megadott adatok szerint, a 23 síterület a svédországi számottevő síelhető területek 42%-át, a pályák 37%-át és a felvonók 26-át fedik le.

A szimulációs modell

A globális síiparra vonatkoztatott klímaváltozások okán megfogalmazott sebezhetőségi mutatókat, a negatív változások gyorsaságát minden felmérés túlbecsülte. Ennek okát jelenleg abban látják, hogy a viszonylag behatárolt műszaki tartalmú, drágán üzemeltetett, nagy vízigényű, ám alacsony hatásfokkal működtetett hóágyúk használata nem volt olyannyira elterjedt, hogy mindezeket a mutatókat ellensúlyozni tudja. Ugyanakkor az 1990-2000 közti időszakban a klímaváltozások hatását, a folyamat gyorsaságát legitim számadatok hiányában sem lehetett megfelelő megfontoltsággal és alapossággal előre jelezni.

A klímaváltozás hatásainak pontosítására, mérésére fejlesztették ki (Scott et al., 2003) a *SkiSim*[7] modellt, melyet Kanadában (2007), majd az Egyesült Államokban (2013) teszteltek először. A modell kiválóan alkalmas volt a megfigyelt, síelésre definiált hónapok hossz- változásának szimulálására. Továbbá, már a tesztelési időszakában bebizonyosodott, hogy a hókészítés lehetőségének figyelmen kívül hagyásával jelentősen befolyásolható a síszezonok és a klímaváltozás okozta síelésre alkalmas időszak elemzésének értékelése. Eszerint szükséges megkülönböztetni a természetes hótakaróval és hómennyiséggel, és a természetes és hozzáadott mesterséges hótakaróval és hómennyiséggel rendelkező síterületekre, a klímaváltozás okozta változásokat (*1. táblázat*).

Scott és munkatársai 2017-ben, már egy átdolgozott modell vizsgálati eredményeire támaszkodva megerősítették, hogy azok a tanulmányok, amelyek nem veszik figyelembe az egyes sírégiókban hókészítés lehetőségeit, azok a síturizmus, síipar éghajlatváltozás adta kockázatát, néhány desztinációban a megszűnését már a 2050-es évekre teszik.

A SkiSim2 finomított, átdolgozott verziója pl. figyelembe veszi a síterületek magassági tartományait, mégpedig 100 méteres szintkülönbségekkel mérve. Ez alapján dolgozták ki az Alpokra, Észak-Amerikára, Norvégiára, Kínára vonatkozó hóágyúzás szabályrendszerét és operatív lehetőségeit.

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[7] SkiSim: Semi-distributed ski season simulation model – Félig megosztott síszezon szimulációs modell.

1. táblázat: Svédország síterepeinek jellemző adatai

Síterület sorszáma	Régió	Szélességi fok	Hosszúsági fok	Síterület nagysága (ha)	Sípályák magassága (m)	Hókészítés (%-os terep-fedettség aránya)	Liftek száma	Sípályák hossza (km)	Síszezon vége
1.	Norrland	É 63.40	K 13.08	1361	380-1274	60	31	91	05.05.
2.	Norrland	É 63.17	K 14.64	307	590-1010	18	17	25	04.07.
3.	Svealand	É 61.94	K 12.99	82	675-985	30	3	20	04.21.
4.	Svealand	É 59.23	K 17.88	14	3-103	100	3	2,7	04.07.
5.	Norrland	É 63.16	K 17.24	35	71-319	100	5	5	05.05.
6.	Svealand	É 59.30	K 18.11	11	10-95	80	2	2	04.07.
7.	Norrland	É 62.08	K 16.73	90	160-450	100	7	16	04.21.
8.	Norrland	É 65.71	K 15.29	289	439-789	7	10	30	05.05.
9.	Svealand	É 60.15	K 12.99	31	403-452	100	6	11	04.07.
10.	Gotaland	É 57.44	K 13.62	32	159-309	100	8	6	04.07.
11.	Norrland	É 65.25	K 14.59	33	545-950	0	4	18	05.05.
12.	Svealand	É 61.03	K 13.34	161	420-665	98	19	32	04.21.
13.	Norrland	É 62.11	K 13.30	193	633-1125	64	8	27	04.07.
14.	Norrland	É 62.70	K 12.39	153	700-1000	17	9	25	04.21.
15.	Norrland	É 68.43	K 18.13	299	522-909	0	6	21	05.05.
16.	Norrland	É 66.02	K 21.25	46	60-240	33	4	7	04.21.
17.	Svealand	É 58.32	K 14.92	17	177-276	100	6	3	04.07.
18.	Norrland	É 62.57	K 12.24	172	743-1038	11	16	38	05.05.
19.	Gotaland	É 57.97	K 15.62	25	115-245	100	4	4,5	04.07.
20.	Norrland	É 63.27	K 13.16	83	673-990	14	8	22	04.21.
21.	Gotaland	É 57.82	K 13.41	18	179-288	100	7	2,6	04.07.
22.	Svealand	É 59.83	K 12.26	16	100-320	38	5	8,4	04.07.
23.	Norrland	É 62.48	K 13.97	546	448-946	12	10	18	05.05.

Forrás: Saját szerkesztés.
Az adatok a Ski Resort Infóból (2021), a síterületméret adatok Demiroglu és szerzőtársai (2015) tanulmányából, és a szezon befejezési dátumai az üdülőközpontok a síterep információiból (2021) származnak.

A SkiSim2 sem alkalmazható automatikusan minden desztinációra egyforma tartalommal. A modell állandóságát egy természetes hótakaró, egy hókészítő (hóágyú) és egy a síterület üzemeltetési szabályait meghatározó modul jelenti. A természetes hótakaró modell vizsgálata kiterjed a napi minimum és maximum hőmérsékletek mérésére, illetve az 1980 és

2019 között gyűjtött csapadékadatok változásának elemzésére. A meteorológiai állomások a legalacsonyabb és a legmagasabb hőmérsékleti adatok mellett rögzítik a csapadék mennyiségét és halmazállapotát (eső, hó, vegyes csapadék stb.). Emellett a napi hőmérsékleti adatokat is figyelembe veszik, mely alapján a középhőmérsékletre vetített, napi hó/víz arányát is meg tudják határozni. Így a mérési eredmények a szezonra vetített teljes havazás, és a hószezon hosszát használják fel a kalibrálás meghatározására. Ez természetesen csak bizonyos időtávlatban jelent megbízható, konzekvenciákat adó eredményt.

A mérésekhez használt hószükséglet mérőszáma a december 15-től (síterülettől függően) április 7-ig, április 21-ig vagy május 5-ig, még északibb és hegyvidéki (Norvégiával határos hegyekben) területeken akár júniusig tartó síszezon fenntartásához szükséges hómennyiségre vonatkozik. Ugyanakkor a mérési eredmények alapfeltételeként elfogadták, hogy természetes hó esetében az alap hóvastagságnak, egységesen el kell érnie a 30 cm-t a kedvelt síterepeken (Kanadától kezdve az Alpokon át Japánig). A nem természetes hótakaró esetében pedig az egységes állapotnak a 10 cm/nap hógyártási kapacitás tekinthető mérési alapnak. A 10 cm/nap mérési alapérték a síterületek üzemeltetőinek egységesített álláspontja után került elfogadásra.

Klimatológiai adatok és klímaváltozási forgatókönyvek

Az 1981–2010 közötti alapidőszakra vonatkozó meteorológiai adatokat az Sveriges Meteorologiska och Hydrologiska Institut (Svéd Meteorológiai és Hidrológiai Intézet [SMHI])[8] klímamegfigyelő állomásainak közzétett adatbázisából (SMHI, 2020a) származnak. A meteorológiai állomások kiválasztásának kritériumai között feltételként szerepelt annak közelsége a síterülethez, az adatfelvétel teljessége és az állomás tengerszint feletti magassága, amely a síterület magassági tartományán belül vagy ahhoz közel kell, hogy legyen. Abban az esetben, ha a fenti feltételek valamelyikének hiánya miatt nem álltak a rendelkezésre helyi adatbázisok, úgy a legközelebbi állomás adatait kell felhasználni (amely akár több száz km-es távolságot is jelenthet).

[8] 1919-ben alapított svéd állami intézmény. Központja: Norrköping.

Ahol lehetséges, ott a síterület középső felvonóállomási magasságát használják, azonban számos kisebb üdülőhelynek nincs felvonói középállomás (pl. egytagú felvonó), így ez esetben a legelső/legalsó alapmagasság számít a kritikus magasságnak. A 2020-ban befejezett éghajlatra vonatkoztatott vizsgálatok kilenc (*2. táblázat*), globális modellen alapuló vizsgálati forgatókönyvet vettek alapul, melyek célja a lehetséges éghajlati jövők reprezentálása (SMHI, 2020b). Három vállalt és lehetséges kibocsátási rátát vettek számításba:

1. RCP2.6 (a szén-dioxid-kibocsátás csúcspontja 2020 körül jár, és 2100-ra eléri a nettó nullát);
2. RCP4.5 (a párizsi klímaváltozási megállapodás során vállalt kibocsátás csökkentés);
3. RCP8.5 (ha a kibocsátás a jelenlegi pályákon folytatódik) (IPCC, 2014).

RCP: Representative Concentration Pathway – A „reprezentatív koncentrációs útvonal" – az üvegházhatású gázok koncentrációjának (nem kibocsátásának) az IPCC által elfogadott pályája. Az IPCC 2014-es jelentéséhez négy utat használtak az éghajlatmodellezés- és kutatás során. Az útvonalak különböző éghajlati jövőket írnak le, amelyek mindegyike lehetségesnek tekinthető az elkövetkező években kibocsátott üvegházhatású gázok (ÜHG) mennyiségétől függően.

Az éghajlati referenciaidőszak négyes periódusra bontható, melyből az 1981–2010 (múlt) időszak egyfajta kiindulási időszakot jelent. A modellértékelésben nem játszik szerepet, de mint tapasztalati adatsorok figyelembe veendők. A kutatás három időintervallumra koncentrál:

1. a 2030-as évek (2021–2050) – jelenlegi időszak;
2. a 2050-es évek (2041–2070) – jövőbeni időszak (közeli jövő);
3. a 2080-as évek (2071–2100) – jövőbeni időszak (távoli jövő).

Eredmények

Mivel a vizsgált síterületek 92%-a rendelkezik különböző minőségű, kapacitású hókészítési eljárással, ami a természetes havas területeket és a műhókészítést is magában foglalja. A természetes hóval rendelkező területek szerint az átlagos sízezon hossza az alapidőszakban (tél) 181 nap Norrlandban, 57 nap Svealandban és 40 nap Gotlandon.

A természetes hóviszonyok között jelentős regionális különbségek mutatkoznak meg a klímaváltozás hatásában, amelyben, természetes földrajzi adottságok miatt, Gotaland és Norrland közötti különbségek tűnnek a legélesebbnek. Az összes éghajlatváltozási forgatókönyv szerint, a mindenkori alaphelyzetéhez képest legalább 83%-kal csökkent a síelhető napok száma Gotlandon, míg Norrland területén a csökkentés 31%-nál kisebb. Ez alól az RCP8.5 képez kivételt a 2080-as évek legmelegebb éghajlatváltozási előrejelzése szerint.

A síelésre alkalmas napok számának legdrasztikusabb csökkenése Gotlandon várható, mivel alacsonyabb szélességi körön található, ahol magasabb a hőmérséklet, mint az ettől északabbra található területeken, és az összes síterülete közelebb van ahhoz a kritikus küszöbhöz, ahol ritkább a havazás. Gotland átlagos tengerszint feletti magassága 184 m, ez rendkívül nagy hátrányt jelentett még azokban az időszakokban is, amikor a globális klímaváltozás nem volt ilyen jelentős mértékű. Ezzel szemben Norrland és Svealand síterületeinek éghajlati előnye a magasabb tengerszint feletti magasságban rejlik, ami 584 m és 460 m közötti értékben van.

Az RCP2.6-ban a 2050-2080-as évek közötti szezonhossz csökkenés viszonylagos enyhülése azzal magyarázható, hogy a légkör CO_2-koncentrációja várhatóan a század közepe után kezd stabilizálódni (elméleti feltételezés).

2. táblázat: Síszezon hossza (napok és százalékos csökkenés az alapvonalhoz képest) csak természetes hóval

Tartomány	Alapnapok száma		RCP2.6			RCP4.5			RCP8.5		
			2030	2050	2080	2030	2050	2080	2030	2050	2080
Norrland	181	nap	150	148	149	148	139	127	144	126	87
		%	−17	−18	−18	−18	−23	−30	−20	−30	−52
Svealand	57	nap	44	46	42	42	40	30	42	35	4
		%	−23	−19	−26	−26	−30	−47	−26	−39	−93
Gotaland	40	nap	7	3	3	2	1	0	1	0	0
		%	−83	−93	−93	−95	−98	−100	−98	−100	−100
Svédország	125	nap	99	98	98	97	91	81	94	82	51
		%	−21	−22	−22	−22	−27	−35	−25	−34	−59

Forrás: Saját szerkesztés Rice és szerzőtársai (2022) tanulmánya adatainak felhasználásával

Több, egybehangzó kutatás is bizonyítja (Dawson és Scott, 2013; Scott és Steiger, 2013; Steiger és Stötter, 2013; Scott et al., 2014, 2017, 2020; Abegg et al., 2015; Steiger és Abegg, 2013, 2018;), hogy a síszezonok hossza növelhető akkor és úgy, ha a jelenleg alkalmazott, legfejlettebbnek nevezhető hókészítési technológia csökkenteni tudja az alapvonal értékét. Az alapvonal értékének csökkentése, a hóhatár értékének meghatározása, egy adott sípályának a tengerszinti mértékhez való legközelebbi pontját jelenti. Az alacsony/legmélyebb értékű alapvonal jelentős mértékben képes korlátozni a szezonális veszteségeket és az egyes régiókra eltérő módon ható éghajlatváltozás okozta eltérések is befolyásolhatók.

A síszezonok hosszának regionális csökkenése közötti különbség a század végére még szembetűnőbbé válik, különösen a magasabb károsanyag kibocsátással számoló forgatókönyvek esetében, ahol Gotlandon lesz a legrövidebb a síszezon, míg Norrland, több mint 150 működő sínappal számolhat.

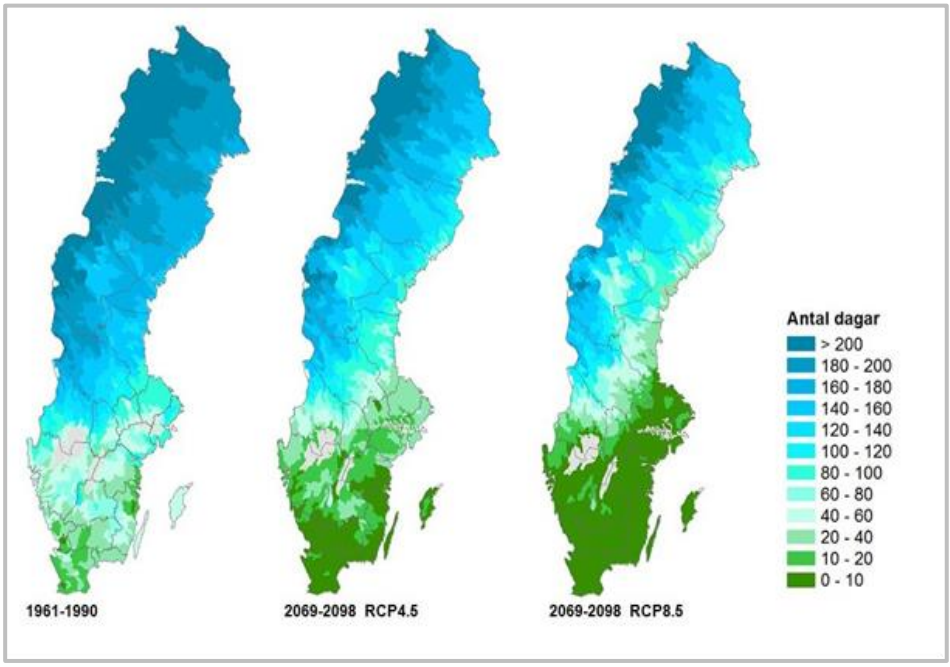
3. táblázat: Szezon hossza (napok és százalékos csökkenés az alapvonalhoz képest) hókészítéssel

Tartomány	Alapnapok száma		RCP2.6			RCP4.5			RCP8.5		
			2030	2050	2080	2030	2050	2080	2030	2050	2080
Norrland	219	nap	205	201	204	202	197	190	201	190	159
		%	−6	−8	−7	−8	−10	−13	−8	−13	−27
Svealand	156	nap	114	106	106	101	85	67	98	66	44
		%	−27	−32	−32	−35	−46	−57	−37	−58	−72
Gotaland	140	nap	14	101	101	95	69	48	89	27	1
		%	−19	−28	−28	−32	−51	−66	−36	−81	−99
Svédország	189	nap	166	159	160	157	146	134	155	131	104
		%	−12	−16	−15	−17	−23	−29	−18	−31	−45

Forrás: Saját szerkesztés Rice és szerzőtársai (2022) tanulmánya adatainak felhasználásával

A svédországi síterületek többsége jelenleg nem rendelkezik fejlett, víz- és energiaszükségletet hatékonyan, fenntarthatóságnak megfelelően felhasználó hókészítési technológiával és kapacitással (a fejlesztések finanszírozása pedig jelentős állami támogatást, és magán, illetve önkormányzati tőkebefektetéseket igényelne. Mindemellett azt is figyelembe kell venni, hogy a hókészítés, mint a síterepek éghajlatváltozáshoz való alkalmazkodásának technikai feltétele, kevésbé nevezhető hatékonynak,

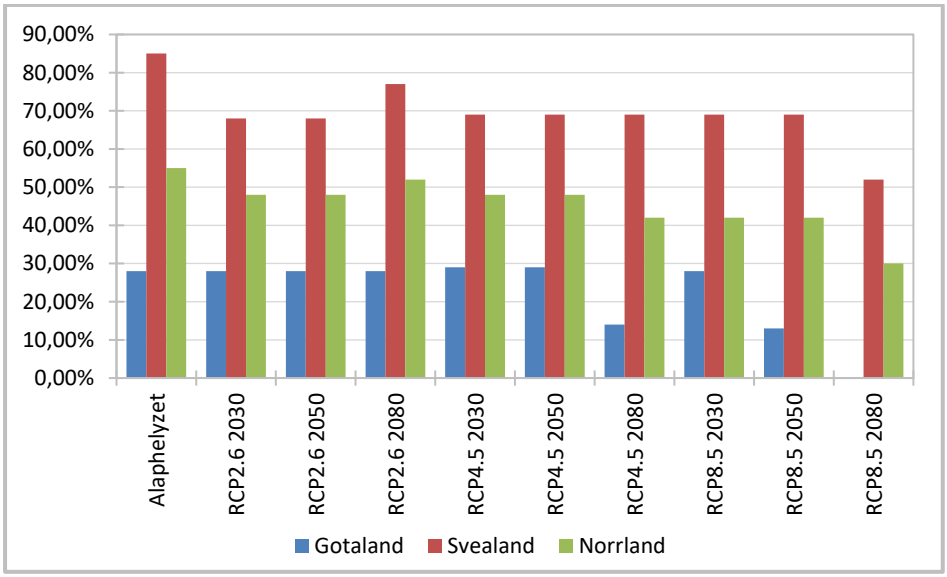
ha nem elég alacsony és tartós az ehhez szükséges hőmérséklet. A folyamatosan növekvő hőmérsékletemelkedés csökkenti a hótermelés szempontjából hatékonynak ítélt napok számát, és növeli a szükséges hókészítés költségeit. Ez természetesen nem azt jelenti, hogy teljesen ki kell zárni egy jelentősnek ítélhető előrelépést a hógyártási technológiák terén. Ahhoz, hogy egy síüdülőhelyet hóbiztosnak lehessen tekinteni (*2. ábra*), 100 üzemnapnak (>30 cm hó) kell rendelkeznie az évszakok 70%-ában az elmúlt 30 év távlatában (Abegg et al., 2015; Morin et al., 2021).



2. ábra: A hóhatárok visszahúzódása

Forrás: Nya analyser visar hur klimatet kan förändras i Sveriges län, 2015.

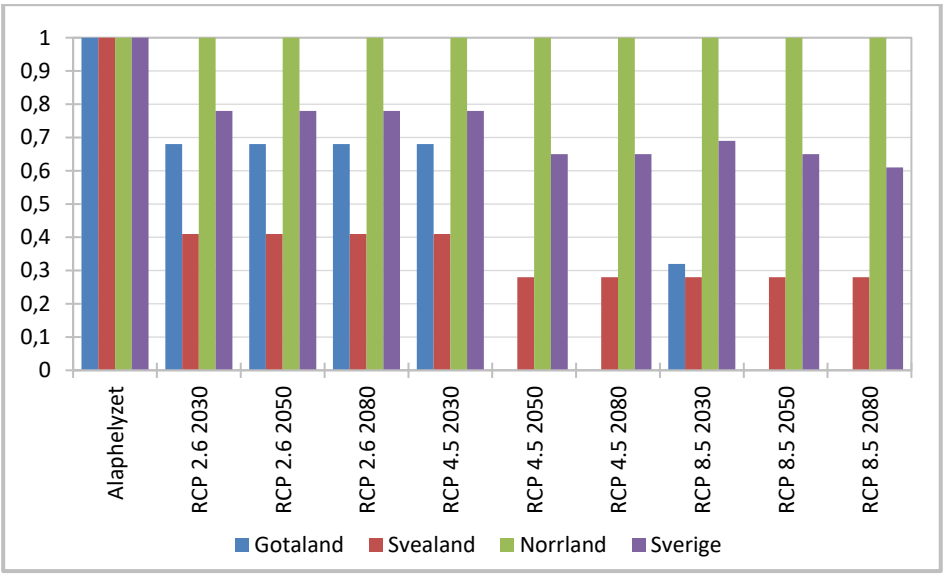
A fenti adatok alapján, ma csak Norrland síterületeinek 85%-a tekinthető hóbiztosnak. A természetes hóviszonyok mellett Norrland síterepeinek többsége (magasabb alapvonallal rendelkezők esetében) megőrzi természetes hóbiztonságát, a síüdülőhelyek legalább 69%-a minden forgatókönyvben hóbiztos marad, kivéve a legpesszimistább RCP8.5, 2080-ra mutató adataiban. Viszont Svealandban és Gotlandban a természetes hóbiztos síüdülőhelyek aránya nem éri el a 29%-ot, rosszabb esetben, de 2080-ra mindenképpen a 0% feletti eredményt (*3. ábra*).



3. ábra: A hóbiztos síterületek aránya természetes hóviszonyok között

Forrás: Saját szerkesztés Rice és szerzőtársai (2022) tanulmánya adatainak felhasználásával

Amint már említésre került a síterületek 92%-a rendelkezik valamiféle, ám különböző kapacitást produkáló hókészítő technológiával, képességgel. Ezért legitim az a feltételezés is, hogy a hókészítéssel kapcsolatosan megvizsgáljuk annak megbízhatóságát. Az összes norrlandi síterület hóbiztosnak nevezhető megfelelő kapacitású, fejlett technológiát felvonultató hókészítéssel az RCP8.5-ös modellben, egészen 2080-ig, amikor is 92%-ra csökken a síelhető területek aránya (3. ábra). Ez jelenlegi rálátással nem tűnik rossz aránynak. Svealand és Gotaland esetében az alapidőszakban minden terület hóbiztos, ezt követően Svealand síterületeinek maximum 43%-a hóbiztos, Gotaland síterületeinek pedig csak 67%-a hóbiztos az RCP4.5-ös modell alapján, 2050-ig *(4. ábra*).



4. ábra: Hóbiztos síterületek aránya fejlett hókészítéssel

Forrás: Saját szerkesztés Rice és szerzőtársai (2022) tanulmánya adatainak felhasználásával

Az már most egyértelművé vált, hogy a síszezon védelme és meghosszabbítása érdekében növelni kell a hótermelést, különösen Közép- és Dél-Svédországban, amelynek térbeli és időbeli mintázata azonosnak tekinthető, az évszak hosszának változásai is – általánosságban – megegyezőnek tekinthetők. A hótermelési követelmények, ahogy közeledünk a 2080-as végdátumhoz, folyamatosan növekednek, és a hótermelés legnagyobb növekedésének szükségessége a 2080-as évekre prognosztizálható (*4. táblázat*).

Bár Norrland bizonyos síterületein is nagyobb százalékban fog növekedni a hótermelésre való igény, de ez még mindig azt jelenti, hogy a síelési alapidőszakban, a többi svédországi síterülethez képest, mérhetően alacsonyabb mesterséges hóra lesz szükség. Ha pedig figyelembe vesszük a biztonságos és élvezhető síeléshez szükséges hó mélységét, akkor hópótlásra sokkal nagyobb szüksége lesz a svealandi és gotalandi sípályáknak.

4. táblázat: A hótermelés növelésének mértéke

Tartomány	Alapvonal (cm)		RCP2.6			RCP4.5			RCP8.5		
			2030	2050	2080	2030	2050	2080	2030	2050	2080
Norrland	16	cm	36	39	39	37	50	64	41	61	151
		%	125	144	144	131	212	300	156	181	844
Svealand	129	cm	198	206	218	215	260	297	225	299	451
		%	54	60	69	67	102	130	74	132	250
Gotaland	70	cm	137	154	161	163	207	237	169	257	396
		%	96	120	130	133	196	239	141	267	466
Svédország	58	cm	8	105	109	107	134	157	114	159	263
		%	69	81	88	85	131	171	97	174	353

Forrás: Saját szerkesztés Rice és szerzőtársai (2022) tanulmánya adatainak felhasználásával

A sízezonok időhosszának összehasonlító eredményei (mesterséges hó nélkül), azt mutatják, hogy jelenleg (2022) 14 síterület hóbiztos, és ezek közül a táblázatban a 3. és 12. helyen található síterület található Norrlandon kívül (*1. táblázat*). Az alapidőszakban a táblázat 12. helyétől lefelé található (É. sz.: 61.03) síterületek egyike sem tekinthető hóbiztosnak.

A 2080-as évekre, a magas rizikó (RCP8.5) mellett, már csak hét üdülőhely maradt hóbiztos, és ezek mindegyike Norrlandban található. Ez a hét hóbiztos terület mindegyikének az alapmagassága 400 m felett, három terület pedig az északi sarkkörön túli területen, vagy azzal határos szélességi fokon található. Azonban az most prognosztizálható, hogy fejlett hókészítési technológiákkal az alapidőszakban mind a 23 terület „hómegbízhatónak" számít a későbbiekben is.

Érdemes figyelni a 2030-as évek 4-es, 6-os, 9-es és 19-es tengerszintközeli síterepek adataira, ami az alacsony modellértéknek tekintett RCP2.6 forgatókönyv alapján már nem nevezhetők hóbiztosnak. Ez azt jelenti, hogy míg a múlt században hagyományosan népszerű síturisztikai helyszínként tartották számon ezeket a területeket, a jelzett időszakra a síelés perifériás lehetőséggé válik, vagy teljesen megszűnik.

2080-ra Svédországban mindössze 15 síterületet lehet majd valamilyen szinten hóbiztosnak nevezni (természetes és mesterséges hó együttese), ezek közül kettő kivételével (3. és 12.) mind Norrlandban található. A 13 legnagyobb síterület több mint 100 napos síévszakot képes fenntartani (természetes és mesterséges hó együttese), az alacsonyabban fekvő

területeken pedig az éghajlatváltozásnak súlyosabb következményeként megközelítő számmal sem találkozunk.

A különböző síterepek kapacitása okán fontos megjegyezni, hogy az összesített 4 014 hektárnyi svédországi sípályák legalább 94%-a még a legmelegebb klíma esetén is működőképes maradhat, abban az esetben, ha elegendő hókészítési kapacitással fog rendelkezni. Azt sem kikerülendő tényező, hogy egy-egy síterület behavazottsága nem egyezik meg a síelhető területtel. A síterület minden esetben nagyobb területeket jelöl, mint a sípálya, többek között olyanokat is, amelyek nem síelhetők a nem megfelelő terepviszonyok, pályahiány, biztonsági rizikó stb. miatt (még fekete pályaként sem használható).

Eredmények

Moen és Fredman (2007) az egyik legnépszerűbb svédországi síparadicsom, a dalarnai Sälen, síelhető napjainak mintegy 40%-ának elvesztését prognosztizálták. Ez a 162 napos szezont 98 napra csökkentené 2071 és 2100 közötti időszakban, alacsony rizikójú klímaváltozás következményeként. Ha mindezt magas rizikójú klímaváltozásra emelik, akkor ezek a számok meglehetősen drasztikusan megváltoznak, hisz 57%-os csökkenés mindössze 66 napos síszezont jelentene. Ennek jobb megértéséhez és az előrevetített katasztrófa érzékeléséhez érdemes a https://salenfjallen.se/fájlt tanulmányozni, ahol a 2022-es forgalmi adatok tükrében értelmezhetjük a számadatokat. Ez a két klímaváltozást előre vetítő forgatókönyv nagyjából megegyezik a jelenlegi tanulmányban használt számadatokkal (Pedersen et al., 2020).

Ennél mindenképpen megdöbbentőbb a 12. helyen álló svelandi síterepek sorsa, ahol az induló 173 síelhető nap csökken le 2071-2100 közötti évekre mérsékelt megközelítésben 90 napra, míg a pesszimista megközelítés szerint pedig 11 (!) használható sínapra. Abban az esetben, ha hókészítést is figyelembe veszik, akkor az alapszezon 210 napra növekedne (síidőszak kitolása), de ez a század végére lecsökkenne 154 napra, ám a pesszimistább számítás ez tovább csökken 124 napra.

Bár a Moen és Fredman (2007) összehasonlíthatósági vizsgálati eredményeit korlátozottnak kell tekintenünk, mivel fizikailag nem tesztelték a természetes hótakaró minőségét egyetlen helyszínen sem (ehelyett bármilyen mennyiségben, hóvastagságban fellelhető havas napokkal számoltak,

és ezt tekintették a ma használatos 30 cm-es, vagy annál nagyobb hóvastagsággal működő sínapok helyettesítésére), továbbá nem számoltak a hókészítés lehetőségeivel sem. Ezek a módszertani hiányosság, valamint az a tény, hogy a kutatás esettanulmányként értelmezendő eredményeit extrapolálták Svédország síipari gazdasági veszteségeinek egészére, arra a hamis következtetésre vezetett, hogy a svéd síipar pénzügyi lehetőségeit, rugalmasságát eddig alábecsülték, szűkebb korlátok között gondolták működni.

2019-ben, hét észak-svédországi régió kért hóviszonyikra vonatkoztatott vizsgálatot az RCP4.5 és RCP8.5 éghajlati forgatókönyvekre (SMHI, 2021). A vizsgálati eredmények rámutattak arra a tényre, hogy a műhó készítése lényegesen meg tudja változtatni, ki tudja egyensúlyozni az éghajlat okozta változások negatív hatásait. Azt is bizonyították, hogy azokon a helyszíneken, ahol 50 cm-nél magasabb a hóvastagságot tudnak produkálni, ott a 23 síterepből 16 helyen síelésre, sportolásra alkalmas pályákat kapunk, beleértve a táblázatunk 8. helyén található síterepet is (SMHI, 2021). A további eredményként látható, hogy az RCP4.5 és RCP8.5 forgatókönyvek esetében meredeken csökkent az alapidőszak 170 síelésre alkalmas napjáról (1963–1992) a század közepére (2021–2050) kb.145-140 napra és a század végére (2070–2100) kb. 135-110 napra (SMHI, 2021).

A táblázat 8. helyén levő síterep alapvonala 211 napra kalibrált, mely a szezon minden napjára 30 cm-es havat feltételez, és ennek a sízezonnak hossza fokozatosan csökkenő tendenciát mutat az RCP4.5 forgatókönyv alapján. Így 2030-ra 198, 2050-re 180 és 2080-ra 173 síelhető napra lehet számítani.

Egyértelmű a folyamat, mely alapján kijelenthető, hogy az európai síterepeken általában hasonló intenzitású folyamatokra lehet számítani. Ezt a tényt támasztja alá az Alpok térségében végzett vizsgálatok eredményei (Steiger és Abegg, 2018), és a Svédországgal szomszédos – ez alapján a közvélemény számára relevánsabb tényként kezelhető – Norvégia esete is (Scott et al., 2020). Scott eredményeit megerősítik a svéd adatok is, azaz a két ország síterepeinek időjárás okozta változásai párhuzamosan zajlanak. Az RCP8.5 forgatókönyv szerint a 2030-as években a Norrland sízezon hosszának csökkenése várhatóan 8%-os, ami belefér a norvég régiókra előrejelzett tartományok 6–15%-os csökkenést mutató adataiba. Ez a párhuzam egészen a század végéig nyomon követhető. Így a 2050-es

évekre jellemző norrlandi 13%-os szezonhossznak a csökkenése a norvégiai csökkenések 12–27%-ának alsó határán található.

Ugyanakkor minden ismertetett forgatókönyv és időkeret előrejelzései alapján, Svealand és Gotland síterepein a szezonhosszi csökkenése lényegesen magasabb.

A téli sísportok terepeinek vizsgált földrajzi elhelyezkedését, és vele párhuzamosan versenyhelyzetüket is vizsgáljuk, akkor a svédországi és norvégiai síterepek között, figyelembe véve az időkereteket is, a 2050 utáni időszakban csak a svédországi Norrland régió hatalmas, nagy magasságú, hóbiztos terepei jöhetnek számításba. Ez a térség lesz alkalmas alpesi síturizmusra. Az észak-norvégiai síterepek versenyképessége jelenleg még meghatározónak számít, ám a vizsgált időkeretben pontosan maga a földrajzi elhelyezkedése fogja ezt a versenyképességet meghatározni. Az Észak-Norvég síterepek relatív versenyképességi mutatóit az alacsonyabb tengerszint feletti magasság és a Golf-áramlat fogja befolyásolni. Ezek a tényezők viszont a norrlandi síterületekre nem hatnak.

Steiger és Abegg (2018) azt is kimutatta, hogy az RCP8.5 forgatókönyv szerint a század közepétől az éghajlatváltozás kockázata olyan, mint az Alpok sok síterületén. Az európai Alpokban az előrejelzések szerint a síterületek 96%-a hóbiztos 1°C-os emelkedés mellett (2030-as évek), 85%-a pedig 2°C-os emelkedés esetén (kb. 2050-es évek). Ugyanezeket a tényezőket figyelembe véve Norrland esetében a síterepek 100%-a hóbiztos lesz a 1°C és 2°C hőmérséklet emelkedése esetében is. Abban az esetben, ha a hosszútávú prognózist a 2080-as évekre vetítjük, és 4 °C hőmérséklet emelkedéssel számolunk, akkor az alpesi területek síelhető terepeinek lefedettsége 42%-ra zsugorodik, a norrlandi 92%-kal szemben. A 92%, mint az európai síipar számszerűsített „utolsó mentsvára”, ekkor jelent erős versenyelőnyt. Ebben az időszakban csak Észak-Norvégia jelentkezhet csökkentett mértékű versenytársként Norrland számára.

A klímaváltozás síturizmusra ható egyéb következményei

A bizonytalan minőségű, hóbiztonságú európai sípályák mellett, nagy valószínűséggel számolni kell a síturisták elbizonytalanodott keresleti magatartásával is. Kutatások azt mutatták, hogy a turisták kevésbé lojálisak az üdülőhelyekhez (általában), és inkább hóbiztosabb üdülőhelyeket keresnek (Behringer et al., 2000; Unbehaun et al., 2008; Rutty et al. 2015; Steiger et al., 2020).

Bizonytalanság esetében a turisták késleltethetik a döntést-előkészítést-foglalást hármasságát addig, amíg a hóviszonyok elfogadhatókká válnak, vagy csak azok aktivizálódnak, akiknek lakóhelyükhöz közel, vagy viszonylag közel fekszenek sípályák. Így rövid távolságokat kell megtenniük, vagy akár napi szinten ingázhatnak lakóhelyük és a sípálya között. A síturisták attitűdjeiben jelenleg az sem világos, hogy milyen mértékben tesznek különbséget a természetes és a műhó között. Steiger et al. (2020) ausztriai egynapos sítúrázók között végzett kutatása szerint a természetes hó hiánya 19%-os keresletkiesést jelent.

A svéd üdülőhelyek jellemzően kisebbek, mint az európai Alpok legnépszerűbb úti céljai. Franciaországban, Olaszországban, Ausztriában és Svájcban az átlagos felvonók száma, akár üdülőhelyenként is több lehet, mint egyes, egész svéd üdülőrégióban. Franciaországban, Ausztriában és Olaszországban több mint duplája a négy vagy több felvonóval rendelkező üdülőhelyek száma, mint Svédországban (Vanat, 2020).

Az olyan területeken, mint a táblázat 15 helye, amely egyben a legészakibb svéd síüdülőhelyet is jelenti, december közepétől január elejéig 24 órás sötétség van, februárig pedig továbbra is nagyon kevés, habár növekvő óraszámban a nappali, természetes fény. Bár a síszezon hosszabb (késő tavaszig, Norrland egyes részein májusig tart), mint Európa többi részén, mégis felveti azt a kérdést, hogy a turisták lecserélnék-e nyaralásukat egy hidegebbnek, sötétebbnek, így barátságtalannak tűnő Észak-Svédországgal.

A nem belföldi turisták számára Svédország látogatása Franciaországhoz, Németországhoz vagy Ausztriához képest lényegesen drágább, az utazás bonyolultabb, összetettebb. A turizmus fontos, együtt értelmezendő alkotóeleme a vendéglátás, és azon belül is az ételek és az alkoholtartalmú italok költsége. Az élelmiszerek fogyasztói árindexe Svédországban 121, míg Ausztriában 126, Olaszországban 111 és Franciaországban 116 (Eurostat, 2020)[9]. Az alkoholtartalmú italok árindexe Svédországban 166, szemben az osztrák 107, az olaszországi 104 és a franciaországi 101 értékkel szemben (Eurostat, 2020). A jelentős az árkülönbség (vendéglátás és utazás) lényegesen megdrágítja az ott tartózkodás költségeit. Norvégiai viszonylatban, ugyanezen termékek és szolgáltatások árindexe már 151, illetve 251 (Eurostat, 2020). Az ilyen árkülönbség a svéd területek

[9] Háború előtti adatok. 2023-as adatok nem álltak rendelkezésemre.

számára egyértelmű versenyelőnyt jelent a hasonló éghajlati előnyökkel rendelkező norvég síterületekkel szemben.

Az is kérdéses, hogy a fenntarthatóság/klímavédelem tekintetében, hogy az eddig jól megközelíthető alpesi síterületekről, a síturisták hajlandók lennének-e egy nulla káros kibocsátás felé törekvő országba utazni, ha alacsony/nulla szén-dioxid-kibocsátású közlekedési lehetőségek nem állnak rendelkezésre, vagy használatuk nagyon költséges. Mindezeket figyelembe véve, nehezen feltételezhető, hogy óriási tömegű síturista fogja felkeresni az észak-svédországi síterületeket az alpi síterületek kiesése után. Még abban az esetben sem, ha jobban preferálják a természetes hótakarót, mint a műhavas sípályákat.

További kérdések merülnek fel a helyi őslakosok (sámik) gazdálkodásának, megélhetési területeinek turisták általi „elözönlése" kapcsán. Ezek a rénszarvastenyésztő, legeltető gazdálkodás a nemzeti parkok területén folyik, melyek bővítése folyamatosan napirenden van, és e területek infrastruktúrális fejlettsége/nem fejlettsége nem feltétlenül lesz megfelelő színvonalú a síturisták számára.[10]

A helyi sámik viszont erőteljesen és hangosan védik ősi területeiket, amely a rénszarvastenyésztéshez biztosítják számukra a legeltetéshez szükséges területeket. Úgy gondolják, ha egy újabb turisztika szegmens erősödése, tömegek megjelenése várható, akkor előtte mindenképpen szükséges egy intenzív tárgyalási szakaszt beiktatni (kárpótlások igénye). Mindemellett másik érve a helyieknek, hogy már létezik, egy számukra is elfogadható természetalapú turizmus, így a síelési lehetőségek fejlesztését vagy bővítését célzó területhasználati változtatások összeütközésbe kerülhetnek a meglévő turisztikai ágazatokkal (ökoturizmus, geoturizmus, vadászat, horgászat stb.).

Tekintettel arra, hogy a jövőbeni síipar egyre inkább a műhókészítésre fog támaszkodni, mérlegelni kell, hogy az ebből következő jelentős energiafogyasztás-növekedés és a potenciális üvegházhatású gázok (ÜHG)-kibocsátás elfogadható-e egyfajta alternatív megoldásként. Ennek megválaszolása inkább turisztikai megközelítésűnek kell lennie, semmint síüzemelési vagy célállomási érdekek melletti álláspontnak.

[10] Laponia: UNESCO Világörökség részét képezik, és ökológiai egyediségük és a hagyományos megélhetési lehetőségek védelme érdekében őrzik őket.

Svédország három legnagyobb városából, Stockholmból (1 500 000), Göteborgból (600 000) és Malmöből (300 000) a hóbiztos területek eléréséhez szükséges utazási távolságok megnövekednek az éghajlatváltozás hatására, ez leginkább majd az RCP8.5 klímaváltozási előrejelzéseknél válik mérvadóvá. Ami ennél is meghatározóbb, hogy az említett, keresletet generáló, nagyvárosok Svealand és Gotland területén (kimondottan hószegény) fekszenek Ez a távolsági növekedés figyelemre méltó, jelentős, mivel jelenleg a svéd síterületek látogatóinak 85%-a belföldi (Vanat, 2020). Az említett nagyvárosok, illetve a svédországi kis és közepes nagyságú városainak környékén található sípályák kis kapacitásúak. Fontosak, hisz az egynapos síelőknek és a kezdőknek megfelelő bázist tudnak nyújtani, de a már taglalt éghajlati változások miatt egyáltalán nem tekinthetők hóbiztos területeknek.

Ha ezek a síterületek életképtelenné válnának, bezárnának, az ezekről a területekről elutazó síelőknek meg kell növelniük az utazási távolságot autóval, vonattal vagy repülővel, hogy hóbiztos síterepet találjanak. Ezért teljes mértékben elfogadható az a feltételezés, hogy svéd síturisták tömege, a megnövekedett utazási távolságok miatt, teljesen felhagy a síeléssel (Rutty et al., 2015; Steiger et al., 2021; Unbehaun et al., 2008). A még műhóval gazdaságosan üzemeltethető kisebb sípályák, egyfajta *„feeder”*[11] üdülőhelyként funkcionálnának, ahol valóban a síelés alapjait lehet elsajátítani, az egynapos síeléseket lehet lebonyolítani. Mindez azt is előrevetíti, hogy az északi részek hóbiztos területeire egyre kevesebb síturista érkezik, mert az eddig biztos háttérként működő, hóbiztos közép-és dél svédországi síterületek biztosították, generálták az ellátási láncba az új síelőket.

Hamilton et al. (2007) állapította meg, hogy a kialakuló hóhiányos helyszíneken kialakul az ún. *„hátsó udvari hatás”,* amely szerint a hóesés és hótakaró csökkenése a városi területeken élő, régebben a síelést kedvelő és aktívan űző emberekben csökkenti az érdeklődést és a motivációt a síelés iránt.

Eltekintve attól a kérdéstől, hogy a turisták elfogadnák-e a hosszabb utazási időt a síelésre, az utazási távolságok növekedését potenciálisan károsnak kell tekinteni az éghajlatváltozási célok szempontjából, mivel az utazások jelenleg elsősorban a fosszilis tüzelőanyag-alapú közlekedésre

[11] Kisegítő, mellék, másodlagos jelentőségű turisztikai terület.

támaszkodnak. Fontos megjegyezni, hogy ez gyorsan változhat: 2021-re az újonnan regisztrált elektromos személyautók 38,2%-os piaci részesedését érték el Svédországban (Bil Sweden, 2021). Mivel az elektromos járművek piaci részesedése várhatóan tovább növekszik, ennek következtében az üdülőhelyek töltési infrastruktúrája is bővül, előfordulhat, hogy a kisebb, könnyebben megközelíthető üdülőhelyek várható veszteségei nem befolyásolják érdemben az utazással kapcsolatos ÜHG-kibocsátást.

Valójában, ha a hókészítés nyitva tartja a regionális síterületeket (Közép-és Dél Svédország), és megakadályozza, hogy távolabbi úti célokra kelljen utazni, az alacsony szén-dioxid-kibocsátású elektromos hálózatból történő hókészítés csökkentheti a téli turizmus nettó ÜHG kibocsátását Svédországban.

Következtetés

A tanulmány a svédországi síipar jövőjének, nehezen bizonyítható jövőképpel, teoretikus éghajlatváltozási forgatókönyvek alapján történő lehetséges mozzanatait vizsgálta és ezek alapján teszi fel azt a kérdést, hogy valóban az északi tájak jelentik-e az „utolsó menedéket" az európai síipar, és a síelés szerelmeseinek.

A végső eredmények azt mutatják, hogy Svealand és Gotland síszezonja jelentősen lerövidül, vagy megszűnik, már a következő évtizedben, és maga a műhó készítése is kihívás elé állítja e desztinációkat. Ezzel szemben Norrland a 2080-as évekre is megőrzi hóbiztonságát, sokkal nagyobb mértékben, mint azt a korábbi SkiSim adatai szerint modellezték. Sőt, még a norvégiai és az Alpok síterületeinél is magasabb fokú hóbiztonságot, és hosszabb hószezont prognosztizálnak. Így ez a modellezés megalapozhatja annak a kijelentésnek az igazságtartalmát, hogy ezek a területek valóban „utolsó menedéket" értelmezhetők az ezred végének évtizedeiben.

Nem eldöntött az a feltételezés sem, továbbra is tisztázatlan, hogyan fog viselkedni, milyen reakciói lesznek a síelők gazdaságilag és kulturálisan akadály mentesített tömegének a síterepek napfénydeficitje, menynyire lesz helyettesíthető más térrel, pl. napfényes desztinációkkal. A svéd síipar, kiszolgálva a keresletet, hókészítési infrastruktúráját folyamatosan bővíti, és ez a stratégiai tervek szerint a közeljövőben is folytatódni fog. Folytatódni fog, legalábbis addig, ameddig az a fenntarthatóság és/illetve

a gazdaságosság mértékébe belefér. Addig, ameddig a síelők tömege megérti azt a vizuális környezetet, amit egy műhavas pálya képes nyújtani.

Előfordulhat olyan helyzet, amikor a délebbre eső területeknek, főként Gotlandnak, meg kell fontolniuk, hogy fenntartható-e a folyamatosan melegedő éghajlat esetén a sípályák további üzemeltetése. Figyelve azt, hogy az alkalmazkodás milyen mértékű, milyen költségekkel rendelkezik, hogy időben meddig nevezhető jól megtervezett, fenntartható és gazdaságilag kiegyensúlyozott alkalmazkodásnak. A jövendő időszak tényeként kezelendő az is, hogy a sípályák méretgazdaságossága egyenlőtlen versenyelőnybe juttatja a nagyobb kapacitású, sokfelvonós, hosszúpályás, esetleg egyéb szolgáltatásokkal bíró sípályákat a kisebbekkel szembe (pl. városi sípályák). A kisebb sípályák nemcsak a gazdasági versenyt nem bírják, hanem a pályák modernizálási, újabb technológiákkal való ellátását sem.

Arról nem is beszélve, hogy a hótermelés várható növekedése csökkentheti a síterület esztétikai értékét és ezáltal vonzerejét a látogatók számára. Mint minden jövőre vonatkoztatott kutatásnak vagy modellezésnek léteznek korlátai. Jelen esetünkben nem vehető figyelembe, nehezen modellezhető a hőmérséklettől függő hókészítési kapacitás, amely következményeként a hőmérséklet csökkenésével a hatékonyságot szükséges növelni. Ha a szükségessé vált hókészítési kapacitás növekedése évről – évre, és előre tudható lenne, az megkönnyítené, előre kiszámíthatóvá tenné a potenciálisan szükséges hómennyiség mellett, az energia- és vízszükségletet és a légszennyeződési mértékének ismeretét is. A légszennyeződés becsült mértéke, jelen ismereteink szerint, a meglevő és használatos hókészítési kapacitások, a hőmérséklet emelkedése és a feltételezett síelők száma mellett növekedést kell, hogy mutasson.

Az ma is tudott, hogy a hókészítés optimális hatékonysága +10°C-os hőmérsékleten a legideálisabb, azaz a fagypont környékén készülő műhó mennyiségi/térfogati nagysága kevesebb, mert jobban tömörül a hó.

A kutatás teljessége a meteorológiai állomások naprakész, folyamatos adatainak hiányosságai miatt korlátozott. A korlátozásnak az az egyszerű oka, hogy Svédország nem minden síterülete rendelkezik jelenleg önálló meteorológiai mérőállomással. A meglevő mérőállomások sem a síterületek megfigyelésére koncentrálnak, hanem nagyobb földrajzi térségekre (Észak-Skandinávia). Az adatok gyűjtése és összefoglalása pedig a hagyományos időjárási jelenségekre gyűjt megfigyeléseket. Hiányt pótló a szükséges egyéb, idevonatkozó paraméterek, idősorok gyűjtése, illetve

nem szabad üres periodusokat hagyni. Ehhez kapcsolódó korlát, hogy a hókészítési potenciált csak a környezeti levegő hőmérséklete alapján számítják ki, figyelmen kívül hagyva pl. a levegő páratartalmának fontosságát (Hartl et al., 2018). A levegő páratartalmának gyűjtése azonban tovább növelné a megfelelő időjárási állomások adatigényét.

Korlátként értékelhetjük azt a feltételezést is, hogy minden síterületen a pályák 100%-a a legfejlettebb hókészítő rendszerrel van felszerelve. Ezzel szemben a valóságban a síterületek 92%-ára kimondható, hogy rendelkezhet, alkalmassá válhat hókészítésre, de valójában a hókészítés csupán 56%-át érinti fizikálisan (elérhető sípályák) ezeknek. A jövőben, ha több információ válik elérhetővé az egyes síterületek tényleges hótermelési kapacitásairól, hogy jobban tükrözze a vizsgált üdülőhelyek jelenlegi és alkalmazkodóképességét.

A következő évtizedekben valószínűleg növekedni fog a síiparban érdekelt felekben a síipar éghajlatváltozási kockázataival kapcsolatos részletesebb információk iránti igény. A döntéshozók, így a befektetők, a hitelezők, a síterületkezelők, az ingatlanfejlesztők, a biztosítótársaságok, valamint a hókészítő és felvonófelszerelés-gyártók egyre gyakrabban kérnek adatokat a klímaváltozás következményeiről regionális és egyéni síterületek léptékében egyaránt. Az ilyen kutatások segíteni fogják a síturizmus értékelését a regionális fejlesztés érdekében Svédország azon területein, ahol a legnagyobb hóbiztosság a jövőbeli éghajlatváltozás miatt.

Továbbá nem szabad figyelmen kívül hagynunk azt a ma még teljesen ismeretlen tényezőt, amit a század végére a hókészítési technológiák fognak majd jelenteni. Kérdés, hogy tudják-e a vizet más, környezetbarát és fenntartható, anyaggal helyettesíteni. Kérdés, hogy a turizmusban továbbra is emelkedő trendként lesz-e jelen a téli sportok között a síelés, a sífutás, vagy az e sportot űzők a bonyolult, hosszú utazások, az összezsugorodott síterepeken jelen levő nagyszámú téli sportokat kedvelők jelenléte elriasztja őket, és helyettesítő termékre cserélik azt.

Bár úgy tűnik, hogy Észak-Svédország éghajlati előnyt élvezhet az európai Alpok nagy részével szemben, továbbra is Norvégia versenyével kell szembenéznie, és a jövőbeli kutatásoknak a helyettesítési valószínűség és a potenciális ügyfelek svéd síiparral kapcsolatos elképzeléseinek felmérésére kell összpontosítaniuk.

Ezek a felvetések azonban további kutatásokat igényelnek.

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Uncovering the Influence of Marketing Strategies on Menstrual Health Management During Covid-19 in Indonesia

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Abstract: The study examines the influence of marketing strategies on menstrual health management (MHM) among Indonesian women during the Covid-19 pandemic. The research used a mixed-method approach, including quantitative surveys and qualitative focus group discussions. Using a sample size of 1,516 respondents, the quantitative findings indicate that marketing strategies did not affect the use of disposable sanitary pads or MHM preferences before the pandemic. However, after Covid-19, marketing strategies of disposable sanitary products had a significant impact on MHM preferences. Qualitative findings revealed that product, price, and promotion are important aspects of marketing strategies that influence MHM during the pandemic. Due to increased time spent at home and internet usage, women have greater access to information about MHM. The study also found a rising awareness of reusable menstrual products, hygiene, and environmental concerns. Thus, the study recommends that menstrual product brands focus on product innovation and social media promotional

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activities to meet the changing needs of Indonesian women during and after the pandemic.

Keywords: *menstrual health management (MHM), disposable sanitary pads, marketing strategy, Indonesia, Covid-19*

JEL Codes: *I11, I12, M31, O33, O53*

Introduction: Menstrual Health Management (MHM) Issues and Covid-19

Women have traditionally struggled with menstruation and menstrual health management (MHM), but despite the growing attention toward MHM, there is still a lack of research and socio-political awareness (Sommer et al., 2015). According to PLAN International (2020), over 800 million women, girls, and gender non-binary people around the world are menstruating while also dealing with the Covid-19 pandemic. While the media highlights more about the importance and urgency of vaccines, other things such as MHM seem to be forgotten, especially in rural areas. Now there are challenges to cope with menstrual issues in a global pandemic. Meeting the critical menstrual health management needs of women and girls is essential to an inclusive global response that promotes equality and social inclusion (Sanitation for Millions, 2021).

For many women, the capacity to safely manage their menstrual health and hygiene is still an unmet requirement, owing to the taboo nature of discussing menstruation. Covid-19 has exacerbated menstrual health inequities by causing border closures, panic buying, and stock outs, all of which have disrupted the sanitary napkin supply chain. Due to lockdowns, communal centers such as schools and health clinics have been forced to close, resulting in a shortage of access to both vital menstrual health knowledge and supplies (Norman & Knox, 2021). Curfews and lockdowns lead to loss of income, disruption to supply chains, a brief narrowing of the products and a move to "necessary items" (Pantano et al., 2020) limiting access to sanitary products.

Menstrual health concerns are classified as the secondary impact, as the disruption on the supply chain caused inaccessibility to sanitary products (UNICEF, 2020). Even if the products are available, the prices may increase that women might not be able to afford it due to factors such as unemployment, poverty, restrictions of movement, lockdowns, caused by

Covid-19. A recent study on reusable and non-reusable menstrual products in Spain (Medina-Perucha et al., 2022) became the starting point for this study to uncover the influence of marketing strategies of menstrual products for MHM in Indonesia.

Menstrual Products in Indonesia

Increasing female population and rapid urbanization, rising female literacy and awareness of menstrual health and hygiene, rising disposable income of females, and women empowerment are expected to accelerate the growth of the feminine hygiene products market across the globe. However, the conditions before Covid-19 did not consider how the pandemic may have affected the accessibility and affordability of sanitary products. It is also necessary to recognize that Indonesian consumers have a unique set of local characteristics, including cultural and religious practices. These local characteristics, unique to individual countries, are useful in contextualizing marketing and commercial efforts to suit consumer needs and preferences.

Based on the data from Statistics Indonesia (Badan Pusat Statistik), the population of Indonesia as of 2022 is 274,200,000. From the 274 million people, 135.75 million (49%) are women and 138.45 million (51%) are men (Badan Pusat Statistik, 2022). In addition, the Indonesian population is dominated by Gen Z (born 1997–2012) and Millennials (born 1981–1996). The proportion of Gen Z is 27.94% of the population, while the Millennials make up 25.87% of the population (Badan Pusat Statistik, 2022). Gen Z dominates the use of digital media, and they spend 9 hours or more on their smartphones (Ahmed, 2019; Walker, 2021).

Over half of the women in Indonesia indicated that periods have moderate/high impact on their daily lives, thus opening up further opportunities for engagement with female consumers on period management and available products (Euromonitor, 2022). It is also important to note that female disposable incomes continue to grow in the region, thus supporting women's ability to purchase feminine hygiene products.

The feminine hygiene market, which includes tampons, disposable sanitary pads, menstrual cups, and vaginal health products, makes up a significant share of the personal hygiene market worldwide. There are the

traditional disposable sanitary pads and tampons, as well as the more environmentally friendly menstrual cups, which are reusable and body safe. The feminine hygiene market in 2018, or before Covid-19, ranked China as the largest market for feminine hygiene products worldwide, with 7,901.08 million USD, while Indonesia is in the fifth place with 1,211.32 million USD (Statista, 2021). Sanitary pads make up the largest share of the feminine hygiene market (55%) worldwide. It implies that sanitary pads are the main MHM used by women worldwide. Breaking down the feminine hygiene market per segment, sanitary pads make up the largest share of the feminine hygiene market (55%) worldwide, followed by tampons (38%), and menstrual cups (7%), including other feminine hygiene products (Statista, 2021). A report from PMA (2017) mentioned that 79% of women in Indonesia have everything they need to manage their menstruation, and 92% of Indonesian women stated that they use disposable sanitary pads as their main MHM material (PMA, 2017).

This breakdown of the feminine hygiene market is supported by a previous study from Choi et al. (2021) in South Korea, where the predominant menstrual hygiene products used by all age groups were disposable sanitary pads (89.0%), cloth menstrual pads (4.5%), tampons (4.2%), and menstrual cups (1.6%). Disposable sanitary pads were most common in all age groups, but for those under 30 years old, tampons followed closely behind (6%). Comfort was the most important factor when choosing disposable pads (31.3%) and tampons (41.5%), while natural/organic ingredients were the top consideration for cloth pads (51.4%) and custom fit for menstrual cups (50.7%). However, there was more anxiety than perception of safety among users of all menstrual hygiene products (except cloth pads) and low awareness of toxic shock syndrome (Choi et al., 2021).

The market share of popular disposable sanitary pad brands in Indonesia, are dominated by Laurier, manufactured by Kao (45%), Charm, manufactured by Unicharm (42.10%), and Softex manufactured by Kimberley-Clark (12.90%) (Euromonitor, 2022). Functionality of the product remains an important aspect of the industry innovation efforts. Manufacturers are focusing on products that feature improved leak protection, comfort and are easy to use. Product features are centred around odour control, coolness, or all-night use. These brands innovate continuously on their features in disposable sanitary pads. Other innovation strategies should also consider local culture and religious practices, which include washable disposable sanitary pads to appeal to Muslim women who must

rinse off soiled pads before disposal. Disposable sanitary pads are purchased by Indonesian women frequently or regularly, with a relatively affordable price, convenient locations, and mass promotion by the producer or brands.

Review of Related Literature

Marketing strategy of menstrual products

Menstrual products refer to items used during menstruation to manage menstrual bleeding, such as sanitary pads, tampons, menstrual cups, and menstrual underwear (Bobel et al., 2020). Sanitary pads, or sanitary napkins, menstrual pads, panty liners, or pads - are the most popular type of menstrual product in Indonesia. They are the most common and readily available menstrual products, but these are non-reusable. Most research has primarily concentrated on exploring the acceptability and usage of reusable products, such as menstrual cups, reusable pads, or menstrual underwear, rather than non-reusable products (Medina-Perucha et al., 2022).

Disposable pads are worn externally to the body in the underwear to absorb menstrual flow. As they are disposed of after a maximum of 8 hours; they are considered consumables which require regular assessment of supply, availability, and affordability. Pads come in various sizes, absorbencies and materials and consist of a layered design made of blends of plastics, rayon, and cotton. Pads should include wings to prevent leakage and keep the pad more securely in place (UNICEF, 2019). One major benefit of sanitary pads is no worries about getting toxic shock syndrome, which makes them a great alternative to tampons. The downside of sanitary pads is the disposable attribute. Women may have to replace the sanitary pad every few hours during menstruation, and throwing out used sanitary pads creates a lot of waste, and environmental problems.

Price is one of the elements of the marketing strategy that has the most flexibility. Prices are subject to swift change, unlike product features and channel commitments. It has been discovered that a consumer's interpretation of price information affects future expectations of a product's performance (Rao & Monroe, 1989). Price is also a huge concern for Indonesian women when they purchase menstrual products, i.e., disposable sanitary pads. Local procurement is often easy and cheap as disposable pads are available in most contexts, but not in very remote areas. In Indonesia, the

price of sanitary pads in other areas outside the island of Java can be double or triple the price compared to Java. Locally produced disposable pads are sometimes available, though with varying quality. There is a lack of cheap, high-quality biodegradable disposable pads on the market.

Cost, accessibility, convenience of use, disposal method, water, and sanitation facilities for changing and washing, as well as any subsequent environmental effects brought on by the chosen product, are all factors to be considered when choosing a product. Girls and women may find it difficult to test the complete range of menstrual management products accessible to them in order to determine which ones work best for them due to ignorance, discrimination, cultural norms, lack of resources, setting, safety concerns, and lack of availability (van Eijk et al., 2021). During the pandemic, providing access to menstrual products is crucial for meeting the health requirements of women (Wood et al., 2022). Covid-19 accelerated shifts to online retailing due to lockdowns and social distancing. Retailers enhanced their online services and delivery options, and it changed the appearance and conduct of traditional stores after the pandemic ends (Pantano et al., 2020).

The promotional mix of disposable sanitary pads is made up of strategies towards customer communication. Promotion only makes up one-half of a marketing conversation. No matter how inventive the approach, if the offer does not address customers wants, which should have been identified through marketing research, it will likely fail (Czinkota et al., 2021). Digitalization in purchasing, consumption, and marketing was already present prior to the emergence of Covid-19. However, the pandemic and the resulting restrictions have led to significant changes in global behaviour, particularly in the digital realm of purchasing and consumption. With the closure of physical stores and the requirement for people to stay at home, there has been a significant increase in the use of digital channels for purchasing and consumption (Danciu, 2021). A survey by KPMG in 2020 found that 33% of customers who previously preferred in-person interactions switched to digital channels (Kakol, 2021). The use of face-to-face channels dropped from 43% to 23%, while digital channels increased from 26% to 44%. Digital channels, especially apps and social media, saw a larger increase than websites. KPMG predicts that digital channels will continue to be the primary means of contact, supporting 45% more customers in the future (Kakol, 2021). Although, a study from Kwon and Lee (2020) suggested that advertising effectiveness tends to be higher when consumers are exposed to TV and digital advertisements simultaneously

(Kwon & Lee, 2020). This is also supported by a study on the role of social media advertising on brand equity and customer response (Zaidi et al., 2022).

During the Covid-19 outbreak, health information system became a crucial issue within a country. Government, mass media and individuals seek and share information about the outbreak mostly through digital media (Suwana et al., 2020). Indonesia is home to 160 million digital media users with YouTube, WhatsApp, Facebook, Instagram, and Twitter as their five primary platforms (Kemp et al., 2020). Gen Z dominates the use of digital media, and they spend 9 hours or more on their smartphones (Ahmed, 2019; Walker, 2021).

Menstrual Health Management in Indonesia

Menstrual health is defined as "a complete physical, mental, and social wellbeing in relation to the menstrual cycle." (Babbar et al., 2022; Hennegan et al., 2021). According to Babbar et al. (2022), having good menstrual health is not simply about having access to menstrual products, but also involves having the necessary resources to fully participate in all aspects of life during one's menstrual cycle. These resources could include things like education, necessary supplies, proper sanitation facilities, supportive environments (such as having teachers and supervisors who are understanding), and access to healthcare professionals who are knowledgeable about menstrual health issues. Hennegan et al. (2021) implied that having the necessary resources, equipment, and support to manage menstruation properly, receiving appropriate medical attention for menstrual discomfort and conditions, promoting a respectful atmosphere that minimizes emotional distress, and being able to engage fully in all aspects of life are all essential elements of a comprehensive understanding of menstrual health. This also includes education of menstrual cycles and self-care. Menstrual health management (MHM) is a defined as "women and adolescent girls using a clean material to absorb or collect menstrual blood, and this material can be changed in privacy as often as necessary for the duration of the menstrual period. MHM includes soap and water for washing the body as required, and access to facilities to dispose of used menstrual management materials." (Sommer et al., 2015). Hence, MHM has a broader understanding which includes the materials (products) as the key for the marketing strategy, education, hygiene factors, health services, disposal facilities, social aspects, and psychological aspects.

According to Borgen Project, a non-profit organization addressing poverty and hunger, women and girls in Indonesia face numerous challenges during menstruation. Women and girls often have poor access to comprehensive information about menstruation, lack of appropriate materials to manage menstrual bleeding, inadequate water, sanitation and hygiene facilities (WASH) and harmful socio-cultural taboos (Johnson, 2020). In addition, there are also myths about using tampons causing virginity loss and stopping the menstrual flow in Indonesian culture. As a result, women and girls seldom utilize tampons. Reusable cloths are the next most often used sanitary item after disposable sanitary pads. Women and girls used them more frequently in rural regions. Indonesia needs to improve access to period products and education about menstruation hygiene and management, particularly in rural areas (Johnson, 2020).

According to UNICEF (2019), 25% of adolescent girls in Indonesia had never discussed menstruation with anybody before their first period, and 17% did not know that menstruation was a physical symptom of puberty. In addition, societal taboos about discarding menstruation products still exist: 78% of mothers and girls cleaned their disposable sanitary pads before putting them in plastic bags and throwing them away. Periods are frequently viewed as filthy and taboo in many Indonesian societies. The women claimed it is important to wash disposable pads after use because they thought menstrual blood was unclean and they wanted to get rid of the smell and hide their period from others.

Research Gap and Research Questions

Not many studies discussed the business side of MHM in Indonesia. From MHM-specific topics in Indonesia, one study discussed about the MHM in a senior high school in Magelang (Sukini et al., 2021) which focuses on public health rather than the business side. Another study about MHM, sponsored by SMERU Research Institute, focuses on MHM in primary and junior high school (Hastuti et al., 2019). These studies focus on adolescent girls, and only one focuses on MHM among adult women (Sato et al., 2021). This study hopes to bridge the gap between the business aspect of menstrual products, i.e., disposable sanitary pads, and MHM.

Further review of related literature helps to develop the research questions as follows:

RQ1: What was the situation before Covid-19 regarding the marketing strategy of disposable sanitary products to promote better MHM?

RQ2: What is the situation after Covid-19 regarding the marketing strategy of disposable sanitary products to promote better MHM?

RQ3: What are the challenges of the marketing strategy for disposable sanitary pads in Indonesia to build MHM awareness post Covid-19?

Methodology

The method used for this study is a mixed methods research, which combines and integrates qualitative and quantitative methods in the same study (Shah et al., 2019). The mixed methods can give equal priority to both quantitative and qualitative parts, or emphasize qualitative more, or emphasize quantitative more. This emphasis depends on the research question, from practical constraints on data collection, or from the need to understand one form of data before proceeding to the next (Molina-Azorin, 2016).

As for the type of mixed methods, this study applies the explanatory sequential mixed method (see *Figure 1*). It is a two-part data collecting project in which the researcher gathers quantitative data in the first phase, analyzes the results, and then builds the qualitative phase in the second phase. The quantitative results usually reveal the types of persons who will be involved. The basic goal of this design is to use qualitative data to help explain things more thoroughly. As a result, it is critical to tie the quantitative data together or connect them to the qualitative results (Creswell & Creswell, 2018).

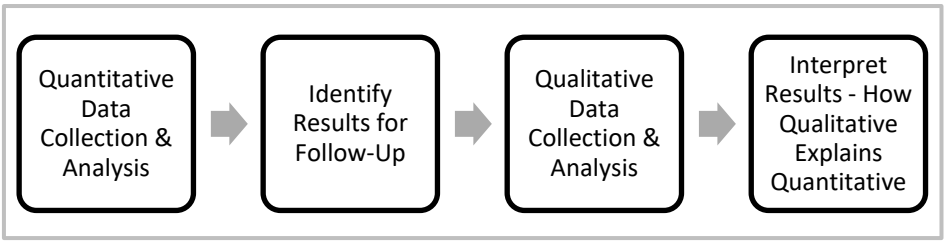

Figure 1: Explanatory Sequential Design (Two-Phase Design)

Source: Modified from Creswell & Creswell (2018)

Studies from Mahajan (2019), Shah et al. (2019), and Yamakoshi et al. (2020), about similar topics in health issues, including MHM, mainly use the mixed method. Mixed method research involves the application of

a well-defined and pre-specified research design that combines qualitative and quantitative components to generate an integrated set of evidence (Regnault et al., 2018). The mixed methods applied in this study are based on previous research from Gambier-Ross et al. (2018). A mixed methods study, involving collection, analysis and synthesis of data obtained through an online survey using closed questions (quantitative) and follow-up interviews (qualitative). Both quantitative and qualitative analysis informed hypothesis development. The hypotheses were developed following the analysis of survey data and interview data, in which the quantitative data were tested against the hypotheses for significance (Gambier-Ross et al., 2018).

As the topic of MHM is not openly or commonly spoken in the Indonesian culture, the use of qualitative data using FGD for predetermined groups may be necessary to gather detailed information about MHM and the use of disposable sanitary pads.

This study uses a questionnaire to obtain primary data, based on previous studies on menstrual practices questionnaire (MPQ). The MPQ is a tool to support comprehensive and standardized assessment of the activities undertaken in order to collect, contain, and remove menstrual blood from the body in self-report survey (Hennegan et al., 2020). Another reference to develop the questionnaire is a study about factors affecting menstrual health management in Ethiopia, in which the study uses a mixed-method (Shallo et al., 2020). The questionnaire is developed to contain information about practices, knowledge and attitudes about menstruation among Indonesian women at a specific age range(*Table 1*).

Table 1: Summary of the Construct of the Questionnaire and FGD

No	Variables	Sub variables	Source
	Questionnaire		
1	Demographics	Age, location	Badan Pusat Statistik (2020) Hennegan et al. (2020)
2	Marketing strategies	Product	Bobel et al. (2020) Medina-Perucha et al. (2022) Choi et al. (2021)
		Price	Rao & Monroe (1998)
		Place	van Eijk et al. (2021) Pantano et al. (2020)

No	*Variables*	*Sub variables*	*Source*
	Questionnaire		
		Promotion	Czinkota et al. (2021) Danciu (2021) Kakol (2021)
3	Disposable sanitary pads	Accessibility. Affordability.	Bobel et al. (2020) Medina-Perucha et al. (2022) Kambala et al. (2020) Wood et al. (2022).
4	Menstrual health management (MHM)	Practices and menstrual education.	Babbar et al. (2022) Hennegan et al. (2020) Hennegan et al. (2021) Shallo et al. (2020) Sukini et al. (2021) Hastuti et al. (2019) Sato et al. (2021)
	FGD		
1	Demographics	Age Employment status Income range	Badan Pusat Statistik (2020) Hennegan et al. (2020)
2	Menstrual issues	Pain. Length of period. Heavy flows.	Medina-Perucha et al. (2020) Hennegan et al. (2020) Hennegan et al. (2021)
3	Product issues and hygiene	Brands used. Pads cause irritation. Disposal issues and environmental concerns. WASH in schools and public toilets.	Sommer et al. (2015) Kaur et al. (2018) Hennegan et al. (2020) Hennegan et al. (2021) Shallo et al. (2020) Sukini et al. (2021) Hastuti et al. (2019) Sato et al. (2021)
4	Price issues	Affordability	Bobel et al. (2020) Medina-Perucha et al. (2022)
5	Promotional exposure	Accessibility	Bobel et al. (2020) Medina-Perucha et al. (2022) Kambala et al. (2020) Wood et al. (2022).

Source: Researchers, 2022.

When the quantitative data precede qualitative data, the intention is to test variables with a large sample and then to explore in more depth with a few cases during the qualitative phase (Molina-Azorin, 2016). The qualitative data consists of interviews with selected women to ask their

opinion about MHM, accessibility and affordability of disposable sanitary pads, and the how the marketing strategy of disposable sanitary pads affects their choice of brands.

The study is an empirical research, based on observation and measurement of phenomena, as directly experienced by the authors. The data gathered may be compared against a theory or hypothesis, but the results are still based on real life experience. There are three variables in this study, and these variables are designed as follows (figure 2): the marketing strategy (x1) as the independent variable, disposable sanitary pads (x2) as the mediating variable, and MHM (y) as the dependent variable. From the theoretical framework, the variables' relationship is constructed as follows:

a. if the marketing strategy (x1) promotes the use of disposable sanitary pads (x2);
b. if the use of disposable sanitary pads (x2) influences the MHM (y);
c. if the marketing strategy influences the MHM (y), and
d. if marketing strategy (x1) and disposable sanitary pads (x2) together influence the MHM (y).

In the study, the hypothesis statement is applied for before and after Covid-19 conditions to test the differences between before and after conditions with respect to the variables (Gambier-Ross et al., 2018). The theoretical framework is shown in *Figure 2*.

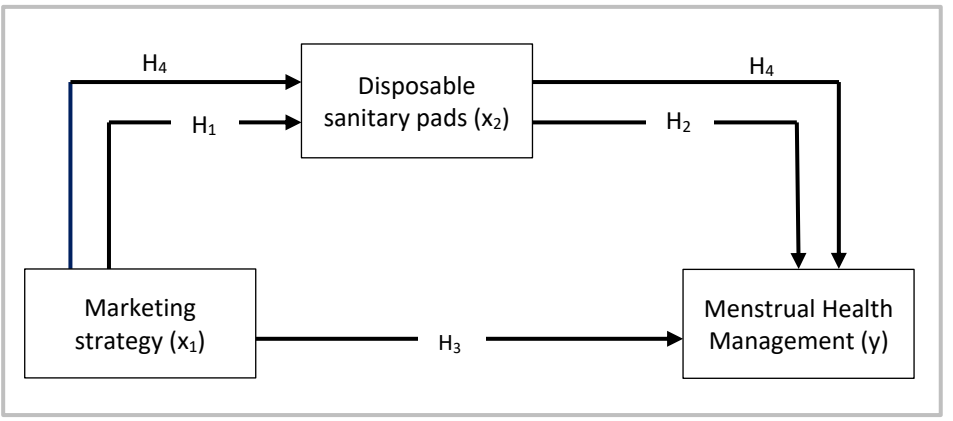

Figure 2: Theoretical Framework of the Study

Source: Researchers, 2022

The theoretical framework of the study became the basis for the hypotheses statements as follows:

H1a: The marketing strategy influences the use of disposable sanitary pads before Covid-19

H1b: The marketing strategy influences the use of disposable sanitary pads after Covid-19

H2a: The use of disposable sanitary pads influences better MHM before Covid-19

H2b: The use of disposable sanitary pads influences better MHM after Covid-19

H3a: The marketing strategy influences better MHM before Covid-19

H3b: The marketing strategy influences better MHM after Covid-19

H4a: The marketing strategy of disposable sanitary pads influences better MHM before Covid-19

H4b: The marketing strategy of disposable sanitary pads influences better MHM after Covid-19

Sampling for this study used non-probability sampling, using purposive sampling. The sampling is confined to specific types of people who can provide the desired information, either because they are the only ones who have it, or they conform to some criteria set by the researcher (Sekaran & Bougie, 2016). The primary quantitative data comes from a survey on girls and women in Indonesia from ages 10 to 54. The survey was done online from October to December 2021 due to the pandemic restrictions. To anticipate the unwillingness of response, respondents must fill in the written consent to take part in the survey and were given approximately 10 to 12 minutes to fill in the survey anonymously. The target population is 100,000, with a confidence level of 95% and a 2.5% margin of error, thus the ideal sample size is 1,513 (Krejcie & Morgan, 1970). The survey managed to collect a sample size of 1,516 respondents (N=1,516).

A Focus Group Discussion (FGD) is used to generate information on collective views. They are useful to generate a rich understanding of participants' experiences and beliefs (Mishra, 2016). The optimum size of a focus group is 6 to 8 participants (excluding researchers). The FGD in this study consisted of 20 selected participants (N=20), who are girls/women from 10 to 54 years old. We asked their opinion about MHM, the accessibility and affordability of disposable sanitary pads, and how does the marketing of disposable sanitary pads affect their choice of brands. Informed written consent was obtained from all participants involved in the study.

Results and Analysis

Quantitative Findings

The findings consist of two parts: (1) the quantitative findings include summary of the related information from the questionnaire and the results of the hypotheses testing, and (2) the qualitative findings which complement the quantitative findings. The survey was conducted online from October to December 2021, in 34 provinces across Indonesia, prior to the development from 34 to 37 provinces on June 30, 2022.

Table 2 shows the survey results from the age groups. Most respondents are in the age group of 15-19 years old (44.3%), followed by the age group of 20-24 years old (35%) and 10-14 years old (12.8%). It can be concluded that most respondents are Gen-Z, who as "digital natives", are technology-savvy.

Table 2: Demographic characteristics quantitative study (N=1,516) by age

Variable / Age group	N = 1,516	%
10 - 14	197	12.8
15 - 19	671	44.3
20 - 24	530	35.0
25 - 29	47	3.1
30 - 34	28	1.8
35 – 39	22	1.5
40 - 44	7	0.5
45 - 49	12	0.8
50 - 54	5	0.3
Total	**1,516**	**100.0**

Source: Own questionnaire

Table 3 presents the survey results based on the locations (i.e., the provinces in Indonesia). Most respondents come from West Java (40.4%), followed by DKI Jakarta (12.3%) and East Java (5.1%).

Table 3: Demographic characteristics quantitative study (N=1,516) by location

Province	N = 1,516	%	Province	N = 1,516	%
Jakarta Capital District	186	12.3	West Kalimantan	8	0.5
West Java	613	40.4	Central Kalimantan	39	2.6
Banten	37	2.4	South Kalimantan	13	0.9
Central Java	76	5.0	East Kalimantan	15	1.0
Yogyakarta Special District	38	2.5	North Kalimantan	0	0
East Java	78	5.1	North Sulawesi	14	0.9
Bali	62	4.1	Gorontalo	6	0.4
Nangroe Aceh Darussalam	0	0	Central Sulawesi	13	0.9
North Sumatra	74	4.9	West Sulawesi	1	0.1
West Sumatra	8	0.5	Southeast Sulawesi	4	0.3
Riau	32	2.1	South Sulawesi	8	0.5
Riau Archipelago	13	0.9	North Maluku	0	0
Jambi	13	0.9	Maluku	0	0
Bengkulu	0	0	West Papua	10	0.7
South Sumatra	68	4.5	Papua	36	2.4
Bangka Belitung	8	0.5	Other countries	23	1.5
Lampung	9	0.6			
West Nusa Tenggara	3	0.2			
East Nusa Tenggara	0	0			
Total	**1,516**	**100**			

Source: Researchers, 2022

Table 4: Types of menstrual products used by respondents (N=1,516)

Type of menstrual product	N = 1,516	%
Disposable sanitary pads	1,468	96.8
Menstrual cup	12	0.8
Tampons	8	0.5
Reusable sanitary pads	28	1.8
Total	**1,516**	**100**

Source: Researchers, 2022

Table 4 shows the types of menstrual products used by the respondents, with disposable sanitary pads as the most popular menstrual product in Indonesia (96.8%). Accordingly, a report from Statista (2021) also shows that disposable sanitary pads (59%) are the most popular menstrual products worldwide.

Table 5: Brands of disposable sanitary pads used by respondents (N=1,516)

Brands	Manufacturer	N = 1,516	%
Charm	Unicharm	474	31.3
HersProtex	Wings Group	212	14.0
Laurier	Kao	115	7.6
Softex	Kimberley-Clark	685	45.2
Kotex	Kimberley-Clark	74	4.9
Other brands		391	25.8
I don't use disposable sanitary pads		29	1.9
Total		**1,516**	**100**

Source: Researchers, 2022

Table 5 shows which disposable sanitary pad brands are popular among respondents, and the survey shows the majority prefer Softex (45.2%), followed by 2 other brands, Laurier (25.8%), and Charm (31.3%). This is in accordance with a report from Euromonitor (2022) where the top three popular brands of disposable sanitary pads in Indonesia (based on percentage) are Laurier, Charm, and Softex.

Hypotheses Testing

The hypotheses testing used SEM-PLS. The hypotheses testing compares the value of t-statistics with t-table which is 1.96 or by using a p-value (α) compared to 5% or 0.05. *Tables 6* and *7* summarized the results of the hypothesis testing before and after Covid-19.

In the model before Covid-19, it shows that the null hypotheses for H_1 and H_2 are accepted, thus the marketing strategy does not influence the use of disposable sanitary pads and the use of disposable sanitary pads does not influence preferable MHM.

Table 6: Results of hypotheses testing in the model before Covid-19

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-values	Decision
Disposable Sanitary Pads (X_2) -> Menstrual Health Management (Y)	-0.220	-0.160	0.152	1.446	0.149	H_0 accepted
Marketing Strategy (X_1) -> Disposable Sanitary Pads (X2)	-0.219	-0.171	0.152	1.437	0.151	H_0 accepted
Marketing Strategy (X_1) -> Menstrual Health Management (Y)	0.250	0.261	0.042	6.004	0.000	H_0 rejected
Marketing Strategy (X_1) -> Disposable Sanitary Pads (X_2) -> Menstrual Health Management (Y)	0.048	0.048	0.012	4.131	0.000	H_0 rejected

Source: Researchers, 2022

The hypotheses testing does imply that before Covid-10, the marketing strategy influences better MHM, and the marketing strategy of disposable sanitary pads influences preferable MHM.

Table 7: Results of hypotheses testing in the model after Covid-19

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P- values	Decision
Disposable Sanitary Pads (X_2) -> Menstrual Health Management (Y)	-0.262	-0.262	0.063	4.189	0.000	H_0 rejected
Marketing Strategy (X_1) -> Disposable Sanitary Pads (X_2)	-0.335	-0.334	0.041	8.196	0.000	H_0 rejected
Marketing Strategy (X_1) -> Menstrual Health Management (Y)	0.216	0.212	0.068	3.155	0.002	H_0 rejected
Marketing Strategy (X_1) -> Disposable Sanitary Pads (X_2) -> Menstrual Health Management (Y)	0.088	0.087	0.022	3.926	0.000	H_0 rejected

Source: Researchers, 2022

In the model after Covid-19, it shows that all alternate hypotheses are accepted. Therefore, the results after the Covid-19 situation imply that marketing strategy influences the use of disposable sanitary pads, the use of disposable sanitary pads influences better MHM, the marketing strategy influences better MHM, and the marketing strategy of disposable sanitary pads influences preferable MHM.

Qualitative Findings

The FGD is conducted in 2 teams from the research team. Each team consists of an interviewer and a recorder (written and recording/Zoom), conducting 2 sessions each, with 3 to 5 participants for each session. In this study, there were a total of 20 participants (N=20), divided into 4 sessions.

Table 8 is a summary of the participant characteristics, including the choice of disposable sanitary pad brands among participants and whether their brand choices are accessible and affordable.

Table 8: Participant characteristics qualitative study (N=20) with affordability and accessibility of disposable sanitary pads

ID	Age	Occupation	Education	Product issues	Brand used	Price	Place
P1	19	Student	Bachelor	No	Charm	Affordable	Accessible
P2	18	Student	Bachelor	No	Charm	Affordable	Accessible
P3	40	Employee	High school	Price	Charm	Affordable	Accessible
P4	18	Student	High school	No	Charm	Affordable	Accessible
P5	44	Business owner	High school	Price	Laurier	Affordable	Accessible
P6	53	Employee	Master	No	Charm	Affordable	Accessible
P7	44	Business owner	Diploma	No	Charm	Affordable	Accessible
P8	34	Employee	Master	No	Charm	Affordable	Accessible
P9	24	Employee	Bachelor	No	Charm	Affordable	Accessible
P10	44	Employee	Doctoral	No	Charm, Laurier	Affordable	Accessible
P11	17	Student	High school	No disposable bins at school	Charm, Laurier	Affordable	Accessible
P12	22	Student	Bachelor	Pad adhesive too strong; ruined underwear	Softex	Affordable	Accessible
P13	21	Student	Bachelor	No	Laurier	Affordable	Accessible
P14	21	Student	Bachelor	No	Charm	Affordable	Accessible

ID	*Age*	*Occupation*	*Education*	*Product issues*	*Brand used*	*Price*	*Place*
P15	25	Employee	Bachelor	Gel pads difficult to clean	Softex	Affordable	Accessible
P16	22	Employee	High school	Gel pads; adhesive on wings not sticking	Laurier	Affordable	Accessible
P17	23	Student	Bachelor	Pad adhesive too strong; ruined underwear	Charm, Laurier	Affordable	Accessible
P18	25	Employee	High school	Gel pads; adhesive on wings not sticking	Charm, Laurier	Affordable	Accessible
P19	30	Employee	High school	Adhesive on wings not sticking	Charm, Laurier	Affordable	Accessible
P20	28	Housewife	High school	Pad adhesive too strong; ruined underwear	Charm, Laurier	Affordable	Accessible

Source: Researchers, 2022

The FGD noticed most participants did not have any serious period issues during Covid-19. Most of the issues come from the product and promotion, but rarely from price and place. Participants (P3) and (P5) said they have issues with the price of menstrual products, i.e., disposable sanitary pads, while (P11) had issues about disposing used sanitary pads, mainly in school. (P9) mentioned the packaging design of her usual disposable sanitary pads are not attractive, and look almost the same, as she is sometimes confused between her usual brand with another. (P12), (P15), (P16), (P17), (P18), (P19) and (P20) had issues with the product, mainly in the use of gel in disposable sanitary pads which make it difficult to clean, and in the adhesive of the pads (either too strong or too weak).

Table 9 shows the summary of the marketing strategy of the popular brands. Participants who prefer the Softex brand, (P12) and (P15), particularly the *daun sirih* (natural betel leaf) variant commented because "…. The *daun sirih* variant is comfortable for use, … no skin irritation/rash issues." Traditionally, natural betel leaf extracts, effectively inhibits bacterial growth that cause skin irritation, and reduce odor, which is appealing to Indonesian women. (P16) would like a change in the packaging,

e.g., using ziplocks to ensure the cleanliness of the product. Participants mostly commented on product and promotion, but little or no issues regarding price or place.

Table 9: Summary of the Marketing Strategy of Disposable Sanitary Pads

Brand	Marketing strategy			
	Product	**Price**	**Place**	**Promotion**
Laurier	• Attractive packaging. • Quick-lock anti leak materials. • Texture too thick. • The gel version is difficult to clean. • Size variation.	• Price is affordable, ranging from IDR 15.000 to IDR 27.000, depending on the product variant and place. • Special attention is emphasized, notably in the eastern part of the country, where the price of sanitary pads can be 2 to 3 times higher due to logistic and distribution costs.	• Easy purchase in convenience stores, mini markets (in the neighborhood), supermarkets, and online.	• All brands introduced special edition packs containing various types of pantyliners, regular, large, and extra-large sizes. • They received positive responses from girls and women as it provided convenience by eliminating the need to buy separate packs for different flows. • However, the promotion was limited to a one-time offer or limited edition offers.
Charm	• Unattractive packaging (bright orange color) that may not be discreet to women buying disposable sanitary pads. • Good absorption attributes. • Size variation.			
Softex	• Attractive packaging • Comfortable material made of cotton, not gel or plastic. • The betel leaf product line is appealing to Indonesian women. • Size variation.			

Source: Researchers, 2022

Participants (P2), (P6), (P7), (P8) and (P9) also stated that they would prefer if the brands could promote a bundling for a "monthly period package":, which consist of various types of sanitary pads that could be used for a month according to "light days" and "heavy days", e.g. a combination of pantyliners, pads for light flow, pads for heavy flow/overnight.

The FGD revealed that participants received their first information about menstrual health from their mothers, and young girls nowadays still look up to their mothers to teach them about self-care. This is in line with a previous study from McCarthy and Lahiri-Dutt (2020), where knowledge about menstruation management is transmitted generationally (as cited in Bobel et al., 2020: 25).

The FGD also learned about participants' concerns of proper disposal of used menstrual material as a global issue. Most women dispose of used sanitary pads or other menstrual items into household solid waste or garbage bins (Kaur et al., 2018). As stated by participants (P6) and (P7): "… We would be interested if there is a community or program about proper disposal of used menstrual material, because we feel guilty to throw used sanitary pads in the garbage bin, even though they are cleaned, and we are concerned about the environment." Most participants would also prefer more environmental-friendly material for the disposable sanitary pads. As for education in MHM, participants agree that it should include environmental awareness from the manufacturers' corporate social responsibility on how they would process the used/disposed sanitary pads. Participants stated that they are also interested in trying reusable sanitary pads to help reduce waste.

The FGD concluded that manufacturers should focus on the product innovation and promotion activities. Some suggestions for policy makers and manufacturers from the participants include campaigns not to use bleaching for disposable sanitary pads, ensure safety and hygiene in the products, and promote pads that have antiseptic/herbal/natural properties. Participants are also willing to try reusable sanitary pads, if the pads meet health and hygiene standards.

Implications, Limitations and Further Research

In Indonesia, there are already disposable sanitary pad brands as top of mind among women, such as Laurier, Charm, and Softex. These brands

have innovated using cool mint, aloe vera and betel leaf, with their soothing and antiseptic properties to reduce skin irritation. However, the brands could consider producing reusable sanitary pads as an environment-friendly alternative, continuous innovation in the packaging and product design, and avoid using chemicals or bleaching agents for the pads.

As most of the respondents of the survey are Gen Z (ages 15-19, and 20-24 years old), social media platforms could help encourage MHM campaign and corporate social responsibility. Policymakers should also be actively involved, especially with increasing environmental concerns among women on where to dispose used sanitary pads. Policymakers could support waste reduction by providing recycling bins; thus reducing tons of waste in landfills.

As Indonesia is a large archipelago country; it needs time and resources to conduct such a survey. Simultaneously, the survey requires the willingness of the respondents to answer, as the subject of MHM is not something that Indonesian women are willing to talk about openly. While the quantitative study included a large sample of women in Indonesia, the study acknowledged the difficulties of using online platforms for data collection (for the quantitative study), limiting the participation of people affected by the digital divide. Unfortunately, the quantitative study did not include education and income range in the questionnaire, so information about education and income range were provided only in the FGD part. The study also realized limitations in FGD, such as observer interference, social pressure, or unwillingness to express opinions.

It would be interesting if the study included the factors that influence each variable for further studies. The findings of the study may not accurately represent the landscape in rural areas as the data collection was mainly conducted in urban regions and among individuals from middle to high-income households. Despite the limitations, this study contributes to understand that the marketing strategy of disposable sanitary pads promotes preferable MHM in Indonesia.

Conclusions

The situation before Covid-19 regarding the marketing strategy of disposable sanitary products was mainly through TV ads, but the study found that it did not influence the use of disposable sanitary pads or promote preferable MHM.

The situation after Covid-19 found that the marketing strategy of disposable sanitary products promotes preferable MHM, particularly through digital media platforms such as YouTube, WhatsApp, Facebook, Instagram, and Twitter. This is because people are staying at home more and using digital media to connect, and manufacturers have tapped into this potential to advertise and promote their products and MHM awareness.

The challenges of the marketing strategy for disposable sanitary pads in Indonesia to build MHM awareness post Covid-19 include the need to reach women in remote areas with limited internet coverage, the reluctance of some women to openly discuss MHM, and the need to address environmental concerns related to the disposal of used sanitary pads. Additionally, the study acknowledges potential limitations of using online platforms for data collection, which may exclude some people affected by the digital divide.

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Ageismus unter den Studenten: innen in der österreichischen und ungarischen Grenzregion

Ageism among students in the Austrian and Hungarian border region

Pakai, Dorottya[1] – Obádovics Csilla[2]

Abstract: Die wachsende Zahl älterer Menschen wird als soziale und wirtschaftliche Herausforderung wahrgenommen. Negative Generationseinstellungen sind zu beobachten. Aus diesem Grund wird die Bewältigung und Verringerung des Phänomens Ageismus immer mehr an Bedeutung gewinnen. Ziel des Artikels ist, das Ausmaß von Ageismus unter österreichischen und ungarischen StudentInnen in der Grenzregion zu untersuchen. Daraus wird folgende Forschungsfrage formuliert. Inwieweit ist Ageismus unter den StudentInnen in der österreichisch-ungarischen Grenzregion vorhanden und in welchem Verhältnis steht das Ausmaß zueinander?
Zur Beantwortung der Forschungsfrage wurde eine quantitative Online-Umfrage durchgeführt.
Die Ergebnisse zeigen, dass Ageismus in der österreichisch-ungarischen Grenzregion präsent ist. Es konnte ein signifikanter Unterschied bezüglich des Ausmaßes von Ageismus unter den österreichischen und ungarischen StudentInnen in

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der Grenzregion festgestellt werden. Allerdings ist das Ausmaß unter den österreichischen Studierenden in der Grenzregion im Vergleich zu den ungarischen StudentInnen in der Grenzregion niedriger.

Schlüsselwörter: *Ageismus, demografischer Wandel, Fraboni Scale of Ageism, länderspezifische Unterschiede*

JEL Codes: *J14, J15, J19*

Abstract: The growing number of older people is perceived as a social and economic challenge. Negative tendencies can be observed with regard to the attitude of the individual generations towards the other generations. For this reason, managing and reducing the phenomenon of ageism will become increasingly important.
The aim of the article is to investigate the extent of ageism among Austrian and Hungarian students in the border region. From this, the following research question is formulated. To what extent is ageism present among students in the Austrian-Hungarian border region and what is the relationship between the two?
To answer the research question, a quantitative online survey was conducted. The results show that ageism is present in the Austrian-Hungarian border region. A significant difference in the extent of ageism among Austrian and Hungarian students in the border region was found. However, the level is lower among Austrian students in the border region compared to Hungarian students in the border region.

Keywords: *ageism, demographic change, Fraboni Scale of Ageism, country-specific differences*

JEL Codes: *J14, J15, J19*

Einführung

Das globale Phänomen des demografischen Wandels führt zu einem gesellschaftlichen Diskurs (Endter, 2021). Durch die weltweite Veränderung steigt die Gesamtbevölkerungszahl. Laut der United Nations werden für das Jahr 2100 10,9 Mrd. Menschen auf der Erde prognostiziert (United Nations, 2019).

Die Lebenserwartung steigt ständig und somit wächst die Zahl der älteren Menschen, daraus folgend startet die Gesellschaft zu ergrauen. Wie diese Generation in einer Gesellschaft wahrgenommen wird und ab

wann man als „alt“ bezeichnet wird, hängt von vielen Faktoren ab (Rossow, 2012). Diese weist auf den Begriff „Altersbild“ hin, worunter altersspezifische Vorstellungen verstanden wird. Diese können entweder die Realitäten wiedergeben oder Wertungen und Idealisierung darstellen (Seeberger & Pallauf, 2022). Sie basieren auf einfachen und übermäßig verallgemeinerten Merkmalen und existieren in positiver (z. B. weise) und negativer (z. B. vergesslich) Form, sie sind nach wie vor jedoch überwiegend negativ (Anderson & Gettings, 2022).

Weiterhin besteht ein wesentliches Problem darin, dass die älteren Menschen häufig als homogene Einheit betrachtet werden (Ivan et al., 2020).

Mit zunehmendem Alter nehmen aber die individuellen Unterschiede zu, so soll die ältere Generation nicht als eine homogene, einheitliche gesellschaftliche Schicht beurteilt werden (Wangler & Jansky, 2021). Ältere Menschen, besonders jene, die in größeren Städten leben, sind häufig einsam und deprimiert (Sipowicz et al., 2021). Wegen der Corona-Krise haben die sozialen Kontakte abgenommen, dies führte zu sozialer Isolation und hatte Einfluss auf das Altersbild (Spuling et al., 2020). Altersbilder sind aber auch länderspezifisch, sie variieren je nach Land (De Paula Couto et al., 2021).

Die Alterung der Bevölkerung bringt neue Herausforderungen mit sich, unter denen die Verbreitung von negativen Wahrnehmungen und negativen Einstellungen gegenüber älteren Menschen fällt (Hofmeister-Tóth et al., 2021). Aufgrund dessen ist der Ageismus zu einem hochaktuellen Forschungsthema geworden. Darunter werden Stereotype, Vorurteile und Diskriminierung aufgrund des chronologischen Alters des Individuums verstanden (Loos & Ivan, 2018). Daraus folgend werden ältere Menschen mit negativen Eigenschaften verbunden (Drury et al., 2016). Um den Ageismus verringern und bewältigen zu können, sollte das Ausmaß bestimmt werden. Zahlreiche Instrumente stehen zur Verfügung, die an den Forschungsgegenstand angepasst werden. Eines der beliebtesten Instrumente ist die Fraboni Scale of Ageism (FSA), deren Vorteil in ihrem dreidimensionalen Charakter steckt (Ayalona, et al., 2019).

Ältere Menschen werden immer mehr in den Vordergrund der aktuellen Forschung gestellt. Das Streben nach dem besseren Verständnis der Einstellungen und Attitüde gegenüber Älteren wird immer relevanter (Drury et al., 2016).

Der vorliegende Artikel behandelt das Phänomen Ageismus und analysiert dessen Ausmaß unter den österreichischen und ungarischen Student-

Innen in der Grenzregion. Es wird untersucht, inwieweit altersfeindliches Denken sowohl unter österreichischen StudentInnen der österreichischen und ungarischen Grenzregion als auch unter ungarischen StudentInnen der österreichischen und ungarischen Grenzregion vorhanden ist.

Daraus ergibt sich folgende Forschungsfrage: Inwieweit ist Ageimus unter den StudentInnen in der österreichisch-ungarischen Grenzregion vorhanden und in welchem Verhältnis steht dieses Ausmaß zueinander?

Theoretischer Hintergrund

Demographischer Wandel

Ein hoch relevantes Thema ist das immer höhere Lebensalter, mit dem unsere Gesellschaft aktuell konfrontiert ist. Während der Betrachtung des Bevölkerungsaufbaus weltweit lässt sich ein Anstieg der Einwohnerzahlen verzeichnen. Im Jahre 1950 lebten laut United Nations noch 2,53 Mrd. Menschen auf der Erde, im Gegensatz dazu waren es im Jahr 2010 rund 6,9 Mrd. (United Nations, 2019).

Laut der Prognose von Statistik Austria werden im Jahr 2100 voraussichtlich 18,6 Prozent der österreichischen Bevölkerung unter 20 Jahre alt, 51,7 Prozent zwischen 20 und 64 Jahre alt und 29,6 Prozent 65 Jahre und älter sein. Im Gegensatz zum aktuellen Stand werden die Bevölkerungsanteile der jüngsten und der mittleren Altersgruppe deutlich zurückgehen, während die Bevölkerungsanteile der Senioren kontinuierlich ansteigen (Statistik Austria, 2021).

Was Ungarn betrifft, waren 20% der ungarischen Bevölkerung, das heißt 1 Million 942 Tausend Menschen, im Jahr 2020 65 Jahre oder älter (Boros et al., 2021). Schon im Jahre 2002 wurde behauptet, dass „Ungarn ist zu einer Gesellschaft der Alten und Rentner geworden." (Iván, 2002). Weitere Statistiken bestätigen die Veralterung der ungarischen Bevölkerung, in der Statistik mit dem Titel „Altersstruktur in den Mitgliedstaaten der Europäischen Union im Jahr 2021" befand sich Ungarn am 12. Platz von den dargestellten 27 EU-Ländern (Eurostat, 2022). Des Weiteren ist die Bevölkerungszahl Ungarns ist seit mehr als 40 Jahren kontinuierlich rückläufig. Laut Prognosen der KSH (Hungarian Central Statistical Office) werden im Jahr 2050 auf 100 Personen im erwerbsfähigen Alter 47 ältere Menschen entfallen, heute sind es noch 30 in Ungarn (Obádovics & Tóth, 2021).

Das Tempo der Bevölkerungsalterung ist aktuell wesentlich höher als in der Vergangenheit (Zniva, 2016). Im Jahr 2020 war die Zahl der Menschen im Alter von 60 Jahren und älter größer als die Zahl der Kinder unter 5 Jahren. Zwischen 2015 und 2050 wird sich der Anteil der über 60-Jährigen an der Weltbevölkerung von 12% auf 22% fast verdoppeln. (WHO, Initiatives, 2022) Parallel dazu verschwinden die traditionellen Familienstrukturen und die Kernfamilien werden typisch, was zu Veränderungen in der Einstellung gegenüber älteren Menschen führen kann. Obwohl Ageismus jede Altersgruppe betreffen kann, zeigen die existierenden Studien, dass ältere Menschen einem höheren Risiko für die negativen Folgen von Ageismus ausgesetzt sind (Kutlu et al., 2012).

Konzept des Ageismus

Unter Ageismus werden die Stereotype (wie man denkt), Vorurteile (wie man fühlt) und Diskriminierung (wie man handelt) gegenüber Menschen aufgrund des chronologischen Alters verstanden. Ageismus betrifft Menschen aller Altersgruppen, hat aber besonders schädliche Auswirkungen auf die Gesundheit und das Wohlbefinden älterer Menschen (Ayalon et al., 2019).

Durch die globale Bevölkerungsalterung ist das Phänomen der Ageismus zu einem hochaktuellen Forschungsthema geworden. Negative Tendenzen sind zu beobachten, weil die Generationen dazu neigen, auf das Alter basierende negative Einstellungen und stereotypes Denken zu entwickeln. So werden die älteren Menschen mit vielen negativen Eigenschaften in Verbindung gebracht (Drury et al., 2016).

Im Jahr 1969 wurde der Oberbegriff Ageismus von Butler geprägt, um Vorurteile und Diskriminierung gegenüber älteren Erwachsenen aufgrund ihres chronologischen Alters auszudrücken (Hofmeister-Tóth et al., 2021). Seitdem ist die Zahl der Studien zu dem Thema Ageismus gestiegen. Da Ageismus jeden einzelnen Menschen betrifft, ist das Thema ein wichtiger Schwerpunkt von Forschungen (Ng, 2021).

Palmore, der amerikanische Gerontologe hat den Begriff im Jahr 1999 weiterentwickelt, indem er die kognitiven und affektiven Eigenschaften gegenüber älteren Menschen betrachtet hat. So wurden die abwertenden Einstellungen, Gefühle und Verhaltensweisen gegenüber älteren Erwachsenen umfasst (Fan et al., 2020).

Altersfeindliche Einstellungen können die kognitive und funktionale Leistungsfähigkeit älterer Menschen beeinträchtigen (Lamont et al.,

2015). Weiters kann der Ageismus zu einer schlechteren psychischen Gesundheit führen und somit auch die Morbidität erhöhen (Allen, 2015).

Forschungsergebnisse zeigen, dass Ageismus inzwischen sogar noch stärker als Rassismus oder Sexismus verbreitet ist, was ernsthafte Folgen sowohl für ältere Menschen als auch für die ganze Gesellschaft bedeutet. Laut des Weltberichtes über Altern und Gesundheit der WHO kann der sozial tiefverankerte Ageismus sich selbst erfüllen, indem er bei älteren Menschen Stereotype der sozialen Isolation, des körperlichen und kognitiven Verfalls, des Mangels an körperlicher Aktivität und der wirtschaftlichen Belastung fördert (WHO, Report on ageing and health, 2015).

Es wurde festgestellt, dass das soziale Engagement einer Gesellschaft stark von der Art und Weise abhängt, wie die Gesellschaft über verschiedene Altersgruppen denkt. Aufgrund der negativen Wahrnehmung der älteren Menschen in der Gesellschaft und deren Ausgrenzung und Ungleichheit, wird die Relevanz der Bewältigung von Ageismus immer höher (Officer & De la Fuente-Núńez, 2018).

Als Problem ist weiterhin die starke Trennung der Altersgruppen zu erwähnen. Ein Beispiel ist die sozialen Medien, innerhalb welcher diese Trennung und Isolierung noch verstärkend zu sehen ist. Daraus folgend haben die einzelnen Generationen wenig Gelegenheit, mehr über die anderen Generationen zu erfahren (Pettigrew & Tropp, 2008).

Messung von Ageismus

In den vergangenen Jahrzehnten wurden viele Skalen mit verschiedenen Aspekten und Dimensionen entwickelt, die das Maß des Ageismus sowohl explizit als auch implizit messen. (Hofmeiser-Tóth et al., 2021) Die Mehrheit der Skalen stammen aus den USA, so widerspiegeln sie eher westliche und vor allem nordamerikanische Ansichten und Vorstellungen (Klusmann et al., 2020)

Die verfügbaren Skalen zum Thema Ageismus wurden von Ayalon et al. im Jahr 2019 ermittelt und systematisch analysiert. In der umfassenden Literaturrecherche wurden 106 Studien zum Thema Messung von Ageismus herangezogen. Diese Studie betont die Wichtigkeit der Skala mit multidimensionalem Charakter. Eine wichtige Erkenntnis dieser Studie ist, dass die Dimensionen des Ageismus nicht immer eindeutig sind (Ayalon et al., 2019).

Eine weitere Studie ist jene von Klusmann et al. die 89 Skalen des Ageismus entlang von acht Dimensionen gruppiert haben. Die acht Di-

mensionen sind: Ökosystem, Gleichgewicht, Stabilität, Dynamik, Komplexität, Manifestation, Bewusstsein und Zeitperspektive. Die Mehrheit der Skalen ist explizit, weil sie konkret die Vorstellungen über das eigene Alter und das Älterwerden oder andere ältere Menschen untersuchen. Weitere Unterschiede wurden in der Herangehensweise an das Thema festgestellt. In gewisser Anzahl betrachten die Skalen das Altern als einen langfristigen Prozess, in anderen Fällen werden eher die Eigenschaften des Alters beleuchtet (Klusmann et al., 2020).

Ayalon et al. betonen die Notwendigkeit, eine Skala mit multidimensionalem Charakter zu entwickeln, wobei die Skalen alle drei Dimensionen eindeutig abdecken (Ayalon et al., 2019), während Klusmann et al. eher die Erweiterung der Skalen bevorzugen. Die Messung von Ansichten über das Altern müssen erweitert werden, um die implizite Ebene spezifischer erfassen zu können (Klusmann et al., 2020).

Eine der häufigsten verwendeten Skala, ist die Fraboni Scale of Ageism (FSA) (Hofmeiser-Tóth et al., 2021). Die wurde von Fraboni et al. im Jahr 1990 in Kanada auf Grundlage des von Butler-Konzepts des Ageismus entwickelt (Fraboni et al., 1990). Die EntwicklerInnen von FSA sind Fraboni, Saltstone und Hughes, und sie haben festgestellt, dass die früheren Skalen des Ageismus sich nur auf die kognitiven Komponenten fokussiert haben. Um diese Barriere überwinden zu können, wurde die FSA entwickelt (Rupp et al., 2005).

Es sind 29 Aussagen erfasst, in den kognitiven, affektiven und verhaltensbezogenen Komponenten betrachtet sind (Fan et al., 2020). Die Bewertung der Zustimmung mit den 29 Aussagen erfolgt auf einer 4-stufigen-Skala (Punkt 1 „stimme voll zu“, Punkt 2 „stimme eher zu“, Punkt 3 „stimme eher nicht zu“, Punkt 4 „stimme gar nicht zu“). Das Ergebnis der Auswertung liefert eine umfassende Messung des Ageismus. Bei der Ergebnisdarstellung ist der Mittelwert der Fraboni Scale zu ermitteln. Je höher die Punktzahlen sind, desto höheres ist das widergespiegelte Maß an Ageismus (Fraboni et al., 1990).

Methodisches Vorgehen

Datenerhebung

Als Methode wird eine quantitative Befragung gewählt. Hierbei geht es um eine Forschungsmethode, die auf der zahlenmäßigen Erhebung und

Beschreibung von Sachverhalten basiert. Für die Anwendung von quantitativen Methoden ist die Erhebung von Daten in Zahlenformat charakteristisch (Schwaiger & Meyer, 2011). Durch die Durchführung einer quantitativen Methode ist es möglich zu erfassen, wie verbreitet bestimmte Einstellungen in einer bestimmten Untersuchungsgruppe sind (Rüdiger et al., 2013).

Für die empirische Forschung wurde die Fraboni Scale of Ageism (FSA) gewählt, weil sie ein multidimensionales Konstrukt darstellt. Drei Dimensionen – Stereotype, Vorurteile und Diskriminierung – können mithilfe dieser Skala gemessen werden. Diese Art der Skala misst explizit den Ageismus, daher kann deren Einfachheit und die klare Interpretierbarkeit gesichert werden. Was die Befragten betrifft, ist die Art der Fragen wegen der Likert-Skala leicht verständlich und schnell ausfüllbar.

Bei der Befragung wurde die Fraboni Scale of Ageism verkürzt abgefragt. Die Gründe für die verkürzte Version dieser Skala ist die Berücksichtigung des kulturellen Kontexts der Aussagen. Diese Aussagen widersprechen die vorherrschenden sozialen Normen sowohl in Österreich als auch in Ungarn.

Für die Online-Befragung wurde das Tool qualtrics.com verwendet. Zwei Fragbögen, einer auf Deutsch und einer auf Ungarisch wurden separat erstellt. Die zwei Links zu den Fragebögen wurden länderspezifisch verteilt und versendet. Um die StudentInnen in der österreichisch-ungarischen Grenzregion erreichen zu können, wurden der Link mit einer standardisierten E-Mail primär durch den Verteiler der Fachhochschule Wiener Neustadt Campus Wieselburg, Fachhochschule Wiener Neustadt und Fachhochschule Campus 02 an die unterschiedlichen Studiengänge versendet. Ebenfalls wurden die 4 Universitäten der Grenzregion Ungarn aufgesucht und kontaktiert, nämlich die Folgenden: Soproni Egyetem, Széchenyi István Egyetem, Pannon Egyetem Zalaegerszeg und ELTE Savaria Egyetemi Központ Szombathely.

Grundgesamtheit und Stichprobenbeschreibung

Die Grundgesamtheit der Forschung bildet sich aus allen österreichischen und ungarischen StudentInnen aus der Grenzregion. Zur Grenzregion gehören bestimmte österreichische Bundesländer und ungarische Komitate und umfassen die folgenden Regionen: Burgenland (AT), Wien (AT), Wiener Umland-Südteil (AT), Niederösterreich (AT), Graz und Steier-

mark (AT), Győr-Moson-Sopron (HU), Vas (HU) und Zala (HU). Ausbildungsinstitute, darunter Fachhochschulen und Universitäten von den oben genannten Regionen, wurden erfasst und in der Forschung miteinbezogen.

Das ergibt 819 Personen, die an der empirischen Forschung teilgenommen haben, sie haben den Fragebogen vollständig ausgefüllt und wurden für die Auswertung herangezogen. Zur ersten Stichprobe gehören die 416 (50,8%) StudentInnen aus österreichischen Bildungseinheiten, zur zweiten Stichprobe gehören die 403 (49,2%) ungarischen StudentInnen. Des Weiteren ist die gleichmäßige Verteilung des Geschlechtes nicht vorhanden, da die Forschungsfragen das Geschlecht der Befragten nicht betrachteten. Etwa drei Viertel der Befragten sind Frauen (609 Personen) und der Rest der Befragten waren Männer (210 Personen).

Eine Filterfrage stellte sicher, dass die Befragten zwischen 18 und 35 Jahre waren. Daher liegt das Durchschnittsalter für die gesamte Stichprobe (n = 819) bei 23,05 Jahren, es kann auch damit begründet werden, dass 73,7% der Befragten zwischen 18 und 24 Jahre alt waren. Weitere 22,1% der TeilnehmerInnen waren 25–30 Jahre alt und weniger als 5% war über 30 Jahre. Dies widerspiegelt der gewöhnlichen Zusammensetzung der höheren Bildungseinrichtungen.

Die zwei getrennten Stichproben (Stichprobe Österreich, n = 416; Stichprobe Ungarn, n = 403) von Studenten aus der Grenzregion Österreich und aus der Grenzregion Ungarn wurden getrennt analysiert.

Bei der Stichprobe von Österreich betrug das Durchschnittsalter 24,8 Jahre. Das Alter der österreichischen TeilnehmerInnen lag zwischen 18 und 35 Jahren, 60,8% der Stichprobe war unter 25 Jahre alt, fast ein Drittel (32,2%) war zwischen 25 und 30 Jahren, 7% waren über 30 Jahre alt.

Bei der ungarischen Stichprobe war das Durchschnittsalter 21,99 Jahre. Das Alter der ungarischen TeilnehmerInnen reichte von 18 bis 35 Jahren, wobei 87,1% der Stichprobe unter 25 Jahren, 11,7% der Stichprobe zwischen 25 und 30 Jahren und etwa 1,2% der Stichprobe über 30 Jahre alt waren.

Ergebnisse des Fragebogens

Um das Ausmaß des Ageismus unter den Befragten bestimmen zu können, wurden die 18 Variablen der Fraboni Scale of Ageism (FSA) addiert und es wurde eine neue Variable (der FSA-Gesamtwert) gebildet. Mithilfe dieser neuen Variablen lassen sich demnächst alle Datensätze auswerten.

Da die Befragten alle 18 Aussagen zwischen eins zu vier bewerten sollten, konnte der höchste Wert 72 sein, während der niedrigste Wert 18 sein konnte. Die Ergebnisse (*Abbildung 1*) zeigen, dass Ageismus unter den Studierenden in der österreichisch-ungarischen Grenzregion zu vorhanden ist.

Höhere Punktzahlen bedeuten ein höheres Ausmaß an Ageismus. Mit der Bestimmung des Mittelwerts des FSA-Gesamtwerts kann behautet werden, dass die österreichischen und ungarischen StudentInnen in der Grenzregion gemeinsam betrachtet moderat altersfeindlich sind. (M = 39,24; SD = 7,967) Bei der vorliegenden Studie liegt der Minimumwert (die am wenigsten altersfeindliche Person) bei 20, während der Maximumwert (die am ehesten altersfeindliche Person) bei 56 liegt.

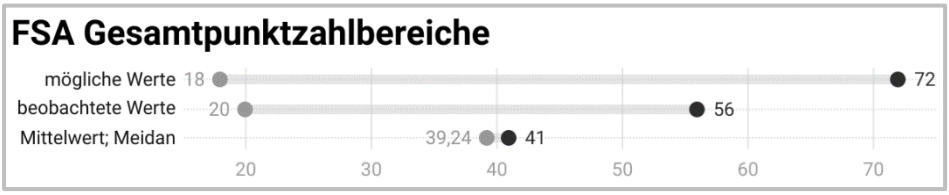

Abbildung 1: Gesamtpunktzahlbereiche der FSA

Quelle: Eigene Darstellung, Pakai und Obádovics (2023)

Um die Forschungsfragen beantworten zu können, wurde untersucht, ob es einen signifikanten Unterschied zwischen dem Ausmaß des Ageismus unter den österreichischen und ungarischen StudentInnen in der Grenzregion gibt. Daraus folgend wurden das Ausmaß des Ageismus getrennt für die zwei unabhängigen Stichproben bestimmt. Mithilfe des T-Tests kann bestimmt werden, ob es einen signifikanten Unterschied zwischen den zwei Stichproben gibt.

Die Ergebnisse des T-Testes zeigen, dass der Maß des Ageismus unter den österreichischen StudentInnen in der Grenzregion niedriger (M=33,55; SD=6,27) im Vergleich zu den ungarischen StudentInnen in der Grenzregion (M=45,11; SD=4,53) t (755,491) =-30,306; p<,001 ist.

Zur Beantwortung der Forschungsfrage kann angemerkt werden, dass es einen signifikanten Unterschied bezüglich des Ausmaßes von Ageismus unter den österreichischen und ungarischen StudentInnen in der Grenzregion gibt.

Um weitere ausführliche Analysen durchführen zu können, wurden aus den Aussagen Indizes auf der Basis der einzelnen Dimensionen gebildet. Alle 18 Aussagen werden separat betrachtet und zu den einzelnen Indizes zugeordnet. Die Indizes beziehen sich auf die Stereotypen gegenüber älteren Menschen, auf die emotionalen Einstellungen und auf die Vermeidung der älteren Menschen.

Bei dem ersten Index – Stereotype – ging es um Überzeugungen der Befragten über alte Menschen. Hierbei wurden Aussagen analysiert, wie zum Beispiel: „Die alten Menschen leben nur noch in der Vergangenheit." Zum Stereotyp „Beschwerden" waren die ungarischen StudentInnen am kritischsten und haben am ehesten zugestimmt, dass die älteren Menschen sich mehr beschwerden als Personen anderer Altersgruppen.

Des weiteren wurden bei dem zweiten Index, die emotionalen Einstellungen analysiert. Hierbei wurden Einstellungen mit dem Fokus auf die emotionale Ebene abgefragt. Ein Beispiel für die abgefragte Aussagen ist: „Die meisten alten Menschen sind interessante, individualistische Menschen."

Abschließend wurde auch die Vermeidung der älteren Menschen, als dritte Index analysiert. Darunter wird der Rückzug aus sozialen Kontakten mit älteren Menschen verstanden. Aussagen beziehen sich auf das Zusammensein, die Zeitverbringung, die Unterhaltung und das Zusammenleben, wie zum Beispiel: „Ich persönlich würde nicht viel Zeit mit einem alten Menschen verbringen wollen."

Die Indizes wurden einzeln durch den T-Test analysiert, ob es einen Unterschied bezüglich der einzelnen Indizes unter den österreichischen und ungarischen StudentInnen in der Grenzregion gibt.

Mithilfe der Durchführung eines T-Tests wird es untersucht, ob es einen signifikanten Unterschied bei den Stereotypen zwischen den beiden Stichproben gibt. Es konnte festgestellt werden, dass es keinen signifikanten Unterschied unter den ungarischen StudentInnen in der Grenzregion ($M = 10{,}78$; $SD = 2{,}83$), im Vergleich zu den österreichischen StudentInnen in der Grenzregion gibt ($M = 10{,}62$; $SD = 2{,}31$), $t\ (776{,}3) = -{,}892$; $p > {,}05$.

Tabelle 1: Mittelwerte der Indizes

Mittelwerte der Indizes		n	Mittel-wert	Standard-abweichung
Stereotypen Index	österreichische StudentInnen	416	10,62	2,32
	ungarische StudentInnen	403	10,78	2,83
Index zu emotionalen Einstellungen	österreichische StudentInnen	416	9,19	2,36
	ungarische StudentInnen	403	10,55	2,82
Index zu Vermeidung	österreichische StudentInnen	416	13,75	2,94
	ungarische StudentInnen	403	14,66	3,47

Quelle: Eigene Darstellung, Pakai und Obádovics (2023)

Mithilfe des statistischen Verfahrens des T-Tests, kann Folgendes behauptet werden: Das Ausmaß der emotionalen Einstellung gegenüber den älteren Menschen unter den österreichischen StudentInnen in der Grenzregion (M = 9,19; SD = 2,36) ist niedriger im Vergleich zu den ungarischen StudentInnen in der Grenzregion (M = 10,55; SD = 2,82). Der Unterschied ist signifikant: t (783,7) = - 7,498; p<,001.

Je höher das Ausmaß der emotionalen Einstellung ist, desto ablehnender sind die Befragten gegenüber der positiven Aussage bezüglich der älteren Menschen. Daraus folgt, dass die StudentInnen in der Grenzregion, die in Österreich studieren in einem niedrigeren Maße altersfeindlicher sind.

Unter der österreichischen StudentInnen in der Grenzregion (M = 13,75; SD = 2,94), ist das Ausmaß der Vermeidung der älteren Menschen niedriger im Vergleich zu den ungarischen StudentInnen in der Grenzregion (M = 14,66; SD = 3,47), t (786,7) = -4,035; p<,001. So konnte ein signifikanter Unterschied bestimmt werden. Je höher das Ausmaß, desto mehr stimmen die Befragten den negativen Aussagen über die Vermeidung von älteren Menschen zu. Daraus folgen sind die StudentInnen in der Grenzregion, die in Österreich studieren weniger altersfeindlicher sind.

Fazit und Ausblick

Die Alterung der Bevölkerung schafft gesellschaftliche Herausforderungen, eine davon ist das Phänomen „Ageismus“, das immer mehr an Bedeutung gewinnt (Endter, 2021).

Das Ziel der vorliegenden Artikel war es, aufzuzeigen, inwieweit Ageismus unter den StudentInnen in der österreichisch-ungarischen Grenzregion vorhanden ist.

Um die Forschungsfrage beantworten zu können, wurde die Fraboni Skala auf die Stichprobe der Forschung – die österreichischen und ungarischen StudentInnen in der Grenzregion – angefragt. Die Skala wurde in vorigen Studien als eine der am häufigsten verwendeten Skalen bestimmt, die alle drei Dimensionen – Stereotype, Vorurteile und Diskriminierung – in einer Skala misst.

In Allgemein kann festgehalten werden, dass Ageismus in der österreichisch-ungarischen Grenzregion präsent ist, sind die österreichischen und ungarischen StudentInnen in der Grenzregion moderat altersfeindlich. Bei dem Vergleich der zwei Stichproben ist ersichtlich, dass es einen signifikanten Unterscheid zwischen dem Ausmaß des Ageismus zwischen den österreichischen und den ungarischen StudentInnen in der Grenzregion gibt, die altersfeindlichen Attitüde sind eher für die ungarischen StudentInnen charakteristisch. Die altersfeindliche Attitüde wurde anhand der drei untersuchten Dimensionen – Stereotype, emotionale Einstellungen und die Vermeidung der älteren Menschen untersucht, so wurden drei Indizes gebildet. Bei erster Dimension, der Stereotype konnten keinen Unterschieden zwischen den zwei untersuchten Gruppen bestimmt werden. Allerdingst konnte bei der Dimension emotionalen Einstellungen zwischen den österreichischen und ungarischen StudentInnen ein Unterschied festgestellt werden. Die StudentInnen in der Grenzregion, die in Österreich studieren sind über weniger altersfeindlicher, da sie die positiven Aussagen bezüglich der emotionalen Einstellungen weniger ablehnen.

Des weiteren kann es behauptet werden, dass die StudentInnen, die in Ungarn studieren, in einem höheren Maße die älteren Menschen vermeiden, als die österreichischen.

Österreich und Ungarn haben das Konzept des Ageismus zu bekämpfen, so ist es notwendig, Strategien zu entwickeln, die die physischen, psychologischen und sozialen Bedürfnisse der älteren Menschen bedienen und die negativen Auswirkungen dieses Prozesses minimieren. Aus diesem Grund spielen die Regierungen eine große Rolle dabei, Strategien für den Umgang mit Problemen der älteren Menschen zu entwickeln und die intergenerationalen Programme zu fördern. Hierbei gilt für beide Generationen, diese einander näher zu bringen und damit Ageismus zu verringen und zu bewältigen.

Ein großes Potenzial steckt in dem Weiterarbeiten an dem Thema Ageismus. Mit einem explorativen Verfahren, die Clusteranalyse, könnten Ähnlichkeiten unter den Befragten bestimmt werden. Als Ergebnis könnten Gruppen bzw. Segmenten gebildet werden. Hierbei könnten homogene und sich gleichzeitig möglichst gut voneinander unterscheidende Segmente geschafft werden. Dies könnte eine fundierte Basis für Strategien zur effektiven Altersdiskriminierungsmodellen bilden, mithilfe derer der Ageismus unter den StudentInnen minimiert und bewältigt werden könnte.

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KÖNYVISMERTETÉS/BOOK REVIEW

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The Essential Guides for Comprehending Digital Marketing

***Tran Thi Thuy Sinh*[1]**

[Charlesworth, A. (2020). Absolute essentials of digital marketing, first published September 24, 2020, by Routledge 2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN, ISBN: 978-0367859206]

Introduction

"*Absolute essentials of digital marketing*" was published as the latest book (1st Edition) on September 24, 2020. This book is sure to please readers because it gives a full but concise introduction to the basics of Digital Marketing, with a focus on how the Internet can be used in modern marketing. While digital marketing is an important tool for any marketer's toolbox, it should be used sparingly and only when it makes sense for the target audience, the nature of the offering, and the objectives of the business. The different parts of digital marketing that are written about in these chapters are not separate methods or strategies. Instead, they make up an important part of the marketing mix. Therefore, this book should be utilized as part of an exploration of marketing – as a module, for instance – and not as a comprehensive guide to marketing. The point is not to make digital marketing sound like something from the 20th century. It provides a realistic overview of the numerous aspects of digital marketing, including their place in the marketing mix, their benefits, and their drawbacks, as well as the best practices for implementing them.

Alan Charlesworth, a well-known educator, and writer on the topic, is the author of this book. He provides a simple, straightforward frame-

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work that methodically covers all the topic's vital points, such as web development, analytics and metrics, social media, e-commerce, digital marketing strategy, and search engine optimization (SEO). He got involved with e-marketing by accident in 1996 when he joined a small Internet marketing business. That company grew to become one of the largest in the industry. During that period he "preached" to Business Clubs, Chambers of Commerce, and others about the Internet and how businesses must be ready for its arrival and then how to best match the Internet's promise with the organization's and consumers' needs. Although he resigned from full-time employment in April 2020, he continues pursuing digital marketing as a hobby. He still stays up-to-date on a topic as changing as digital marketing, but he spends most of his free time writing books about it.

Discussion

The book's content encompasses well over 118 pages and is designed to meet the needs of instructors at both the undergraduate and graduate levels. This book can be used in the classroom in two ways. It can be the main text for a whole course on digital marketing, or it can be used as an addition for a course on marketing in which digital marketing is just one part. This book is broken up into nine chapters, which are as follows:

- Chapter 1: The digital marketing landscape (17 pages),
- Chapter 2: Search engine optimization (16 pages),
- Chapter 3: Website development (6 pages),
- Chapter 4: The retail website (8 pages),
- Chapter 5: The B2B website (7 pages),
- Chapter 6: Advertising Online (14 pages),
- Chapter 7: Email marketing (5 pages),
- Chapter 8: Marketing on social media (15 pages),
- Chapter 9: Metrics and Analytics (10 pages).

The first section of the book addresses the concern, "What is digital marketing?" before pointing out that standard offline marketing methods can work just as well as their digital counterparts. The author of this book is a firm believer in the idea that "digital marketing is marketing" or, at the very least that digital marketing is a part of marketing. Digital choices are a part of the marketing mix when it comes to marketing. Personalization is a technique that can be utilized in the realm of digital marketing,

specifically for websites, electronic mail, advertisements, and search engine optimization. Content marketing can be used to increase direct sales, web traffic, upselling/cross-selling, brand awareness, customer retention, customer acquisition, brand loyalty engagement, customer relations, thought leadership, or lead generation. It can be used in both B2C and B2B markets. Three main goals can be attained using digital marketing that parallels traditional marketing goals. To be successful, every business needs a plan that looks further into the future than just next week's sales. Some aspects of running a business require planning over a longer period, which is referred to as strategic planning.

The book also discusses every element of search engine optimization (SEO) in the second chapter, which is achieving (or attempting to achieve) a high ranking on the natural or organic search engine results page (SERP) for specific user searches. For example, 87 percent of individuals who search for a service or product start with a search engine; therefore, companies require a high position on the search engine results page (SERP) if they are selling anything online (Schwartz, 2018). Users can access a website through one of four methods:

1. Search – The person clicks on a natural link on the page of search engine results.
2. Direct – The person using the site either types the web page's address (URL) straight into their browser or uses a bookmark.
3. Referral – The person clicks on a link on a third-party site, which could be an ad.
4. Social – A person clicks on a link on a social media site.

Within hours, a company may lose all of its new consumers if a search engine makes a change to its algorithm or a competitor does more search engine optimization. SEO experts use their knowledge, experience, and research to make educated estimates about the most important elements (the corners) that affect search engine rankings. Google has evolved from a search engine into a knowledge-based engine throughout the years, with the goal of recognizing and responding to each user's specific query. The business model utilized by search engines is based on the provision of a service that draws visitors to a website in order to generate revenue through the sale of advertising space.

The third chapter of the book focuses on topics that are universal to all forms of commercial website existence, including websites, social me-

dia platforms, and other websites such as online marketplaces. These topics are all relevant to effective website creation and are discussed in this chapter. To ensure that business goals and consumer expectations are satisfied, the company takes best practices in web development into account. On a website, the fundamental components of information presentation are discussed, however, the site just provides guidelines and not rules. The site's goals might affect how the tips are read but ignoring them is dangerous for the publisher. Prior to beginning work on the establishment of a website, it is important to plan its framework – the hierarchical site architecture. The content of a website can be broken down into two main categories: the textual material, and the graphics and other features. The localized strategy entails the creation of unique websites for each nation in which the company intends to conduct business.

The fourth chapter of the book focuses on distributing products directly to end users via a website. I agree with the mentioned perspective that websites have become an increasingly crucial platform in the realm of digital marketing, facilitating the direct distribution of items to end users. The research also defined four different sorts of online purchasing visits that a client could conduct (Moe & Fader, 2000); these types of visits are still applicable today:

1. Direct-purchase visitation.
2. Deliberation and Search visits.
3. Knowledge-building excursions.
4. Hedonic perusing visits.

According to the information presented in the book, businesses that operate online stores may be broken down into two primary categories: pure play, in which the company conducts all of its business on the internet; and multi-channel, in which the company trades both offline and online. Even if there are online purchase options, the consumer may visit the website as part of the purchasing procedure. They might decide to buy online, but they might buy the item in person or through another means. Customers now have the option of using the Internet to do their research before making a purchase either in-store or online, with home delivery or in-person pickup. Even though it is a less exciting part of digital marketing, making certain that making sure the customer gets the goods they ordered is just as important as anything else when it comes to making sales over the Internet.

In addition, the author presents an exposition on the utilization of websites in the fifth part of the book by firms targeting other businesses, rather than individual consumers. In this context, the primary objective of such websites is typically to generate leads, as opposed to focusing on branding or direct sales. The numerous sorts of business-to-business (B2B) purchases are discussed, as is the function of the decision-making unit (DMU) in the B2B buying process. This chapter comes to a close by discussing the function of business-to-business electronic markets. The B2B e-commerce website addresses the fact that online commercial purchases are possible. The DMU, or procurement department, is the department inside an organization that is in charge of making purchases. The seller's website needs to be designed with the possibility of any or all of these people using it in the preliminary stages of the purchase process in mind, depending on the company and the product. Online marketplaces are usually connected with B2B transactions.

The sixth chapter of the book discusses all forms of online advertising and defines the network, programmatic, display advertising, and automated before briefly discussing ad delivery methods. The several major categories of online advertisements are then covered:

1. Keyword bidding – the advertisement displays on the screen as a result of the user's keywords.
2. Display network advertising – websites that participate in the network that distributes ads for advertisers display banner adverts.
3. Direct (contact) ads – publishers and advertisers negotiate details of advertisements to be displayed on a website directly with one another.
4. Native advertising – the emergence of these advertisements is such that it is not immediately apparent that they are advertisements; their appearance blends in with other content.

Advertisements in this model are displayed on many different kinds of categories, including social media sites. The sixth section describes programmatic marketing and how advertisements are delivered in real-time with programmatic advertising. The last kind of advertising that will be discussed is native advertising, often known as non-advert ads. Then, we move on to discussing the drawbacks of online advertising, such as the effectiveness of digital commercials, whether or not users enjoy them, ads, and ad fraud that show on unsuitable host websites. It is found that 42 percent of consumers in Britain are unaware that search engine results

pages (SERP) may be advertisements (Goodyear, 2020). Because of this, a portion of the click-through rate (CTR), which is already rather low, is likely due to an accident.

In the book's seventh chapter, the author discusses three different ways in which digital marketers might employ email. To begin, there's direct marketing via email, which, in contrast to social media marketing, can have well-defined goals and a verifiable rate of return (often at a much lower investment) if marketers know exactly the age group that sent and received emails with the highest frequency. For instance, the present study examines the outcomes of a survey conducted in the United Kingdom (UK) in 2020, focusing on the proportion of internet users who engaged in weekly email correspondence, categorized by age groups. During the designated survey period, it was determined that 74% of the surveyed population of internet users, specifically those aged between 16 and 24 years, reported engaging in the activity of either sending or receiving emails within the week preceding the survey (Petrosyan, 2022). A common mistake in digital marketing is thinking that solely email can be used for direct marketing. This is incorrect because it fails to take into account the worth of every email interaction as a way to spread a marketing message. Before looking at email as a way to send notes, this idea is looked into. In addition, it is claimed that about one-third of these marketing communications are written by technical staff who are untrained or unqualified to compose marketing copy (SparkPost, 2020). This study also found that it's important to get the tone of these emails right, which is hard for people who are not marketers to do.

The eighth chapter of the book discusses the distinction between marketing on social media and social media marketing and what kind of social media marketing is. It then talks about some of the most important parts of the topic, such as networking, blogging, communities, and sharing, as well as social customer support and service. It is essential to make it abundantly apparent that marketing on social media and social media marketing are two entirely different things. There are several reasons why professionals, commentators, authors, and students all get social media marketing wrong. For instance, the research indicated that 96% of those who talk about a brand online are not associated with that brand (Windels, 2015). Sharing, building relationships, and participating in online groups and networks are at the heart of social media. As a result, marketing efforts conducted via social media should likewise reflect these qualities. When

it comes to social media marketing, there are two main concerns to address: goals, and the management and execution of the strategy. In order to be successful, social media marketing must be a company-wide effort with a designated leader. Tools for keeping tabs on social media keep an eye out for new content including status updates, tweets, chats, and hashtags.

If an individual requires a means of collecting data, conducting analytics, and obtaining metrics, they may discover valuable information in the last section of the book. For example, what is being monitored is taken into consideration, with a particular focus on digital platforms such as websites, advertisements, social media, and email. The limits of Internet data are then discussed, with questions posed about how much of the Internet is false, and whether the correct data is being collected. and the difficulties with metrics, Instagram hosts the most influencers of any platform; therefore, the authenticity of their followers is crucial to marketers; however, Instagram has approximately 9.5%, false followers (Akyon & Kalfaoglu, 2019).

Summary

In summary, using a review of Tanya Hemphill, *Senior Lecturer in Strategic & Digital Marketing at Manchester Metropolitan University, UK*: "This is a great introduction to digital marketing, which gets students up-to-speed in an easily digestible way. It covers some of the key areas of digital marketing communications, such as SEO, search engine advertising, email, etc. I highly recommend this book if you want something that explains key concepts in a clear and easy way, without the jargon." If I were to compare this book to anything, it would be a digital marketing book because it is so helpful as a reference in marketing. This book is also an immensely effective tool for instructors and students, as is proved by the fact that they are still used in classrooms and on the internet today. In my opinion, both private persons and public libraries ought to have a copy of it in their collections so that they may quickly consult it when researching digital marketing.

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Sustainability Management

***Sadrul Islam Sarker*[1]**

[Gutterman, A. S. (2020). Managing Sustainability. New York and London: Routledge, 192 pp. ISBN 9780367518547 (Paperback).]

This is a review of Gutterman's book, "Managing Sustainability", which Routledge released on December 29, 2020. Alan S. Gutterman, author of numerous influential books on law and business and a respected advisor to many successful companies, is also the founding director of the Sustainable Entrepreneurship Project. The book "Managing Sustainability" provides an in-depth look at how to run a company focusing on sustainability. This 192-page book covers various sustainability, governance, and management topics across 15 sections.

In the first section of the book entitled "Governance, Leadership, and Management", the author presents the emergence of the stakeholder-focused paradigm. According to the author, corporate social responsibility (CSR) is a critical management endeavour that must balance economic, social, and personal aims. The primary concepts addressed in this part encompass corporate governance, leadership, management, sustainability, and corporate social responsibility (CSR).

Section two is headed "Sustainability in the Boardroom", and the author explains how the board of directors might incorporate environmental and social responsibility into the governance framework and the traditional functions and responsibilities of directors.

Section three of this book is named "Organisational Design for Sustainability". In this section, the author presents a framework for how the board of directors can oversee sustainability and corporate social respon-

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sibility (CSR) initiatives. Additionally, the author discusses organisational strategy, explicitly focusing on establishing concrete sustainability pledges and targets.

In the fourth section, titled "Strategic Planning for Sustainability", the author discusses how to make suitable internal organisational structures and systems for running sustainability programmes and initiatives, as well as supporting sustainability and CSR commitments and expectations. For instance, the author states the need to involve stakeholders and how to make and disseminate sustainability reports.

The fifth section deals with incorporating sustainability into the duties, responsibilities, and roles of the chief executive officer (CEO).

Section six is headed "Sustainability Executives", wherein the author elucidates the responsibilities of sustainability executives in spearheading sustainability endeavours inside an organisation. The author also addresses integrating sustainability into the job descriptions, compensation structures, and performance standards of a new class of sustainability executives.

In section seven, "Sustainable Leadership", the author discusses the characteristics of sustainable leaders and how they can propel an organisation's sustainability efforts. In this section, the author also introduces Avery and Bergsteiner's ethically based organisational mindset and long-term leadership practices.

The eighth section of this book is named "Management Systems", and the author explicitly addresses two types of management systems: environmental health and safety (EH&S) management systems and corporate social responsibility/corporate governance (CSR/CG) management systems.

The ninth section of this book is titled "Ethical Management", in which the author provides practical guidance on how organisations can establish and execute ethical management systems. This section additionally demonstrates how compliance programmes, ethics training, and whistleblowing can assist managers in enhancing their moral character.

Section 10 of this book is titled "Internal Sustainability-Related Codes". In this section, the author analyses the objectives and specifics of a company's Corporate Social Responsibility (CSR) manual, along with its various internal governance codes, policies, and procedures. These include the code of conduct, suppliers' code of conduct, environmental policy, social responsibility policy, human rights policy, human resources

policy, stakeholder engagement policy, and community development policy.

Section 11 is titled "Organisational Culture and Sustainability", wherein the author elucidates the process of incorporating sustainability principles into the organisational culture of a company.

Section 12 is entitled "Strategic Human Resource Management", and the author highlights developing a sustainability-focused recruitment and retention strategy, providing sustainability-focused employee training and development opportunities, and encouraging employee engagement and participation in sustainability initiatives.

"Strategic Human Resource Management" is the title of Chapter 13, in which the author introduces the concept of sustainable technology management, which encompasses the design, consumption, and production of environmentally friendly goods.

The section labelled 14 is titled "Sustainable Technology Management". In this section, the author offers recommendations for formulating sustainability reports, engaging with stakeholders to comprehend their concerns and expectations, and devising a communication strategy that effectively conveys the organization's sustainability performance and initiatives.

Section 15 is entitled "Evaluating and Improving Sustainability", and the author explains the practical assessment and improvement of sustainability management. This section also elaborates on the sustainability and CSR index, the balanced scorecard framework, certifications, and rating systems, which measure an organisation's social and environmental responsibility performance.

This book introduces readers to various aspects of sustainability and its management through its several sections. The book is outstanding and should encourage readers to see sustainable management from a new and holistic view. The book is extremely illustrative and motivates readers, particularly business professionals, to adopt a new and comprehensive stance on sustainability management. The book is well-organized and easy to follow because of its clear structure and straightforward narration. It significantly contributes to developing a novel perspective on management and society by enhancing our familiarity with sustainability concepts and their application in the business world. Therefore, this book is a masterpiece of work that can be recommended to readers, especially profes-

sionals and policymakers involved in promoting and managing sustainability issues in business. This book is highly recommended for forward-thinking business leaders. Those in the academic world can gain much insight from this book, which can be a jumping-off point for developing new concepts and theories. Graduate and postgraduate students can also read this book to easily understand the fundamental concepts of sustainability management because of its simple language and nice presentation style.

One grey tint of the book is the absence of cases and examples in the text. It would have been nice if the book included some examples and financial data for reporting on sustainability. Nevertheless, this facet does not diminish the tremendous practicality of the book.

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