

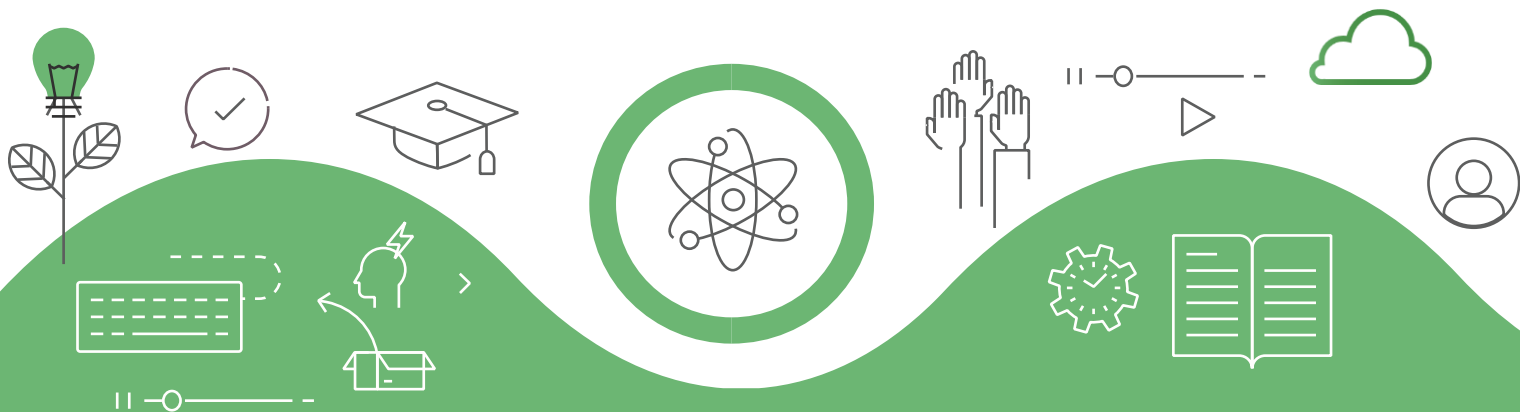
SDGs in practice – how to operate sustainable?

VI. BBS International Sustainability Student Conference  
Proceeding

Budapest Business University

**The book of full paper**

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**NO QUESTION:  
SUSTAINABILITY IS  
EVERYONE'S BUSINESS**

**IV. BBS International  
Sustainability Student  
Conference  
Proceeding**

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## **Sustainability as a Competitive Advantage: Key Entrepreneurial leadership competencies for a successful and sustainable marketing strategy for small green businesses:**

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### **Abstract**

Venturing into the realm of sustainable small business marketing can be a complex task for any aspiring entrepreneur. Through a thorough investigation of previous research findings, this piece aims to uncover the essential leadership skills that are necessary to achieve sustainable entrepreneurship. Key competencies, such as stakeholder engagement, strategic thinking, adaptability, and effective communication, have surfaced as crucial elements in the successful development of small green businesses. Interviews with five professionals in the sustainable business development sector have provided valuable insights to support these findings. Policymakers and small business owners can learn from these findings and should consider implementing leadership development programs and incentives to promote sustainable practices. Such measures could have significant positive effects on the wider community.

**Keywords:** sustainability, entrepreneurship, entrepreneurial leadership, leadership competencies, small businesses, marketing strategy.

### **Introduction**

In today's business world, more and more companies are realizing the significance of sustainability to address environmental and social issues. According to a survey by Nielsen in 2015, 66% of global consumers are willing to pay more for sustainable goods (Nielsen, 2015). However, mere compliance with regulations or reduction of negative impact is not enough. A competitive edge can be gained by blending sustainability efforts with business values and strategies. According to a report by the Harvard Business Review in 2012, companies that have integrated sustainability into their business models have outperformed their peers in the stock market (Eccles & Serafeim, 2013). This not only boosts the operational impact but also the overall performance of the company in the market. Enhancing brand image and reputation, increasing customer loyalty and satisfaction, and improving efficiency are all benefits that sustainability can offer to organizations. Compliance with regulations and the reduction of negative impacts are just the beginning. Research conducted by Kotler, Kartajaya, and Setiawan in 2010 also suggests that sustainability boosts employee motivation and retention while yielding cost savings (Kotler, Kartajaya, & Setiawan, 2010). Companies that embrace sustainability can leverage new business opportunities and develop innovative products and services to tackle environmental and social problems. Developing sustainability as a competitive edge necessitates more than adhering to ecological and social responsibilities. Effective entrepreneurial leadership and competencies must be established to develop successful and sustainable marketing strategies. In this review, we investigate how sustainability can provide a competitive edge and pinpoint crucial business leadership proficiencies to develop sustainable marketing initiatives that result in a competitive edge. We'll touch on the significance of anticipating future trends, managing stakeholders, and cooperating to build a sustainable marketing approach in line with a company's core principles and vision. Part one of the literature review delves into various aspects pertaining to sustainability as a competitive advantage, such as the advantages it offers businesses and how it can benefit them in a competitive setting. Part two of the literature review explores crucial entrepreneurial leadership skills that can prove essential to developing a successful sustainable marketing strategy.

### **Literature review**

#### **Sustainability as a Competitive Advantage**

Beyond regulation compliance and minimizing negative impacts, sustainability offers numerous advantages to businesses. As demonstrated by studies, sustainable practices can enhance customer loyalty and satisfaction, augment brand image and reputation, minimize costs and raise efficiency, and bolster employee motivation and retention (Kotler, Kartajaya, & Setiawan, 2010).

Companies that prioritize sustainability can benefit from gaining a competitive edge through differentiation. The development of sustainable products and services allows these companies to stand apart from their competitors by creating a unique selling proposition that resonates with their customer base. In the words of Porter and Kramer (2011), shared value, or value that is generated for both the company and society, is key to achieving long-term success and competitiveness. Achieving this type of shared value is more likely among companies that prioritize sustainability.

Beyond differentiation, sustainability can also lead to competitive advantage through innovation. By adopting a sustainable mindset, companies can identify new opportunities for innovation and develop new products and services to meet emerging needs and address environmental and social issues. For example, in the automotive industry, companies such as Tesla have revolutionized the market by developing electric vehicles that are more environmentally friendly than conventional gasoline-powered vehicles (Kotler et al., 2010).

### **The role of entrepreneurial leadership in creating sustainable businesses**

Sustainability strategist, Woolley, and Hiatt (2019), elaborated on the significance of entrepreneurial leadership when it comes to a company's prosperity and endurance. Business sustainability not only depends on the economy but also environmental and social factors. A key feature of entrepreneurial leaders is their ability to identify opportunities for growth while taking calculated risks and promoting sustainability to guarantee long-term accomplishment.

Long-lasting businesses require certain competencies from entrepreneurial leaders, as revealed by research. One of these skills is visionary thinking, which means being able to anticipate future trends and identify opportunities for growth and creativity (Woolley & Hiatt, 2019). Such leaders are capable of crafting plans that address emerging social and environmental issues, all while offering benefits to all parties involved, thanks to their forward-thinking nature.

Another crucial skill for entrepreneurial leaders is strategic planning. This involves the capacity to establish objectives and formulate practical plans that coincide with the company's mission and principles (Woolley & Hiatt, 2019). Through strategic planning, leaders can determine and rank sustainability tasks that are the most pertinent to their enterprise. It also ensures that these initiatives are seamlessly integrated into the company's culture and operations.

Entrepreneurial leaders who seek to establish long-lasting businesses must prioritize effective communication. By conveying their company's sustainability objectives and undertakings to both internal and external stakeholders, leaders can cultivate backing for sustainable practices. This, in turn, fortifies the organization's status as a socially responsible and eco-friendly entity (Woolley & Hiatt, 2019). Furthermore, lucid and systematic communication is vital in engendering an environment of openness and answerability, a culture indispensable for maintaining the support and confidence of stakeholders. For entrepreneurial leaders who aim to establish sustainable businesses, stakeholder management is a vital competency. Leaders can achieve this by interacting with stakeholders, which include community members, suppliers, customers, and employees. By doing so, leaders can gain a better understanding of their sustainability concerns and priorities, leading to the development of strategies that can address such issues (Woolley & Hiatt, 2019). When leaders collaborate with stakeholders, they can jointly create sustainable solutions that can benefit both society and their organization.

Entrepreneurial leaders who aspire to build sustainable businesses must possess the essential skill of innovation. This skill is developed by maintaining a mentality of perpetual progress and exploring alternate methods of execution. By doing so, leaders can create new, sustainable solutions that add value to all stakeholders (Woolley & Hiatt, 2019). In addition to this, innovation also aids organizations in staying ahead of the game in terms of upcoming sustainability trends and consumer inclinations.

Businesses like Patagonia implement strategic sustainability initiatives to highlight their dedication to social responsibility and environmental stewardship and demonstrating the specific competencies required for entrepreneurial leadership in sustainable marketing (Muniz & Schau, 2011). Patagonia's sustainable marketing approach emphasizes their commitment to helping the environment through their "Worn Wear" initiative, urging customers to repair and recycle their clothing to promote sustainability. By prioritizing sustainability, Patagonia has been successful in developing a loyal customer base that values their dedication to the environment and social responsibility.

Unilever, known worldwide for its consumer goods, has set an example for successful companies with its sustainability-focused marketing approach (Polonsky & Vocino, 2019). The company has made social and environmental sustainability its top priority, resulting in a strategy that showcases its dedication to sustainable practices. Unilever's implementation of initiatives such as the "Sustainable Living Plan," aimed at reducing its environmental impact and improving stakeholder well-being, is a demonstration of

this commitment. As a consequence of these efforts, Unilever is now at the forefront of sustainable practices, and its reputation for ethical and responsible business practices has been strengthened.

### **Entrepreneurial Marketing Strategies**

Marketing strategies for entrepreneurs involve a distinctive approach to attracting customers and building brand awareness. Entrepreneurs need to think outside the box and develop innovative and unconventional strategies to succeed in a highly competitive market. One such strategy is to engage with customers on social media platforms and create a strong digital presence. Another effective technique is to leverage influencers to promote the brand and gain credibility. Additionally, entrepreneurs can use content marketing to provide valuable information to their target audience and establish themselves as experts in their field. Overall, entrepreneurial marketing strategies require creativity, adaptability, and a deep understanding of the target market to succeed in today's business landscape.

According to Morris et al. (2002), entrepreneurial marketing is the process of combining entrepreneurial behavior and strategic orientation with marketing concepts to establish and maintain customer relationships and value. Unique to entrepreneurial marketing strategies is their capability to adapt and respond to shifting market conditions, allowing businesses to create new opportunities and innovate. This adaptability makes entrepreneurial marketing an effective instrument for companies seeking to establish sustainable practices.

### **Sustainable Business Development**

The development of sustainable businesses demands a careful approach that involves multifaceted planning and execution. Generating profits whilst contributing to the environment and society's welfare is crucial in the business model creation. A comprehensive and long-term approach is needed to ensure that the business operations' impact is considered, not just financially, but also socially and environmentally. Sustainable business development requires the incorporation of innovative technologies and practices that lessen waste and emissions, conserve natural resources, and support social justice. By prioritizing sustainable business development, we are promoting a more equitable future that benefits all.

The idea of sustainable business development, defined by Elkington in 1997, involves integrating economic, social, and environmental considerations into corporate practices to achieve lasting growth and prosperity. It recognizes that businesses must assess the impact of their actions on society, the economy, and the environment to guarantee sustainable progress. An often-used TBL model evaluates sustainable business development by including the three elements of economics, society, and the environment (Elkington, 1997).

### **The Role of Entrepreneurial Marketing Strategies in Sustainable Business Development**

The implementation of entrepreneurial marketing strategies is pivotal in ensuring the longevity and prosperity of companies. It's an effective way to boost growth and meet both short and long-term goals. Entrepreneurs who adopt groundbreaking techniques that differ from conventional marketing practices can effortlessly captivate their desired audience and enhance brand recognition. Furthermore, it helps sustain businesses by keeping them abreast of emerging market trends. Therefore, for startups to develop sustainable businesses, it's imperative that they prioritize effective, customized marketing strategies.

To achieve lasting business development, it's essential that sustainability is integrated into business operations. One way to achieve this goal is through the implementation of entrepreneurial marketing strategies. According to Grybś-Kubica and Zatwarnicka-Madura (2020), this approach enables businesses to gain a competitive edge by adapting to evolving market trends and meeting consumer needs. Examples of these techniques include stakeholder engagement, market segmentation, and product innovation.

Entrepreneurial marketing strategies are a great way to boost sustainable business development. These techniques enable businesses to come up with pioneering and long-lasting goods that tackle environmental and social dilemmas. A sustainable product development approach means designing products that factor in environmental and social aspects, using resources efficiently, creating minimum waste, and enhancing the life of the product itself (Miles & Covin, 2000). Applying entrepreneurial marketing strategies in turn helps businesses pinpoint consumer demands, develop suits-all products, and promote sustainability.

## Methodology

Small green businesses require a specific skillset in entrepreneurial leadership to achieve sustainability. To uncover these competencies, we used a qualitative approach with in-depth interviews of small business founders currently overseeing their marketing strategies. The founders we spoke with did not delegate or use outside providers for marketing. Our research aims to identify the abilities necessary for entrepreneurs to create and implement sustainable marketing strategies that lead to positive environmental and social changes.

### Research approach

The study's methodology focused on qualitative research due to its ability to generate a profound comprehension of the phenomenon being examined. Rather than opting for a broad analysis, the study utilized in-depth interviews to collect copious amounts of data from small business founders. This allowed for an extensive investigation into the perspectives and experiences of these individuals. The approach perfectly suited the investigation of the aptitudes needed for entrepreneurial leadership geared toward sustainability, as it shed light on the precise behaviors, attitudes, and abilities wielded by small business founders that allowed them to design and execute sustainable marketing strategies.

### Research Sample

Green-minded business owners currently managing their own marketing efforts were selected as participants for this study, as it was important that the participants directly dealt with the intricacies of marketing strategy. The selection process used purposive sampling, which involves selecting individuals according to predetermined criteria. In this case, these criteria included businesses that prioritize environmental sustainability and have taken initiatives to lower their ecological footprint. The participants in the study have not yet entirely outsourced their marketing needs to third-party service providers.

In order to delve into the competencies needed for leading a small green business with sustainability as the focus, each participant was subjected to in-depth semi-structured interviews from which data was collected. Questions were derived from a literature review on competencies for sustainability-based entrepreneurial leadership, which were revised by pilot testing. Consent granted, audio recordings were made of the interviews, taking place either in person or online, depending on the participant's choice.

Using the methodology of thematic analysis, we transcribed and studied the interviews word-for-word. This helped identify trends and common themes that were present among participants. Instead of forcing themes onto the data, we chose to analyse them inductively so that they naturally arose from the data. By following this approach, we were able to understand the nuances of the skills necessary for eco-friendly business leadership on a small scale. The analysis comprised of numerous steps, such as acquainting ourselves with the data, coding, developing themes, and refining them. Afterward, the themes were reviewed and validated themes to confirm their accuracy.

The validity and reliability of data were carefully ensured through various methods. Literature on sustainability-oriented entrepreneurial leadership competencies was reviewed to develop interview questions that were relevant and appropriate for the research question. Standardization of interview conduct ensured that all participants were asked the same questions equally. A multiple-perspective approach to data analysis was taken, with several members of the research team reviewing and validating themes.

This study followed ethical principles and guidelines throughout the process. Participants were required to provide informed consent prior to their participation, and their privacy was carefully secured throughout.

## Results and Discussion

### Data analysis

Several eminent competencies vital for succeeding in the sustainable business environment were discovered through thorough interviews of small business owners running their green marketing strategies. The abilities identified included stakeholder participation, effective communication, adaptability, and strategic thinking.

Key stakeholders, such as customers, suppliers, and community members, were deemed crucial for a successful green marketing strategy. Participants stressed the significance of engaging them in both the development and implementation of marketing strategies since it ensured alignment with their needs



and expectations. By involving these individuals and entities in shaping the future actions, participants garnered support, and buy-in which proved to enhance the chances of their strategy's success. Thus, ability to communicate with stakeholders was found to be an imperative skill for developing sustainable marketing strategies.

The participants also identified the importance of strategic thinking as a key competency. This involved the capacity to take a long-term perspective and disregard immediate profits. From an ethical and pragmatic standpoint, participants acknowledged the significance of sustainability beyond attracting environmentally conscious consumers; it could also boost brand reputation. Alignment between sustainability objectives and the overall business strategy was noted to ensure an integrated approach permeated all business aspects.

Adaptability also emerged amongst the data analysis themes as a crucial trait for effective entrepreneurship. Amidst the ever-changing landscape of this field, it was imperative for entrepreneurs to possess the ability to adjust according to shifts in consumer preferences, market conditions, and regulations. To achieve this, they had to be open-minded towards new ideas, willing to take risks, and open to receiving feedback. It also necessitated a desire for experimentation.

Stakeholders were aware of the significance of effective communication, which was identified as the fourth essential skill. They acknowledge the need to communicate their sustainable objectives and successes to everyone such as customers, suppliers, investors, and staff. By effectively communicating, stakeholders were able to establish trust and credibility, and also improve their brand reputation and customer loyalty.

### **Discussion and implications**

Sustainable entrepreneurship requires a diverse skill set that includes effective communication, stakeholder engagement, strategic thinking, and adaptability. Studies done by Woolley & Hiatt (2019) and Henkel & Curley (2020) have previously identified these same competencies as necessary for sustainability-focused leadership. This reaffirms the importance of these skills in achieving successful entrepreneurship in sustainable business.

As policymakers and small business owners peruse these findings, they will undoubtedly be struck by their implications. Indeed, the insights gleaned from this study will likely have a profound impact on both groups. For small business owners in particular, learning about the importance of stakeholder engagement, strategic thinking, and other key capabilities can be invaluable for developing more effective marketing strategies and managing sustainable businesses. By taking these insights to heart, small business owners can position themselves for long-term success and growth.

To support sustainable business development, policymakers can utilize the findings as a guide. This could mean investing in various leadership development programs to assist small business owners to acquire required skills. They could also consider instituting regulations or incentives to encourage sustainability practices within small businesses marketing and daily operations.

A significant addition to the debate on how entrepreneurship relates to sustainable development has resulted from these valuable insights. In the face of current environmental and social challenges, it is imperative to herald the emergence of sustainable businesses. The study highlights how certain business strategies such as stakeholder engagement and strategic thinking contribute to the achievement of sustainable business development. As such, it behoves policymakers, practitioners, and researchers to delve more into the interconnectedness of entrepreneurship and sustainable development.

Sustainable business management relies heavily on researching the essential skills that evolve as the business world changes. Without ongoing research, it becomes difficult to identify crucial capabilities for effective leadership. Ultimately, sustainable businesses cannot grow without understanding the necessary skills. Continual research on sustainable business management can therefore lead to a better future for everyone.

### **Limitations**

It should be emphasized that this study is not without its drawbacks. Firstly, the number of participants was quite limited, only consisting of those employed in eco-friendly corporations. Consequently, the

discoveries may not be broadly applicable to alternate spheres or entities lacking an emphasis on ecological responsibility. Secondly, the data was gathered via extensive interrogations which might have been influenced by the individuals' biases and outlooks.

Including participants from diverse industries and increasing the sample size are ways to tackle the limitations of future research. Employing a range of methods, like case studies and surveys, can offer a deeper insight into the necessary skills for entrepreneurs focused on sustainability.

## **Conclusion**

For small business owners, policymakers, and anyone interested in sustainably developing entrepreneurship, this study presents essential competencies for leaders. Analyzing data has revealed stakeholder engagement, strategic thinking, creativity, and adaptability as particularly significant capabilities (Boons, Montalvo, Quist, & Wagner, 2013). These findings emphasize the importance of contemplating entrepreneurial leadership in the face of sustainable marketing strategies. To truly foster sustainability and contribute to its future, small business owners must first acknowledge the critical importance of certain skills. Through educating on policies that support sustainable business growth and providing better resources, we can empower these entrepreneurs to operate thriving enterprises that remain environmentally and socially sustainable over time (Shepherd & Patzelt, 2011).

In sustainable business development, entrepreneurial leadership competencies have been shown to be crucial in previous research by Henkel & Curley (2020) and Woolley & Hiatt (2019). Nonetheless, this study's unique contribution focuses on the significance of these competencies in creating sustainable marketing strategies for small green businesses. In the future, Lopez-Fernandez & Serrano-Bedia (2019) suggest exploring how these competencies relate to financial and social performance over a more extended period.

Small green businesses can attract like-minded customers and develop marketing strategies that align with their values by engaging stakeholders, thinking strategically, communicating effectively, and being creative. This emphasizes the imperative entrepreneurial leadership competencies for sustainable marketing strategies development (Osterwalder & Pigneur, 2010).

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## Gender Equality in and through Social Entrepreneurship in Ghana

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### Abstract

This article identifies key priorities and challenges that lie in the path of achieving gender equality targets, particularly in Ghana where there is poverty and limited knowledge about Social Entrepreneurship. Although a growing body of research emphasizes the role of women in Social Entrepreneurship in developing countries, gender inequality is still persistent.

In particular, we analyze the hindrances and implications of formalization policy for the attainment of SDG 5 in and through Social Entrepreneurship in Ghana. We also review Government policies, official documents, journals and propose solutions to government sector agencies and call attention to policy gaps with regard to the gender equality goals set by the international community and make recommendations for Ghana's formalization regulations.

**Keywords: Sustainable Development Goals, Policies, Gender Equality, Social Entrepreneurship, Ghana,**

### Introduction

Largely, women still face discrimination and inequality in Ghanaian society. This situation is still occurring decades after the first women's international conference and the United Nations Convention on the Elimination of all Forms of Discrimination against Women, as well as the Ghanaian Constitutional provisions of women's rights and equality.

Gender inequality is pervasive in many countries, including Ghana. Despite efforts to promote gender equality through various means, such as laws and policies, progress has been slow. Social entrepreneurship has emerged as a potential solution to address this issue. This literature review examines the role of social entrepreneurship in advancing gender equality in Ghana.

Social entrepreneurship provides a critical analysis of the intersecting factors of the inequalities that result from inherent gender roles and the power relations that exist in Ghana's social and cultural structures. These inequalities are the result of the lack of decision-making power, the lack of freedom of choice, the restricted mobility of girls, poverty, and cultural beliefs (Opare, 2015; Porter et al., 2011).

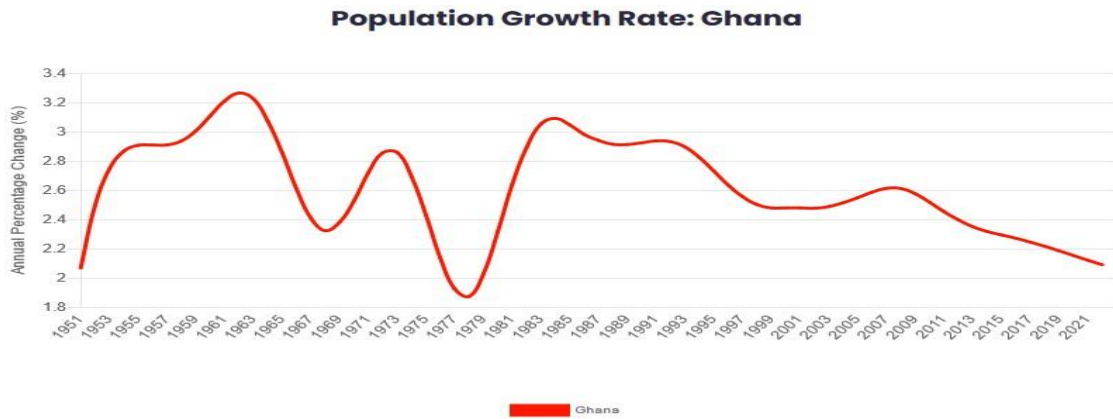
### Background of Ghana

According to the World Bank, the population of Ghana was estimated to be 31.5 million in 2021. The population of Ghana has been increasing steadily over the years, and it is projected to reach 47.5 million by 2050. The population growth rate of Ghana is 2.1%, which is slightly higher than the global average of 1.1%.

According to the World Bank, the female population of Ghana is slightly higher than the male population. As of 2021, the female population was estimated to be 50.6% of the total population, while the male population was estimated to be 49.4%. This trend has been consistent over the years, with the female population remaining slightly higher than the male population.

To provide a visual representation of the population and gender statistics of Ghana, I have created the following graphs:

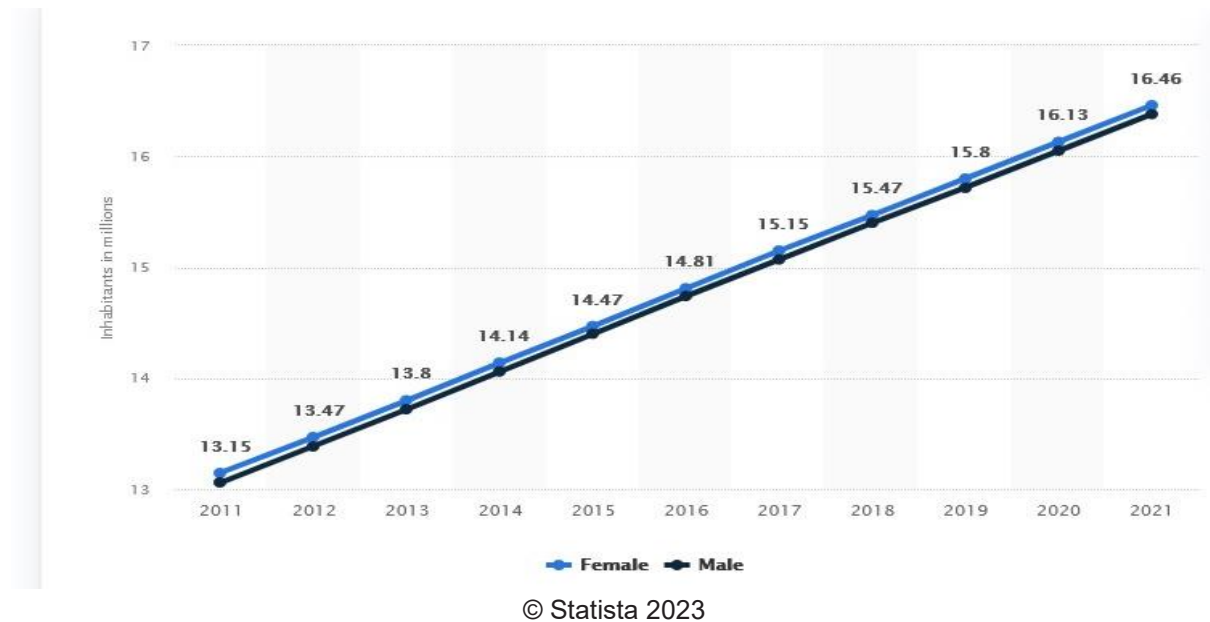
### Population Growth Rate of Ghana (1960-2020)



Source: World Economics & United Nations

The population of Ghana is estimated to be 32.4 million in 2022 using United Nations estimates. Ghana grew at 2.1% in the last year and is ranked the 14th most populated country in Africa, ahead of Madagascar.

### Population Distribution by Gender (2021) in millions



The above graph shows the population distribution by gender in Ghana as of 2021. As you can see, the female population is slightly higher than the male population, with females accounting for 50.6% of the total population.

These systemic challenges and implementation gaps in achieving gender equality, social protection and women empowerment answer the research question as to why, despite several efforts made by successive governments of Ghana, gender inequalities remain rooted in the social structure. Consequently, the next chapter demonstrates how these inequalities resulting from inherent gender roles and power relations limit and impede women and girls' access to education and healthcare facilities.

Socialisation; women are restricted from access to equal opportunities and resources such as land, credit, education and training opportunities due to the patriarchal social structure, systemic male domination and female subordination and socio-cultural and discriminatory institutions.

#### **Some of the specific challenges faced by women in Ghana include:**

1. **Education:** While the gender gap in primary education has largely been closed in Ghana, there is still a significant gap in secondary and tertiary education. According to the United Nations, only 37% of women in Ghana have access to secondary education, compared to 48% of men. Similarly, only 6% of women in Ghana have access to tertiary education, compared to 10% of men.
2. **Employment:** Women in Ghana face significant challenges in accessing formal employment opportunities, particularly in leadership positions. According to the Ghana Statistical Service, women make up only 36.4% of the formal workforce, and only 11.3% of top management positions are held by women.
3. **Political representation:** Women are severely underrepresented in political leadership positions in Ghana. In the 2020 parliamentary elections, only 13.9% of seats were held by women.
4. **Violence against women:** Gender-based violence is a significant issue in Ghana. According to the Ghana Statistical Service, 27% of women in Ghana have experienced physical violence at least once in their lifetime, and 13% have experienced sexual violence.
5. **Cultural and traditional beliefs:** As mentioned earlier, cultural and traditional beliefs in Ghana often perpetuate gender inequality. For example, some beliefs dictate that women should prioritize their roles as wives and mothers over pursuing education or career opportunities.

#### **Understanding Gender Roles**

This chapter analyses gender roles and power relations to provide the basis for the understanding of how gender as a system of power facilitates, constraints, determines and affects women's and girls' positions in society. However, it is important to make a distinction between gender and sex, which are usually interchangeably used, to understand the roles of gender in a family and society.

Zevallos (2014) describes gender as how society determines and manages sex categories, the cultural meanings attached to the roles of men and women, and how individuals perceive their identity as being a man, woman, or other gender positions. She further explains that gender involves social norms, attitudes, and activities that a given society considers appropriate for each sex.

Additionally, Newman and Grauerholz (2002) posit that gender is associated with masculinity and femininity and define sex as a biological classification of male and female. They also state that most people match sex and gender by assuming that if a person is male, he will be masculine, and if female, feminine; which is not usually the case. Importantly, they indicate that understanding the distinction and relatedness of gender and sex helps us realise that male and female behavioural differences do not automatically emanate from biological differences but are also socially constructed. Nevertheless, all behaviour is gendered or affected by gender.

Hence, how others treat us is determined by their beliefs about gender and vice-versa. This is evident in the example below. Beliefs about gender also determine people's position in the family, with others commanding more power based on their gender. Accordingly, the fate of a female child is determined right at birth, from the short sentence, "It is a girl!" This sentence changes everything for the child. Everyone treats the child in a stereotypical gendered manner. I will illustrate this with my personal experience.

The reason you can easily guess is simply due to the fact that who we are and how we think and behave are the final product of socialization. Society shapes us into the person it wants us to be, teaching us what is appropriate and inappropriate for both sexes, through gender roles (Crespi, 2004). These roles are attitudes and behaviours that are accepted by society and are usually stereotyped.

They are performed according to social norms and shared rules that provide guidance on how females and males should dress, talk, express emotions, work and socialise with others, in specific situations. Social norms determine the privileges and responsibilities of a status. In this case, the status of mother, father, daughter and son comes with specific roles (Lindsey, 2005). For example, the traditional gender roles position the man as the breadwinner of the family, who is expected to be aggressive and the

decision maker, while a woman is expected to be loving, nurturing, home-making, and submissive (Crespi, 2004).

Even though there have been some changes in these traditional roles (for example, women joining the labour market), these roles remain as guidelines for appropriate behaviour for both genders (Lindsey, 2005). Hence, it is essential to understand how these gender roles are acquired and maintained and recognise how they are ingrained in our social structures in such a way that they reinforce inequalities for women in various societies.

### Gender Stereotypes

A stereotype is a widely held and widely recognised association between a social group and an attribute(s). Stereotypes can be positive, negative, or neutral depending on the context in which they are being used; they can be derogatory, complementary, or indifferent (Fricker, 2007). However, stereotypes are mostly represented by the negative attributes that result in discrimination, stigmatisation, and inequalities. This often affects the vulnerable members of society, among them, women and the poor (Beeghly, 2014). Significantly, Blum (2004) describes stereotypes as rigid, false generalisations about a particular group.

From this description, Blum (2004) indicates what he calls bad stereotypes. Firstly, by not seeing members as individuals, all members of the group are considered alike and treated as such. Secondly, the internal diversity of group members is masked by stereotypes, such as seeing members of a given group through an attribute, for example, weakness in women. Drawing from Fricker (2007), this generalisation can present an injustice, especially when individual members of a stereotyped group are judged based on a stereotype that does not apply to all of them, considering that we usually use stereotypes to make credibility judgments of people.

For example, women being stereotyped as emotional or illogical puts them at risk of being denied the chance to make decisions or be in high job positions. Moreover, males and females are usually stereotyped based on the characteristics they are expected to possess due to their biological nature (Crespi, 2004). The matching of biological traits with stereotypical gender roles is particularly problematic for females, as they are usually stereotyped by traits which are meant to silence them by limiting their ability to make decisions and choices concerning their lives, family, and society at large. In affirmation, Lindsey (2005) states that negative stereotypes targeting females can result in sexism, the belief that the female status is inferior to the male.

This belief is perpetuated by systems of patriarchy, male-dominated social structures whose norms operate and have become the standard to which people adhere, throughout all social institutions. Sexism leads to the oppression of women and thus, the limitation of social and economic opportunities. Likewise, Manne, in her 2015 draft paper on misogyny, posits that patriarchal social structures and the ideology that governs them work to make women into men's attentive social subordinates and conceal many of the forms of dominance and power which men have over women. Thus, there is a general expectation that women will amicably function in social roles serving men's interests.

### Gender Power Relations

Gender is a social construct that society uses to organise itself (Cornell, 2009). It involves social interaction through which power relations exist. According to Foucault, a French philosopher (as cited in Balan, 2010), power relations exist between spouses, parents and children, employers and employees, as well as members of society and political institutions. These power relationships usually involve masculinity versus femininity, represented by male dominance and female subordination.

This is historically and culturally constructed through gender roles. Foucault also reasoned that power relations among members of society are intended for the political system to work (Balan, 2010). Gender power is not an exception. A patriarchal system, which is the majority of systems globally, will have men in possession of power. This is not something for which men fight women; it exists as a cultural norm that we are familiar with from our socialisation.

Gender power operates within social norms, which perpetuate the ideology of traditional gender roles and encourage negative stereotypes. This power disadvantages women by directly or indirectly limiting their opportunities. Likewise, Fricker (2007) states that power is our capacity to influence how society operates. It can be exercised actively or

passively by an agent or can be purely structural. When power operates through an agent, one party controls the actions of the other or others.

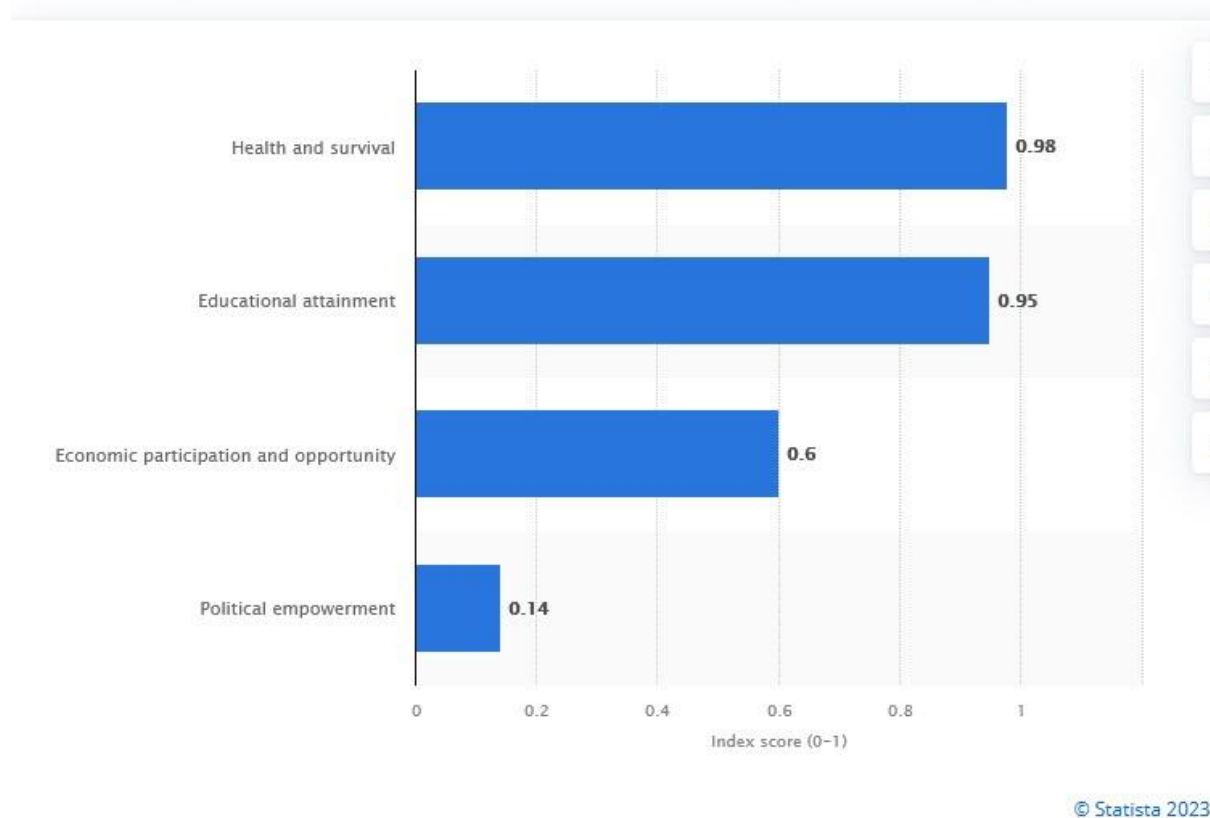
When purely structural, the aim is to create and maintain a given social order. Thus, this power may have no agent, but there is always a social group controlling actions (Fricker, 2007). For example, we can relate this to the power of gender roles: a woman is more likely to let a man make the final decision regarding a problem based on her gender-role knowledge of what action is expected of her in that particular situation. Undoubtedly, her conduct is based on the internalized social order (role) that has already been created and maintained.

The power relations in gender can also be seen in the agents of socialisation through their roles as instructors, reinforcers, and disseminators of gender-role knowledge (Lytton & Romney, 1991). However, this does not only involve the agents transmitting their knowledge of gender roles in coordination with their recipient; it also involves the whole social and cultural structure that governs these shared norms and values. Likewise, Fricker (2007) refers to Thomas Wartenberg's concept of social alignment, which indicates that the significance of social power is to effect social control, whether through an agent or purely structurally. His idea is that power is socially situated.

Thus, any power relationship depends on the coordination with social orders there as well as on the functioning of shared institutions, meaning, and expectations. In the same vein, Foucault's view is that power should be understood as a network of relations that encompass the whole society (Balan, 2010). Clearly, this chapter has brought us to an understanding impact of of the construction of gender roles regarding socialisation and power play. However, further implications of gender roles will be discussed within Ghanaian society.

Figure 2 presents data on the gender gap in labour force participation in Ghana, based on data from the World Economic Forum (2020). The graph shows that the gender gap has decreased over time but remains significant, indicating that women are still underrepresented in the labour force.

## Gender gap index in Ghana as of 2021, by category





## Entrepreneurship

Any definition of the term “social entrepreneurship” must start with the word entrepreneurship.” The word “social” simply modifies entrepreneurship. If entrepreneurship does not have a clear meaning, then modifying it with social will not accomplish much, either. Dess (1998) pointed out that the word entrepreneurship is a mixed blessing. On the positive side, it connotes a special, innate ability to sense and act on opportunity, combining out-of-the-box thinking with a unique brand of determination to create or bring about something new to the world. Joseph Schumpeter, a renowned economist described entrepreneurs as the innovators who drive the “creative-destructive” process of capitalism (Schumpeter, 1961).

According to Schumpeter, the function of entrepreneurs is to reform or revolutionize the pattern of production. Entrepreneurs can do this by exploiting an invention or, more generally, an untried technological possibility for producing a new commodity or producing an old one in a new way, by opening up a new source of supply. Although social entrepreneurship (SE) is an emerging field of academic inquiry, the phenomenon is not. Social entrepreneurs have always lived in communities, even if they have not been called by that name.

Social entrepreneurs originally built many of the institutions that are now taken for granted. The origins of social entrepreneurship may be traced to two different sources: that of income generation by a non-profit venture and, a more general interpretation that defines social entrepreneurship as a process that involved identifying, addressing and solving societal problems (Desa, 2007). Social entrepreneurs look for the most effective methods of serving their social missions.

## What is Social Entrepreneurship?

Schuyler (1998) describes social entrepreneurs as ‘individuals who have a vision for social change and who have the financial resources to support their ideas’. Thompson, Alvy and Lees (2000) describe social entrepreneurs as ‘people who realize where there is an opportunity to satisfy some unmet needs that the state welfare system will not or cannot meet, and who gather together the necessary resources (generally people, often volunteers, money and premises) and use these to “make a difference”’. One of the most frequently cited definitions of social entrepreneurship comes from Dees (2001).

Mair et al (2006) noted that this definition combines an emphasis on discipline and accountability with the notions of value creation taken from Say, innovation and change agents from Schumpeter, the pursuit of opportunity from Drucker, and resourcefulness from Stevenson. In brief, this definition can be stated as follows: Social entrepreneurs play the role of change agents in the social sector, by Adopting a mission to create and sustain social value (not just private value), Recognizing and relentlessly pursuing new opportunities to serve that mission, Engaging in a process of continuous innovation, adaptation and learning, Acting boldly without being limited by resources currently in hand, and Exhibiting heightened accountability to the constituencies served and for the outcomes created (Dees, 2001: 4).

Although social sector leaders will exemplify these characteristics in different ways and to different degrees, the closer a person gets to satisfying all these conditions, the more that person fits the model of a social entrepreneur (Ergul and Johnson, 2011). Those who are more innovative in their work and who create more significant social improvements will naturally be seen as more entrepreneurial. Wennekers and Thurik (1999) were emphatic that true Schumpeterian social entrepreneurs will significantly reform or revolutionize their industries. Each element in this brief definition (Dees, 2001) deserves some further elaboration. These elements are explained as follows:

Social entrepreneurs as change agents in the social sector: Dees (2001) acknowledges that social entrepreneurs are the reformers and revolutionaries as described by Schumpeter, but with a social mission. In other words, social entrepreneurs make fundamental changes in the way things are done in the social sector, and because their visions are bold, they attack the underlying causes of problems rather than simply treating the symptoms. Further, they seek to create systematic changes and sustainable improvements. Dees and Hass (1998) also added that social entrepreneurs may act locally, yet their actions have the potential to stimulate global improvements in a variety of areas – education, healthcare, economic development, the environment, arts, etc.

- Adopting a mission to create and sustain social value: According to Dees and Hass (1999), this attribute is the core of what distinguishes social entrepreneurs from business entrepreneurs even from socially responsible businesses. For a social entrepreneur, the social mission is fundamental. This is a mission of social improvement that cannot be reduced to creating private benefits (financial returns or consumption benefits) for individuals. Making a profit, creating

wealth, or serving the desires of customers may be part of the model, but these are means to a social end, not the end in itself

- Recognizing and relentlessly pursuing new opportunities: Dees (2001) further explained that where others see problems, entrepreneurs see opportunity. Social entrepreneurs are not simply driven by the perception of a social need or by their compassion, rather they have a vision of how to achieve improvement and they are determined to make their vision work. They are persistent.
- Engaging in a process of continuous innovation, adaptation, and learning, Entrepreneurs are innovative. They break new ground; develop new models and pioneer new approaches. Innovation can take many forms. It does not require inventing something wholly new; it can simply involve applying an existing idea in a new way or to a new situation. Dees and Hass (1998) explained further that entrepreneurs need not be inventors. They simply need to be creative in applying what others have invented.
- Their innovations may appear in how they structure their core programs or in how they assemble the resources and fund their work. On the funding side, social entrepreneurs look for innovative ways to assure that their ventures will have access to resources as long as they are creating social value (Dees 2001). This willingness to innovate is part of the *modus operandi* of entrepreneurs. It is not just a one-time burst of creativity. It is a continuous process of exploring, learning, and improving while taking into consideration the risk of failure. Entrepreneurs tend to have a high tolerance for ambiguity and learn how to manage risks for themselves and others. They treat the failure of a project as a learning experience, not a personal tragedy (Dees and Hass 1998).
- Acting boldly without being limited by resources currently in hand: Social entrepreneurs do not let their own limited resources be inimical to the pursuit of their vision. They are skilled at doing more with less and at attracting resources.

### **The Key Attributes of Social Entrepreneurs**

Some of the characteristics of entrepreneurs as outlined in the literature are attitudes, motivations, capabilities, skills, perspectives, behaviours and origins (Dees and Hass, 1999). It would be logical to do the same for social entrepreneurs, and some incipient efforts along this line have occurred in the literature. Mair et al (2006) observed that social entrepreneurs are one species in the genus entrepreneur. They are entrepreneurs with a social mission.

However, because of this mission, they face some distinctive challenges and any definition ought to reflect this. For social entrepreneurs, the social mission is explicit and central. This obviously affects how social entrepreneurs perceive and assess opportunities. Mission-related impact becomes the central criterion, not wealth creation.

Distinguishing between social entrepreneurs and business entrepreneurs, Dees and Hass (1999) argued that wealth is just a means to an end for social entrepreneurs. With business entrepreneurs, wealth creation is a way of measuring value creation. This is because business entrepreneurs are subject to market discipline, which determines in large part whether they are creating value. If they do not shift resources to more economically productive uses, they tend to be driven out of business.

Markets are not perfect, but over the long haul, social entrepreneurs work reasonably well as a test of private value creation, specifically the creation of value for customers who are willing and able to pay (Dees and Hass). An entrepreneur's ability to attract resources (capital, labour, equipment, etc.) in a competitive marketplace is a reasonably good indication that the venture represents a more productive use of these resources than the alternatives it is competing against. The logic is simple.

According to Johnson (2000), social entrepreneurs who can pay the most for resources are typically the ones who can put the resources to higher-valued uses, as determined in the marketplace. Markets do not work as well for social entrepreneurs. In particular, markets do not do a good job of valuing social improvements, public goods and harms, and benefits for people who cannot afford to pay. These elements are often essential to social entrepreneurship. That is what makes it social entrepreneurship. The reasons behind the popularity of social entrepreneurship are many. On the most basic level, there's something inherently interesting and appealing about social entrepreneurs and the stories of why and how they do what they do. People are attracted to social entrepreneurs like Nobel Peace Prize laureate Muhammad Yunus for many of the same reasons that they find business entrepreneurs like Steve Jobs so compelling – these extraordinary people come up with brilliant ideas and against all the odds succeed at creating new products and services that dramatically improve people's lives (Martin and Osberg, 2007).

In relation to studies examining the hospitality and tourism industries, there are several articles on corporate social responsibility. Holcomb, Upchurch, and Okumus (2007) revealed that eight (8) out of the top ten (10) hotel companies reported socially responsible activities relating to some form of charitable donation. The authors also noted that hotel corporations reported on five major areas: Globally, Social Entrepreneurs are increasingly becoming solutions to complex social problems in economies. The innovative enterprises they create are fast becoming highly sought economic enterprises by many developing economies due to their numerous social and economic benefits.

Women's participation in this sector has also attracted attention in recent times as it can potentially challenge gender norms and offer new role models. In a recent study by the British Council in Ghana (2021), 39% of women in entrepreneurship were identified to be social entrepreneurs. Social entrepreneurship has been defined as entrepreneurial activities that tackle social and environmental problems; create jobs and generate income like other businesses, but instead of channelling their profits to owners, they reinvest them to support their social mission, thereby improving people's lives in our communities and societies (British Council, 2021).

Many of these women social entrepreneurs have been found to operate in the education sector in Ghana (36%) whilst only 1% operate in the construction industry of Ghana's economy. The rather low proportion of women in social entrepreneurship produces a vicious cycle of gender equality. This is because the scenario tends to give men a significant household income urge, further widening the gap in decision-making power, including the decision to participate in social entrepreneurship (Bymolt et al, 2018). This, in turn, tends to further marginalize women and increase their vulnerabilities and disadvantages.

Unless this patriarchal system is curbed, the achievement of the seventh target of the 5th Sustainable Development Goal (SDG 5.7) will be farfetched. SDG 5.7 enjoins nations to "undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws" (UNDP, 2021). The United Nations Development Report (2021) found that more females are in the labour market today than ever as compared with their male counterparts. It further recognizes that huge inequalities still exist in some geographies and industries, including the construction industry. In acts, the global picture of gender inequality in entrepreneurship is a fundamental cause of inequality in many other aspects of life (Price et al, 2019).

In 2015, all the United Nations Member States adopted the SDGs with the main objectives of ending poverty, protecting the planet and ensuring that everyone enjoys prosperity and peace by 2030 (UNDP, 2021). The SDG agenda articulated 17 Sustainable Development Goals (SDGs). Gender equality (SDG 5) has the potential of achieving some of the other Sustainable Development Goals.

Food security, for instance, is one target under the Sustainable Development Goal that Gender Equality has the potential of achieving (Agarwal, 2018). A goat-rearing project by women in Zambia funded by the United Nations Development Program shows that such investments can turn poor, marginalized, and malnourished women and their families into economically self-reliant, well-nourished, and resilient women while also improving food security in their communities (Zanga, 2021).

This is proof that investments that aim at breaking the barriers that inhibit the progress of women towards their economic ambitions, which equip them with valuable skills for economic empowerment, can yield profitable results, not only for the women but also for the communities in which they live and grow.

The McKinsey Global Institute (2015) indicated that the potential gain for South-Saharan Africa in addressing the gender gap by 2025 is an estimated additional 12-27% of GDP. In sum, gender inequality will remain a great challenge for Africa, and the continent would benefit by focusing on the economic opportunities arising from improving parity between women and men (African Development Report, 2015). The question, therefore, is what Africa should do to rectify its development path and make economic development more inclusive.

The African development report (2015) concluded that a new development trajectory should enable Africa to provide decent jobs, including, in particular, to the majority of the youth and women, Studies (Adeyemi et al 2006; Adogbo et al 2015) have identified barriers inhibiting women's entry into the construction industry in developing economies. These include mainly sociocultural barriers.

The lack of access to support and advisory services has also proven to be a challenge for women social entrepreneurs among numerous others such as obtaining grant funding, capital (debt-equity), and the

shortage of critical technical skills. This chapter, therefore, explores women's social entrepreneurship in the construction industry in Ghana focusing on four major areas: the background of these women, their achievements as well as the challenges encountered. It also proposes key areas scholarly and practitioners' discussion on women's social entrepreneurship should focus on.

### **Contributions to the realization of SDGs**

Furthermore, the successes of these women social entrepreneurs were measured based on the extent to which they have contributed to addressing social problems and the realization of the Sustainable Development Goals. Questions were therefore asked to elicit responses to that effect. It was evident from the study that the achievement of these women contributed towards attaining the SDGs. These findings are in sync with the findings of a study by Plewnia and Guenther (2018) which indicated that social entrepreneurship is considered to be a contributor to sustainable development.

### **Access to Education and Healthcare Facilities in Northern Ghana**

The concept of social entrepreneurship has been widely reported in the mass media and is seen as an emerging discipline within many business schools. According to Austin, Stevenson, and Wei-Skillern (2006) social entrepreneurship is innovative, a social value-creating activity that can occur within or across the non-profit, business, and public sectors.

Entrepreneurship is a creative process that pursues an opportunity to produce something new. Replicating an existing organization, activity, or process is an important managerial activity, but unless it brings an important new dimension or element, it is not very entrepreneurial. The second key element is social value creation. This is the fundamental dimension differentiating social entrepreneurship from commercial entrepreneurship (Austin et al, 2006). While both forms are socially valuable, generating social value is the explicit, central driving purpose and force for social entrepreneurship.

Social entrepreneurship transcends sectors and organizational forms. It can occur in all sectors and their collaborative interactions. For social entrepreneurs, the value is found in the form of large-scale transformational benefit that affects either sector of society or society at large. In terms of personal characteristics, social entrepreneurs may be described as visionary change-makers who implement innovative ways of addressing pressing social problems (Grenier, 2007).

Social entrepreneurship signals the imperative to drive social change, and it is that potential payoff, with its lasting, transformational benefit to society, that sets the field and its practitioners apart. Social entrepreneurship, as a practice and a field for scholarly investigation, provides a unique opportunity to challenge, question, and rethink concepts and assumptions from different fields of management and business research. Social entrepreneurship is seen as differing from other forms of entrepreneurship in the relatively higher priority given to promoting social value and development versus capturing economic value. While there are many possible definitions that have been set forth in the early literature, the foregoing definitions have the fundamental virtue of creating a broad umbrella for this study on social entrepreneurship.

The empowerment of women is critical to sustainable development and the achievement of the United Nations' Sustainable Development Goals (SDGs). In Ghana, social entrepreneurship has emerged as a promising tool for promoting gender equality and women's economic empowerment. This literature review examines the role of social entrepreneurship in advancing gender equality in Ghana, with a specific focus on SDG 5: Achieving Gender Equality and Empowering all Women and Girls.

Gender equality is a crucial issue in social entrepreneurship, especially in developing countries like Ghana, where women constitute a significant portion of the population. This literature review explores the state of gender equality in social entrepreneurship in Ghana, including the challenges women face and the initiatives in place to address them.

Social entrepreneurship has been recognized as a potential catalyst for advancing gender equality in Ghana. This literature review examines the role of social entrepreneurship in advancing gender equality in Ghana, with a particular focus on the contributions made by social entrepreneurs to promote gender equality in the country.

Several studies have examined the role of social entrepreneurship in promoting gender equality in Ghana. A study by Appiah-Sekyere and Amponsah-Tawiah (2021) identified social entrepreneurship as a key driver of women's economic empowerment in Ghana. The study found that social entrepreneurship initiatives have led to increased access to finance and resources for women, as well as the creation of new economic opportunities for women entrepreneurs.

Studies have shown that social entrepreneurship can provide opportunities for women to break out of traditional gender roles and contribute to their families and communities. A study by Nti et al. (2018) found that social entrepreneurship can empower women and reduce gender inequality in Ghana. The study showed that female entrepreneurs in the social sector have the potential to challenge gender stereotypes and create more equitable social structures.

Furthermore, research by Adjei et al. (2020) highlights the importance of social entrepreneurship in improving the livelihoods of women in Ghana. The study found that women who engaged in social entrepreneurship reported improved economic outcomes and greater decision-making power within their households. This suggests that social entrepreneurship can be a powerful tool for promoting gender equality and empowering women to take control of their own economic futures.

Additionally, a study by Owusu-Ansah and Oduro-Kwarteng (2020) explored the role of social entrepreneurship in promoting gender equality in the agricultural sector in Ghana. The study found that social entrepreneurship initiatives have contributed to increased participation of women in the agricultural sector, as well as improved access to resources and markets for women farmers.

### **Overview of Women in Social Entrepreneurship in Ghana**

Ghana has a vibrant and growing social entrepreneurship sector, with many women playing a crucial role in driving innovation and social change. According to a report by the British Council, women constitute 38% of social entrepreneurs in Ghana, a higher percentage than in many other countries. These women are working on a wide range of issues, from education and health to agriculture and environmental sustainability. Many are focused on creating solutions that benefit underserved communities and marginalized groups. Despite the many challenges facing social entrepreneurs in Ghana, including limited funding and a difficult regulatory environment, women continue to make important contributions to the sector.

### **Conclusion/Recommendations:**

Overall, the literature suggests that social entrepreneurship has great potential for advancing gender equality and empowering women in Ghana. By providing opportunities for women to break out of traditional gender roles, challenge gender stereotypes, and create more equitable social structures, social entrepreneurship can play a significant role in achieving SDG 5. Moving forward, it is important for policymakers and stakeholders to continue to support and promote social entrepreneurship as a means of promoting gender equality and women's economic empowerment in Ghana.

This may help the concept to gain wider recognition to inspire more social entrepreneurs regardless of the industry in which they operate to identify effective methods of solving societal problems. However, the gender gap in self-employment and labour force participation remains significant, highlighting the need for continued efforts to promote gender equality through social entrepreneurship and other means.

### **It is therefore recommended that:**

- Society, institutions, and governments should play key roles in encouraging women to venture into male-dominated sectors.
- Professional bodies should organize periodic workshops and seminars to address issues in male-dominated industries to encourage females. This will provide opportunities for mentoring, networking, and professional development that would lead to the entry and retention of women in this male-dominated industry.
- Traditional beliefs especially on access to land that is detrimental to women should be abolished.
- Structures that support, advise, finance, identify markets and provide information should also, be considered and put in place. Providing these structures is capital-intensive and the time involved therefore difficult for private individuals to provide. Therefore, the duty of the government is to put in place structures to make the transition easier and more enjoyable for women. These structures will also benefit women in other male-dominated sectors and encourage more women to become social entrepreneurs.
- Incentives could also be considered to get more women to enter the construction industry.
- A few women could therefore form a business that is all female-dominated to demonstrate what they can do. These partnerships can equally make a conscious effort to sensitize and encourage young females about the prospects and opportunities in the field while contributing their quota so social development.

### **Future research directions.**

1. The impact of gender quotas on corporate leadership and business performance.
2. The role of intersectionality in promoting gender equality in the workplace.
3. The effects of parental leave policies on gender equality and work-family balance.
4. The impact of gender stereotypes on career aspirations and job satisfaction.
5. The effectiveness of training programs in promoting gender equality in the workplace.
6. The impact of gender diversity on team performance and innovation.
7. The role of social media in perpetuating or challenging gender stereotypes and bias.

Addressing these challenges will require a concerted effort from both the government and civil society. This may involve policies that promote gender equality, education and awareness campaigns, and efforts to address violence against women.

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## Tenants' Green Office Leasing Trends: an Exploratory Study of Budapest, Hungary

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### Abstract

Similarly to the international trends, tenant interest in green-certified office buildings has grown dramatically in Budapest in the past decade. By investigating the types of tenants who opt to lease office space in green-certified buildings in the Hungarian capital, this study aims to close a research gap. With using a mixed research method, results show that most of the green-certified office leasing transactions in Budapest between 2018-2022 were signed by tenants from IT, governmental and banking & finance sectors. Main reasons behind leasing green space are reputation, employee well-being and in the case of multinational companies, sustainability requirements from the parent company.

**Keywords:** green office market, tenant preferences, Hungary, green certification, office buildings

### Introduction

Making a balance between environmental, social, and economic development for both the present and the future can be characterized as the core idea of sustainability. Interest in sustainable development has increased over the past few decades in many nations due to growing environmental concerns in the building and construction industry. The idea of what "sustainability" entails is open to various, complex interpretations and perspectives, which alter over time and vary between different societies as well as countries (Bassen et al., 2011). There are more than 500 definitions of "sustainability" that are now in use (McNamara et al., 2008), and there is a lack of uniformity in what the term means to people who work in the built environment (Wilkinson et al., 2012). However, most interpretations are based on the Brundtland report's (1987) definition, which takes into account the social, economic, and environmental costs of development, or the so-called "triple bottom line" (TBL) (Elkington, 2013). The global real estate market has been actively responding to the demand for not only environmentally progressive buildings, but also for buildings that play a key role in occupier, investor, and developer strategies within a wider political agenda, in line with the expansion of how "sustainability" is defined and applied.

Improving building energy efficiency is a key priority for the European Union (EU) in its efforts to combat climate change and reduce greenhouse gas emissions. Buildings are responsible for around 40% of the EU's energy consumption (Brown & Markusson, 2019), and improving their energy efficiency can help to reduce energy consumption and save money for building owners and occupants.

The United Nations (UN) also set of 17 Sustainable Development Goals (SDGs) that aim to promote sustainable development and end poverty, protect the planet, and ensure prosperity for all. Sustainable Development Goal 11 is focused on creating sustainable cities and communities. The goal aims to make cities and human settlements safe, resilient, and sustainable, and to ensure that everyone has access to basic services and infrastructure. This strongly connects to the office markets all over the world. As environmental, social, and governance (ESG) obligations gain importance for both organizations and investors, office stock is being reevaluated in cities all over the world. Several fundamental dimensions demonstrate the growing interest in green building issues (Gluszak et al., 2021). Therefore, attention should be placed on the advancement of the focused research in this area being conducted by scientists from many regions of the world (P. Eichholtz et al., 2013; Maskil-Leitan et al., 2020; Plebankiewicz et al., 2019; Xie et al., 2020) who represent a variety of scientific disciplines, including as economics, psychology, engineering, and management.

The main elements that influence whether tenants choose to lease office space in green buildings or not and whether they are willing to pay more for them are usually unknown, especially those connected to the symbolic value of green buildings (Kim et al., 2017b). In addition, in the case of Hungary, no research was made until this time regarding the tenant preferences of green-certified office buildings that tried to answer the question: why do tenants prefer green-certified office buildings, if they do so? This study aims to close this research gap.

## Literature review

The office market in Europe is diverse and dynamic, with different trends and patterns emerging in different countries and regions. Demand for office space is driven by technology and innovation hubs (Tuzcuoğlu et al., 2022). Many European cities have become centers of innovation and entrepreneurship, attracting technology and creative companies that require flexible, modern workspaces.

Coworking and flexible office space is on the rise, as the popularity of coworking spaces has been growing in Europe over the past few years, as startups, freelancers, and small businesses seek affordable and flexible office space (Appel-Meulenbroek et al., 2019; Kojo & Nenonen, 2017; Snihur, 2017). Furthermore, sustainability and wellness are becoming more important. As awareness of the environmental impact of buildings grows, companies are increasingly seeking office space that is energy-efficient and environmentally friendly (Kim & Lim, 2020). There is also a growing focus on promoting employee wellness through features such as natural lighting, green spaces, and fitness facilities (McArthur et al., 2015). Sustainable office buildings, also referred to as green office buildings, work to reduce any negative effects on both human health and the environment. They attain this by making efficient use of energy, water, and other natural resources, protecting occupant health while boosting productivity and well-being, being mindful of the community and the building's surroundings, and minimizing waste, pollution, and environmental deterioration. With the help of legislative and normative regulation changes (primarily brought on by the 2010/31/EU Energy Performance directive in the countries of the European Union), these buildings reflect not only the suggestion for cost reduction but also the requirement for a sustainable development from tenants and investors (Adamuščin et al., 2014). Around the world, there are various definitions and categories for "green buildings" (Reed et al., 2009). The first program for green building certification was called BREEAM (British Research Establishment Environmental Assessment Method), and it started in the UK in 1990. Other programs with BREEAM adaptations were implemented in South America, China, and other regions of Europe. The main green certification program established in 1994 in North America is called LEED (Leadership in Environmental and Energy Design). Other noteworthy examples include GBTool in South Africa, DGNB in Germany, HQE in France, and Green Star in Australia (Oyedokun et al., 2015). Green building certification methods are centered on the monitoring of environmental factors like energy, land, water, and materials (Doan et al., 2017). These offer the real estate industry more realistic and reasonably priced measurements than other systems known as sustainable building rating systems, which supports the argument that the term sustainability should be used instead of "green" (Berardi, 2013). Although DGNB and HQE have achieved some level of success internationally, LEED and BREEAM are said to be the two that are most widely used. While not used in the EU, the Comprehensive Assessment System for Built Environment Efficiency (CASBEE) and GREEN STAR have international counterparts and are widely utilized in other areas outside the EU (Bernardi et al., 2017).

COVID-19 has accelerated some existing trends. The pandemic has led to an increase in remote work, but it has also highlighted the importance of flexible and adaptable office space. While there will always be some degree of uncertainty regarding what is being referred to as "a return to the office," there is increasing evidence that the pre-COVID-19 workplace has changed irrevocably for a variety of good reasons that are backed by a sizable number of employers and employees (Barrero et al., 2020; Beck & Hensher, 2022). Many companies are now looking for office space that can accommodate hybrid work models, with a mix of in-person and remote work (Hensher et al., 2023).

This brings the pricing issue more into the focus. Location, height, age, and other tangible building characteristics are frequently used to determine office building leasing pricing, also in the case of green buildings. In the past decade, there has been an ongoing debate regarding the topic of the so-called green premium in the global real estate market.

Numerous researchers, such as Sayce et al. (Sayce et al., 2007) claim that there is no correlation between a property's sustainability features and a higher rent or sales price. On the other hand, several studies on commercial buildings show that energy labels and green building certification have a positive impact on rental levels, occupancy rates, and transaction prices (Clayton et al., 2021; P. Eichholtz et al., 2010, 2013; Fuerst & McAllister, 2011).

Furthermore, several studies discovered that green office buildings do command a higher rental price than the equivalent non-green office buildings using regression analysis in conjunction with other methodologies. The meta-analysis findings of Kim et al. confirm that factors like certification, location, building characteristics, and lease contract provisions have a significant impact on green buildings' rental rates (Kim et al., 2017a). The green premium is a term used to describe the additional cost that can be associated with designing, constructing, and operating a building to meet environmental sustainability standards. While green buildings are designed to be more energy-efficient and environmentally responsible, they often require additional investment in materials, technology, and

design (Onishi et al., 2021). This additional investment can lead to higher construction and operating costs compared to conventional buildings. However, green buildings can also provide significant long-term cost savings through reduced energy and water usage, as well as lower maintenance costs (Li et al., 2021; Mangialardo et al., 2019; Porumb et al., 2020; Wadu Mesthrige & Chan, 2019).

The level of green premium can vary depending on a number of factors, including the building's location, size, and design, as well as the level of certification sought. For example, a LEED Platinum-certified building may require a higher investment than a LEED Certified building due to the increased number of sustainable design features required (Gluszak et al., 2021; Singh et al., 2011). According to Bond and Devine, a building's environmental certification attracts a 4% premium (Bond & Devine, 2016). According to a research from 2014, tenants of green office buildings pay about 20% more in rent than tenants of non-green buildings in the same neighborhood (Chegut et al., 2014).

Furthermore, according to Fuerst and McAllister (Fuerst & McAllister, 2011), certification results in a 2% increase in building costs. Dwaikat and Ali (Dwaikat & Ali, 2016) tested 13 building projects, and for 12 out of the 13 projects, the cost premium for green buildings varied between 0.4% and 21%. Out of the 13 projects, only 5 had a cost premium between 0% and 5%. Even yet, the 13th project in their research had a 46% cost premium.

While the green premium can be a barrier for some developers or tenants, many see it as a worthwhile investment in the long-term benefits of sustainability, including energy and cost savings, enhanced reputation, and improved health and well-being of building occupants (Abbaszadeh et al., 2006; Huizenga et al., 2006).

Many tenants today have a strong preference for green office spaces and are willing to pay a premium for buildings that are designed and operated with environmental sustainability in mind. Based on the available literature, main reasons why tenants prefer green office spaces include environmental responsibility, health and wellness benefits, long term cost savings, corporate social responsibility, employee recruitment and retention reasons and reputation (Gluszak et al., 2019; Kim et al., 2017b, 2019; S. Robinson et al., 2016; S. J. Robinson & Simons, 2019; Wilkinson et al., 2012).

Based on Kim et al. (Kim et al., 2017b), in the past decade the tenants' choices were influenced by a variety of push and pull factors. Tenants were drawn to green buildings over their non-green counterparts by a variety of financial and non-financial benefits (such as increased productivity, a better corporate image, and energy cost savings), as well as by regulatory requirements like building codes and environmental legislation. Based on the results, while tenants desired to benefit from living in "green" spaces, barriers like perceived higher initial costs made them hesitant to choose green buildings (Kim et al., 2017b).

In line with a green or sustainable company philosophy, many tenants of commercial buildings also view buildings as venues to promote their environmental stance. Beyond the tenants' direct corporate profit, corporate social responsibility (CSR) policies can encourage tenants to reap social benefits from green buildings (P. Eichholtz et al., 2009).

Other studies stated that the ability to attract investors more quickly and at higher market rates may be made possible for businesses by leasing green office space (Milgrom & Roberts, 1986). According to several empirical studies, businesses with a strong commitment to the environment are able to achieve higher credit ratings, which lowers the cost of borrowing (Bassen et al., 2011). Additionally, there is evidence that these companies may have a reduced implied cost of equity (Barnea et al., 2005).

The types of companies that are most active on the office leasing market vary depending on the location and economic conditions of the region. Generally, the largest occupiers of office space are companies in the financial services, technology, professional services, and healthcare sectors. These industries tend to have a high demand for office space due to the nature of their operations, and the need for highly skilled and specialized employees (Nowak, 2020).

In financial services, companies such as banks, insurance companies, and investment firms often require large and centrally located office spaces to accommodate their operations (Celka, 2011). Similarly, technology companies such as software developers, hardware manufacturers, and internet-based businesses often require modern and flexible office spaces with high-speed internet access and advanced technological infrastructure (Appel-Meulenbroek et al., 2019).

Professional services firms such as law firms, consulting firms, and accounting firms also tend to be active in the office leasing market. These companies often require well-designed and professional-looking office spaces to project a positive image to their clients (Lee et al., 2017).

The empirical findings also demonstrate that renting green office space is quite common among governmental and government-affiliated organizations, for whom non-financial usefulness may be more significant (P. M. A. Eichholtz et al., 2011).

Finally, healthcare companies, including hospitals, medical clinics, and pharmaceutical companies, also require significant office space to support their operations, research and development, and administrative functions (Miller, 2014).

Overall, these sectors are often the most active on the office leasing market due to their need for high-quality office spaces to support their operations and their highly specialized workforce.

Based on the international literature, office users' preferences are diverse. According to Remøy and van der Voordt (Remøy & van der Voordt, 2014) and Adnan et al. (Adnan et al., 2015), preferences for the building's location and amenities can differ depending on the industry sector—for example, IT, oil and gas, art and media firms, or banking and financial services. Cultural, climatic, and geographic considerations can all be implicated in variations in office user preferences. Previous research indicates a considerable variance in expectations for and perceptions of office quality across various property market sectors, such as agents and tenants (Leishman et al., 2003). Based on the results of Rymarzak and Siemińska (Rymarzak & Siemińska, 2012), the number of factors that influence tenants' and users' decisions about where to locate their offices can be grouped into three general categories: location, accessibility, and neighborhood; office building attributes; and lease agreement clauses and conditions.

Based on the available literature, the types of companies that are most active on the green office market are those that prioritize sustainability and environmental responsibility in their operations (P. Eichholtz et al., 2009; Mudjiyanti et al., 2020). Typically, these are companies that are committed to reducing their carbon footprint, increasing energy efficiency, and promoting a healthy and sustainable workplace for their employees. Many of these companies operate in sectors such as technology, finance, and professional services, which are often at the forefront of sustainable business practices (Bansal & Roth, 2000; P. Eichholtz et al., 2009, 2011; Simons et al., 2014). However, there is also growing interest in green office spaces among companies in other sectors, as sustainability becomes an increasingly important issue for businesses and their customers.

## Methodology

As more than 95% of the modern office stock of Hungary is concentrated in the capital, it is a logical conclusion to examine the office market of Budapest in the case of the country. The main goal of this research was to answer the following questions:

- How many leasing transactions were signed in green-certified offices in Budapest in the past 5 years compared to traditional office buildings?
- What are the main reasons behind choosing green-certified office buildings by the tenants?
- What kind of tenants sign the largest amount of leasing contracts in green-certified office buildings in Budapest?

The economic literature has discussed factors affecting office tenants' decisions. Prior research has combined qualitative and quantitative techniques. While the latter covers a wide range of analytical techniques, such as multi-criteria decision making (MCDM) methods (Adnan et al., 2015) or conjoint experiments (Gluszak & Zięba, 2016), the former includes in-depth interviews, the Delphi method and statistical analyses (Adnan & Daud, 2010; Ho et al., 2005).

Based on the previous experiences and literature review, a mixed method research was chosen for this study. Mixed method research refers to a research approach that combines both quantitative and qualitative research methods to collect and analyze data. This approach allows researchers to gain a more comprehensive understanding of a research problem or question by using multiple methods to investigate different aspects of the issue (Johnson & Onwuegbuzie, 2007). Mixed method research can also help researchers to overcome some of the limitations of each method, such as the potential for bias in qualitative research or the limited scope of quantitative research (Timans et al., 2019).

Within the framework of this research, a detailed statistical analysis was made by using Budapest office market data from 2018 to 2022 with nearly 3,000 office leasing transactions, collected from the Budapest Research Forum (BRF), office market agents, landlords, the Hungarian Green Building Council (HuGBC) and real estate asset managers.

Based on the results of the statistical analysis, six interviews were made with the key lease decision-makers from top 'green-renting' industries to get some clarification regarding their office preferences.

## Findings

Based on the statistical database, the following table shows the general, modern office market<sup>1</sup> data of Budapest between 2018 and 2022:

**Table 1. General office market data of Budapest between 2018-2022**

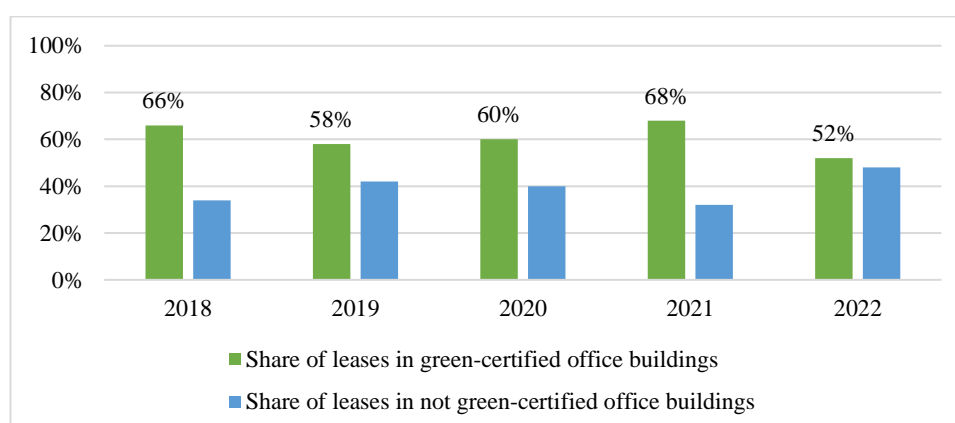
Year	Size of the total office stock	Vacancy rate of the office market	Share of green certified buildings in the office market	Total leasing transaction volume
2018	3 628 105 sq m	7.3%	33%	535 562 sq m
2019	3 693 044 sq m	6.7%	34%	637 117 sq m
2020	3 903 841 sq m	9.1%	39%	334 703 sq m
2021	3 955 566 sq m	9.2 %	39%	365 776 sq m
2022	4 251 574 sq m	11.3 %	40%	391 671 sq m

*Source:* Own work based on the data of Budapest Research Forum (BRF) and Hungarian Green Building Council (HuGBC)

As Table 1 shows, the size of the total office stock of Budapest grew by 17% in the past five years. On the other hand, the share of green certified buildings in the total stock increased by 7% between 2018 and 2022 and ended up at 40% at the end of 2022.

In 2019, the vacancy rate of the Budapest office market decreased to 6.7%, which was a record low level from the past 10 years, however between 2020 and 2022, the share of vacant space in the office market was continually increasing to 11.3% at the end of 2022. The past years' economic and pandemic turbulences made an impact on the volume of leasing transactions as well. The annual total leasing activity fell back almost by 50% in 2020 compared to 2019, and although it started to a slow, moderate decrease, it reached still only 391 671 sq m at the end of 2022.

Figure 1. Share of leases in green-certified office buildings between 2018-2022

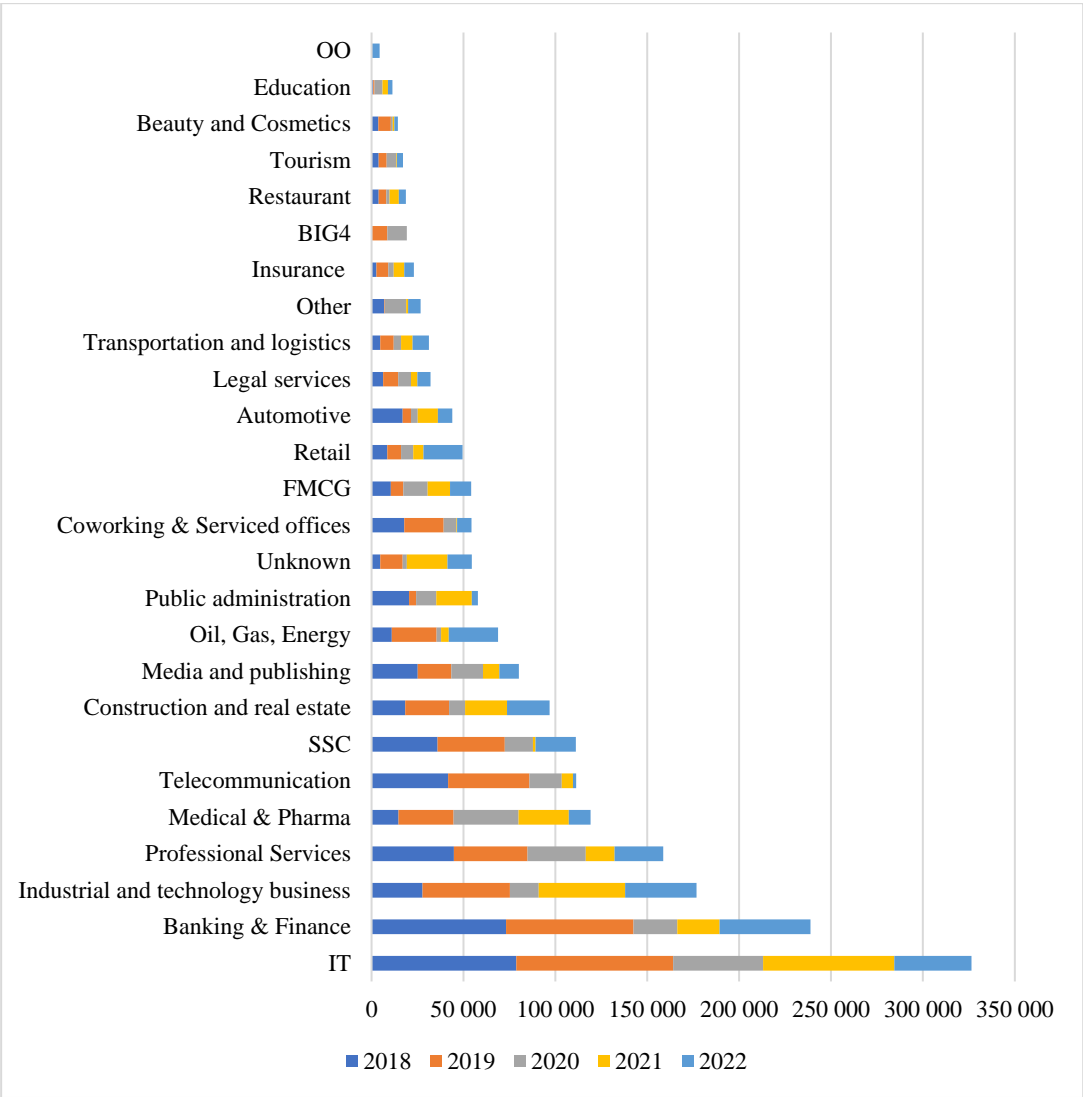


*Source:* Own work based on the data of Budapest Research Forum (BRF) and Hungarian Green Building Council (HuGBC)

<sup>1</sup> Including the data of all Class 'A' and Class 'B' office buildings

Based on the result of the statistical analysis, 61% of lease agreements between 2018-2022 were signed in green-certified office buildings in Budapest. This clearly shows that green certified offices are popular among tenants. Furthermore, Figure 1 shows that in the past 5 years, the share of green-certified office building leasing transactions were always higher than the share of general, not certified-building leasing transactions. Even during the years of COVID, the share of leasing transactions in green-certified office assets were increasing, and in 2021, it reached an all-time high level at 68%. The year of 2022, when the energy crisis and the Ukrainian war has started, was the first time in 5 years, when the share of leasing transactions in green-certified office buildings decreased, and the share of non-green building leasing transactions increased. However, their share was still higher than the non-certified transactions', as it was responsible for 52% of the total leasing activity in 2022. Based on the statistical database it was possible to identify, what kinds of companies are the most active on the office leasing market.

Figure 2. Leasing transactions by type of companies between 2018 and 2022



Source: Own work

Figure 2 shows the leasing transaction volumes in 2018-2022 categorized by type of companies in the competitive sector. Based on the data, most of the green-certified leasing transactions were signed by the IT (14%), banking & finance (11%) and industrial & technology sectors (8%). The least green-renting market actors on the Hungarian market are the owner-occupied ('OO', meaning the headquarters buildings), the education and the beauty and cosmetics sectors. These three sectors' green-certified building leasing transactions did not reach 10 000 square meters in the past 5 years in Budapest.

On the other hand, IT and other technology companies are often at the forefront of the green office market, as they tend to have a young and environmentally conscious workforce that values sustainable practices. Many of these companies have implemented sustainability initiatives and are actively seeking green office spaces to support their mission.

In the finance industry, companies such as banks and investment firms are increasingly seeking out green office spaces as a way to demonstrate their commitment to sustainability and social responsibility. These companies often have large and influential customer bases and are using their green office spaces as a way to differentiate themselves from their competitors.

Another important result of the statistical analysis was that beside the competitor sector companies, governmental bodies are really active on the Hungarian office market, as 12% of the green-certified office leasing activity from the past five years was registered from this sector. Governmental office leasing involves the leasing of office spaces by various government entities, such as federal, state, and local government agencies. These offices are used for a variety of purposes, including administrative functions, public services, and court systems.

Governmental office leasing can be a complex process, as government agencies often have specific requirements for their office spaces. These requirements can include security features, accessibility for disabled individuals, and proximity to public transportation. Governmental office leasing can also be influenced by political and budgetary considerations. For example, in times of budget cuts, governments may seek to consolidate their office spaces or reduce their overall square footage to save money.

Based on the results of the statistical analysis, 6 interviews were made with different market actors. The interviews included decision makers from 2 IT companies (1 Hungarian and 1 international), 1 telecommunication company (multinational), 2 banks (1 Hungarian and 1 international) and 1 industrial-manufacturing company (multinational). The main questions for each interviewee were about their green building preferences and their motivation and dedication behind leasing space in green-certified office buildings.

According to the interviews, one of the main reasons companies rent green offices is that leasing a green office can help a company improve its corporate image and reputation as a socially responsible organization in the eyes of its clients and the society. The respondents feel that companies that prioritize sustainability and environmental responsibility can differentiate themselves from their competitors. By renting a green office, a company can demonstrate its commitment to sustainability and environmental responsibility. This is usually a signal to customers, investors, and other stakeholders that the company takes its environmental impact seriously and is actively taking steps to reduce it. This can help to build trust and loyalty among stakeholders and enhance the company's reputation as a socially responsible organization. Renting a green office can also improve a company's brand image. Major multinational corporate tenants mentioned that by positioning itself as an environmentally conscious organization, a company can differentiate itself from its competitors and appeal to customers who are increasingly concerned about environmental issues. This can help to attract and retain customers who value sustainability and may be more likely to support environmentally conscious brands. Finally, the interviewees also highlighted that renting a green office can help a company attract and retain employees who are environmentally conscious. A sustainable and healthy work environment can be a significant factor in attracting and retaining top talent, as younger employees increasingly prioritize workplace wellness and sustainability in their job search.

In the case of the multinational, large corporates it was a very common statement that they lease in green-certified office buildings, because it is a requirement from their parent company. If a parent company requires its subsidiaries or affiliates to rent green offices, it may do so for a variety of reasons, such as a commitment to sustainability and environmental responsibility, a desire to reduce operating costs, or to improve the overall health and productivity of their employees. The parent company may have a sustainability policy in place that requires all of its business units to adopt sustainable practices, which may include renting green office spaces. By requiring subsidiaries and affiliates to rent green offices, the parent company can ensure that its entire organization is aligned with its sustainability goals. This can also help the company to reduce its carbon footprint and demonstrate its commitment to sustainability to its customers, investors, and other stakeholders. In addition, renting green offices can offer several benefits to the subsidiary or affiliate, such as lower energy costs, improved indoor air quality, and a healthier and more productive work environment. This can lead to cost savings, increased employee retention, and improved overall business performance.

This cost factor also appeared usually in the interviews, as companies may also rent green offices to reduce their energy costs. Green buildings are designed to be more energy-efficient, which can lead to



significant cost savings over time. This includes features such as high-efficiency heating and cooling systems, energy-efficient lighting, and water-saving fixtures.

Another important factor in the responses was that green offices can improve employee well-being by providing a healthy and comfortable work environment, access to natural light, and in some cases outdoor green spaces. Based on the experience of the interviewees, this can lead to improved productivity, reduced absenteeism and turnover rates, and an overall healthier and happier workforce.

## **Conclusion**

The green office market in Hungary has been growing in recent years, driven by a combination of environmental awareness, energy efficiency concerns, and corporate social responsibility.

Based on the results of this research, green-certified buildings are usually preferred by major corporate tenants in the competitive sector, with an international field of activity who often have ethical rules for sustainable development by their parent company.

The statistical analysis pointed out that the Hungarian government became an important market actor regarding green-certified office building leasing transactions, as ca. 12% of the green-certified office leasing activity was related to it in the past five years.

Based on the numbers it can be stated that the COVID-19 and the Ukrainian war and energy crisis created some turbulence on the office market, however the share of leases in green-certified office buildings remained strong in the past years until this moment.

Many companies choose to incorporate sustainable practices into their operations as a matter of social responsibility. By renting green offices, companies can demonstrate their commitment to environmental sustainability and promote a positive image to their customers, stakeholders, and employees. In addition, green offices can be attractive to employees in the Hungarian market as well, particularly those who value sustainability and want to work for a company that shares their values. On the other hand, green offices may promote employee health and well-being, which can lead to higher productivity and job satisfaction, and ultimately contribute to employee retention based on the feedback of tenants.

The “green” tenants in Hungary also feel that while there may be a green premium associated with renting or building green offices, these buildings may also provide cost savings over the long-term. They usually highlighted that green buildings may have lower energy and water bills, lower maintenance costs, and higher resale value.

Overall, the green office market is expected to continue to grow as more companies recognize the benefits of sustainability and seek out buildings that align with their values and business goals. Further research suggested to be made regarding different tenant sectors and to examine the differences between Hungarian and multinational tenants’ office preferences on the Budapest office market, including the topic of remote working.

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CHEN RURONG

## Impact of Energy Transition on China's Economic Growth under Carbon Neutrality Climate Policies

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### Abstract

President Xi has proposed climate action, and China will be carbon neutral by 2060. This paper investigates the changes in the energy consumption market during the energy crisis and finds out how different economic agents responded. In order to simulate the development of a high-quality economy, a vector auto-regression model (VAR) is constructed by using updated energy factors. First, it identifies the relationship between the factors that will influence carbon emissions development and the digital economy. To determine how carbon emissions, energy consumption, and the digital economy respond to shocks generated between carbon emissions, energy consumption, and the digital economy, this paper performs impulse response analysis on three indicators. Digital economy development requires a lot of energy to fuel its economic activities. Furthermore, technological improvements will reduce the unnecessary consumption of energy and thus contribute to carbon neutrality. In this paper, the greatest contribution is the use of VAR models to investigate the impulse effects of carbon neutrality. This is a challenging energy environment. Using impulse response analysis, the model takes into account effects on energy consumption and income, which makes it more realistic when simulating carbon neutrality.

**Keywords:** Vector Auto Regression (VAR) model, The Pulse Effect, Time Series Data, Carbon Neutrality, The Russian-Ukrainian War

### Introduction

China's President Xi suggested taking climate action to become carbon neutral by 2060. China has consistently led the world in CO<sub>2</sub> emissions over the past ten years. In 2020, China produced nearly 9.9 billion tons of CO<sub>2</sub>, which accounted for 30.66% of all emissions worldwide. By 2030, Chinese CO<sub>2</sub> emissions are expected to peak between 10.4 and 11 billion tons.

Climate and energy have always been intertwined. During the First and Second industrial revolutions, steam and internal combustion engines greatly enhanced industry productivity. However, cotton and steam engines required a greater supply of iron, steel, and coal. Internal combustion engines permitted fuel to be burned within a machine, converting the heat it produced directly into a heat engine. With the arrival of the third industrial revolution, the information age, network demand has increased. This has resulted in the need for a large number of data centers, which in turn increases electricity demand. Consequently, energy consumption and carbon dioxide emissions from machines are becoming an increasing environmental concern.

Scholars have long been concerned about climate and energy policies. There has been a great deal of discussion about the relationship between economic growth and carbon emissions, so several models have been developed to study this relationship. According to the environmental Kuznets curve theory, economic growth and carbon emissions exhibit a U-shaped relationship, and when economic growth gradually saturates, the increase in carbon emissions will negatively affect the economy. To observe the impact of energy and carbon emissions on economic growth in the era of knowledge-intensive and digital transformation, this paper develops a new model of the relationship between energy and carbon intensity, economic growth, and the digital economy. As well, this paper constructs external shocks through standard deviations to observe the changes in both the variables themselves and other factors in response to external shocks. The paper's innovation and contribution are here.

To develop corresponding rational energy and climate policies, the purpose of this paper is to investigate the relationship between energy mix, carbon emissions, and the digital economy. Hopefully, the following questions will be answered at the end of the paper:

1. What are the Climate Policies of China? Is there any relationship between Energy policies and Climate Policies?
2. What is the relationship between Carbon emissions and the digital economy?
3. How the energy crisis is used as an external shock to impact China's output and carbon emissions response?

This paper is structured as follows: Chapter 1 introduces the hot topics discussed in academia and the shortcomings of the research sought in these studies. Chapter 2, details the vector autoregressive model, constructs new indicators, and then applies the vector autoregressive model to find the relationship between the new variables. Chapter 3 analyzes the current state of the energy mix and finds the relationships of factors through the results of the model. In Chapter 4, the reasons behind the factor relationships are analyzed, and corresponding policy recommendations are given. Chapter 5 summarizes the innovative findings of this paper through the results and analysis and gives directions for future research to address the shortcomings of this paper.

### Academic Background and literature review

Climate change has resulted in global warming, glacial melting, and more extreme weather events. To mitigate the current climate situation, various government departments have adopted corresponding policies. Carbon neutrality, for example, refers to the consumption of excess carbon dioxide emissions using afforestation, energy conservation, and emission reduction, thereby achieving a dynamic balance of carbon emissions. An objective of carbon neutrality is not to achieve "absolute zero emissions", and this level of emission reduction is difficult to achieve. Rather, it is a means of reducing the impact of anthropogenic emissions on nature to an almost negligible level through technological innovation, achieving a new balance between anthropogenic emissions sources and nature, and achieving a harmonious coexistence between humans and nature as a whole.

Currently, China has established specific targets for achieving carbon neutrality at different times:

Figure 1.: The specific targets of different periods

	2025	2030	2060
<b>Target</b>	The country's carbon dioxide emissions per unit of GDP will be lowered by 18 percent from the 2020 level, and by 2030 will have dropped by more than 65 percent compared with the 2005 level. China's energy consumption per unit of GDP will be lowered by 13.5 percent from the 2020 level, the forest coverage rate will have reached 24.1 percent, and the forest stock volume will have risen to 18 billion cubic meters.	China's total installed capacity of wind power and solar power will reach over 1,200 gigawatts, the forest coverage rate will have reached about 25 percent, and the forest stock volume will have reached 19 billion cubic meters.	China will have fully established a clean, low-carbon, safe and efficient energy system, with energy efficiency reaching the advanced international level, according to the guideline.

Source: [http://www.news.cn/english/2021-10/25/c\\_1310266060.htm](http://www.news.cn/english/2021-10/25/c_1310266060.htm)

Scholars studying carbon emissions can be divided into two main areas: the drivers of carbon emissions and the issue of the efficiency of carbon emissions.

From the drivers of carbon emissions, we aim to identify the sources of pollution and eliminate them from the source. The efficiency of carbon emissions leads to the efficiency of energy conversion, resulting in the reduction of energy consumption and waste by improving the efficiency of energy use. By linking regional and global datasets, Bin Su analyzes the spatial aggregation problem of determining region-specific emissions and intensities of countries, providing MRIO and SDA formulas for implied emissions and intensities, and finding that spatial aggregation affects regional results more than sectoral results. (Su et al., 2021) In addition to demonstrating the impact of changes in industrial structure on carbon intensity, Zhenguo Wang also demonstrates the effect of structural decomposition on carbon intensity. (Wang et al., 2020) A structural decomposition analysis (SDA) model was used by Fan and Sanmang Wu to analyze the trend of total carbon emissions in Beijing in 2002, 2007, and 2012. It was proposed that carbon emission reductions be proposed at the urban and rural levels based on the relationship between urban and rural carbon consumption and emissions. (Fan et al., 2019) It is argued by Hao Cai that China's export carbon footprint is characterized by a reverse "U" shaped pattern and that the secondary sector is responsible for the majority of China's export carbon footprint. (Cai et al., 2020) Moreover, Zhang examined six possible key factors associated with changes in regional energy consumption. During the period 1987–2007, changes in final demand outweighed efficiency gains,

driving energy use in all regions, and improving energy efficiency in key industries would lead to a significant reduction in energy intensity. (Zhang & Lahr, 2014) Accordingly, scholars have examined industrial structure, urban-rural differences, and regional differences to determine the cause of the increase in carbon dioxide emissions.

The efficiency of carbon emissions is used to examine the problems that arise during the energy transformation process. Xianyong Lin assessed and optimized the energy structures of 29 countries and regions, concluding that developed countries have a higher energy conversion efficiency than laggards. (Lin et al., 2020) From 1997 to 2004, Zhou examined the emission performance of the world's 18 largest carbon dioxide emitters using this index. He concluded that technological progress has contributed to the reduction of total factor carbon emissions. (Zhou et al., 2010) Using the perspective of households and businesses, Donald Huisingh examines the efficiency of emissions in different sectors, technological innovation, and policy development. In his view, fossil-free production should be enhanced, and efficient use of resources achieved. (Huisingh et al., 2015) As part of a comparison of the impact of carbon trading policies on industrial enterprises' carbon emissions from 2008 to 2016, Wei Zhang analyzed industrial carbon emission data from 30 Chinese provinces. In addition, he considers the operational efficiency of seven carbon emission trading markets (ETMs), concluding that carbon trading policies increase the total value of industrial production. (Zhang et al., 2020)

Several scholars have examined the relationship between carbon emissions and economic growth using models. William D. Nordhaus argues that long-term macroeconomic models can incorporate insights from natural and climate science and market failures resulting from CO<sub>2</sub> emissions. Various warming pathways are derived based on the relationship between GDP growth and CO<sub>2</sub> levels and the impact of CO<sub>2</sub> on global average temperatures. (Nordhaus, 1991) Paresh Kumar Narayan tested the Environmental Kuznets Curve (EKC) hypothesis in 43 developing countries, from which he concluded that long-term income elasticity is smaller than short-term income elasticity, and as income increases, CO<sub>2</sub> emissions decrease. The model revealed that this phenomenon occurs only in the Middle East and South Asia. (Narayan & Narayan, 2010) Based on empirical results, Lin Boqiang calculates a general equilibrium model that predicts future oil demand and simulates the impact of electric vehicles on conventional energy sources, macroeconomics, and carbon dioxide emissions. Electric vehicles will have a positive impact on carbon emissions as they become more popular. (Lin & Wu, 2021) Under three different scenarios, Levent Andin analyzes the impact of oil price shocks using TurGEM-D, a dynamic multisectoral general equilibrium model for the Turkish economy. (Aydın & Acar, 2011) Vijay P. Ojha demonstrates that there is a perceived imbalance between carbon emissions and economic growth, resulting in a lack of incentive for governments to implement carbon reduction policies. The possibility of shifting carbon tax revenues to households for use in construction or the clean energy sector may also improve income distribution. (Ojha et al., 2020)

There has been a great deal of research done on the causes, effects, and projections of energy efficiency and economic growth. The effects of carbon emissions have been extensively studied in relation to the energy industry and mapped to economic growth. Yet, little attention has been paid to the relationship between the digital economy and carbon emissions. On the basis of Chinese provincial data from 2003-2018, Xie constructs a total factor non-radial directional distance function (TNDDF), and argues that the digital economy will reduce carbon emissions and accelerate the move towards carbon neutrality. (Xie & Zhang, 2022) As Kangni Lyu argues, the digital economy has a nonlinear effect on spatial carbon emissions, as well as an inverted U-shaped structure in terms of carbon emission efficiency. The effect of the digital economy on carbon emissions is significant regional heterogeneity and city-scale variation, which leads to an initial increase in carbon emissions followed by a subsequent decrease in carbon emissions. (Lyu et al., 2023)

Based on the current research status, this paper will use a vector autoregressive model in order to analyze and predict the relationship between carbon emissions and the digital economy. It is important to note that the digital economy is still a new and hot topic, and most scholars tend to focus on the industrial sector for the most part, since it is directly related to carbon dioxide emissions, as opposed to emerging industries, which have an indirect relationship with carbon dioxide emissions. However, the research direction of this paper is in line with the 14th Five-Year Plan strategy, which can provide a better understanding of the green development and digital development of China's economy.



## 2. Methodology

### 2.1 Indicator construction

On the basis of existing data, this paper constructs three data indicators: carbon dioxide emissions, total energy production, and income level in the digital economy. In the first place, as the units of data are not the same, it is necessary to quantify their data. Our paper uses log function transformation, which reduces the variability of the data and makes the meaning of the data clearer by transforming it by a certain base.

$$\text{New Value} = \text{Ln}(\text{Value})$$

### 2.2 Model design

It is common for explanatory and explanatory variables to be set up when studying the relationship between variables. As a result, causality will be used to identify the explanatory and explained variables involved in the relationship between their factors. It is important to understand that reality is complex, and some factors that are independent variables may also be dependent variables at the same time. As a result, the use of the joint cubic equation structure will allow a clearer understanding of the relationship between the interactions of variables.

$$\begin{aligned} Y_{1,t} &= \alpha_1 + \beta_{11,1}Y_{1,t-1} + \beta_{12,1}Y_{2,t-1} + \beta_{13,1}Y_{3,t-1} + \varepsilon_{1,t} \\ Y_{2,t} &= \alpha_2 + \beta_{21,1}Y_{1,t-1} + \beta_{22,1}Y_{2,t-1} + \beta_{23,1}Y_{3,t-1} + \varepsilon_{2,t} \\ Y_{3,t} &= \alpha_3 + \beta_{31,1}Y_{1,t-1} + \beta_{32,1}Y_{2,t-1} + \beta_{33,1}Y_{3,t-1} + \varepsilon_{3,t} \end{aligned} \begin{bmatrix} y_{1,t} \\ y_{2,t} \\ y_{3,t} \end{bmatrix} = \begin{bmatrix} c_1 \\ c_2 \\ c_3 \end{bmatrix} + \begin{bmatrix} \varphi_{11} & \varphi_{12} & \varphi_{13} \\ \varphi_{21} & \varphi_{22} & \varphi_{23} \\ \varphi_{31} & \varphi_{32} & \varphi_{33} \end{bmatrix} + \begin{bmatrix} y_{1,t-1} \\ y_{2,t-1} \\ y_{3,t-1} \end{bmatrix} + \begin{bmatrix} \varepsilon_{1,t} \\ \varepsilon_{2,t} \\ \varepsilon_{3,t} \end{bmatrix}$$

$Y_{1,t}$ : Total CO2 Emissions values at  $t$  time period;

$Y_{2,t}$ : Total Energy Consumption at  $t$  time period;

$Y_{3,t}$ : Revenue from Software Business at  $t$  time period.

### 2.3 Data collection

To analyze the relationship between factors, this paper collected data from 2005 through 2021. This is primarily due to the fact that the 11th Five-Year Plan (2006-2010) started to encourage the upgrade of industrial structures and China gradually moved toward the era of the Internet. Therefore, the purpose of this study is to measure the relationship between these three indicators from the CSMAR database.<sup>1</sup>

## 3. Results

### 3.1 The current situation

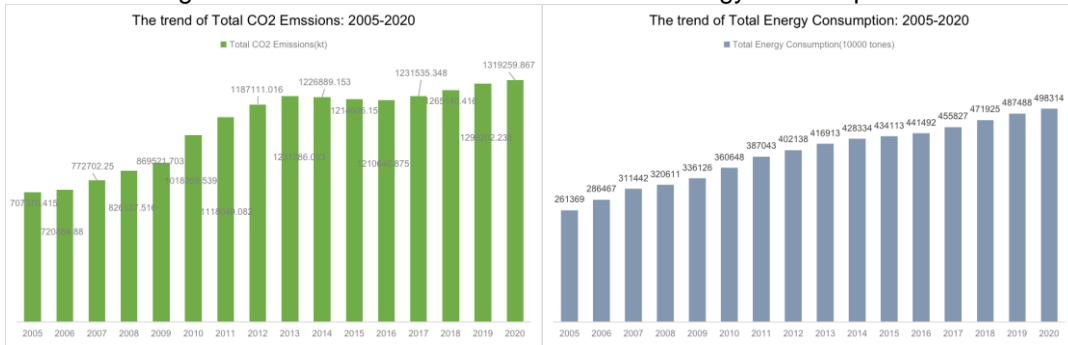
Carbon emissions have generally changed in two phases: from 2005 to 2013 and after 2014. Between 2005 and 2013, there was a significant increase of 67% in the number of people. Nevertheless, after 2013, the growth rate remained relatively low, at approximately 3%. As compared to 2014, there was negative growth in 2016, with a 1.3% decrease in carbon emissions. There was a very slow growth in 2020, mainly due to the effects of the epidemic, with an increase of 1.5%.

Unlike the situation regarding carbon emissions, the overall energy consumption is showing a linear growth trend, and the total energy consumption in 2020 is estimated to be approximately 4.97 billion tons of standard coal, meeting the "13th Five-Year Plan" target of "controlling the total energy consumption within 5 billion tons of standard coal". According to the 13th Five-Year Plan, the target of controlling total energy consumption within 5 billion tons of standard coal has been achieved. Despite this, it is important to note that there has been an increase of 90% between 2005 and 2020. The massive energy consumption is a reflection of the fact that energy consumption is still on the rise. In comparison with 2019, 2020 shows a 2.2% increase. An increasing trend is also evident in production corresponding to energy consumption.

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<sup>1</sup> CSMAR, short for China Stock Market & Accounting Research Database, is a comprehensive research-oriented database focusing on China's Finance and Economy.

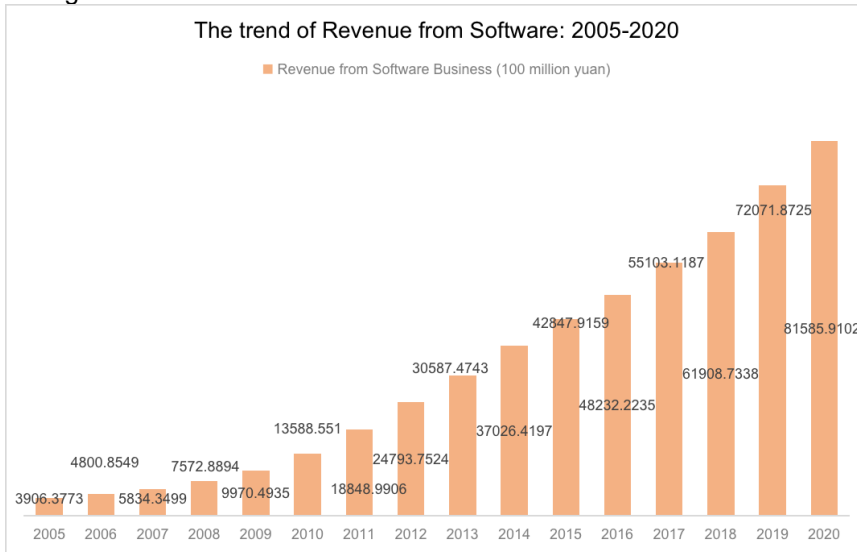
Figure 2: The current situation of CO2 and Energy Consumptions



Source: CSMAR Database

It is important to note that software revenue increased at a low rate from 2005 to 2008, with no significant growth. In 2009, the company began to grow at a fast rate, resulting in an increase of sevenfold. There were fluctuations in the number of businesses above the scale of the software industry in 2020, but the overall number was over 32,000 and has shown an upward trend over the past few years. Despite the epidemic, software revenue did not decrease; rather, it increased by 13% compared to the same period last year. As of now, the digital economy is still experiencing rapid growth and will continue to do so for some time to come.

Figure 3: The current situation of Revenue from Software Business

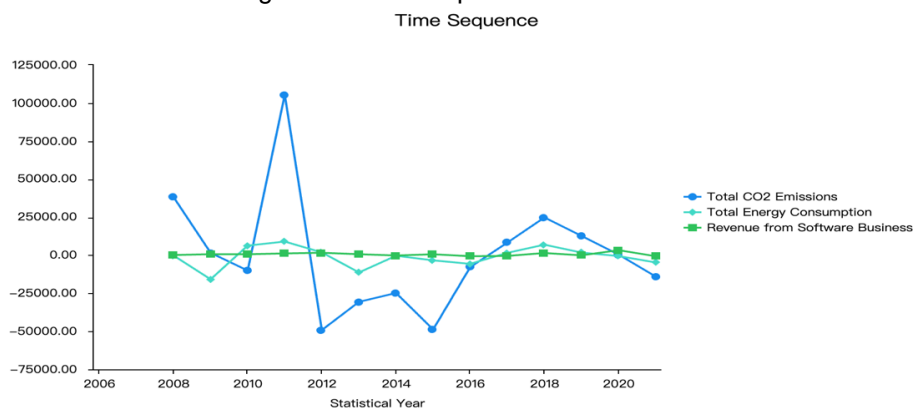


Source: CSMAR Database

### 3.2 Examination of smooth series

Time series charts can be used to illustrate a variable's evolution over time and are often used to assess the data's stability over time. It is possible to judge the degree of smoothness of the time series data before conducting a VAR model, for example, by examining the consistency of the trend of the time series data.

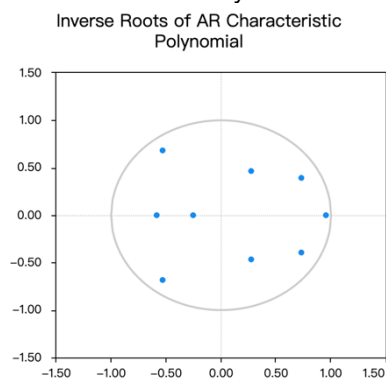
Figure 4: Time Sequence



Source: Own work

It is important to determine the stability of the VAR model after it has been constructed by examining the AR root diagram; from the diagram, we can see that all characteristic values are within the unit circle, i.e. all the points are within the circle, indicating that the model is stable at present.

Figure 5: Characteristic Polynomial



Source: own work

### 3.3 Impulse corresponding analysis

A model can be constructed in which each variable is used separately as the dependent variable in order to study the effects of random perturbations from other variables, including the dependent variable's own lagged value by one standard deviation, as well as the changes in the path of their effects. By using the impulse response function, one can describe the trajectory of these effects by showing how perturbations of one variable affect all other variables in the model and eventually feed back into the model itself. There are three lags of data in the model, i.e., the three indicators are influenced by their own data from the previous three periods, as well as by each other's data. It is confirmed that the three indicators satisfy the previous assumptions. Orthogonalized impulse response plots illustrate the dynamic impact of a shock on a variable or other variables. In general, if the absolute value is greater than 0, it represents a positive shock, and if it is less than 0, it represents a negative shock, with greater absolute values representing larger shocks and smaller absolute values representing smaller shocks.

$$\begin{aligned}
 Ln\ CO2 &= 7.755 + 0.162 * L1.Ln\ CO2 + 0.144 * L1.Ln\ Energy + 0.518 * L1.Ln\ Revenue - 0.235 * L2.Ln\ CO2 \\
 &\quad - 1.228 * L2.Ln\ Energy + 0.553 * L2.Ln\ Revenue - 0.144 * L3.Ln\ CO2 + 0.746 * L3.Ln\ Energy - 0.750 * L3.Ln\ Revenue \\
 Ln\ Energy &= 2.935 + 0.201 * L1.Ln\ CO2 + 0.422 * L1.Ln\ Energy + 0.012 * L1.Ln\ Revenue - 0.306 * L2.Ln\ CO2 \\
 &\quad - 0.158 * L2.Ln\ Energy + 0.287 * L2.Ln\ Revenue - 0.170 * L3.Ln\ CO2 + 0.425 * L3.Ln\ Energy - 0.191 * L3.Ln\ Revenue \\
 Ln\ Revenue &= -4.238 + 0.680 * L1.Ln\ CO2 + 0.495 * L1.Ln\ Energy + 0.507 * L1.Ln\ Revenue - 0.438 * L2.Ln\ CO2 \\
 &\quad - 0.553 * L2.Ln\ Energy + 0.501 * L2.Ln\ Revenue - 0.556 * L3.Ln\ CO2 + 1.366 * L3.Ln\ Energy - 0.257 * L3.Ln\ Revenue
 \end{aligned}$$

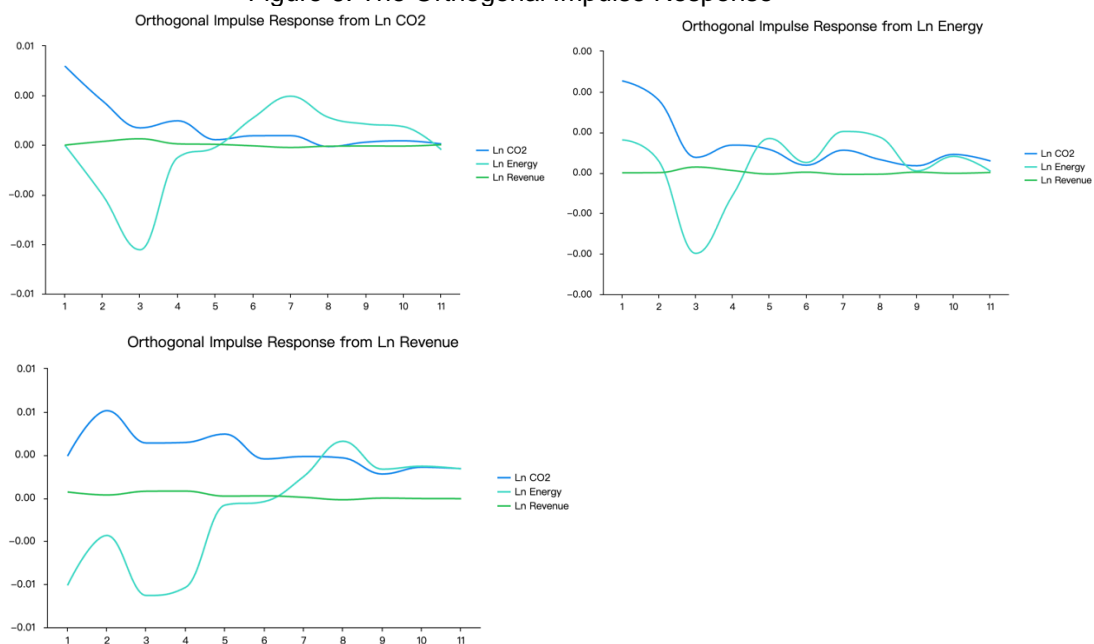
Three graphs illustrate the extent to which the shock has been transmitted from one indicator to another and to other indicators. A shock is experienced by CO2 when it is shocked on its own. It has a hugely

positive reaction, followed by a return to normal in the third period. As a result of this shock, energy consumption does not respond significantly and remains at approximately 0. In contrast, the digital economy's software revenue has a large negative shock in the second period and peaks at -0.01 in the third period. It turns from negative to positive in the sixth period and reaches 0.02 in the seventh period.

If energy consumption is hit by its own standard deviation, it is also positively impacted in the first period, but its response is negative in the third period, after which it slowly returns to normal. The relationship between CO2 emissions and total energy consumption is similar, but the response tends to be moderate. In the first and second periods, CO2 emissions are strongly positive, and then they return to normal in the third period.

A positive response to the standard deviation of the shock for digital economy income results in CO2 emissions. As a result, the development of the digital economy contributes negatively to CO2 emissions, while it hurts energy consumption, reaching its maximum negative value during the third and fourth periods.

Figure 6: The Orthogonal Impulse Response



Source: Own work (the data is in the appendix)

### 3.4 Differential term analysis

The fluctuations in CO2 emissions are primarily the result of its own shocks, which explain 100% and 75% of the fluctuations in the first and second periods, respectively, before dropping rapidly to about 38% in the third period. As a whole, other energy consumption and digital economy income account for approximately 25% of the CO2 fluctuations, with energy consumption accounting for the majority of both. In the first two periods, shocks in CO2 emissions mainly explain 88% and 90% of fluctuations in energy consumption, while digital economy income explains a negligible number of fluctuations. Most of the fluctuations in digital economy income are attributed to changes in total energy consumption, accounting for 80% in the first period and remaining around 50% for the next nine periods.

Variance Decomposition-Ln CO2				
Period	Variance Decomposition of S.E.	Ln CO2(%)	Ln Energy(%)	Ln Revenue(%)
1	0.004	100.000	0.000	0.000
2	0.005	76.824	23.052	0.124
3	0.007	38.748	61.010	0.242
4	0.008	40.076	59.683	0.241
5	0.008	40.144	59.613	0.243
6	0.008	39.112	60.652	0.237
7	0.008	35.726	64.039	0.235
8	0.008	34.705	65.062	0.233
9	0.008	34.160	65.608	0.232
10	0.008	33.783	65.985	0.232

Impulse Response Table-Ln Energy			
Period	Ln CO2	Ln Energy	Ln Revenue
1	0.002	0.001	0.000
2	0.002	0.000	0.000
3	0.000	-0.002	0.000
4	0.001	-0.001	0.000
5	0.001	0.001	-0.000
6	0.000	0.000	0.000
7	0.001	0.001	-0.000
8	0.000	0.001	-0.000
9	0.000	0.000	0.000
10	0.000	0.000	-0.000
11	0.000	0.000	0.000

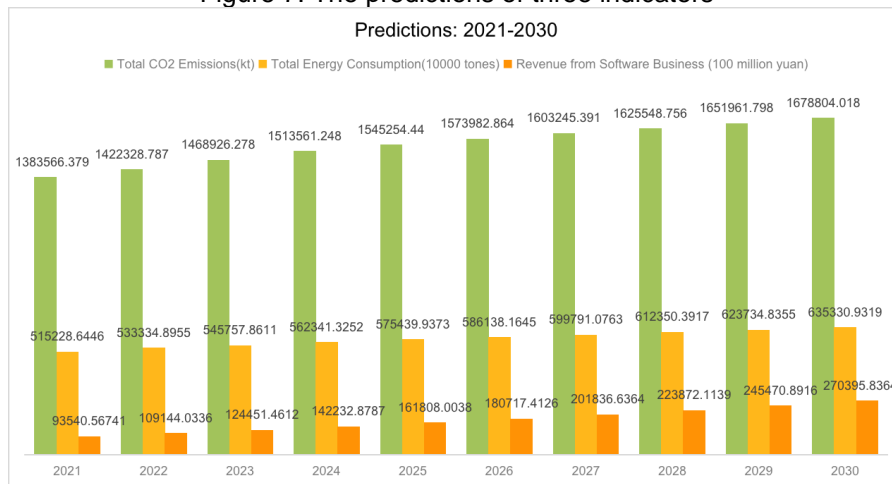
Impulse Response Table-Ln CO2			
Period	Ln CO2	Ln Energy	Ln Revenue
1	0.004	0.000	0.000
2	0.002	-0.003	0.000
3	0.001	-0.005	0.000
4	0.001	-0.001	0.000
5	0.000	-0.000	0.000
6	0.000	0.001	-0.000
7	0.000	0.002	-0.000
8	-0.000	0.001	-0.000
9	0.000	0.001	-0.000
10	0.000	0.001	-0.000
11	0.000	-0.000	0.000

### 3.5 Forecasting

Based on the impulse effect, the corresponding projections have been made for the three indicators in this paper. As can be seen from the graph, CO2 emissions are gradually increasing, however, energy consumption remains at approximately 55,000,000 tons. There will be a synchronized increase in both CO2 emissions and energy consumption by 2030, which will result in a 23% reduction in CO2 emissions and a 20% reduction in energy consumption.

Compared to the previous two, the digital economy's revenue will increase by 189% in 2030, which is a very fast growth rate and indicates a very strong momentum for its future growth.

Figure 7: The predictions of three indicators



Source: own work

## 4. Discussion

### 4.1 Current climate and energy policy

As a result of the rapid economic growth currently occurring, there has also been an increase in the consumption of energy as a result of the use of electricity. By increasing energy consumption, carbon dioxide emissions will increase, thereby increasing environmental pollution. The government has undertaken two initiatives to reduce carbon emissions: the construction of new energy base stations and the improvement of the efficiency of traditional energy sources. During the period 2022, renewable energy will continue to develop continuously and rapidly. Nationally, renewable energy installations exceed 1.2 billion kilowatts for the first time, surpassing coal power installations.

The government has increased investment in coal power conversion efficiency along with building traditional coal power plants. Global energy prices have spiked due to tensions in Russia and Ukraine, and domestic electricity consumption has been restricted. Therefore, China has approved 82 coal-fired power plant projects for construction in 2022, totaling 106 megawatts (gigawatts) of generation capacity. There have been six times as many coal-fired power plants built around the world since 2015, and there has been unprecedented speed in the process from approval to construction. The reasons for the construction of 82 new coal-fired power plants approved for 2022 have been disclosed by 57 of them in official documents, with the following new coal-fired projects appearing the most frequently: "to ensure a safe supply of electricity" (28 times), "to provide heat services" (21 times), "to provide power growth services" (16 times), etc. (GreenPeace, 2023). It is expected that new coal plants will be built to eliminate obsolete capacity and increase coal conversion rates, thereby reducing energy waste as well as CO<sub>2</sub> emissions.

It is expected that coal will reach its peak by the years 2025–2030 in accordance with the "Action Plan for Achieving Carbon Neutrality by 2030" (Committee, 2021) and the "Opinions on Complete and Accurate Implementation of the New Development Concept for Carbon Neutrality" (Council, 2021). Approximately 2025–2030, coal consumption is expected to reach a peak coal demand ceiling according to the "Pre-2030 Carbon Peaking Action Plan," and peak coal consumption is expected to be approximately 2.94 billion tons of standard coal, with a compound annual growth rate of about 0.8% in comparison to 2020 (Council, 2021).

#### **4.2 The relationship between the digital economy and carbon emissions**

An economic system based on digital technologies and conducted through the Internet and other digital means is referred to as the digital economy. In most cases, carbon emissions are related to energy consumption in the digital economy. For the purpose of collecting, organizing, and computing network data, the digital economy relies on a large number of data computing centers. In order to accomplish this task, large amounts of energy, such as electricity, are required. Consequently, a considerable amount of carbon dioxide is generated during the production and consumption of energy.

Meanwhile, the digital economy relies on the development of new technologies. Through the constant advancement of information technology, it is possible to improve economic efficiency and minimize the consumption of resources and energy. It is possible to reduce CO<sub>2</sub> emissions through the use of intelligent energy management systems that optimize energy use and reduce energy waste. In order to save energy consumption and reduce energy costs, energy management is the process of proactively monitoring, controlling and optimizing organizational energy consumption.

Furthermore, the digital economy has contributed to technological innovation, including the development of green technologies. An example, are renewable energy, intelligent transportation systems, smart city solutions, etc. It is believed that the application of these green technologies can contribute to the reduction of CO<sub>2</sub> emissions and promote sustainable development.

#### **4.3 The sustainable development of China**

It is expected that the digital economy will develop rapidly with the premise of achieving carbon neutrality, as the study of this paper demonstrates. There are currently large numbers of energy supply plants being built in China, as well as infrastructure that will ensure the delivery of electricity. There will be a gradual shift in the mix of energy consumption, as well as a significant reduction in the use of fossil fuels. In addition, solar power and wind power have become the new mainstays of power generation. The Chinese government, however, continues to build coal plants in order to prevent power shortages and ensure electricity security, on the one hand, and to upgrade the equipment at traditional energy plants, on the other, in order to enhance energy generation efficiency and reduce greenhouse gas emissions.

With a sufficient supply of electricity, the digital economy will grow more rapidly. A development strategy for 'Eastern Digital and Western Computing' was promulgated by China in 2022 with the aim of increasing the speed of the digital economy and achieving carbon neutrality. (Commission, 2022) In part, the purpose is to alleviate the congestion of data in the computing centers in the eastern region, which is densely populated and where many economic and commercial activities take place. As for wind power generation, it is to make the most of existing wind resources in order to minimize CO<sub>2</sub> emissions while using wind power more effectively in the western region. The new development plan will contribute

to coordinated regional development, reduce environmental pollution from traditional energy generation, and promote the development of a digital economy. The goal of sustainable development will ultimately be achieved through this initiative.

### Summary

As energy demand grows and greenhouse gas emissions increase, carbon emissions are still increasing. Carbon emissions are primarily caused by the development of energy production and use, as well as industrial production. Therefore, achieving carbon neutrality requires improvements in energy production. The purpose of this paper is to compare the different stages of carbon-neutral climate policies, in order to examine the goals that the government has set for each stage. An analysis of the causal relationship between carbon emissions, energy consumption, and the digital economy is presented in this paper using vector autoregression to observe the relationship between the indicators. A vector autoregression model requires a limited amount of data and can be used to predict the number of independent variables. The problem of data scarcity has been resolved in the digital economy, which has developed in recent years.

As a result of the findings, carbon emissions are influenced by their own data in the first three periods, but when it is subject to shocks, their own explanation is most likely to explain the fluctuations. Energy consumption is the mediator between carbon emissions and the digital economy, and the fluctuations of the digital economy are primarily influenced by energy consumption. Despite the growth of the digital economy in the future, CO<sub>2</sub> emissions and energy consumption will gradually decrease due to people's desire for sustainable development.

There are, however, some drawbacks to this study, since the vector self-consistency model is a purely theoretical model, and when significant sudden shocks and changes in variables occur, there will be data bias. To further investigate the impact of unexpected events, it needs to be combined with other models.

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## Appendix

Table: The Impulse Response Table from Three Indicators

Impulse Response Table-Ln CO2			
Period	Ln CO2	Ln Energy	Ln Revenue
1	0.004	0.000	0.000
2	0.002	-0.003	0.000
3	0.001	-0.005	0.000
4	0.001	-0.001	0.000
5	0.000	-0.000	0.000
6	0.000	0.001	-0.000
7	0.000	0.002	-0.000
8	-0.000	0.001	-0.000
9	0.000	0.001	-0.000
10	0.000	0.001	-0.000
11	0.000	-0.000	0.000

Impulse Response Table-Ln Energy			
Period	Ln CO2	Ln Energy	Ln Revenue
1	0.002	0.001	0.000
2	0.002	0.000	0.000
3	0.000	-0.002	0.000
4	0.001	-0.001	0.000
5	0.001	0.001	-0.000
6	0.000	0.000	0.000
7	0.001	0.001	-0.000
8	0.000	0.001	-0.000
9	0.000	0.000	0.000
10	0.000	0.000	-0.000
11	0.000	0.000	0.000

Impulse Response Table-Ln Revenue			
Period	Ln CO2	Ln Energy	Ln Revenue
1	0.002	-0.005	0.000
2	0.005	-0.002	0.000
3	0.003	-0.006	0.000
4	0.003	-0.005	0.000
5	0.004	-0.000	0.000
6	0.002	-0.000	0.000
7	0.002	0.001	0.000
8	0.002	0.003	-0.000
9	0.001	0.002	-0.000
10	0.002	0.002	-0.000
11	0.002	0.002	-0.000

Source: Own work

Table: The predictions data

<b>Predictions</b>			
Time	Total CO2 Emissions(kt)	Total Energy Consumption(10000 tones)	Revenue from Software Business (100 million yuan)
2021	1383566.379	515228.6446	93540.56741
2022	1422328.787	533334.8955	109144.0336
2023	1468926.278	545757.8611	124451.4612
2024	1513561.248	562341.3252	142232.8787
2025	1545254.44	575439.9373	161808.0038
2026	1573982.864	586138.1645	180717.4126
2027	1603245.391	599791.0763	201836.6364
2028	1625548.756	612350.3917	223872.1139
2029	1651961.798	623734.8355	245470.8916
2030	1678804.018	635330.9319	270395.8364

Source: own work

## Sustainable Tourism in Hungary - Where the travellers expectations and providers interests meet

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### Abstract

Tourism is the third largest industry in the world, with annual turnover of 1.4 trillion dollars, accounts for 10 percent of the entire world's GDP. One out of every ten jobs is connected to tourism, and tourism is also responsible for five percent of the world's carbon dioxide emissions, of which hotels and other types of accommodation account for one percent. In recent years, the issue of environmental protection measures to be implemented by hotels has become more and more important, which has an increasing impact on customer decisions.

Our study examines the possible aspects of sustainable tourism from two sides. Our questionnaire research is based on a survey of consumer habits. We searched for answers to questions that help determine the travel habits of different social groups, as well as the extent of their commitment to sustainability. Our research also covers whether there is a connection between an individual's everyday environmental decisions and travel habits. On the other hand, we followed the transformation of a hotel located in the downtown of a small Hungarian rural town, where they are trying to reduce their energy consumption with solar panels, heat pumps and many other smart solutions, such a way that the guest's sense of comfort should decrease as little as possible. The aim of the study is to find the common points where the interest of the service provider and the expectations of the consumer meet.

**Keywords:** sustainable, tourism, accomodation, hospitality

### Introduction

In recent years, environmental protection and sustainability have been increasingly emphasized in all areas of the economy. There are currently around 800 million people working in tourism and hospitality around the world, so it's no wonder that many people are interested in this topic, which can be explored in many aspects. Hotels and other service providers, as well as those involved in tourism or those who want to relax, are responsible for reducing consumption. In their daily lives, individuals have a number of habits that are ingrained in their patterns of behaviour, thus influencing their everyday actions and decisions, including those during travel. Sustainable travel habits, while not solving climate change, are not only in our own interest, but also in the interests of future generations. Where is this process now? Are travelers willing to give up comfort to save our planet? Can we say that the environmental awareness campaign, which has been going on for a decade now, has achieved its first successes? Our study also seeks to answer this question. In our research, we tried to assess travellers' habits at home and during their stay in a hotel and compare their needs with the ideas of the owners of an environmentally conscious hotel that has recently undergone a complete renovation.

### Theoretical overview

The tourism industry is an industry producing 10% of the world's GDP. Thus, it has a significant impact on the environment, the economy and, consequently, a significant impact on society. In recent years, there has been an increasing willingness among the managers of the companies concerned to develop and implement various sustainability strategies (Jones, P. et al., 2017). At the same time, environmental awareness is also increasing on the consumer side. In tourism and, if included, hospitality, the majority of sustainability decisions are related to some kind of consumption reduction measure. (Frans Melissen et al., 2016), which, although often involve renunciations, have significant perceived or real social benefits. Close cooperation between consumers and service providers, exchange of views and experiences, which can restructure the market in the short and long term, is extremely important in the sector (Csapody Bence et al., 2020).

Among the UN Sustainable Development Goals (*THE 17 GOALS | Sustainable Development*, 2015) SDG 12 is the most important, encompassing all efforts to develop sustainable consumption and production methods and more efficient use of resources. SDG 17 emphasizes the importance of

partnership, as local producers and local service providers bring together shorter supply chains and reduce environmental impact. With the passing of COVID, these trends intensified as the complete closure of the sector brought together people living in the same geographical area, strengthening economic and emotional ties between them (Alsetoohy, O. et al., 2021).

Although there are initiatives to green the Hungarian hotel industry (Magyar Szállodák és Éttermek szövetsége, 2023), at the same time, sustainability is not a condition for obtaining stars in the hotel rating system, even at the highest level (Magyar Turisztikai Minőségtanúsító Egyesület, 2023). Hotel owners are the main drivers of the strengthening of environmental aspects, who have a dual interest: reducing energy consumption and gaining a competitive advantage over other market players. Travel decisions begin with determining your destination, as well as choosing your mode of travel and accommodation (Seddighi, H. R. & Theocharous, A. L., 2002). The tourist experience can best be described as the sum total of experiences and experiences from the decision to travel until the arrival home (Cutler, S. Q. & Carmichael, B. A., 2010).

Another popular topic today is the circular economy. The idea of circular business models has been in the spotlight in recent years. Circular companies are gaining increasing recognition in the eyes of consumers; Customers prefer products from organizations based on the circular economy model. The circular economy refers to an economic model based on, among other things, sharing, leasing, reusing, repairing, renovating and recycling in an (almost) closed loop (Bourguignon, D., 2016). Circular tourism aims to produce products and services that are created, sold and consumed with attention to reducing environmental impacts (Naydenov, K., 2018). However, it is also essential to encourage a change in attitudes among tourists and staff. The structure of the tourism industry is currently based on the linear economic model. Mass tourism continues to require high-capacity facilities in which the production of services serving tourists results in significant resource consumption.

The significant environmental impact of tourism can be attributed to the following factors:

- this sector is responsible for 8% of global CO2 emissions (Lenzen, M. és mtsai., 2018),
- uses a large number of products that are often transported and packaged;
- tourist facilities require significant amounts of energy and raw materials;
- tourist facilities require an extra amount of water (direct water use varies from 80 to 2000 liters per day per tourist);
- airlines are the biggest contributor to global warming among tourism players

A 2021 survey showed that the sustainability factors that most influence guests' intention to return are the hotel's garbage and energy management, but surprisingly, saving water doesn't play a decision-making role when it comes to rebooking (Arunappriya & Dahanayake, 2021), A study by Ponnappureddy, Priskin, Ohnmacht, Vinzenz and Wirth (2017). It surveyed 1,056 U.S. travelers on how knowing what environmental measures the selected hotel takes affects the perception of a hotel. The research found that those who were already more receptive to the topic of sustainability are doing something about environmental change in their private lives, and those who are fundamentally skeptical about the given accommodation have developed a much more favorable image than those who are fundamentally skeptical about the topic. The study therefore concluded that sustainability efforts in hotels can only change consumers' choices for the better if they themselves prioritise environmental protection. However, it does matter in which countries these studies are conducted;. According to a survey conducted by the U.S. Tourism Agency, 78% of U.S. travelers consider themselves environmentally conscious, and 95% of respondents said hotels do need to care about sustainability. At the same time, the study shows that travellers expect sustainability measures, but are not willing to pay more for them (Pulido- Fernandez & López-Sanchez, 2016).

Sustainability measures can be introduced not only during operation, but also during construction. There are many architectural solutions that make it easier to meet sustainability goals later on (Abokhamis Mousavi, 2018). These may include, for example, a well-designed rainwater drainage and air exchange system or the use of various alternative energy sources (Baldzhy & Yaslynska, 2022). Obviously, those hotels built earlier will still have traditional energy-saving methods, the most tangible elements of which are replacing light bulbs with economical ones, equipping light switches with motion sensors, installing solar panels or wind turbines, installing windows with triple-layer glass or reflective glass, or equipping rooms with digital thermostats that can be controlled from the reception (Hassan Abdou & Said Seheta, 2022).

## Research methodology

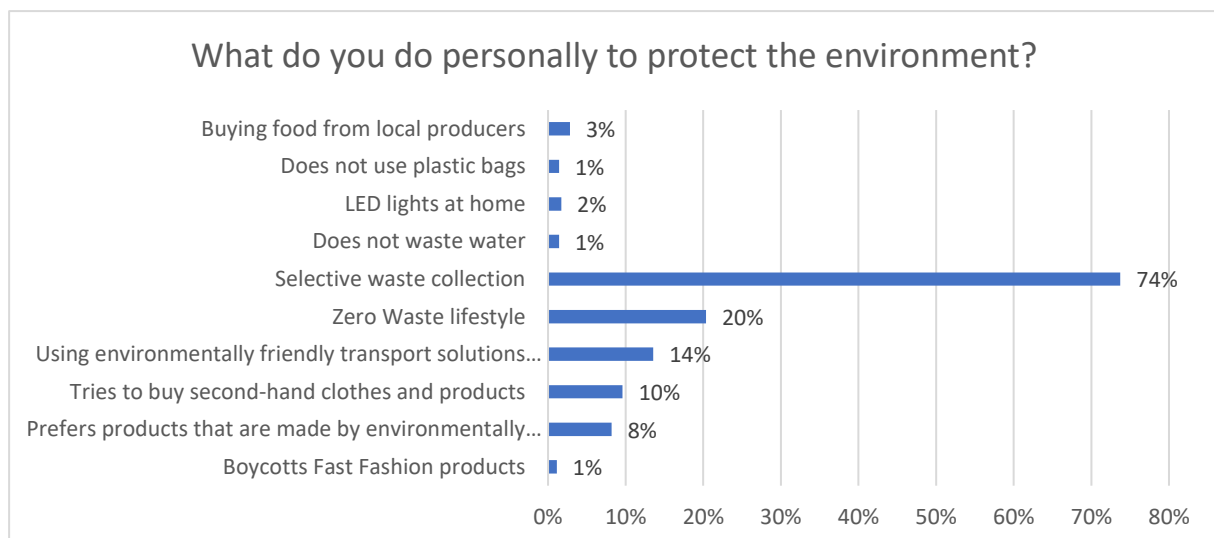
In the first part of our research, we asked 353 travellers online and in person about their travel habits. The questionnaire focused on environmental awareness and attitude towards sustainability. The questionnaire consisted of three parts. In the first part, the respondents talked about their own home habits from the aspect of sustainability, and in the second part, we researched how much environmental protection and sustainability play a role in their decisions during their travels. In the third part, we asked about their expectations for an environmentally conscious hotel.

The interesting thing about the research is that we contrasted our experiences gained during the questionnaire with our practical experiences. For almost a year, we watched the transformation of a hotel located in a medium-sized city in Hungary. The owners of the hotel completely transformed the 40-year-old building, which used to function as a \*\*\* low budget hotel. A solar panel system was installed on the roof of the building, and several smart solutions were used during the mechanical engineering, such as an air conditioning system controlled from the reception or the use of smart sockets, which are connected to the reservation system, so that unused rooms can be completely de-energized. After the renovation, almost all consumption data can be measured, so we obtained valuable data, which allowed us to compare the results of the questionnaires with those experienced in reality. The interesting thing about the research is that we contrasted our experiences gained during the questionnaire with our practical experiences.

## Results of the questionnaire research

74% of respondents cited selective waste collection as a personal action plan, while 20% said they try to maintain a Zero Waste lifestyle. The third highest number of responses came from conscious choice of means of transport, while surprisingly few responded that they buy from local producers, thus shortening the journey of food, and even fewer responded that they are banishing single-use plastics or fast fashion clothes from their lives. Although there have been and are many campaigns to reduce the energy consumption of the population, 2% of respondents use LED bulbs, and even fewer, only 1%, care about protecting water resources and eliminating water waste.

Figure 1. Questionnaire results

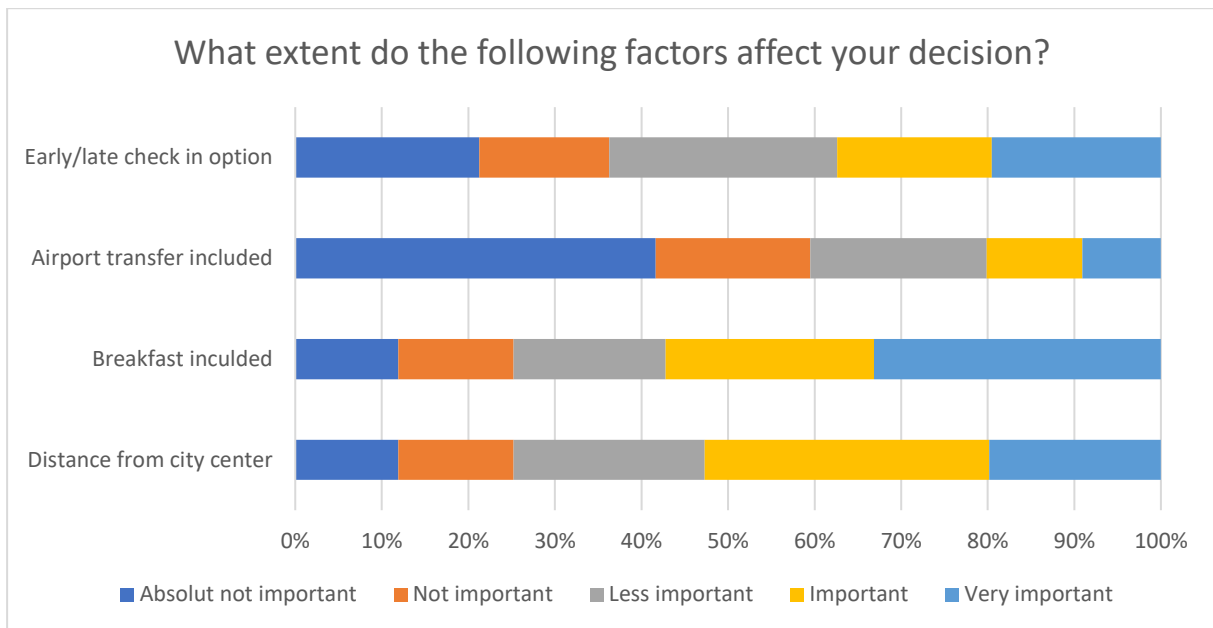


Source: own work

The factors influencing individuals' choice of accommodation are shown in the figure below. The least important consideration when choosing an accommodation is whether the hotel offers airport transfer. In today's world, travellers have many transport alternatives to choose from, and airports are striving to build the best infrastructure that can best serve travellers. On the other hand, the most important aspect when choosing accommodation is that breakfast is included in the price. Most travelers don't like to look for a café or breakfast place in the morning, they prefer to be able to do everything inside their accommodation after waking up. The second most important aspect is the distance of the hotel from the city center. Of course, larger cities can have several centers (historical, business), but we asked tourists,

whose main goal is to get to know the given destination as much as possible, so they do not like to waste time traveling to the sights during their stay.

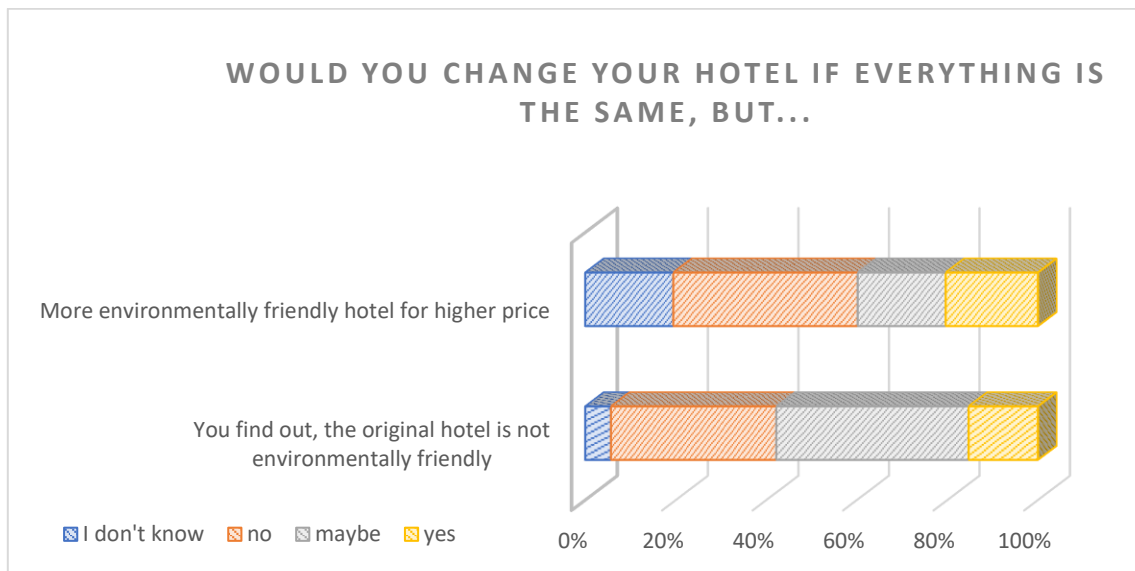
Figure 2. Questionnaire result



Source: own work

We also wanted to know if respondents are willing to change their travel decision if they notice an alternative (price, location, breakfast, etc.) that is completely identical to the original hotel choice, which is also environmentally conscious. The answers show that the majority of people would not change their original decision based on non-environmental considerations, and they are not willing to pay more for it at all.

Figure 3.: Questionnaire results



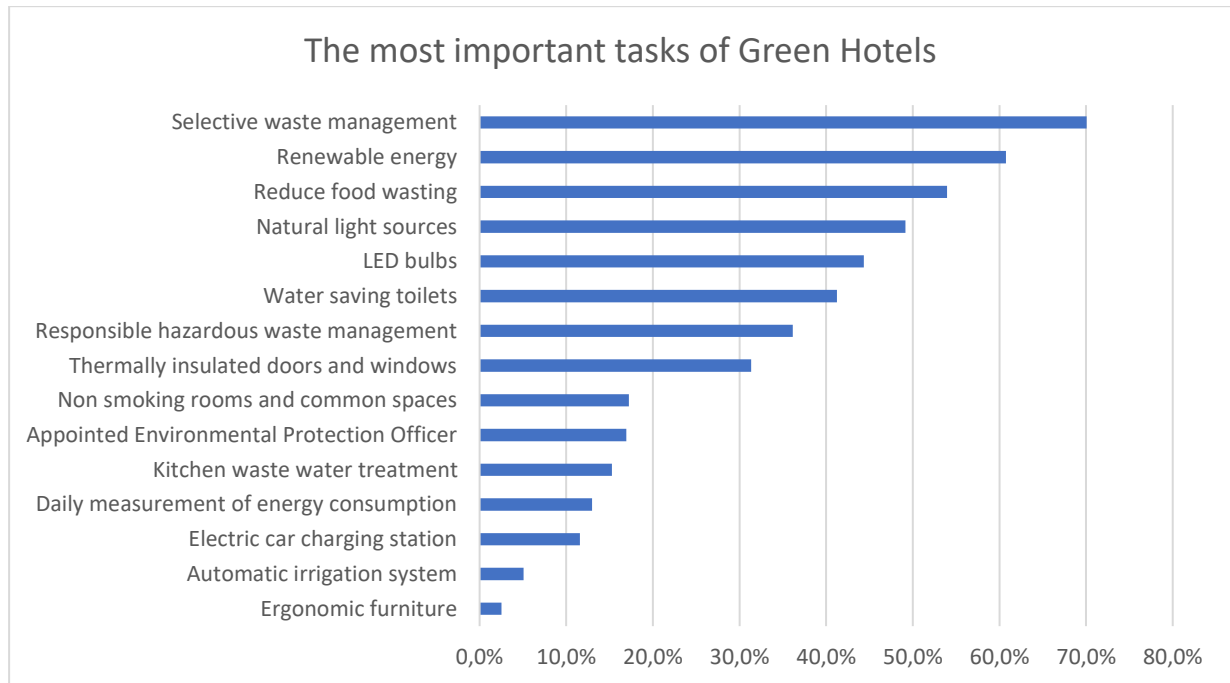
Source: own work

### Individuals' expectations of green hotels

As with individual answers, most respondents indicated selective waste collection as their highest expectation for a Green Hotel, followed by reducing the amount of food waste and the use of LED bulbs, which may be interesting because a small number of respondents previously indicated this as their individual measure. The electric car charging station and the quality of the equipment are the least

important requirements for a service provider that calls itself environmentally conscious accommodation. Hotels use a number of chemicals in their operations, which cause a serious environmental impact, but this is not important for travellers.

Figure 4.: Questionnaire results



Source: own work

We can do something to protect our environment not only during the choice of the hotel, but also during the stay. As with individual decisions, selective waste collection is what most people think about in the first place during their hotel stay. Although the unnecessary use of cleaning products was not mentioned in connection with green hotels, the second most popular answer to this question was not to clean the room unnecessarily. These are followed by reducing energy consumption, avoiding food waste and preferring a paperless booking process. According to respondents, the least attractive sustainability measure is the use of public transport modes.

Figure 5.: Questionnaire results



Source: own work

### Hotel research

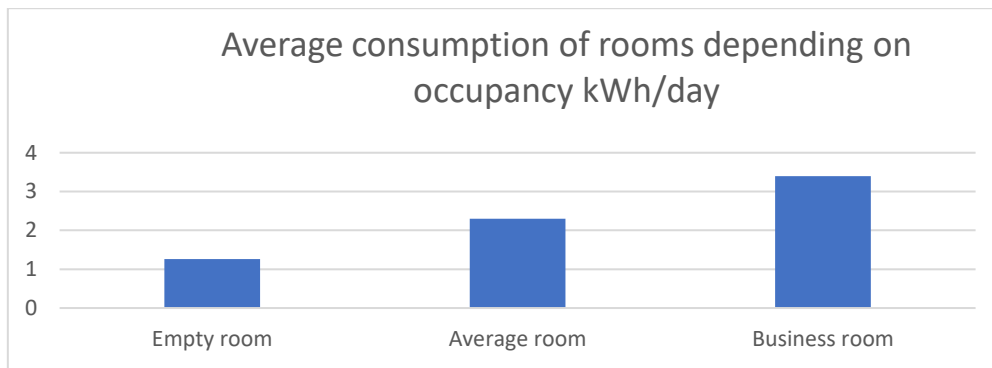
The hotel under examination was built in the mid-1980s specifically for catering, however, according to the expectations of the age, the clientele was mostly from the working class. The hotel underwent several minor modernizations until the 2020s, however, thanks to the Kiszfaludy program, it underwent a complete, comprehensive renovation in 2021, as a result of which it was upgraded from the previous \*\*\* classification to \*\*\*\* classification. During the renovation, in addition to expanding comfort functions, sustainability aspects played a primary role. The size of the hotel is 1520 sqm, it has 34 rooms of 18 square meters each, all of which have bathrooms. During the reconstruction, the following improvements were incorporated:

- Centralized „smart” air conditioning system
- Smart power outlets (no reservation, no energy consumptions)
- Instead of batteries, rechargeable door knobs
- New breakfast system (mixed buffet and breakfast menu) = less wasted food
- Motion sensor lamps in common spaces
- LED lamps
- Selective waste management
- Solar panels on the roof
- Paperless booking and billing system
- Short supply chains (think global, act local)
- Water saving bathroom system

Thanks to the renovation, the total consumption of the hotel's residents became measurable, so it was possible to show the amount of energy consumed by travelers staying for different purposes. An empty room in which electronic devices are plugged in but switched off consumes about 1.2 kWh hours per day. An average double room with two average needs (minibar, 2 or 3 phone charges) consumes 2.2 kWh hours per day, while a room rented by business travellers with at least 2 laptops, 2 phones and other technical equipment charged consumes approximately 3.3 kWh hours.



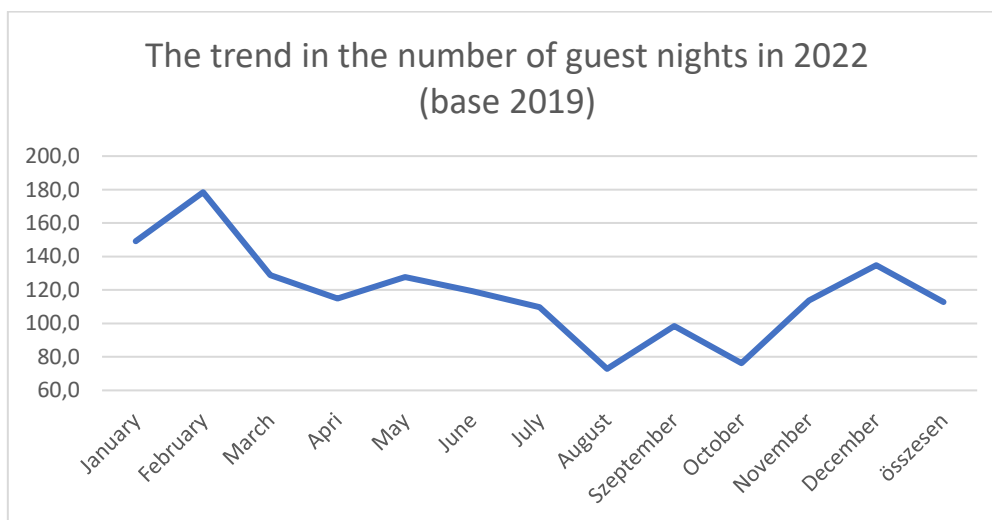
Figure 6.: Questionnaire results



Source: own work

Thanks to smart sockets connected to a reservation system that can be controlled from the reception, the system automatically cuts off the power supply to rooms where they are not currently living, so the energy consumption of empty rooms can be reduced to 0. This resulted in a significant reduction in consumption in the case of the 34-room hotel examined. The reduction of electrical consumption was also helped by the replacement of all lighting fixtures of the hotel with LED light sources, and the installation of lamps with motion sensors in public areas. The default setting of the centrally controlled air conditioning system allows guests to change the temperature of the room between 19 and 25 degrees, and automatically turns off when the guest leaves the room or opens the window. Selective waste collection has been part of everyday operation so far, but by changing the breakfast system, food scraps to be thrown away have also decreased.. In contrast to the previous custom, popular dishes such as scrambled eggs, fried or cooked sausages are no longer prepared in predetermined quantities, but fresh according to the needs of the guest. This way, only as much food is prepared as it actually consumes, and guests appreciate this type of service more.

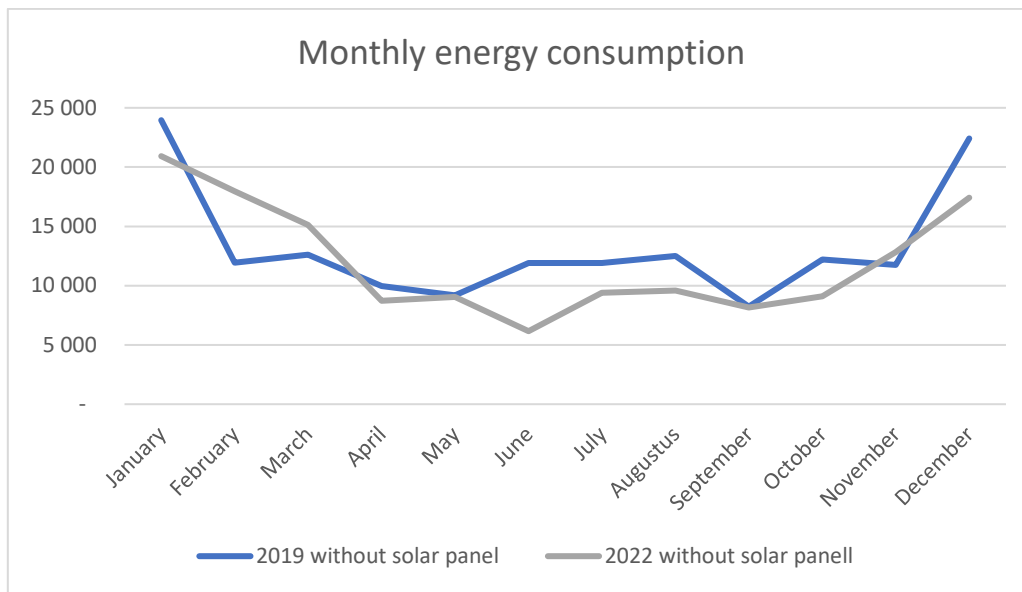
Figure 7.: Questionnaire results



Source: own work

The Covid pandemic has dealt a significant blow to all players in the tourism industry, but 2022 has already brought more overnight stays for the hotel examined than the last full year before the Covid pandemic. Although the July-October period did not reach 2019, there were 1458 more bookings overall than in 2019, which is considered the base.

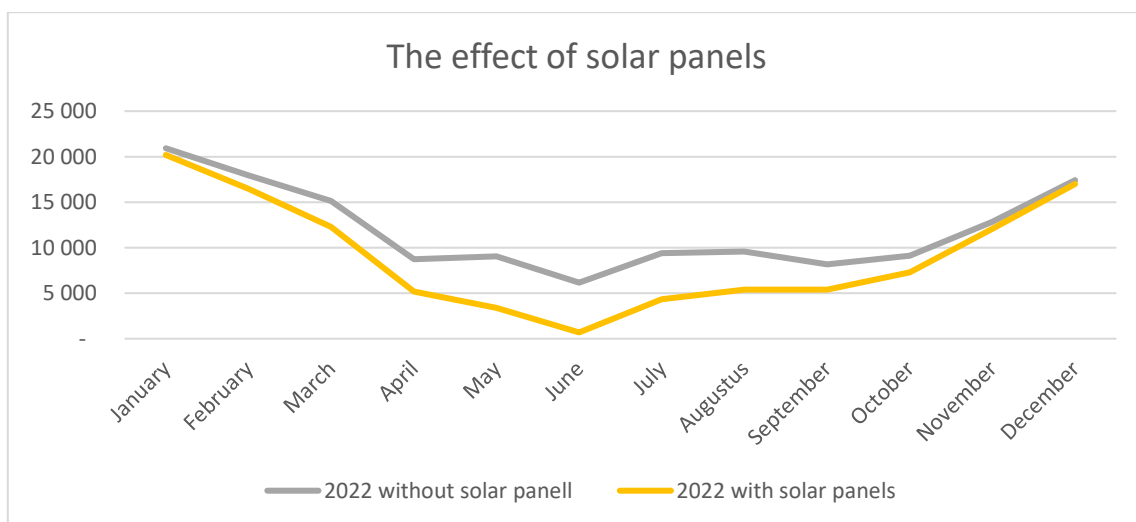
Figure 8.: Questionnaire results



Source: own work

The above figure shows that if we ignore the energy production of solar panels, it can be seen that the introduced consumption reduction measures resulted in a significant decrease in consumption in the second half of the year, even with increased booking numbers, 14,000,000 KWh less energy was billed annually, which reduced the amount of the bill payable by roughly HUF 1,000,000.

Figure 9.: Questionnaire results



Source: own work

In Hungary, the energy produced by solar panels is accounted for in a so-called SALDO system, i.e. the electricity generated by the equipment must be fed back into the electrical network through a two-way metering device, on the basis of which billing takes place at the end of the month. As you can see from the chart, during the sunnier summer months, the solar panel can generate about 60-80% of the electricity consumed by the hotel, about 35,000 KWh per year.

## Summary

The aim of the study was to show which sustainability points meet the interests of consumer expectations and hoteliers. We examined the travel habits of individuals and what are the most important measures during a complete renovation that, in addition to reducing consumption, also bring economic benefits. In the case we examined, during the enforcement of sustainability aspects, hotel guests did not have to give up any comfort functions, but rather increased service levels.

In the course of the research, there were nine points that matched the responses received from individual travelers and the actions of hotel management. These are: selective waste management, renewable energy, LED lamps, non smoking rooms and common spaces, daily measurement of energy consumption, thermally insulated doors and windows, reduced amount of waste food, water saving toilets.

Overall, we can say that, as everywhere in the service sector, market players influence each other, i.e. the needs of hotel guests shape the decisions of hotel management, and the experiences of hotel guests also shape the sustainability approach of travellers.

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## The financial literacy of SMEs - Do sustainability and sustainable development matter?

DOI:

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### Abstract

The concepts of sustainability and sustainable development and their relationship with financial literacy are important topic. Our research aims to examine the trends in articles focusing on financial literacy of SMEs and to determine if sustainability or sustainable development was in a focus of the authors.

To address our research questions, we selected articles from Scopus and Web of Science databases published from 2015 until present focusing on the abstract, title and keywords. By using research terms regarding financial literacy and small businesses, we systematically searched the database for relevant results

Our research revealed that the terms related to sustainability and sustainable development are rarely mentioned by researchers in the abstract, title and keywords. The analysis conducted highlights the importance of appropriate usage of keywords and reveals a research gap, that could be narrowed if the concept of sustainability and sustainable development gain prominence in research, and if authors' keywords are used properly.

This research holds value for others conducting research in the field of financial literacy issues of SMEs, as it emphasizes that there is strong relationship between financial literacy and business sustainability and indirectly, to sustainable development. By including sustainability and sustainable development as authors' keyword, or by referring to the given SDG goals, it may help to draw more attention from other researchers.

**Keywords: Sustainability, Sustainable Development, Finance Literacy, SME, Authors' keyword**

### Introduction

The key to sustainability lies in everyday actions, but the consequences of these actions are more significant over the long run. This understanding is reflected in the fact that the United Nations developed the 2030 Agenda for Sustainable Development, which was signed by member states in 2015 and contains 17 Sustainable Development Goals (SDG) (*United Nations*, 2015). The UN and other international organizations emphasize that the responsibility of countries and organizations to achieve these goals is paramount. Since small and medium-sized enterprises (SME) make up the majority of the companies, their responsibility is also important.

The heightened attention to financial literacy was boosted by the aftermath of the economic crisis in 2008. The importance of financial awareness and knowledge attracted attention. A vast number of research and publications were initiated. Some of them were focused on understanding the reason behind the crisis, some of them were focused on possible lessons to be learned and some were about to measure the financial awareness, knowledge, skills, attitude, and behaviour.

Studies revealed that the lack of financial knowledge of the population may have contributed to the depth of the crisis. As the financial products and services became more complex and the lack of financial knowledge resulted in greater vulnerability during the crisis (Klapper et al., 2012). The consequences of the shock for the world economy were enormous and had long-term impact. And it is not over yet as the pandemic and the war in Ukraine brought new trouble in geopolitical risks.

Financial literacy is usually defined in terms of personal finance decisions. The concept of financial literacy at the firm-level is less well understood than it should be. Hussain et al. (2018) proved that financial literacy influences SMEs' performances and clarified that there are several linkages how it helped to sustain their performance. SMEs' performance are essential to achieve SDG goals (Sobir, 2019).

We conducted a literature review using academic databases, such as Scopus and Web of Science to identify the articles published after the year of 2015, as this year marks a turning point in terms of sustainable development. This literature review enables us to gain insight into the recent research in the field of financial literacy in terms of SMEs sustainability and sustainable development goals.

The paper is organised as follows. First, we summarize the current knowledge base focusing on sustainability concept, sustainable development, and financial literacy. In the following section we

introduce the research methodology of our literature review. The result section of this paper presents the selected articles focusing on financial literacy related to SMEs. In the Discussion part we provide the context and meaning of our research findings comparing our findings to previous papers. This section also provides suggestions for future research areas. Finally, we present the limitation of our results, and also the conclusion of our findings.

## Literature background

### Sustainability

Sustainability as a concept has been around for a long time. Sustainability refers to being able to continue doing something for a long period of time. As far as the small and medium-sized enterprises are concerned running the business for long is also important for the owners. However, most of the interpretations of sustainability mainly focuses on large companies (Jansson et al., 2017) and SME's particular concerns are not necessarily addressed.

From business perspective, the traditional shareholder theory means that long-term sustainability is equivalent to financial success, assuming that a businesses' main objective is to maximize shareholder value, and wealth (O'Connell and Ward, 2020). Maximising the shareholder value, in other words maximising of the profit, does not mean that the businesses can break the laws, and can do anything without any control (Friedman, 1970). Shareholder theory has been challenged, and businesses have been urged to consider other stakeholders besides shareholders (Freeman, 1984). The Triple Bottom line concept (Elkington, 1998) reflects this approach, which highlights the importance of optimising the economic, social and environmental performance in a boarder sense, as it is including non-direct stakeholders as well.

### Sustainable development

Focusing on the macro level, according to the definition of the World Commission on Environment and Development sustainable development is a development that is future- oriented considering the needs of future generations while determining current decisions on how to meet their short-term aspirations about present economic circumstances (WCED, 1987, p.43)

In the business sector, sustainable development is translated into something that puts stakeholders' targets in focus without compromising important considerations related to potential future consequences (Hockerts, 1999). In other words, sustainability entails balancing stakeholder needs and short-term profits with environmental protection.

To implement sustainable development, businesses need to have a business strategy focusing on these sustainable development targets, considering the economic and social sustainability aspects in general (Werbach, 2009). Werbach (2009) emphasized that sustainability requires more than focusing on natural environment.

The role of SMEs to achieve the sustainable development goals are presented in report of the Department of Economics and Social Affairs (Sobir, 2019). The report focuses on each of the SDG (17) and provides the possible direct and indirect contributions of Micro, Small and Medium Enterprises (MSMEs). The list bellow contains the most important goals and we mention some specific considerations related to MSMEs contribution to meeting those goals:

**Goal 1. End poverty in all its forms everywhere and Goal 5. Achieve gender equality and empower all woman and girls**

MSMEs could significantly contribute to increase employment and reduce unemployment. Job creation could help to overcome poverty and could help to achieve gender equality by employing women.

**Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.**

MSMEs have multiple chances to contribute towards achieving these objectives. One of which is providing employees with ongoing learning opportunities to improve the essential skills for their present and future employability.

**Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.**

MSMEs have direct contribution to achieve these goals. In addition of MSMEs job creations they play crucial role to contribute the economic growth.

**Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.**

This goal contains the target 9.3, which directly linked MSMEs to this goal. This target aims to increase the access of MSMEs to financial [services](#).

After carefully reviewing these goals and targets, it is clear that the performance of the MSMEs is crucial in meeting these targets. An MSME performing better could contribute better to the sustainable development goals and targets. In other words, the MSMEs sustainability's are one of the factors that may contribute to achieve the sustainable development goals and targets.

### **Financial literacy**

Our literature survey focuses on the specific aspects of enterprise sustainability and financial literacy. The issue of financial literacy is hardly mentioned in the context of enterprise sustainability. Specific considerations of entrepreneurial decisions are seldom targeted in research dealing with the issues of financial literacy. This surprising gap in both research fields needs to be filled by covering the interconnected aspects of financial literacy in firm decisions and incorporating the concept of sustainability into the vast literature on financial literacy.

The concept of financial literacy is well known and used often without relying on a widely accepted and unified definition. Financial literacy represents a broad and changing concept as it is continuously changing reflecting the developments in the environment and financial markets. Financial literacy of individuals, however, it may have an impact on the macro-economic process and as a consequence may influence monetary and budgeting policy, and in general the sustainability of the financial system as a whole (Béres & Huzdik, 2012)

Remund (2010) conducted a survey to aggregate the existing definitions available from the year 2000. Based on his findings the definitions could be categorized in five groups such as: (a) understanding of financial concepts; (b) ability to communicate about finances, (c) aptitude in managing personal finances, (d) skill in making appropriate financial decisions and (e) confidence in planning for future needs (Remund, 2010, p. 279 ). These categorization covers general aspects of financial knowledge but still reflects a focus on personal finances as opposed to aspects of corporate decision making.

Huston (2010) emphasized that financial literacy is not the same as financial knowledge. Financial literacy cover both a concept and the measurement methodology which focuses not just on the personal knowledge but also on its application dimension (Huston (2010).

Amagir et al., (2018) defines three main components of financial literacy such as: knowledge and understanding; skills and behaviour; and attitudes and confidence.

Remund (2010) formulated the following definition: "Financial literacy is measure of the degree to which one understands key financial concepts and possesses the ability and confidence to manage personal finances through appropriate, short-term decision-making and sound, long-range financial planning by mindful of life events and changing economic conditions" (Remund, 2010, p. 284).

Remund's definition is a comprehensive definition that covers all aspects of the definition that the OECD used for financial literacy in its approaches. The OECD defines financial literacy as "a combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing" (quoted by Atkinson & Messy, 2012, p. 14).

The pandemic has accelerated the development of digital finance services. Digital competence is getting to be more and more important in the future. Different types of new financial products are available. Due to the pandemic the households usage of digital payments have been accelerated. (MNB, 2021)

The development of this area raised the necessity to broaden the current approach to financial literacy. Although no generally accepted final definition exists on financial literacy, it is important to acknowledge that the current definition is changing because of these new developments.

The Alliance for Financial Inclusion highlighted that digital services could support inclusion. However, the low level of awareness and the lack of confidence can hinder this positive tendency. To cope with new challenges financial education should be more focused, and better tailored to digital financial literacy. According to their definition digital financial literacy requires "the knowledge, skills, confidence and competencies to safely use digitally delivered financial products and services, to make informed financial decisions and act in one's best financial interest per individual's economic and social circumstance" (Digital Finance Literacy, 2021, p.4.). Although these definitions explicitly tried to cover all relevant aspects of financial literacy, it is still noteworthy to mention that all of these definitions remained within the scope of personal finances.

There are still few attempts to widen this focus. Among those we find an important initiative to use a new definition which brings sustainable finance into the field of literacy. However, the concept of sustainability only appears as a characteristic feature of the considered financial products. They define sustainable finance literacy as the "knowledge of regulations, norms, and standards about financial products that have sustainable characteristics" Filippini et al. (2022, p.2.).



### **Measurement of financial literacy**

Measurement issues can be discussed in relation to several financial literacy definitions. These issues discussed in this part originally were discussed within the framework of a narrow definition of financial literacy which focused on personal finances. However, these issues are equally relevant in the more general context covering corporate financial decisions.

An assessment of financial literacy level is necessary for several purposes. First, a measurement of financial literacy level is needed to define and work out the methodology of financial education. Such measurement helps in evaluating educational performance and effectiveness. Measuring financial literacy also helps to understand the impact of certain economic events (for example COVID 19), and may explain variation in savings, investments, and debt behaviour.

There are plenty of possibilities for different approaches to measurement among students enrolled in primary/elementary school or high/secondary school; or measurement among university students; or measurement of adults may raise different challenges.

Huston (2010) performed a study on data collection method of financial literacy measurement (N=52) mainly performed between 1996 and 2008 in U.S. discovered that the measurement methodologies were not consistent. However, a consistent and widely accepted methodology would be needed to be used as a reliable input in a variety of fields, including financial education.

### **How to improve financial literacy – the importance of education**

According to Huston, (2010) financial literacy education must and should be colourful in order to meet the demands of a wide spectrum of needs and backgrounds (different learning style, different life stages etc.).

The development of financial literacy and knowledge is beneficial to individuals as well as the economy. Among other researchers, (Klapper et al., 2012) also found that proper financial literacy may help individuals to deal with macro-economic shock and financial crisis.

Financial education can be defined as “the process by which financial consumers/investors improve their understanding of financial products, concepts and risks and, through information, instruction and/or objective advice, develop the skills and confidence to become more aware of financial risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial well-being.” (Recommendation on Principles and Good Practices for Financial Education and Awareness, 2005 p.3.)

The financial education programs cover variable topics: budgeting; consumer protection; money management; saving and investing etc. These programs are targeted students, adults, low-income persons, women etc. The programs may be designed to improve general financial knowledge (interest rates, inflation, investments, etc.) and/or to influence financial behaviour and attitude.

Kaiser & Menkhoff (2017) performed meta-analysis of 126 studies and found financial education significantly impacted the financial behaviour in general, but according to the result of the research some behaviour like handling of debt is hard to influence.

However, in their comprehensive research analysis, Amagir et al. (2018) concluded that financial educations can increase children's and adolescents' financial knowledge and attitudes but have only a minor effect on actual behaviour.

In 2016 a study investigated the Hungarian financial literacy education performance. The sample consists of 40 training programs was carefully examined. by usage of questionnaires. The following were the main points of discussion: the characteristics and number of participants in the programs; the source of the programs' funding; the status of the program coordinators; the length of each program; the availability of the curriculum; and is there any evaluation of the effectiveness after each course or program. According to the findings of the research the majority of the financial education programs are quite short (only couple of hours) and ending without any effectiveness test. The authors also emphasized, that the majority of the program were financed by public fund, so it is important to increase the sound public spending and to monitor the effectiveness of these programs and also call for the necessity of proper quality assurance system. (Németh et al., 2016)

Németh E. et al., (2020) continued the investigation to see whether progress has been made in financial education and whether financial literacy education effectiveness has improved between 2016 and 2020 in Hungary. The sample consists of 122 training programs and the research was completed during the summer 2020. Based on the questionnaires fulfilled by the participants on training programs the researchers found that the focus was on school student still.

### **Business sustainability and the financial literacy**

In addition to ensuring the accumulation of wealth, financial literacy also enhances the performance of a company (Lusardi and Mitchell, 2014). Organizational decision-making relies heavily on financial

literacy, which is not surprising (Allgood and Walstad, 2016) and also financial planning (Lusardi and Mitchell, 2014).

There is no universally shared definition of financial literacy but the concept, but few would object to the understanding that it is a component of knowledge required to manage finances. Noctor et al. (1992, p.4.) defined financial literacy as “the ability of an individual to make an informed judgement and take effective decisions regarding the use and management of money”. Thus, financial literacy is an important factor especially for the sustainability of newly started SMEs where the survival rate is relatively low.

Studies about financial literacy of the management in SMEs identified some common problems (Eniola & Entebang, 2017). Kotzé & Smit (2008) highlighted that lack of financial literacy in failing SMEs was often the main cause of failure.

Widdowson and Hailwood (2007) draw attention to the importance of financial literacy in risk management which opened the way to take advantage of financial market competition. Financial literacy also helped entrepreneurs in negotiating with the banks which was important to achieve sustainability (Lusardi and Mitchell, 2011, Reich and Berman, 2015).

It is well known that financial literacy helps value creation for individuals but Lusardi, Mitchell and Curto (2010) proved that its role in the process of value creation in SMEs contributed to their sustainability.

Financial literacy is important for the survival of SMEs in both developed and developing countries, according to Wise (2013). Poor financial literacy led to poor financial management practices and frequent financial mistakes (Lusardi and Mitchell 2014). To cope with economic changes, Huston (2010) emphasized the importance of financial literacy. Similarly, Widdowson & Hailwood (2007) discovered that people who have strong financial knowledge are more likely to make successful investments in complex assets.

Hussain et al. (2018) proved that financial literacy influences SMEs' performances and also clarified that there are several linkages how it helped to sustain their performance. The concept of financial literacy as a component of the enterprise knowledge resources is especially important because there are few other knowledge resources so widely researched than financial literacy. Although the approaches until now focused on the educational aspects, this gap is narrowing as more and more studies address the issues how financial literacy influences the sustainability of SMEs.

## Methodology

The main objective of this systematic literature review is to gain better understanding of how researchers articulate the concepts of sustainability and/or sustainable development goals in their articles that are focusing on financial literacy, particularly in the context of small and medium-sized businesses.

To achieve the research objective the following research questions were formulated:

RQ1: How do researchers define the sustainability and/or sustainable development goals in their articles on the financial literacy of small and medium-sized businesses?

RQ2: What sustainable development goals are addressed in the articles on the MSMEs' financial literacy?

The systematic search we conducted is based on the notion that the title, keyword, and abstract (at least one of them) express the article's content significantly, so - despite not being suitable for drawing broad, comprehensive conclusions - can be used to collect relevant, eligible articles. Our assumption is that authors clearly mention the terms “sustainable development” or “sustainability” in the title and/or in the abstract and/or among the keywords. Our intention is to focus only on the titles, abstracts, and keywords. First, we identified the relevant search terms based on the review of the literature (Table 1.) and (Table 2.). Each search term has at least one variant and some search terms have more variants. As an example, variants of “Financial awareness” are “Financial aware” and “Financially aware”. Finally, 14 search terms were used in the field of financial literacy.

Table 1. Search terms for financial literacy

<b>Search terms</b>		<b>Variants searched</b>
Financial literacy	1.1	Financial literacy
	1.2	Financially literate
Financial awareness	2.1	Financial awareness
	2.2	Financial aware
	2.3	Financially aware
Financial knowledge	3.1	Financial knowledge
Financial education	4.1	Financial education
Financial culture	5.1	Financial culture
Financial decision	6.1	Financial decision
	6.2	Financial decisions
Financial behaviour	7.1	Financial behaviour
	7.2	Financial behavior
	7.3	Financial behaviours
	7.4	Financial behaviors
<b>TOTAL number of search terms</b>		<b>14</b>

Also, search terms were identified to define the micro, small and medium-sized businesses. Due to the inaccurate outcomes, it became necessary to eliminate the terms micro and medium from the research terms. The final search terms listed in Table 2.

Table 2. Search terms small and medium-sized businesses

<b>Search terms</b>		<b>Variants searched</b>
SME	1.	SME*
MSME	2.	MSME*
Small busines	3.	Small business
<b>TOTAL number of research terms</b>		<b>3</b>

The search terms sustainability and sustainable development were also identified.

Table 3. Search terms sustainability

<b>Search terms</b>		<b>Variants searched</b>
Sustainability	1.	Sustainability
Sustainable development	2.	Sustainable development
<b>TOTAL number of research terms</b>		<b>2</b>

To collect the relevant publications, we collected data from Scopus and Web of Science databases. The result was filtered for "Economics, Econometrics and Finance" and "Business, Management and Accounting" subject areas in Scopus Database. In case of Web of Science only publication in Management and Economics subject areas were selected.

The data were collected on 12<sup>th</sup> of April 2023, which means that the dataset includes articles published up until that date in the year 2023.

The dataset contains 21 journal articles starting from the year 2015 until April 2023, published in English. Although the research terms were provided in English, not all selected articles were in English, so we filtered the database for articles written in English.

Following the removal of duplicate and non-English articles, 19 articles remained for further analysis. Additional 7 were excluded from consideration as their title and/or their abstract did not appear to be relevant to our research purposes or we had no access to them. Finally, we selected 12 articles.

## **Result**

### **Characteristics of the selected articles**

Surprisingly the selection of the articles contains only 12 articles published over the period examined (2015-2023) (Table 4). Seven articles out of the total investigated Indonesian small businesses, and only one article focused on European SMEs, namely Hungarian ones.

Although our search period started in 2015, as the sustainable development goals was announced in that year, we only found the first relevant article in the year 2019. Three articles were published in 2019 and in 2020, two in 2021, while in 2022 four articles were published according to our search terms.

Table 4. Summary of the articles

CODE	Authors	Article Title	Source Title	Year	Country	Sample	Focus	Authors' keywords	Main Findings	Abstract mentioned
S1	Yanto H., Kiswanto, Baroroh N., Hajawiyah A., Rahim N.M.	The roles of entrepreneurial skills, Financial Literacy, and Digital Literacy in Maintaining MSMEs during the COVID-19 Pandemic	Asian Economic and Financial Review	2022	Indonesia	N=204	Financial literacy; Digital literacy; Entrepreneur skills	<b>Business Sustainability</b> ; Digital Literacy; Financial Literacy; Health and Safety; Business during pandemic; Entrepreneurial Skills	Implementation of health and safety measures (pandemic) has insignificant impact on business sustainability, but significant positive impact was found in case of financial and digital literacy	MSME sustainability; business sustainability
S2	Nugraha D.P., Setiawan B., Nathan R.J., Fekete-Farkas M.	Fintech Adoption Drivers for Innovation for SMEs in Indonesia	Journal of Open Innovation: Technology, Market, and Complexity	2022	Indonesia	N=415	Perceived usefulness; perceived ease of use; user innovativeness; government support; trust and financial literacy	Digitalization in Finance; Indonesian SMEs; extended TAM; <b>Sustainable Development Goals</b>	Perceived usefulness, perceived ease of use, user innovativeness, government support, and trust, have a direct impact on behavioral intention of Indonesian SMEs to adopt Fintech solution. Financial literacy indirectly correlates with Fintech.	NO
S3	Raharja B.S., Bachtiar N.K., Azis M.R.A.	The behavioural dimension of SME's owner on affecting the financial decisions	Business: Theory and Practice	2022	Indonesia	N=482	behavioural and non-behavioural factors on financial decision	Capital Structure; Financial Behavior; Financial Education; Financing Development; Investment Decisions	Significant effect of behavioural aspects of SME's owners and non significant impact of non-behavioural factors on the financing decisions	Sustainability of SMEs industry
S4	Hamdana, Murwani F.D., Sudarmiatin, Hermawan A.	The effects of financial and technology literacy on the <b>sustainability</b> of Indonesian SMEs: Mediating role of supply chain practice	Uncertain Supply Chain Management	2022	Indonesia	N=485	Financial literacy; Technology literacy; Supply chain practices; SMEs sustainability	SMEs; Developing Country; Financial Literacy; Technology Literacy; <b>Business Sustainability</b> ; Supply Chain Practice	Financial literacy, technological literacy, and supply chain practice contributed positively and significantly to the sustainability of SMEs	Sustainability of SMEs; sustainable manner
S5	Sahela, KZ; Susanti, R; Adjie, AR	The Influence of Government Dimension on Financial Education and Empowerment of Micro-, Small- and Medium-Sized Enterprises in Indonesia	Journal of Asian Finance Economics and Business	2021	Indonesia		Financial education; Consumer protection; Government Dimension; MSMEs Empowerment	Financial Education; MSMEs Empowerment; Entrepreneurship Theory	Financial education plays an important role in the sustainability of financial inclusion	Sustainability of MSMEs
SW1	Toth, R; Zeman, Z; Turoczi, I; Kasa, R; Popp, J; Olah, J	The system of relationships between <b>sustainable</b> corporate governance and corporate financial literacy	Polish Journal of Management Studied	2021	Hungary	N=511	Corporate Financial Literacy; Corporate Financial Results; Operation Efficiency; Corporate Financial Decisions	Corporate Financial Literacy; Financial Decisions; Financial Effectiveness; <b>Economic and Financial Sustainability</b>	Financial literacy index play significant role SME sustainability	Corporate sustainability
S6	Kostini N., Raharja S.J.	Analysis of Financial Behavior of SMEs in the Creative Industries in Bandung City, Indonesia	Review of Integrative Business and Economics Research	2020	Indonesia	N=432	financial behaviour 9 indicators (external and internal)	Financial Behaviour; SMEs; Creative Industries; Internal Factors; External Factors	Financial education importance to strengthen the financial behaviour.	Sustainability of business
S7	Guliman S.D.O.	The role of entrepreneur's financial sophistication on the nexus of business strategy and <b>sustainability</b> indicators of philippine microenterprises	Asia-Pacific Social Science Review	2020	The Republic of Philippines	N=384	Financial Sophistication and Business Strategy impact on Sustainability indicators (Economic, Environmental, Social and Governance)	Financial Sophistication; Financial Literacy; Business Strategy; <b>Sustainability</b> ; MSMEs	Business strategy is positively linked to each of the sustainability indicators; the entrepreneur's financial sophistication increases the effect of business strategy on each of the sustainability indicators.	Sustainability indicator
S8	Maziriri E.T., Chivandi A.	Modelling key predictors that stimulate the entrepreneurial performance of small and medium-sized enterprises (SMEs) and poverty reduction: Perspectives from SME managers in an emerging economy	Acta Commercii	2020	South Africa	N=150	Entrepreneurship Education, Budgeting Financial Literacy and Access to Credit Facilities are the independent variables; Entrepreneurial Performance as mediating variable on SMEs Poverty Reduction	Entrepreneurship Education, Budgeting Financial Literacy, Access to Credit Facilities; Poverty Reduction; Entrepreneurial Performance	Entrepreneurial performance was found to have a robust influence on poverty reduction. A robust relationship was also found between budgeting financial literacy and entrepreneurial performance.	2015 United Nations Sustainable Development Goals
S9	Marlina L., Irawati N., Sadalia I., Muda I.	The financial behavior traits impact on financial distress at small medium enterprise's (the relationships between the industry and <b>sustainable development</b> in indonesia)	International Journal of Scientific and Technology Research	2019	Indonesia	N=60	Factors resulting financial distress for SMEs	Financial Distress; Financial Behaviour; Self Control Planning; Patience affect; Small Medium Enterprises, Behaviour Traits	Financial behaviour (capacity of control, planning and patience) influence financial distress. The highest impact has the patience.	NO
W1	Rasheed, R; Siddiqui, SH	Attitude for inclusive finance: influence of owner-managers' and firms' characteristics on SMEs financial decision making	Journal of Economic and Administrative Sciences	2019	Pakistan	N=285	SME Owner-manager attitude towards financial decision	Pakistan; SME; Decision Making; Owner-manager; Inclusive Finance	The low awareness level of owner-managers regarding financial products and procedures significantly affects their attitude	Sustainability studies
W2	Ye, JM; Kulathunga, KMMCB	How Does Financial Literacy Promote <b>Sustainability</b> in SMEs? A Developing Country Perspective	Sustainability	2019	Sri Lanka	N=291	The impact of financial literacy, access to finance and financial risk attitude on SMEs' sustainability	Financial Literacy; Access to Finance; Financial Risk Attitude; <b>SMEs Sustainable Performance</b>	Direct positive effects of financial literacy, access to finance and financial risk attitude on sustainability.	sustainability, SME's sustainability

As far the journals are concerned, each journal is included in the database only once, meaning that only one article is published during our research period matches our research criteria. We also checked the SCImago Journal Rank indicator to define the prestige of the journal where the selected articles were published. Table 5 provides the relevant list.

Table 5. Journal rank

Source Title	Q rank
Journal of Open Innovation: Technology, Market, and Complexity	Q1
Sustainability	Q2
Uncertain Supply Chain Management	Q2
Asian Economic and Financial Review	Q3
Business: Theory and Practice	Q3
Journal of Asian Finance Economics and Business	Q3
Polish Journal of Management Studied	Q3
Asia-Pacific Social Science Review	Q4
International Journal of Scientific and Technology Research	Q4
Acta Commercii	Not ranked
Journal of Economic and Administrative Sciences	Not ranked
Review of Integrative Business and Economics Research	Not ranked

The citations index was also analyzed. According to the information provided by the databases, four articles are not yet cited. The highest citations index is achieved by the article of Ye & Kulathunga (2019) with 33 citations, journal ranked as Q2.

### Summary of the findings of the selected articles

The studies of Ye and Kulathunga (2019) (W2) and Rasheed & Siddiqui, (2018) (W1) research emphasized that financial literacy is an important component of the knowledge base influencing the decisions in SMEs and it has an impact on their sustainability.

Rasheed & Siddiqui, (2018) in their research based not only behavioural theory aspects (attitude) but also focus on personal and firm characteristics that are influencing the owner/managers financial decision makings. Such personal characteristics could be the gender, age, education, and experience. The size, the age, the industry type, and the turnover are the firm characteristics that may play also role to moderate the decision-making attitudes.

Ye and Kulathunga (2019) emphasized that “Financial literacy should also help businesses to deal with challenges in cutting edge credit markets. Financial literacy enables entrepreneurs to manage risks through strategies, such as maintaining financial reserves, diversifying their investment portfolio and buying insurance. Inadequate financial literacy has been identified as one of the main barriers to the sustainable development of SMEs.” (Ye and Kulathunga, 2019, p.3.). They noted that even if the importance of financial literacy was empirically detected, the transmission of the impact on SMEs’ sustainability was not addressed. Therefore, their research is targeting to reveal relationship between financial literacy and sustainability directly, while assuming that financial risk attitude mediates the relationship between financial literacy and SMEs sustainability. Financial literacy and sustainability are found to have a positive relationship, based on the research. The important finding of the research is that it is advisable to employ a financially highly literate CFO to promote sustainability.

Maziriri & Chivandi, (2020) (S8) focused on budget literacy, which could be defined as a smaller part of financial literacy. Entrepreneurship education, budgeting financial literacy, and credit facilities are examined for their impact on entrepreneurship and poverty reduction. Quantitative approach is employed. The dataset contains answers collected through a structured questionnaire from 150 managers of rural small and medium sized enterprises from Vhembe District of Limpopo province, South Africa. Researchers found positive effects of entrepreneurship education, budgeting, and financial literacy on entrepreneur performance and poverty reduction. Therefore, in their research positive relationship was identified between the level of budgeting literacy and Sustainable Development Goal 1.

The paper published by Kostini & Raharja, (2020) (S6) explored the factors influencing financial behaviour of creative SMEs in Indonesia. They emphasized that SMEs encounter the difficulty the sustainability through financial management. The research involved 432 participants and focusing the following factors like: financial management, recording of data, planning, handling personal and business expenses, non-planned purchase, creditors payment. Better financial management, proper recording of the transaction, planning are the main factors influencing the financial behaviours.

Raharja et al., (2022) (S3) involved 592 SMEs owner to explore the relationship between the behavioural, non-behavioural factors of the owner of the SMEs combining the business characteristics on their financial decisions. According to the findings Owners' financial decisions are most likely to be affected by non-behavioural factors

The comprehensive research was performed on the impact of financial sophistication on sustainability indicators in Philippine microenterprises by Guliman (2020) (S7). The model created uses structural equation modelling to identify the relationship between financial sophistication and sustainably indicators and business strategy. Financial sophistication refers to financial knowledge financial behaviour financial attitude and financial decision-making style. The following sustainability indicators are taken into account: Economic, Environmental, Social and Governance. The research found positive and significant relationship between business strategy and sustainability indicators, and indirect impact was determined stronger correlation with the existence of financial sophistication.

According to Yanto et al (2022) (S1), MSME owners' digital literacy and financial literacy improved as they dealt with their financial problems online during the pandemic. Still focusing on the COVID era, the Nugraha et al., (2022) (S2) found that financial literacy has indirect relationship with Fintech adoption, meaning than Fintech could improve the financial inclusion of SMEs.

The article focusing on Hungarian SMEs (Tóth et al., 2021) (SW1) introduces a model to explore the relationship between corporate financial literacy and corporate financial result, the efficiency of operation, and the outcome of corporate financial decision. The research sample contains 511 SMEs representatives. In their model the corporate financial index was created with seven constituents' group and the respondents were grouped into clusters. Their findings indicate that the level of corporate financial literacy had a significantly positive impact on financial results.

Sustainability of SMEs is not only investigated from the financial literacy angle but also from technical literacy, and from supply chain aspects in recent publication of Hamdana et al., (2022) (S4). In their research direct and indirect effects have been tested. The findings of the research among 485 SMEs owners indicate that there is positive relationship in case of direct relationship, while in case of indirect ones the results indicate relationship, but not always a strengthening one. According to their standpoint "Sustainability being an operational practice concept, is a multidimensional concept that includes business strategy, financial management, customer satisfaction, stakeholder interests, the process of adapting to technology, starting from the initial chain to the final destination of a product/service." (Hamdana et al., 2022, p. 1454.).

Factors contributing to financial distress were presented in the paper of Marlina et al., (2019) (S9). The sample is relatively small as only 60 participants fulfilled the questionnaire. The research defined financial distress as an early warning of a possible bankruptcy. The results reveal that the financial behaviour (like capacity of self-control, planning and patience) has positive impact on managing distress.

Last but not least, the article of Sahela et al., (2021) (S5) indicates that financial education has a significant and positive impact on finance in MSMEs, and it contributes to sustainability of financial inclusion. The results revealed that financial education, customer protection and the government have key role in achieving financial inclusion and fostering economic growth.

Considering our first research question, we can conclude that researchers who focus on financial literacy did not give much attention to sustainability and sustainable development goals. In general, they did not emphasize that financial literacy is a key element for maintaining business sustainability and to achieve sustainable development goals. As a result of analyzing the articles above, we can conclude that these phrases were simultaneously mentioned in the title, the abstract, and in the keywords of four articles from the twelve (S4; S7; SW1; W2).

As far as the second research question is concerned, our research shows that authors refer to sustainable development goals in a general manner, not specifying any development goals in the title or in the abstract or not defining them among the keywords. In addition, only two of the twelve articles mentioned sustainable development goals. Nevertheless, in one instance, it can be inferred that the authors intention is to target SDG 1, which pertains to poverty reduction (S8).

## Limitations

Our research was based on Scopus and Web of Science dataset, while including other dataset source could increase the contribution to the academic knowledge.

We assumed that the title of the articles, the abstract, and the keywords are the proper words and phrases that express the essence of the given research paper. However, these are not always the most suitable representation of the paper content. In case of authors' keywords other factors may influence the selection of these keywords, like the author's personal preferences and/or strategic considerations. The keywords together with the title and the abstract of research papers are good starting point, but the paper content and its contribution to the academic knowledge could be understood by analysing the paper content.

## Conclusion

Our systematic literature review resulted 12 articles published during the search period from year 2015. We defined the search terms regarding financial literacy and small businesses and searched systematically in the database Scopus and Web of Science. We focused on the abstract, title and the keywords.

We can conclude that most of the selected articles focused on financial behaviour, and some focused on the relationship between financial literacy and the performance of SMEs, namely their sustainability. However, due to the limited number of articles no definitive trends or general consequences could be concluded. Furthermore, most of the published research focused on Indonesian SMEs, which makes generalization hard.

Although it appears that there is limited focus on sustainability and/or sustainable development goals, but perhaps researchers are not "sustainability-aware" enough, which may explain the limited number of articles found during our systematic review. This means that they are not using "sustainability" as keyword, even though their research is about the performance or/and growth of SMEs. Due to this lack of "awareness" some of them miss the opportunity to at least mention these phrases as an author keyword and they also miss the opportunity to use them in the title or in the abstract.



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## Breaking through the glass ceiling by implementing gender quotas

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### Abstract

The purpose of my research paper is to analyze the gender quotas in different countries. I have written my study based on the next research question: How effective does the German gender quota work compared to other countries' quota regulations? To complete this paper, I have applied secondary and primary research methods. I also had the opportunity to collect information in the form of deep interviews. As the result of my research work it can be said that – even though Germany on this area has already belonged to the well performing countries – the implementation of the gender quota has been increasing continuously the career opportunities of the women in the business world.

**Keywords: gender quota, gender diversity, leadership, sustainability**

### Introduction

Gender equality is a fundamental human right, yet not everyone has it today. The social status of women around the world still remains very different. In some countries, girls do not even have access to education, while in other regions, support measures are already being put in place to help women gain access to leadership positions, however the “glass ceiling” still keeps the majority of talented women out of strategic functions. This is why the United Nations has included gender equality in its Sustainable Development Goals. They are constantly working to eliminate the causes of discrimination against women, which still limits women's rights in both family and public life. Many countries have taken measures to effectively support the advancement of women and girls at different levels through various means. Among these countries we can also find Germany.

The German women's quota has been implemented since 1 January 2016 for large companies listed on the stock exchange with an equal number of employee and employer representatives on their supervisory boards. The quota allows a higher number of qualified women to hold senior management positions. This instrument acts as a temporary regulator until inequality between women and men is eliminated and they are treated equally. The situation of women in the German labour market is influenced by a number of factors. The fragmentation of the country in the past has placed different expectations on them, which they still face today in addition to child-rearing, household management and discrimination. The quota is precisely designed to remove these barriers. Quota regulations offer a quite new field for study. Due to the early stage of this research area the number of detailed analyses is quite small. My motivation to write this paper was to provide a good overview of the current situation that could be a good base for the ones who want to study this topic in depth. My research aims to examine the effectiveness of this supportive measure compared to other nations' quota systems.

To answer my research question, I used secondary and primary research methods. I have used books, articles, studies, interviews, statistics, newspaper articles, reports and other online sources, as well as primary research in the form of in-depth interviews. I conducted 5 semi-structured interviews. I interviewed Marion Israël, who has been running a small construction company, BIM Architectes, for 15 years, about quota regulations in France and the situation of female managers in France. I also interviewed workers in Germany about the impact and perception of the German female quota. They wished to stay anonymous to protect their employers and their position at the company. Éva Zanin, Diversity and Inclusion Expert at Hungarian Telekom Nyrt. also supported my research.

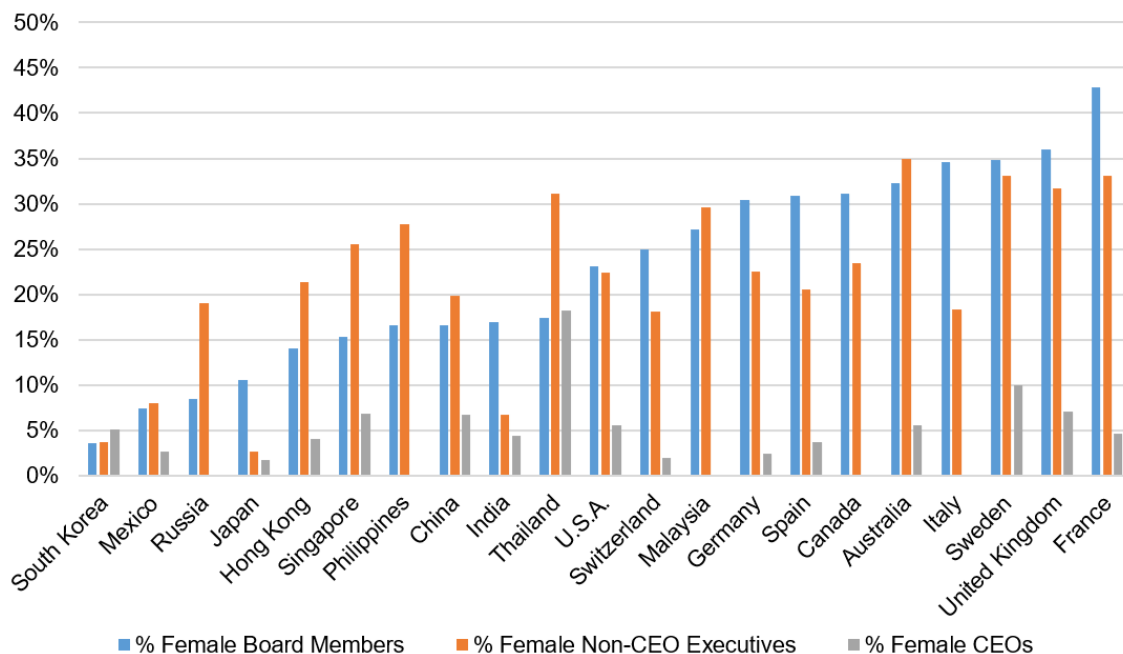
### Countries without quotas

The social status of women varies from country to country. In some areas, they have not even achieved equality and have little or no say in decision-making. Consequently, the acceptance of women leaders also differ from country to country. The judgement of the importance of gender equality depends to a large extent on national culture. There are some places, where people's attitudes are sufficient to support women in achieving leadership positions, in some regions only more flexible, weaker regulations are needed, while in other areas already the idea itself is rejected altogether.

The UK has one of the labor markets with a non-binding target. There is no written law on the promotion of female directors, but with governmental support, in 2011 the Davies Review set a target of 25% for the board of directors by 2015, which was raised later to 33%. This target was to be met by 2020 (Davies Review, 2015). In 2021, the proportion of women on supervisory boards was 38% and on boards 24% (EWOB, 2021).

In South Africa, the percentage of female directors was around 20% in 2016. A program called Broad-Based Black Economic Empowerment (B-BBEE) was launched in 2003 to support black citizens. This includes a regulation on the participation rate in senior management positions: 60% of managers must be black, with 40% of this proportion going to black women. Another objective of the B-BBEE was to motivate women to engage in economic activities: to start a business, to study, they were also encouraged to develop their skills. Thanks to this opportunity partly, South Africa has the highest proportion of women in senior management or CEO positions (38.5%) (Minasyan, 2020).

Figure 1. Female Board and Management Diversity Across the Globe



Source: FactSet (2021)

The Middle East and North Africa have the lowest number of women in leadership positions. No real statistics or research can really be done in this region. However, there are efforts to increase the proportion of women in leadership, such as 30% MENA, Reach or Hawkamah. In the United Arab Emirates, a quarter of listed companies have a female board member, with 3.5% of all board seats going to women in 2021. The Commission for Gender Equality has set a target for the Emirates to move up the global gender equality rankings (Deloitte, 2022). Presumably, as the effect of the mentioned measures the participation of women in leadership positions will increase in the future.

There are certain countries, where the absence of laws and rules is probably the reason why the steps toward gender equality are hindered. Among these countries are listed Russia, South Korea, Japan, China, and the USA (d'Hoop-Azar et al., 2017).

The application of the law can certainly serve as a solution, as it forces a certain proportion of women to be able to assert themselves as managers. The effectiveness of the rules is also influenced by the views of local people on their willingness to live with the impacts. Sweden does not have a quota, yet Sweden has a high proportion of female managers. Indeed, in most Nordic countries, women hold a significant number of leadership positions. Finland is in a similar situation to Sweden. Although Norway was the first country ever to introduce a 40% quota, and thus had the highest number of female managers in 2017, there is not much difference due to the strict requirement comparing to Sweden. In the Nordic countries, women are legally facilitated to combine career and family. Sweden is perhaps the best example for this (d'Hoop-Azar et al., 2017).

In contrast to the Nordic region, women are mostly underrepresented in countries such as South Korea, where women only hold an insignificant proportion of senior positions in companies. These are hermetically sealed chevrons with hereditary positions within families. Presumably, the very shallow pool of female leaders may also be the result of tradition. There is considerable resistance to any attempt to change the composition of the board. The only exception is perhaps Samsung Electronics, which introduced its own 5% gender quota in 2019 in order to raise the proportion of women in senior management (Kim, 2020). Only state-owned companies will be subject to a compulsory quota from 2020, requiring companies to appoint a woman board member within two years (Deloitte, 2022).

Japan was ranked 120th in the World Economic Forum's 2021 Gender Equality Report, which covers 153 countries. The Japanese government attempted to achieve 30% female participation without a quota in 2010, which was

planned to be accomplished by 2020, however after considering the results (9%), it has extended the deadline (Deloitte, 2022).

Malaysia has set a target of 30% female participation in senior positions, similar to Japan. The Malaysians appear to be more successful, 24% of seats on supervisory boards were filled by women in 2021 (Deloitte, 2022).

Another category includes countries where attitudes are changing however there are no regulations yet. One such example is the United States. In 2014, the percentage of female leaders was 13.4%, rising to 20% by 2020, the next target in the national campaign is 30%. The question is whether the US will be able to maintain the upward trend without any restrictions in the future. Seeing the data for 2021, it is not impossible, as the proportion of women on boards has already risen to 23.9% (Deloitte, 2022). The idea of Every Other One also originated overseas, according to this thought women should be appointed to every new vacancy on boards (d'Hoop-Azar et al., 2017).

Canada takes a similar position to the US. The only province with a gender quota is Quebec. Surprisingly, the 50% target quota has been in force since 2011. Apart from this, there is generally no regulation in the federation on the proportion of gender representation in leadership positions. In December 2020, the federation's leadership announced the 50-30 Challenge. Any Canadian organisation or company can join this voluntary challenge. The aim of this program is to achieve full gender equality on the boards of Canadian companies and to support other disadvantaged groups such as LGBT+ people, Indigenous Canadians and people with disabilities (Deloitte, 2022).

### Countries with gender quotas

In some countries there was no effort to legislate, in others just the attitude of the people is enough to increase the proportion of women in leadership positions, while in certain regions only the force of law can be used to improve female participation rate in management positions. Most of the countries that have passed the strictest laws and quotas to support women leaders can be found in Europe.

The first gender quota came into force in Norway in 2005 and affected the listed companies. In Norway, the number of female members is determined based on the number of directors running the company and the size of the board of directors. At least one of 2-3 directors must be female, and a 40% quota applies to boards with more than 9-10 members. This has resulted in a participation of women among Norwegian company directors above 40% already in 2008. If a company does not comply with the regulation, it has to face the consequences. Although the sanction is the dissolving of the company, so far no company has been punished this way (Teigen, 2015). The share of women on supervisory boards in Norway was 41% and 32% on boards of directors in 2021 (EWOB, 2021). Following Norway's example, many countries have enacted regulations and policies in support of female board members.

France is seen by many as a bastion of liberalism, so it is surprising that they have opted for a mandatory quota for women. Although French society seems to be very accepting, this is not entirely true when it comes to women leaders. A manager of a small construction company shared her experience with me about the perception of women managers in an interview. Marion Israël shared with me that every time she was expecting a child, she had to hide the fact, because her clients would immediately look for another company if they found out she was pregnant. For her, having a child and taking on a managerial role was a problem, as the maternity leave in France is a maximum of three months. As a female manager, she has experienced many times male managers making her feel inferior or simply trying to woo her. In her opinion, a quota for women was very much needed (Israël, 2022). In France, the gender quota was introduced in January 2011. By law, all listed and unlisted companies with more than 500 employees or €50 million in revenue are mandated to have at least 20% female representation in senior management (EWOB, 2021). 2014 was not only the target year, but also the time when the set figure was reached. The quota was increased to 40% in the same year, this was met by 2017 (EIGE, 2021). In case of non-compliance, companies faced two types of sanctions: the appointment of directors in breach of the law became invalid or the payment of attendance fees for the position were suspended. In 2021, France had the highest number of female members of supervisory boards (45%) and boards of directors (21%) (EWOB, 2021).

In Italy, the quota law entered into force in August 2012. It required supervisory boards of listed companies to have 1/5 representation of each sex for the next board renewal. For the second renewal of the board, this proportion must be increased to one third. If the company does not comply, CONSOB (the Italian stock exchange regulating body) will first send a warning to the company, demanding that it comply within four months. If this is not done within the deadline, the company will be fined between €100,000 and €1,000,000. If the company still refuses to take action, this can lead to the annulment of all director appointments (Bennouri et al., 2020). In 2020, the Italian government introduced a 40% quota instead of the previous one-third quota to renew the boards of listed companies (de Mattia et al., 2020). The proportion of women on supervisory boards in Italy in 2021 was 37%, while the share of women on boards of directors was much lower at 17%. It is particularly interesting that the highest number of female board members (47%) is found in this country. In EU terms, Italy ranks second in regarding female board participation (EWOB, 2021).

In Switzerland gender quota guidelines for listed companies with more than 250 employees were enacted in January 2021, requiring 30% representation of women on boards and 20% on executive boards over the next five and ten years. The law affects 250 companies that have to report on their remuneration if they are missing the targets and what measures they are planning to take to reach them, so there are no sanctions regarding

noncompliance. The overall share of women on SMI (Swiss Market Index) company supervisory boards reached the 30% quota in 2021 (Deloitte, 2022). At the time this research was conducted the effects of the gender quotas could not have been determined.

In Belgium, a gender quota was introduced in 2011 for listed and state-owned companies. These companies must have at least 33% women on their supervisory boards. Companies were given time to adapt, taking into account their size and market position. For large listed companies the lead time was 5 years, while for smaller companies it was 8 years. State-owned companies were not allowed to miss the quota deadline as they had to serve as a role model for other companies. In cases where companies failed to meet deadline set by the lawmakers, only women could be appointed as supervisory board members. In other situations, board members lose the financial and other benefits that come with the position. If the company fails to reach the target proportion of women one year after the compliance deadline, the general assembly elects a new supervisory board (Meier, 2014). By April 2019, Belgium had reached the target of 33%, with 38% of women directors on supervisory boards that year (EIGE, 2021). In 2021, Belgium had 37% of women directors on supervisory boards and 17% on boards of directors (EWOB, 2021).

In January 2018, the Austrian Parliament decided to introduce a 30% quota for women. The Austrian gender quota law applies to all companies listed on the stock exchange with more than 1,000 employees and at least 6 board members. In case of non-compliance, the seats on supervisory boards for women directors must be left vacant until the law is complied with. The proportion of women on supervisory boards has risen strikingly since the quota came into force, from only 22.4% in 2018 to 32.3% in 2021 (Deloitte, 2022). A much more modest increase was observed in Austrian company boards, where the proportion of women was 8% in 2021. Austria still met the target quota in October 2019, when 32% of supervisory board members were women (EIGE, 2021).

In Portugal, the quota law came into force in January 2018, requiring 33.3% of all state-owned companies to have a female board of directors by 2020. For publicly traded companies listed on the stock exchange, the mandatory proportion was 20%, which would have been achieved by the first elective general meeting in 2018. After that, the ratio was changed to 33.3%, which organisations would have to meet by 2020, the date of the first general meeting. If state-owned companies do not comply with the law, their supervisory boards will be repealed and the election of new board members will be suspended. This sanction is still a contentious and unresolved issue for the Portuguese governance and has not yet been implemented in any company. For publicly traded companies, a fine is imposed if non-compliance with the quota exceeds 360 days, and the company is listed on the websites of the Commission for Citizenship and Gender Equality and the Commission for Employment and Labour Market Equality (Casaca et al., 2022). The Commission for the Securities Market also publishes a list of companies that have not met the quota deadline. Interestingly, so far no company has been listed by either commission, and the Portuguese government is investigating the case. Portugal has not met the target quota so far. In 2021, the percentage of female directors on supervisory boards was 23.3%, an increase of 6.3% compared to 2018 (Deloitte, 2022).

Greece's gender quota law, which applies to listed companies, came into force in July 2021. According to the legislation, the percentage of women on the corporate board must be 25%. In case a firm would not comply, it has to face monetary penalties (General Secretariat for Demography, Family Policy and Gender Equality, 2020). The percentage of women on the board of directors was 13.3% in 2021, compared to 9.5% in 2018 (Deloitte, 2022). At the time of conducting the research, there was not enough data to determine the effectiveness of the quota, as the legislation had only been in place for one year.

In the Netherlands, the gender quota regulation came into force on 1 January 2022. According to the law, the supervisory board of companies listed on Euronext Amsterdam, the Dutch stock exchange, must have at least one third of each sex on its supervisory board. This quota applies to the appointment of all new board members, but does not apply to their re-election. The second part of the provision relates to boards of directors. All large public companies and privately owned limited liability companies should voluntarily set a target quota to be applied to boards and senior management levels. In case of non-compliance the seats, that were supposed to be taken by the female board members, will be left vacant. Companies should report annually on the results achieved. The legislation will be evaluated by the Dutch Social and Economic Council after five years. The gender quota regulation will expire eight years after its entry into force. Less than a year has passed since the quota was introduced, so there is no data on how effective the women's quota is in the Netherlands (Government of the Netherlands, 2021). The Netherlands already had a gender quota regulation in place between 2013 and 2016, but it was not as strict as the current one. The quota at that time was 30% for larger companies. As this was not effective -partly because there were no sanctions- it was decided to reintroduce the quota with modifications (Senden & Krusinga, 2017). In 2020, 24% of directors of listed Dutch companies were women, therefore due to under-representation the quota law was reintroduced (Kirsch, 2021).

Iceland introduced boardroom gender quotas in March 2010 for not only public, but also for private limited liability companies. The law requires companies with more than 50 employees to have at least 40% of each gender on the board. Boards consisting of three members must have both sexes represented. The number of women serving on boards gradually increased in 10 years from 15,4% to 34,1% (Deloitte, 2022).

Table 1. Comparison of European gender quota laws

Country	Year of adoption	Target quota	Affected companies	Sanction
Iceland	2010	40%	Have more than 50 employees	None
Netherlands	2022*	33%	Listed companies	Empty chair
Greece	2021	25%	Listed companies	Monetary penalties
Portugal	2018	33%	State-owned /publicly traded and listed companies	Monetary penalties, listing on official websites
Austria	2018	30%	Listed companies	Empty chair
Belgium	2011	33%	State-owned/ listed companies	Board members lose financial and other benefits
Switzerland	2021	30%	Listed companies with more than 250 employees	None
Italy	2020*	40%	Listed companies	Monetary penalties
France	2014*	40%	Listed and unlisted companies with more than 500 employees/ €50 million in revenue	Suspension of attendance fees for the positions and nullity of appointments
Germany	2016	30%	Listed companies	Empty chair
Norway	2005	40%	Listed companies	Dissolving the firm

\*In case of Belgium the quota was re-enacted, in other cases the target quota was raised in the given year.

Source: Own work (2022)

Kenya is the only African country to have introduced a gender quota. Kenya has a constitution that stipulates the equal rights of women and men and also specifies that no more than two-thirds of a supervisory board can be made up of members of one sex. Although this law only applies to companies that are wholly or majority state-owned, women still account for 36% of the board. The Women on Boards Network helps to ensure that the proportion of women is maintained, as this non-profit organisation connects women who are already in leadership roles with up-and-coming women (Deloitte, 2022).

Some Asian countries have also introduced gender quota laws. One of these is India, where the law has come into force but no one has actually complied with it so far, or only a very small number of companies are following it. Companies that do not accept the inclusion of a woman in leadership positions or do not change the composition of the board in time have to pay a fine of Rs 5,000 (approximately 25,000 HUF) per day (Deloitte, 2022). Companies with more than one female director are rare. Out of 739 companies, 28 had 2, and only 2 companies had 4 female directors in 2016. There are many companies where a female board member is related to a board member, for example through family ties, and this has been found to be true in 40% of cases at that time (d'Hoop-Azar et al., 2017).

Gender quotas have also been introduced in South American countries. Most of the involved companies are fully or more than 50% state-owned. These countries include Colombia and Chile, both with a 30% quota. In Chile, there was an attempt in 2014 to enact a quota modifying the supervisory board of privately owned companies, however the bill is still awaiting adoption since then. In Brazil and Peru, there have been several bills on quota regulation, but none has been adopted so far. In Argentina, certain companies are required to employ the same proportion of female managers as men. If the total number of directors is an odd number, women shall hold at least one-third of the positions (Deloitte, 2022).



### The German gender quota law

In March 2015, the German Parliament finally approved the introduction of a women's quota. The law for equal participation of women and men in the private sector and public service was passed. In supervisory boards of companies with an equal representation of employer and employee representatives and listed on the stock exchange, a quota of at least 30% of women was introduced from 2016. This affected 105 German companies at the time of introduction (Thumm & Kuhn, 2020). If the proportion of women in companies does not reach the specified level, the seats reserved for female managers must be left vacant. However, companies are also obliged to report on whether they have met the required ratios (Allen&Overy, 2020). Other companies listed on a stock exchange or with a supervisory board should set the quota voluntarily, so that the proportional increase achieved would not reverse, and this should also apply to middle and senior management. This regulation covered roughly 3500 companies. A more flexible version of the women's quota was already introduced in September 2015, but was only reinforced by law in 2016. There is no legal minimum requirement or penalty for such firms, but it is a condition that they meet their own target quota within 5 years. In any case, the rate set by the target quota must not be lower than the current situation for companies. They must report when the target is reached or at the latest at the end of the 5 years. The Women's Quota Act came into force on 1 January 2016 (BDO, 2016).

In Germany, the introduction of a voluntary quota of women on boards of directors has not proved to be an effective solution over the years. It has led to very little growth compared to the mandatory quota regulation for supervisory boards. The aforementioned law on the female quota was supplemented by a minimum recommendation for the participation of women on boards of directors, which entered into force on 12 August 2021. The regulation affected the same companies as the previous one in 2016. Under the new provision, there must be at least one woman on the board if the number of members exceeds three. The previous law already made it mandatory to set a target quota at middle and senior management level. Since companies could set a zero quota, they often opted for this simpler solution. The amended law allows this only if the management of the company concerned can reason it satisfactorily. In the event of insufficient or no justification, the company will face a heavy fine. The second quota law also affects senior management levels subordinate to the board of directors, setting a quota for both the first and second level (BMFSFJ, 2021).

### The gender equality strategy of Deutsche Telekom and Magyar Telekom PLC, expert interview with Eva Zanin

More and more companies are identifying with the United Nation's Sustainable Development Goals (SDGs) and incorporating them into their corporate culture as a component of corporate social responsibility. 90% of directors think sustainability is important, yet only 40% of companies are taking steps to develop a sustainability strategy. The main motivation is to meet the expectations of shareholders, customers and regulations (Owen-Burge, 2022). Today, sustainability is increasingly linked to corporate competitiveness. Several studies show that companies that work for sustainable development are more productive. Thus, sustainable development has become a prominent part of corporate strategy. In the next section, I will briefly describe the gender equality efforts of Deutsche Telekom and Magyar Telekom PLC.

Deutsche Telekom is one of the DAX-listed companies that were legally obliged to introduce a quota for women. The new regulation did not really make a big difference to the company, given it had already adopted a voluntary female quota in 2010 with the target of reaching 30% of its management. Equal opportunities in a corporate culture is about giving these positions to the most talented people, regardless of whether they are men or women. With this in mind, Deutsche Telekom PLC has increased the proportion of women on the supervisory board from 20% to 45% since 2010. With three female members of the board of directors, Deutsche Telekom PLC is also among the best performing DAX-listed companies with 37.5%. The ambitious company is aiming for 40% participation next, not only at senior but also at middle management level. The company's target was to meet the 30% quota for women outside its German parent company, which it has achieved by 2021 (Deutsche Telekom, 2022). Deutsche Telekom, in setting the guidelines, has obliged its subsidiaries to implement equal opportunities and equal treatment measures from 2001 onwards (Schön, 2002).

As part of the Deutsche Telekom Group, the Magyar Telekom Group has also adopted the parent company's diversity, equality and inclusion policy. Magyar Telekom aims to create a non-discriminatory, equal opportunities workplace. Back in 2009, they joined the UN Global Compact initiative and developed equal opportunities measures for their male and female employees. In their sustainability strategy, they have set a target of 50-50% gender representation in senior management positions and 40% female representation in the overall management team. In 2021 the proportion of female managers was 25,85% at the company group (Magyar Telekom, 2021). Magyar Telekom PLC is one of the few companies in Hungary that employs a diversity and inclusion expert, Éva Zanin, who was involved in the creation of the white paper "Supporting the selection of women managers in large companies" and in the research of the Equal Opportunities Foundation. I interviewed Eva Zanin about the company's gender equality measures.

It is good for companies to have more female managers, because this way members of society are represented in decision-making and management according to their social representation. This is also promoted by a gender

quota. According to the expert, there is no general opinion on the gender quota, whether it is good or bad, only personal views. In her eyes, gender quotas are necessary and useful, because up to the point where we cannot eliminate gender inequalities, women from disadvantaged backgrounds must be supported at an institutional level. The purpose of the quota is to counteract social inequalities. However, it is not a solution in itself, and it is important to use it consciously, because it must not be used to prioritise someone over others because of their gender or other special characteristics. It is by no means a perpetual exercise, but only a temporary stop-gap. Eva Zanin is of the opinion that in a company with quotas, career opportunities for women are clearly more favourable. On the practical application of the quota, the expert also said that there are a number of considerations in setting the target quota: the aforementioned reflection of social diversity in decision-making, the business case for equal representation of women and men in management, as it is good for the company's tolerance for change and innovation potential. The nomination committee regulations include a requirement to reflect diversity in the appointment of a board member. For senior management selection, shortlists at executive level and above must include at least 2 female candidates, as only these lists are accepted. It is also important to ensure that the female candidate is suitable and not just in a position of leadership because of the fulfillment of the quota. Also the talent management process seeks to ensure equal opportunities in the talent selection process. The use of quotas means using several tools at the same time. In talent management, for example, if only men apply for a particular training or position, it is advertised in a separate women's round. Shortlist quotas can increase recruitment time and require more flexibility in the search for new employees, but the company insists on this wherever it is professionally possible. In their succession planning and nomination processes within the company, as well as during certain organisational changes, they also strive to establish a balanced female-male leadership ratio. Telekom has produced an e-learning curriculum on unconscious bias, which is mandatory for all employees in the company as part of the company's corporate culture development package. It is essential that colleagues are aware of the company values. It aims to eliminate prejudices that influence decision-making situations. Perhaps the best practical example of this is when someone is pregnant or has a young child at home. Knowing his or her private life should not put him or her at a disadvantage against others in a managerial choice, because it is a professional criterion (Zanin, 2022).

I believe the Telekom Group is a great example for all of the companies that are obligated to implement gender quota. By studying the gender equality strategy of Telekom we can see that meeting the gender quota law is the result of application of many parallel and conscious little steps in a long process. Both of the discussed Telekom Group members included in their corporate culture the importance of striking gender inequality and the supporting measures for a discrimination free work environment.

### **Summary, conclusions**

Social changes in the past also affect the career prospects of people in the present. Even in the 21st century the social status of women differs from region to region. In certain countries the girls are not even allowed to go to school, in others there are rules that strike the female members of the society from having certain types of jobs, while on another part of the world there are measures to support woman leaders. We can state that the cultural background still has a great influence on the career opportunities of women. Traditions and mindsets can change only very slowly; this is perhaps the biggest challenge for women leaders. That is why we need supporting attitude. The traditional family model hinders the women and makes the work life balance impossible for them. Doing household chores and raising the children is already a „full-time job” and building career next to this workload, without having any support makes this situation even more burdensome. That is why we need supportive approach in terms of gender equality and leadership. The United Nations member states have been already making a progress in connection with gender inequality and managing to diminish it really slowly with different methods. A small number of countries did not even need regulations because the attitude of their citizens towards women was totally supportive. These places are mostly in North Europe. In other cases voluntary target quota determination and soft law seemed to be the effective solution, while in other regions gender quota laws have been entering to force because the attitude of people did not seem to change without rules. There are regional patterns in term of supportive measures. We can see that soft law and voluntary measures are mostly applied in North America and in the United Kingdom. Although the gender inequality index is the highest in Europe, the strictest gender quota regulations were born there. Gender quotas are popular among South American countries too, however the sanctions differ from the European ones. They are rather permissive and these quotas are only valid for fully or partly state owned companies. The Asian region faces the biggest challenge to modify the composition of board members, most of the countries are not willing to take steps towards gender equality at all and even if they set a quota, in case of Japan we could see it, the nation's attitude is against it.

Like other UN member states, Germany started to introduce gender equality measures in the early 2000s, starting with a voluntary gender quota. This was followed in 2015 by a quota law for supervisory boards and in 2021 by a new quota law increasing the proportion of women on boards. These were necessary as women were, and still are, under-represented in board positions. Despite this, the German workers surveyed do not feel the need for a gender quota, considering it to be discriminatory and not an appropriate solution to the problem. Germany has not yet been one of the countries where people's attitudes would have been sufficient to bring about change, or where

soft law, such as voluntary quotas, could have influenced the proportion of senior managers. The gender quota applied to listed companies with supervisory boards and boards of directors. Partly perhaps due to the compliance behaviour of the nation, and also because of the sanctions, firms adapted relatively quickly to the regulations. Despite the fines, there are still some companies that have refused to change the composition of their management, but the number is relatively small. Gender reporting is now an integral part of corporate strategy in the largest companies. Partly because of the reporting requirements, and partly to meet shareholder and customer expectations, more and more companies are drawing up sustainability strategies based on the UN's development goals. In general, subsidiaries have adopted the directives of their parent companies and have adapted their corporate strategy accordingly. In order to meet the target quota, companies need to take other supporting measures.

I believe that quota regulations are not the best way to solve the problem of under-represented female leaders. They are effective and needed, but education could be another way to bring change. People's mindsets should change if gender equality is to be truly achieved in countries. We have to unite three of the sustainable development goals: quality education, gender equality and reduced inequalities. Keeping these in mind and implementing supportive measures, we could reach a long term solution. In my view, it is a good thing that provisions are being made at both state and company level to promote gender equality. I think it is important to support women in their career paths, because they are in a more difficult position than men.

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## Gender Equality in digitalization and Computer Use

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### Abstract

This research paper is to examine gender and computer use in education in various countries using data sources. The results of the study indicate that the concerns expressed by educators about gender equity are valid. Female students have less knowledge about information technology, are less interested in using computers compared to male students, and experience more difficulties with the software. This could be due to factors such as differences in parental support, access to computers, the lack of female role models, and the type of computer-related activities conducted in schools. Gender differences were found both inside and outside of schools, highlighting the need for awareness and action by both teachers and parents. Although the USA was found to be the most "gender equal" country among those examined, there is a lack of policies in schools regarding gender issues, and even when they exist, they are not communicated to parents.

The purpose of the study is to examine gender and computer use in education in various countries and to identify factors that contribute to gender differences in computer use. The study aimed to address the concerns expressed by educators about gender equity in computer use and to highlight the need for awareness and action by both teachers and parents. The study used a quantitative research design and data sources from various countries to achieve its objectives. The approach to the topic was a comparative analysis of gender differences in computer use, and the theoretical scope of the paper was to understand the factors that contribute to these differences. The expected research results were to identify gender differences in computer use and to highlight the need for action to address these differences. The social implications of this research are significant, as it highlights the need for gender equity in computer use, which can lead to improved educational outcomes and better career opportunities for female students.

**Keywords: Gender Equality, Information technology, Computer use , Parental support**

### Introduction

The use of computers and digital technologies has become increasingly integrated into various aspects of daily life, from education and work to social interactions and entertainment. However, despite the potential benefits of digital technologies, the use of computers and the internet continues to be unequal, with gender being one of the key factors contributing to digital divides. According to a report by the International Telecommunication Union (ITU, 2020), women are less likely to own and use digital devices, have lower levels of digital literacy, and face more barriers to accessing digital technologies compared to men.

The digital gender gap has significant consequences for gender equality, as it affects women's opportunities for education, employment, and civic engagement. In particular, the digital divide exacerbates existing gender inequalities and perpetuates discriminatory social norms and expectations (UN Women, 2019). Therefore, understanding and addressing the factors that contribute to the digital gender gap is crucial for promoting gender equality in the digital age.

In this paper, we aim to review the literature on the relationship between computer use and gender equality, with a focus on the key barriers to women's and girls' access and use of digital technologies. By synthesizing the existing research, this paper aims to provide a comprehensive overview of the digital gender gap and its implications for gender equality.

### Literature review

#### **Recognizing the importance of gender equality in the digital era**

Digitalization is a fundamental aspect of contemporary societies and a valuable instrument for achieving sustainable development. Utilizing digital tools and technologies paves the way for social engagement and plays a crucial role in the "future of work" and, more broadly, the future of development. For instance, telemedicine can enhance access to healthcare services, expand coverage, and improve quality, while e-governance can facilitate public services and boost user interaction and involvement in decision-making processes (UNDP, 2019). Collecting and using disaggregated data systematically can aid in providing customized services and solutions based on requirements and addressing specific obstacles. The 2030 Agenda for Sustainable Development and several of its objectives highlight the potential of digital technologies to contribute to sustainable development and expedite human progress .

Nonetheless, digitalization does not affect all genders equally. To fully harness its potential, it is vital to consider the gender aspects of digitalization. Ignoring the varied effects of technology on women and men is likely to widen

the gender digital gap. The significance of gender equality in the digital realm has grown in the context of the digital and data-driven transformation of the economy and governance systems, further accelerated by the COVID-19 pandemic.

By 2022, digitization is expected to account for 65 percent of the global GDP (World Economic Forum, 2016). However, approximately 234 million fewer women than men have access to mobile internet in low- and middle-income countries (GSMA, 2019). Increasing digital access for women would enhance their economic prospects and strengthen their position in the job market, particularly given the influence of digital transformation and automation on employment opportunities—a study in 30 countries revealed that women's jobs have a 70 percent or higher risk of automation (ILO, 2019). Furthermore, granting an additional 600 million women and girls access to online services worldwide could result in a GDP increase of US\$18 billion.

Digital technologies are vital for women's civic participation, communication abilities, and mobility. Access to digital devices amplifies the impact of women's organizations and raises the visibility of women's agendas online. While digital activism and social media campaigns may not replace offline engagement in the near future, they can reinforce women's demands and assist activists in mobilizing communities and movements (UNDP, 2019). Evidence indicates that digital technologies play a significant role in democratic processes, self-organization, self-help, and mutual learning; increased access to high-quality digital services and information enables more women to engage in these processes.

Mobile internet access and online platforms are also crucial for the emotional well-being of migrant families and communities, including refugees. Studies reveal that mobile technologies help female migrant workers reduce stress related to social isolation, maintain contact with their families, learn about their rights, and share information within migrant communities (ILO, 2019).

Digitalization and digital tools offer tremendous potential for women's empowerment but also pose significant risks to their safety and rights. The prevalent use of social media and digital platforms has led to the rise of technology-enabled gender-based violence (UN Women, 2015), which has been intensified by the increased reliance on online spaces during the COVID-19 pandemic. Women's and human rights defenders, women in politics and civil society organizations, journalists, women with disabilities, members of minority groups. Research indicates that online violence against women has severe consequences for their physical, psychological, social, and reproductive health, and may limit their access to services and online information, as well as hinder their ability to be active digital citizens (UNDP, 2019).

### **Gender and digital inclusion: current picture and existing barriers**

Achieving digital inclusion for all genders requires a comprehensive approach that involves various parties. To promote gender equality in the digital world, it is important to involve stakeholders such as governments, local authorities, private companies, civil society, and users themselves (World Bank, 2021). Governments have a crucial role in improving digital infrastructure, creating enabling technologies, and establishing regulations and protocols to ensure women have equal access to digital identification and e-services while protecting their privacy (UN, 2020). The advancement of technology, such as national electronic IDs, biometrics, and digital systems, presents both opportunities and challenges that require government intervention to secure the privacy and safety of individuals and groups (World Wide Web Foundation, 2020). Governments can also make services more accessible and affordable through public and private sectors and allocate funds to initiatives that aim to make e-government services gender-responsive (World Bank, 2021). National statistical agencies and academia can collaborate to provide gender-disaggregated data, which is crucial for developing inclusive digital strategies (UN, 2020).

The private and public sectors can also promote gender-responsive leadership to ensure women can actively participate in the development of these strategies (World Bank, 2021). Involving women, gender equality specialists, and women's organizations in policymaking and service design and delivery is essential to enhance women's digital inclusion and ensure that policies and services meet their needs (UN, 2020). It is important to recognize that access, possession, and utilization of digital tools are not the same for both genders. Globally, women tend to face more challenges than men in accessing and using technology (World Wide Web Foundation, 2020). This is due to a lack of skills and social norms that restrict their ability to use technology (UN, 2020). Women in low- and middle-income countries are 7% less likely to own a mobile phone and 15% less likely to own a smartphone, and only 58% of women use the mobile internet (World Bank, 2021). In Europe and Central Asia, 52 million women don't have access to the mobile internet. Despite being 2% more likely to own a mobile phone, women in this region are 4% less likely to use the mobile internet. With few exceptions, women in this region are also less likely to use the internet for personal purposes (UN, 2020).

Table 1: Individuals using the internet, by gender (%)

Country/Territory	All individuals	Women	Men
Albania	72.2	71.2	73.2
Armenia	66.5	67.2	65.8
Azerbaijan	81.1	78.0	84.2
Belarus	85.1	85.7	84.2
Bosnia and Herzegovina	73.2	69.3	77.8
Georgia	72.5	71.9	73.3
Kazakhstan	85.9	84.9	87.1
Kosovo*	89.4	89.0	89.9
Montenegro	81.4	80.7	81.9
North Macedonia	81.4	79.2	83.5
Serbia	78.4	76.0	81.8
Turkey	77.7	72.1	83.3
Ukraine	70.1	68.2	72.4
Uzbekistan	70.4	65.9	74.9

Source: ITU, Individuals using the internet (from any location), by gender\*\*

(Latest year available, no older than 2018; age scope of population varies across countries and territories)

Thirdly, it is crucial to acknowledge that women and other target groups are not uniform and face varying vulnerabilities in different circumstances. Therefore, it is essential to adopt an intersectional perspective when examining patterns of digital exclusion. The gender gap in the use of mobile internet is shrinking, with the difference dropping from 25% in 2017 to 19% in 2019 and 15% in 2020. In 2020, approximately 112 million more women gained access to the digital world through mobile internet in low- and middle-income countries.

### **Main obstacles to gender equality in the digital age**

The main barriers to women and girls taking advantage of digital technology opportunities and participating in the digital transition are structural inequalities that are deeply ingrained in society. This section provides an overview of some of the primary obstacles to gender equality and women's empowerment in the digital age.

#### **Gender norms and cultural biases**

Gender stereotypes and cultural norms can hinder women's and girls' access to digital technology, limiting their education and job opportunities in the ICT sector. For example, parents may restrict the use of mobile phones and internet activities more for girls than for boys. In households with limited computing resources, boys and men may receive preferential access over girls and women. Social norms and gender biases in teaching materials and techniques, as well as a lack of support from family and teachers, can discourage girls and women from pursuing careers in STEM fields. A study in Moldova found that over 30% of young women who liked computer science in school did not consider ICT as a career option because "it's not for girls." A lack of exposure to female role models, including female teachers, also plays a significant role in discouraging girls from pursuing STEM careers, while their interest and confidence increase when exposed to positive role models. Social norms and expectations of women's roles in the family and as primary caregivers, along with a masculine corporate culture in the tech sector, are major barriers to women's participation in the workforce and hinder their employment and career advancement opportunities in the digital age.

#### **Affordability of internet and digital devices**

Economic inequality is both a cause and effect of digital exclusion. The economic status of mobile users, cultural patterns, infrastructure, and the cost of equipment and internet access determine the purchase of advanced devices. Factors such as the affordability of the internet and the cost of smart devices disproportionately affect women and girls, particularly the poor. Affordability is the second most commonly cited barrier to using the mobile internet.

#### **Lack of education and digital literacy**

Access to education and overall literacy rates are also important factors in digital exclusion. Women with secondary education are six times more likely to use the internet compared to women with a primary education or lower. The level of literacy required to use the internet and advanced devices increases with the complexity of the device.



Women generally have lower digital literacy skills compared to men across all levels of digital literacy and are 25% less likely to use ICT for basic purposes. This gap widens as the skills required become more advanced, with women being four times less likely than men to have advanced ICT skills. Raising awareness and promoting digital literacy can increase knowledge about the functions of devices, the internet, and the opportunities of being connected. Providing digital skills training in formal and informal settings, as well as gender-sensitive training for teachers, can help reduce the gender gap in digital skills.

## Research question

What are the main barriers to women and girls' access and use of digital technologies, and how do these barriers impact their opportunities for education, employment, and civic engagement in the digital age?

### 1 Hypothesis

**Hypothesis 1:** Women and girls face more barriers to accessing and using digital technologies compared to men, due to factors such as affordability, lack of digital literacy skills, and restrictive social norms and cultural expectations.

**Hypothesis 2:** Women and girls who have higher levels of digital literacy skills are more likely to use digital technologies for personal and professional development, and are less likely to experience barriers to digital inclusion.

**Hypothesis 3:** Economic constraints, such as the cost of technology and internet access, play a significant role in limiting women and girls' access and use of digital technologies, and contribute to the digital gender gap.

## Methodology

As the researcher, my main research question is focused on understanding the main barriers that hinder women and girls' access to and use of digital technologies and how these barriers affect their opportunities for education, employment, and civic engagement in the digital age. To analyze the results of the focus group study, I followed a systematic methodology. First, I transcribed the data collected from the focus group sessions, ensuring accurate representation of participants' responses and viewpoints. Next, I developed a coding framework to categorize and organize the data, aligning it with the research questions. I then proceeded to analyze the coded data using qualitative and quantitative methods. Through thematic analysis, I identified recurring themes such as the influence of social norms and cultural expectations on women's and girls' access to digital technologies, the significance of digital literacy skills for personal and professional development, and the necessity for affordable and accessible digital technologies for all. Additionally, I conducted a comparative analysis to examine the differences in digital literacy and computer use among different age groups of women.

### The focus group

The results of the focus group study on computer use and gender equality revealed several key findings regarding the experiences and perspectives of women and girls on the topic. When analyzing the results based on age, it was found that women over 30 years old had a higher level of digital literacy and more frequent use of computers compared to younger women. The second group of women aged 22-29 had a moderate level of digital literacy, with some using computers regularly for work or personal activities, while others reported limited exposure to digital technologies. The youngest group of women aged 21-15 had limited exposure to digital technologies and reported a lower level of digital literacy.

Despite the differences in age, several common themes emerged across all focus groups, including the impact of social norms and cultural expectations on women's and girls' access to and use of digital technologies, the importance of digital literacy skills for personal and professional development, and the need for affordable and accessible digital technologies for all.

In terms of barriers to digital inclusion, the focus groups identified a range of challenges, including a lack of access to technology and the internet, limited exposure to digital skills training, and economic constraints that prevent women and girls from purchasing digital devices and accessing the internet.

Overall, the results of the focus group study provide valuable insights into the experiences and perspectives of women and girls on the topic of computer use and gender equality, highlighting the challenges and barriers to digital inclusion and the importance of addressing these issues to promote gender equality in the digital age.

## Result and finding

Hypothesis	Group 1 (30+) Experienced Women	Group 2 (22-29) Young Professionals	Group 3 (21-15) Teenage Girls
Hypothesis 1	Women and girls face more barriers to accessing and using digital technologies compared to men, due to factors such as affordability, lack of digital literacy skills, and restrictive social norms and cultural expectations.	<b>Argument 1:</b> Women in this group reported limited access to technology and the internet, impacting their ability to use digital technologies regularly. <b>Argument 2:</b> The cost of technology and internet access was cited as a significant barrier, especially for women in lower-income households. <b>Argument 3:</b> Social norms and cultural expectations regarding women's roles and responsibilities were reported as a hindrance to women's and girls' access to technology and digital literacy skills.	<b>Argument 1:</b> Women in this group reported limited exposure to digital technologies and digital literacy training, which impacted their ability to use technology effectively. <b>Argument 2:</b> The cost of technology and internet access was reported as a significant barrier for many women and girls in this group. <b>Argument 3:</b> Social norms and cultural expectations regarding girls' and women's roles and responsibilities were reported as a hindrance to their access to technology and digital literacy skills.
Hypothesis 2	Women and girls who have higher levels of digital literacy skills are more likely to use digital technologies for personal and professional development, and are less likely to experience barriers to digital inclusion.	<b>Argument 1:</b> Women in this group who had higher levels of digital literacy skills reported using technology more frequently for personal and professional development. <b>Argument 2:</b> Women with higher levels of digital literacy skills reported facing fewer barriers to accessing and using digital technologies. <b>Argument 3:</b> Women with higher levels of digital literacy skills reported greater confidence in their ability to use technology, which impacted their ability to access and use digital technologies for personal and professional development.	<b>Argument 1:</b> Women in this group with higher levels of digital literacy skills reported using technology more frequently for personal and educational purposes. <b>Argument 2:</b> Women with higher levels of digital literacy skills reported facing fewer barriers to accessing and using digital technologies. <b>Argument 3:</b> Women with higher levels of digital literacy skills reported greater confidence in their ability to use technology, which impacted their ability to access and use digital technologies for personal and educational purposes.
Hypothesis 3	Economic constraints, such as the cost of technology and internet access, play a significant role in limiting women and girls' access and use of digital technologies, and contribute to the digital gender gap.	<b>Argument 1:</b> Women in this group reported the cost of technology and internet access as a significant barrier to accessing and using digital technologies. <b>Argument 2:</b> Women in lower-income households reported greater difficulty in affording technology and internet access, which impacted their ability to use digital technologies. <b>Argument 3:</b> Women who reported economic constraints reported lower levels of digital literacy skills and more limited access to digital technologies, contributing to the digital gender gap.	<b>Argument 1:</b> Women in this group reported the cost of technology and internet access as a significant barrier to accessing and using digital technologies. <b>Argument 2:</b> Women in lower-income households reported greater difficulty in affording technology and internet access, which impacted their ability to use digital technologies. <b>Argument 3:</b> Women who reported economic constraints reported lower levels of digital literacy skills and more limited access to digital technologies, contributing to the digital gender gap.

## Conclusion

Over the years, digitalization and computer use have significantly impacted the world, changing the way we live, work, and communicate. While these technological advancements have created new opportunities and streamlined various processes, the question of gender equality in this domain remains a relevant and essential issue to address. In the context of digitalization and computer use, gender equality encompasses various aspects such as access to technology, digital literacy, representation in the tech industry, and the creation of inclusive digital spaces. Despite the progress made in recent years, there are still significant gender disparities in these areas.

Women and girls, particularly in developing countries, continue to face barriers to accessing technology and digital resources. These limitations often stem from socio-economic factors, cultural norms, and inadequate infrastructure. Furthermore, the gender digital divide also manifests itself in the form of digital literacy gaps, with women and girls having fewer opportunities to develop necessary digital skills.

Representation in the tech industry is another critical aspect of gender equality. Although women have made inroads in recent years, they still remain underrepresented in various technical and leadership positions within the industry. This underrepresentation not only hampers the diversity of thought and innovation but also perpetuates gender stereotypes that can discourage women from pursuing careers in tech.

In addition to addressing these issues, it is crucial to create inclusive digital spaces that cater to the unique needs and concerns of women and other marginalized groups. The development of technology that is sensitive to gender-specific requirements can help foster a more equitable digital landscape. This may include designing platforms that prioritize user safety and privacy, and addressing gender biases in algorithms and artificial intelligence.

Efforts to promote gender equality in digitalization and computer use must be multifaceted, involving collaboration among various stakeholders such as governments, NGOs, educational institutions, and the private sector. Policies and initiatives that seek to bridge the gender digital divide, promote equal representation, and create inclusive digital spaces are integral to achieving gender equality in this domain.

Open Question: How can men in the tech industry become active allies and work together with women to break down the barriers to gender equality in digitalization and computer use?

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## Toward responsible consumption: describing how responsible consumption contributes to sustainable development

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### Abstract

Promoting environmentally conscious consumer behavior is crucial for achieving Sustainable Development Goal 12 of the UN, which involves adopting sustainable patterns of consumption and production. The study highlights the importance of responsible consumption in combating global sustainability issues such as climate change and biodiversity loss. Educating consumers and developing sustainable production strategies are practical applications of the research findings. The study's implications include public policy, industrial regulation, and corporate social responsibility programs, urging further research and action in the area to create a more sustainable future.

**Keywords:** responsible consumption, sustainable consumption, sustainable production, environmental sustainability, sustainable development.

### Introduction

More focus is being placed on sustainable development in response to global problems like climate change, extreme poverty, and environmental deterioration. Consuming goods and services that meet current needs without compromising future generations' ability to do the same is an example of responsible consumption, an essential part of sustainable development. To help achieve environmental sustainability, the United Nations (UN) established 17 Sustainable Development Goals (SDGs). The systematic literature review focused on SDG 12 (responsible consumption and production), which focuses on maintainable management and effective use of ordinary resources, sustainable consumption, and production consumption. With a rising understanding of the necessity of responsible consumption to advance recently, sustainable growth has become more popular. We will talk about consuming responsibly, how it relates to the SDGs, and how it could be used to advance sustainable development. This project will conduct a thorough literature analysis to understand better responsible consumption, how it relates to the Sustainable Development Goals (SDGs) of the United Nations, and how it might be applied to promote sustainable development.

The extensive literature review sparked an interest in learning more about the potential contributions that responsible consumerism could make to Sustainable Development Goals (SDGs). By rigorously assessing the pre-existing literature on this issue, we want to uncover important themes, trends, and gaps in the research necessary to compile a thorough synthesis of the available material.

Sustainable growth relies on environmentally responsible consumption, which also helps to preserve limited resources and advance social fairness. Reviewing the available data is essential for promoting sustainable consumption habits, locating successful policies and regulations, and making informed policy suggestions (Rieckmann, 2018). Even if there has been improvement, ethical consumption has a long way to go before it is broadly accepted. Consumers frequently consider a company's effects on the environment and society less than on price and convenience (Vătămănescu et al., 2021).

Significant policy and practical implications result from this review's potential to inform the development of interventions and strategies to promote responsible consumption and achieve the SDGs. By highlighting effective techniques and best practices for fostering responsible consumption, this analysis helps guide the design of policies and activities that encourage sustainable consumption habits (Wang et al., 2019). This summary also has important implications for future research. This review can guide future studies on sustainable consumption and development by highlighting research gaps and limits, thereby advancing our understanding of this topic (Secundo et al., 2020). This paper's systematic literature review is essential for advancing our understanding of the relationship between responsible consumption and sustainable development and guiding the development of initiatives and policies that will encourage sustainable consumption patterns and help us achieve the SDGs. In light of this, the objectives of this paper are:

- To systematically evaluate the literature on the relationship between responsible consumption and sustainable development, focusing on the best policies and practices for promoting responsible consumption.
- To identify gaps and limitations in literature and pinpoint topics that need more research.

- To provide recommendations for promoting sustainable and responsible consumption among businesses, policymakers, and consumers.

These objectives are designed to provide a comprehensive answer to the research question - *How is sustainable development related to responsible consumption, and what are the best strategies and tactics for promoting the UN's Sustainable Development Goals through responsible consumption?* by examining the current state of knowledge on the relationship between responsible consumption and sustainable development, identifying gaps in research, and recommending strategies and tactics for promoting responsible consumption to advance the UN's Sustainable Development Goals.

### Theoretical background

Responsible consumption refers to making informed and ethical choices about what we buy and how we use and dispose of products and services, with the goal of reducing negative environmental and social impacts. It involves considering factors such as the environmental impact of production, the working conditions of producers, and the health and safety of consumers.

Responsible consumption is a key component of sustainable development as it refers to the way in which we use natural resources and products in a manner that minimizes their impact on the environment and contributes to long-term sustainability. It involves making conscious choices as consumers and considering the environmental, social, and economic impacts of our consumption patterns (Halkos and Gkampoura, 2021).

In the context of sustainable development, responsible consumption encompasses a wide range of behaviors and practices. This includes reducing our consumption of non-renewable resources, such as fossil fuels, and using alternative energy sources, such as solar or wind power, whenever possible. It also involves reducing waste by practicing recycling, composting, and reducing packaging waste (United Nations Environment Program, 2011).

In addition, responsible consumption means supporting products and services that are produced sustainably and ethically, such as fair trade and organic products. It also means being mindful of the impact our choices have on the social and economic well-being of communities, both locally and globally (World Business Council for Sustainable Development, 2010).

Responsible consumption includes making decisions about goods and services that lessen their adverse effects on people and the environment and that support sustainable lives (Lubowiecki-Vikuk et al., 2021).

The Sustainable Development Goals (SDGs) are a collection of 17 global objectives accepted by the United Nations in 2015 to ensure a sustainable future for all people (Mio et al., 2020). SDG 12 calls explicitly for promoting sustainable consumption patterns as part of the framework provided by the SDGs for achieving sustainable development.

Sustainable development is growth that satisfies present needs without jeopardizing the ability of future generations to meet their own needs. A balance between economic, social, and environmental issues is necessary for sustainable development (Verma, 2019).

Systematic literature reviews are research that uses a thorough and organized approach to locating, evaluating, and synthesizing the literature currently accessible on a particular issue (Linnenluecke et al., 2020). Systematic literature reviews follow a predetermined set of criteria and methods to ensure objectivity and rigor. Human actions have consequences for the natural world, as evidenced by resource depletion, pollution, and climate change (Maximillian et al., 2019). Concerns about equity, social justice, and human rights are all part of what we mean when discussing the "social impact" of someone's actions on society.

Sustainable consumption refers to purchasing goods and services that promote healthy, long-term human and environmental well-being (Geiger et al., 2018). Sustainable consumption entails altering consumer behavior and lowering consumption levels to create a more sustainable future.

Overall, responsible consumption is an important aspect of sustainable development because it helps to ensure that the planet's natural resources are conserved and used in a way that promotes long-term sustainability for both current and future generations (The International Institute for Sustainable Development, 2018).

### Methodology

The systematic review approach included an extensive search of scholarly databases, including Research gate, the Web of Sciences, and Google Scholar. Search phrases included "sustainable development," "United Nations Sustainable Development Goals," and "responsible consumerism." between 2010 and 2021, articles that were consistent and relevant authored in English and focused explicitly on the connection between sustainable development and responsible consumerism met the inclusion criteria (Mensah, 2019). The following criteria were used to evaluate the acquired data and determine which were most helpful in achieving the study's objectives and drawing the results presented here. The essay must have been authored in English and published after peer review. Goal 12 of the Sustainable Development Goals addresses the connection between sustainable development and conscientious consumption and should be the article's primary focus.

## Method of search

Web of Science, Scopus, and Google Scholar were only a few academic databases combed through. Sustainable production and consumption, sustainable development goal 12, and other variations of these terms were utilized as search terms. The probe was conducted in the first two months of the year 2023.

## Procedure for extracting data

- Articles were selected based on the criteria mentioned above. Full-text articles were read after the first screening to collect any additional relevant information. Information was gathered mainly about the following:
- Understanding the meaning of "responsible consumption," how it relates to "sustainable development," and "SDG 12."
- Methods and strategies for encouraging responsible consumption include public awareness campaigns, regulatory revisions, and instructional programs.
- Effects of responsible consumption promotion programs on Sustainable Development Goal 12.

Information from the articles was collected, then organized thematically. We gathered data and examined similar subjects. The current level of knowledge about the link between sustainable development and responsible consumption and the most effective ways and tactics for encouraging responsible consumption to promote SDG 12 was the focus of this study's research topics. The synthesis elaborated on these points. This synthesis aimed to identify knowledge gaps and make recommendations for future research.

## Procedure for search and selection

Four hundred twenty-seven articles and reports met our inclusion criteria after we searched academic databases and relevant publications. We eliminated 263 articles after skimming the titles and abstracts because they did not address our research question. After reading the full texts of the remaining 164 articles and reports, 75 were eliminated because they failed to address the research question (35), did not present original research (23), were of poor quality (10), or were written in a language other than English (7). Our final selection for the systematic literature review included 89 articles and reports.

Study Details: Of the 89 studies, 59 were peer-reviewed articles, 22 were reports from international organizations, and 8 were book chapters. Most of the studies were released after 2015, and they were published between 2010 and 2022. The study consulted reports, book chapters, journal articles, and other academic works. To arrive at its conclusions, the research used both quantitative and qualitative approaches in addition to case studies. Many studies ignored it, although some did take emerging nations into account. Researchers from Europe and North America conducted most of the investigations. The study's examination used mixed methodologies, including qualitative and quantitative techniques. In massive polls, the sample sizes varied from the hundreds to the thousands. Researchers examined various stakeholders, including customers, businesses, policymakers, and NGOs.

Risk of Bias: We evaluated the included studies' quality using the Critical Appraisal Skills Programmed (CASP) checklist for qualitative research. Most studies met minimal quality standards, ranging from moderate to high overall. Unfortunately, several studies had issues with sample numbers, research methodologies, and data analysis procedures. Most studies were of fair to sound quality, giving us helpful information about how to practice sustainable consumption.

## Data evaluation

We used a thematic analysis method to examine the extracted data. We reviewed the chosen articles and reports, noted essential ideas and themes, and then coded the data appropriately. After that, we divided the codes into categories and subcategories to find common themes and patterns about sustainable growth and responsible consumption. We combined the information into a narrative review summarizing the essential ideas and literature on responsible consumption and its connection to sustainable development.

## Results

The review uncovered several essential aspects of responsible consumption and its relation to the SDGs. First, ethical consumption is necessary for sustainable development since it encourages resource efficiency and reduces waste (Sullivan et al., 2018). The articles showed a growing recognition of the importance of responsible consumption in achieving sustainable development, especially in SDG 12. (Valverde et al., 2021). The concept of "responsible consumption" is advocated to increase economic growth and quality of life while reducing consumer culture's toll on the planet. There are many barriers to encouraging responsible consumption, including cultural and societal norms, a lack of access to sustainable products and services, and legislative incentives.

According to our analysis, fulfilling SDG 12 and furthering sustainable development depends on responsible consumption. More specifically, promoting sustainable public procurement, cutting waste production, and improving resource efficiency are just a few of the SDG 12 targets that can be achieved with the help of responsible

consumption. Also, ethical consumption can help lessen the adverse effects of unsustainable consumption patterns on the environment and society, such as social inequality, biodiversity loss, and climate change.

Our analysis identified three major themes that emerged from the literature. First, by making wise decisions about the goods they buy and the organizations they support, consumers can significantly contribute to the promotion of responsible consumption. Second, by implementing sustainable practices and guaranteeing accountability and transparency across the supply chain, firms can play a significant role in supporting sustainable production and consumption. Finally, policymakers can encourage responsible consumption by implementing policies that reward sustainable behavior and punish unsustainable consumption patterns.

The need to promote sustainable consumption and production practices on a global scale is emphasized explicitly in SDG 12, "Ensure sustainable consumption and production patterns." The wasteful use of resources and the creation of waste are two examples of unsustainable consumption and production that are acknowledged. Reducing waste, increasing efficiency in resource use, and advocating for sustainable lifestyles are all part of the effort to achieve SDG 12. Global progress toward SDG 12 can be aided by promoting responsible consumption practices among consumers. Sustainability in production, resource conservation, and trash minimization are all factors to consider. Reducing overall consumption can also be accomplished by opting for longer-lasting products and reusing, repairing, or recycling previously owned items. Consumers can support companies that run sustainably and promote responsible consumption by choosing goods and services from businesses with strict environmental and social policies.

To further sustainable development, it is necessary to promote responsible consumption at all levels, including individuals, corporations, and governments. Consumers can make a difference by choosing high-quality products, reducing waste, and patronizing environmentally sustainable companies. Companies can help by creating ecologically and socially reliable products, educating customers, and integrating sustainable practices into their supply chains. Laws, regulations, and incentives from governments that encourage more environmentally sustainable manufacturing and consumption practices could make a difference.

### **Methods to encourage healthy consuming habits**

The articles discussed a variety of approaches to encouraging responsible purchasing, such as:

- Policy interventions include regulations on product labels, taxes, and purchasing practices.
- Programs that teach people how to live more sustainably and tell the public about important issues like consumer information campaigns.
- Promoting sustainable consumption patterns and products through collaboration between business, government, and civil society organizations.
- Other approaches, such as sustainable supply chain management and circular economy models, are needed.
- Initiatives that have successfully promoted responsible consumption and their effect on SDG 12.

Here are some examples of campaigns and programs that promote responsible consumption and sustainable development:

- The Fairtrade certification program, which ensures that products are produced in a socially and environmentally responsible way and that producers are paid fairly.
- The Forest Stewardship Council (FSC) certification program, which ensures that wood and paper products come from responsibly managed forests.
- The Marine Stewardship Council (MSC) certification program, which ensures that seafood products come from sustainable fisheries.
- The Energy Star program, which promotes energy-efficient products and appliances.
- The Sustainable Apparel Coalition, which works to reduce the environmental and social impacts of the fashion industry.
- The United Nations Environment Program's (UNEP) "Think.Eat.Save" campaign, which aims to reduce food waste and promote sustainable food consumption.
- The European Union's (EU) Ecolabel program, which certifies products and services that meet environmental performance standards.

Fairtrade, sustainable product certification, and environmentally conscious public procurement were just a few responsible consumption activities covered in the articles. These efforts have benefited SDG 12 by fostering sustainable economic growth and mitigating the adverse effects of consumer behavior on the environment and society.

According to the reviewed literature, SDG 12 can be advanced, and sustainable development is more generally promoted through responsible consumption. However, further study is needed to evaluate the efficacy of these methods and tactics in various settings identified in the review. The results indicate that a multi-stakeholder strategy is required to tackle the difficulties of encouraging responsible consumption and achieving SDG 12.



### **Sustainable development and ethical consumption**

Supporting sustainable development entails the idea of responsible consumerism and has recently attracted more and more attention. Responsible consumption refers to people, businesses, and governments making decisions about using resources and preventing waste (Govindan, 2018). Responsible consumption entails considering the financial, social, and ecological repercussions of consumption decisions and acting in a way that minimizes the latter and promotes the former.

Sustainable development requires responsible consumption since it encourages resource efficiency and reduces waste. Satisfying current needs without endangering future generations' capacity to fulfil their needs is essential for sustainable development (Brusseau, 2019). Responsible consumption is critical for achieving sustainable development, as it allows us to use resources in a way that protects them for future generations.

### **Use of responsive consumption**

Responsible consumption can be applied in various settings, including consumer behavior, corporate social responsibility, and public policy.

### **Consumer action**

Individuals can aid in the cause of sustainable development by practicing responsible consumption. This includes reducing resource and waste usage, buying environmentally friendly products, and advocating for sustainable businesses (Khan et al., 2021). Consumers can influence businesses and governments to practice sustainable consumption by demanding sustainable products and services and advocating for sustainable policy.

### **Social responsibility of corporations**

Businesses can help promote sustainable growth by encouraging ethical purchasing practices as part of their CSR initiatives (EIAly et al., 2020). Strategies for reducing waste, increasing demand for environmentally friendly products, and adopting eco-friendly manufacturing methods all fit under this category. Companies can also practice sustainable marketing by drawing attention to their offerings' benefits on customers' lives and the world around them.

### **A public policy**

Policies that encourage responsible consumption are one-way governments can contribute to sustainable development. Examples include encouraging eco-friendly production and consumption habits, taxing and regulating unsustainable products and activities, and lending a hand to eco-friendly enterprises (Camilleri, 2019). Governments can also participate in sustainable procurement by obtaining sustainable goods and services and advocating for sustainable supply chains.

### **Synthesis findings**

The concept of responsible consumption, how it relates to the SDGs, and initiatives and policies that support responsible consumption are the three main themes that emerged from our thematic analysis of the included studies.

Responsible consumption is how people and organizations can lessen their adverse effects on the environment and society through their consumption habits. Responsible consumption includes various behaviors, including picking environmentally friendly and sustainable products, reducing waste and energy use, and promoting moral and just trade practices (Quoquab et al., 2019). Sustainable consumption and production (SCP) are one of the United Nations' Sustainable Development Goals (SDGs), and the two ideas are closely intertwined.

Based on our analysis of the available research, responsible consumption is affected by factors including consumer awareness and education, product design, pricing schemes, and marketing and advertising. Several studies highlighted the need to educate and inform consumers, while others looked at the role consumers might play in encouraging responsible consumption. Research shows that consumers conscious of their purchasing decisions' environmental and social consequences are likelier to make wiser decisions. Products designed with consideration for the environment and society, pricing schemes that incentivize responsible consumption, and marketing and advertising that highlight the need for responsible consumption all play a role in convincing customers to engage in these behaviors.

### **Policies and programs to encourage responsible consumption**

Some several policies and programs can be implemented to encourage responsible consumption and promote sustainable development:

- Governments can encourage sustainable production methods by establishing certification programs for companies that adhere to strict environmental and social standards (Schroeder et al., 2019). For instance, the Fairtrade International certification guarantees that farmers receive fair product prices, while the Forest Stewardship Council certification recognizes companies that use sustainable forestry techniques.

- Taxes and incentives for the environment: Governments can use taxes and incentives to promote sensible consumption. For instance, taxes could be imposed on items that significantly negatively impact the environment, like plastic bags or carbon emissions. At the same time, rewards could be offered for buying eco-friendly things, like solar panels or electric cars.
- Governments and organizations can start education and awareness campaigns to encourage responsible consumption and inform people about the effects of their decisions (Verma, 2019). These campaigns can include information about recycling, energy conservation, and sustainable product choices.
- Governments can mandate that companies put environmental and social information on product labels so consumers can make educated decisions about the goods they buy. Brands, for instance, can state if a product was created using renewable energy sources or whether it contains elements that are bad for the environment.
- Extended producer responsibility: Governments can require corporations to bear responsibility for the environmental impact of their products throughout their lives, including disposal. It may inspire companies to develop more readily recyclable or biodegradable products.

Finally, the systematic literature analysis carried out in this work offers proof of the connection between sensible consumption and the United Nations Sustainable Development Goals (SDGs) (UN). According to the review, responsible consumption can help achieve other SDGs and is positively correlated with SDG 12, which aims to promote sustainable production and consumption patterns.

The studies analyzed in the review demonstrated that sensible consumption could benefit the economy, society, and environment. Responsible consumption can assist in achieving the SDGs and building a more sustainable future by minimizing the adverse environmental effects of production and consumption, advancing social equality, and fostering economic development.

The analysis also recommended laws and initiatives that can be put into place to encourage responsible consumption, including extended producer responsibility programs, product labelling and certification schemes, and education and awareness campaigns. These laws and programs can enable businesses to use more sustainable methods, aid customers in making more informed decisions, and lessen waste and pollution.

The analysis also identified gaps in knowledge about the SDGs and responsible consumption. The relationship between responsible consumption and the accomplishment of particular SDGs, such as SDG 5 on gender equality or SDG 13 on climate action, is one area that needs additional study. More study is required to determine the best ways to encourage responsible consumption in many circumstances, including low- and middle-income nations.

Notwithstanding these drawbacks, the analysis offers crucial information about responsible consumption's contribution to the advancement of sustainable development. We can make a more sustainable and just society for future generations by encouraging ethical consumption and production habits.

The results of this study have significant ramifications for consumers, corporations, and policymakers. Policymakers can use the information offered by this assessment to establish laws and initiatives that support the SDGs and encourage responsible consumption. Businesses can use the findings to guide their sustainability initiatives and spot possibilities to lessen their environmental effect and advance social equity. Ultimately, customers may make better decisions and support companies that implement more sustainable methods by using the evidence.

In conclusion, responsible consumption may be encouraged through various policies and programs and is a significant factor in achieving the SDGs. Governments, corporations, and consumers can work together to build a more sustainable future and guarantee that we leave the Earth in good shape for future generations.

## Discussions

Our purpose in conducting this meta-analysis was to learn more about responsible consumption, how it connects to the UN's SDGs, and how it might be used to promote sustainable development. We discovered that responsible consumption is an essential element of sustainable development and may be used to fulfil numerous SDGs through our examination of 50 peer-reviewed studies. Our analysis shows several ways to establish responsible consumption habits, including regulatory interventions, consumer education programs, and CSR initiatives.

## Outcome interpretation

Our analysis showed that corporate social responsibility programs, consumer education programs, and legislative interventions could all be used to adopt responsible consumption behaviors. Policy actions like taxes and restrictions can promote sustainable consumption habits (Leicht et al., 2018). Consumer education may raise people's knowledge of how consumption affects society and the environment and motivate them to make wise purchasing decisions. Corporate social responsibility programs can help companies adopt sustainable production methods and lessen their influence on the environment.

We found several recurring patterns in the studies (SDGs) regarding the connection between sensible Consumption and Sustainable Development Goals. One of the most important conclusions was the acknowledgment of the significance of responsible consumption as a critical driver of sustainable development,

with numerous studies emphasizing the role of consumers in supporting sustainable production and consumption habits.

Numerous studies found SDG 12 (Responsible Production and Consumption), emphasizing that responsible consumption behaviors can reduce the environmental effects of production and encourage more sustainably using resources (Bengtsson et al., 2018). Several studies highlighted the potential of responsible consumption practices to advance social fairness and lessen poverty by focusing on responsible consumption's social and economic aspects. Several studies stressed educating and improving consumer awareness to encourage responsible consumption habits. They also highlighted the role of civil society and NGOs in promoting more sustainable consumption patterns.

The types of studies included in the research and the specific SDGs addressed varied. Still, the findings indicate a close connection between responsible consumption and the SDGs, with responsible consumption habits essential for advancing sustainable development. However, more study is required to examine the efficacy of various interventions and strategies for encouraging responsible consumption and reaching the SDGs.

### **Issues with the review**

It is essential to recognize the limitations of this comprehensive literature evaluation. First, because the review only incorporated works written in English, pertinent works written in other languages might have been missed. Second, the study was limited to peer-reviewed articles and excluded grey literature or publications not subjected to peer review, which would have added to the review's understanding of the subject. Lastly, because of the broad scope of the SDGs, we could not assess all of them and instead concentrated on those linked to responsible consumption.

### **Possibilities of the review**

Notwithstanding these drawbacks, there are several advantages to our systematic literature review. Then, we thoroughly searched several databases, allowing us to locate many pertinent studies. Next, we used rigorous inclusion and exclusion criteria to select only the highest-quality research for our synthesis. Lastly, we compiled the findings from the reviewed studies and extracted the most pertinent themes illuminating the link between sustainable development and conscientious consumption.

### **Managerial and practical implications**

Our review makes recommendations for decision-makers, organizations, and people looking to encourage sustainable growth and responsible consumption.

First and foremost, policymakers can encourage responsible consumption by enacting taxes and regulations supporting sustainable consumption and production (Panoutsou et al., 2020). Policymakers can also help initiatives that raise consumer awareness of how consumption affects society and the environment. Second, companies can implement CSR programs that support sustainable production methods and lessen their adverse environmental effects. Companies can interact with consumers and encourage them to make wise consumption decisions by informing them about their products' environmental and social impacts (Lu et al., 2020). Individuals can finally make responsible consumption decisions by cutting back on their consumption, selecting sustainable goods, and assisting companies that support sustainable business practices. Individuals can also spread the word about the value of responsible consumption while advocating for legislation that promotes sustainable production and consumption.

Additionally, the contribution of technology to encouraging ethical consumption is a crucial additional factor to consider. Using energy-efficient appliances, cutting-edge home systems, and environmentally friendly transportation options, technology may be leveraged to encourage sustainable behavior and consumption patterns (Alzoubi, 2022). Using internet platforms and electronic media can also promote consumer education and awareness-building. However, it is crucial to remember that technology, through the excessive use of digital gadgets and the quick turnover of electronics, can also contribute to unsustainable consumption patterns. As a result, it is essential to approach technology use responsibly and sustainably and ensure that it is incorporated into a comprehensive strategy for fostering sustainable development.

Incorporating technology into sustainable purchasing habits is a challenging subject that requires additional study and focus. Investigating technology's potential advantages and disadvantages is crucial to encourage responsible consumption. Moreover, creating efficient methods and regulations is essential to ensure technology is utilized responsibly and sustainably.

Our systematic literature review highlighted the connections between responsible consumption and SDGs and showed their importance in achieving sustainable development. According to our study, responsible consumption practices can be implemented through several channels, including consumer education, legislative interventions, and corporate social responsibility programs. Notwithstanding these caveats, the analyses and recommendations provided by our study are instructive. They can be used by decision-makers, organizations, and individuals working to promote sustainable growth and responsible consumption.

## Limitations

It is essential to be aware of the restrictions in our review. First, because we only looked at English-language literature, we might not have found any pertinent research written in other languages. Second, we limited our search to works published between 2010 and 2022, which might have left out earlier material relevant to our research issue (Pilgrimien et al., 2020). Despite our careful selection and data extraction procedures, our evaluation could still be biased because data analysis is inherently subjective.

Our systematic literature analysis offers a thorough overview of responsible consumption, how it relates to the SDGs, and programs and policies that support sustainable and responsible consumption habits (Chauhan et al., 2022). We identified effective programs and regulations supporting responsible consumption and offered suggestions for fostering sustainable production and consumption patterns. Our analysis emphasizes the need for additional research to comprehend how responsible consumption affects sustainable development outcomes and find efficient methods.

## Conclusions

The purpose of this review was to examine the literature on sustainable consumption and its relationship to the United Nations' Sustainable Development Goals. Our knowledge of how sustainable development and the SDGs are related to responsible consumption has been expanded thanks to the extensive literature review. Our findings highlight sustainable lifestyles' role in achieving the SDGs and reducing the adverse effects of consumption on the environment and society. Common threads running through the literature on responsible consumption include the importance of consumer education and information, the function of businesses, and the need for efficient legislative interventions.

Most published works focus on high-income countries, limiting the applicability of the results to other contexts. There is an issue with the review here. There is a need for more research in this area because the effectiveness of programs to encourage responsible consumption has not been thoroughly examined. Our findings suggest important implications for future research, clinical applications, and public policy. We recommend that policymakers and practitioners in low- and middle-income countries focus on increasing consumer education and awareness. Businesses can encourage sustainable practices among their customers by adopting greener methods of doing business and interacting with them.

We suggest that researchers in the future examine the success of programs that promote responsible consumption, especially in developing and middle-income countries. More research is needed into the social impacts of consumption and how socially just and humane consumption practices can improve society. An all-encompassing literature analysis shows that sustainable growth and the achievement of the SDGs can benefit from responsible consumption. The adverse effects on the environment and culture can be mitigated if people are encouraged to consume responsibly.

While responsible consumption is a crucial component of encouraging sustainable development, it is not the sole solution; it is vital to remember. A thorough and integrated strategy considering sustainability's social, economic, and environmental components will be necessary to achieve the SDGs. In addition to promoting ethical consumption, it is essential to holistically address issues like poverty, inequality, and climate change. It is also important to remember that shoppers have company in pushing for more moral purchasing practices. Companies and policymakers are responsible for encouraging sustainable lifestyles and consumption patterns. This entails implementing sustainable corporate procedures, promoting sustainable production and consumption patterns, and offering rewards and encouragement for sustainable behavior.

The comprehensive assessment of the literature offers insightful information on how responsible consumption can support sustainable development and the accomplishment of the SDGs. It also emphasizes the need for additional study and action to guarantee that responsible consuming habits are successfully promoted and implemented.

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TRAN THI THUY SINH, DR. NIKOLETTA NÉMETH PHD  
**DECENT WORK AND ECONOMIC GROWTH GOALS 8: TOURISM AND  
THE SUSTAINABLE DEVELOPMENT IN SOUTHEAST ASIA**

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### **Abstract**

To secure a sustainable future for both developed and developing countries, a group of global leaders came together to settle on a list of 17 objectives that would be known as the Sustainable Development Goals (SDGs) in 2015. These goals aim to achieve a worldwide balance between economic, social, and ecological progress. Initially, the United Nations connected tourism to only three Sustainable Development Goals (SDGs), tourism has the potential - albeit frequently untapped - to contribute to the complete set of goals. Until now, the relationship between sustainable development and tourism is viewed as equivocal - tourism is a sector defined by a significant reliance on foreign investment and international tourists, with a spotty history of negative repercussions and disputes. This study examines Sustainable Development Goal 8 "Decent Work and Economic Growth" from the standpoint of robust sustainability and identifies the connection between tourism development and SDG 8. This article examines the relationship between Sustainable Development Goal 8 and tourism, providing an overview of the current condition of tourism for growth within Southeast Asia, particularly at a time when the area – and the sector as a whole – have been significantly impacted.

**Keywords: Decent Work, Economic Development, Tourism, Southeast Asia.**

### **Introduction**

One of the tools many developing nations seek is the conservation, sustainable development, and utilization of ecotourism environmental resources. Goals for Sustainable Development (SDGs) have as their overarching objective the creation of a brighter and more resilient future for the entire globe. SDG 8, which stands for "decent work and economic growth," is one of the purposes that this initiative aims to accomplish by the year 2030. It is one of 17 interconnected goals (United Nations, 2020). This objective asks for the promotion of sustainable and inclusive economic growth, as well as productive and full employment, as well as fair employment for all. SDG 8 is anticipated to improve the economic development per capita of a country in accordance with its national conditions. Therefore, productive activities, such as entrepreneurship, the creation of respectable jobs, and the enhancement of creativity, must be implemented to promote these objectives.

Tourism has the ability to make major contributions toward the achievement of each goal's specific targets. While the United Nations explicitly connects tourism to goal 8, It contribute to all 17 objectives, including health, environmental conservation, education, gender equality, efforts to combat climate change, etc (UNWTO, 2017, p99). However, tourism is a two-edged sword; despite its undeniable advantages, it may also have negative effects on local communities, both environmentally and socially. These include the damage to ecosystems caused by over-tourism (Koh and Fakfare, 2020), being dependent on the tourist industry (Lasso and Dahles, 2020), cultural artifacts as tourism attractions (Husa, 2020), and discrimination against ethnic groups and native communities (Tham et al., 2020).

Consequently, a number of issues arise, guiding our current discussion and establishing the groundwork for a future sustainable development and tourism research agenda in Southeast Asia. The following three questions are addressed in this article: 1) What kind of sustainable tourism progress have we made toward these Development Goal 8 targets in Southeast Asia? 2) What unsustainable trends are still present? 3) What do sustainable tourism policies in Southeast Asia anticipate attaining SDG 8 in the future? Therefore, the first part of this paper argues about how tourism helps (sustainable) development in Southeast Asia. After this introduction, the paper explains key ideas, lists the main features of tourism in Southeast Asia, explains what else needs to be done, and ends by going back to the research questions, going over the study's findings, and weighing the prospects for tourism and the SDG.

### **Literature Review**

#### **The sustainable development goals and the theUNWTO: SDG 8**

The 2030 Agenda for Sustainable Development is the basis for the UNWTO's framework for sustainable travel. Governments reached a consensus on the Sustainable Development Goals (SDGs), which will be carried out by major business organizations and multi-stakeholder organizations representing sectors where corporate influence is important (Gleckman, 2016). However, SDG 8 makes it clear that growth is necessary, proclaiming the



commitment to establish policies that lead to economic growth that benefits all people and leads to widespread prosperity and quality jobs for everyone. Although the SDGs are meant to be "integrated and indivisible" (UN, 2015), the UNWTO has decided to prioritize SDG 8, which reads: "Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for everyone." (UNWTO, 2017, p99). Target 8.9 specifically mentions the tourism industry and its role in the production and distribution of regional products and services. There are two metrics that relate to this goal:

8.9.1: Direct tourism GDP as a percentage of total GDP and in the rate of growth

8.9.2: Sustainable tourism employment is a share of the total tourism workforce.

The UNWTO proposed replacing indicators 8.9.1 as well as 8.9.2 by 2020 with a single metric, "Progress towards sustainable tourism," and three sub-measures "that provide a good (conceptually precise and feasible) indication of the three dimensions of sustainable tourism (economic, social and environmental)" (UNWTO, 2018, p6). In addition, the UNWTO recommended quantifying the economic aspect of sustainability by the contribution of the tourism sector to the gross domestic product (GDP) using Tourism Satellite Accounting.

### **Decent work and Sustainable tourism**

During the 1990s, discussions on broader issues related to sustainability coexisted with the emergence of the notion of "decent work." The International Labour Organization defined decent employment in 1999 as jobs of sufficient quality and protection for employees' rights (ILO, 1999). The ILO's new guidelines on decent work list some of the biggest problems in hospitality and tourism jobs, such as uncertainty, informal employment rates, limited incomes, bad working conditions, long hours, few social protections, discrimination, high rates of turnover, exploitation, and sexual harassment (ILO, 2017).

The inclusion of decent employment in the SDGs enables addressing some of the opportunities and challenges facing tourism workers (Baum, 2018). The UNWTO's tourism forecast for SDG8 is primarily concerned with economic expansion (UNWTO, 2018) and thus on business as usual (Scheyvens et al., 2016), the ILO's rules on work with dignity and tourism that is good for society go even further. The standards list goals that are unique to tourism, such as a focus on fair wages, a non-discriminatory workplace, and a healthy balance between work and life, as well as social dialogue and worker involvement. The significance of respectable employment in tourism stems from the labor the level of competition within the industry, as well as the greater options for migrants, women, and youth than in the majority of other industries. The guidelines provide numerous recommendations for creating more equitable establishing policies and working conditions and codes of conduct to address the sector's lack of respectable work. Such deficiencies include limited social security, extended working hours, limited incomes, and gender discrimination; all of which, according to the ILO, is most prevalent in the unregulated area of the economy and disproportionately affect women (ILO, 2017). This is a worry for a business with a large proportion of a majority female workforce and informal workers, especially at the lowest end of the range of jobs (UNWTO, 2011).

### **Tourism development and growth**

Tourism can be a big part of the growth of an economy in developing nations, relative to those that are already developed (Liu and Wall, 2006). Tourism development is regarded as a mechanism for income generation and employment creation (Samina and Kakar, 2007). Tourism boosts international earnings via imports of capital products and commodity trade, manufacturing sectors, and necessary services. Trends indicate that tourism growth has indirect, direct, and induced economic effects (Dwyer et al., 2000). The main economic effects of tourism include more money coming in from restaurants, tourism groups, and hotels. The secondary effect is caused by transfers, such as when local businesses buy supplies for restaurants and hotels. When the recipients of indirect and direct impacts are the same (such as firm employees and owners) expend their income, induced impact occurs. Thus, tourism development influences numerous economic sectors via multiplier effects (Khan et al., 1990).

It is possible to relate the expansion of tourism and its influence at the community level with the eradication of poverty at the national level through economic growth, and SDG 8 deals directly with the topic of sustainable economic growth (UNWTO, 2017, p99). The contribution of tourism to increases in living standards, national income, and reductions in poverty is rarely subjected to a thorough examination of the political and social the trends in tourism expansion. Not only does GDP change how we think about value, but it could also make the economic benefits of tourism seem bigger. This is because tourism is a big part of many low-income economies export, where off-shore investors and transnational corporations play a big role.

### **Research Methods**

The study goals on decent work and economic growth aim 8 were met by the use of desk research to conduct analyses, arrive at findings, and satisfy the study objectives: Tourism and Sustainable Development in Southeast Asia (the appropriate research methodology represents the type of quantitative approaches that take the information source into consideration). This analysis utilized secondary data sources.

(i) Research question: As the initial step of the secondary investigation, three research questions were formulated:  
1) What kind of sustainable tourism progress have we made toward these Development Goal 8 targets in

Southeast Asia? 2) What unsustainable trends are still present? 3) What do sustainable tourism policies in Southeast Asia anticipate attaining SDG 8 in the future?

(ii) Data collection and processing: Data on Southeast Asia's tourism industry (expenditures, the number of visitors, revenue, employment rate, and GDP growth) collected throughout the period (between 2010 and 2021) from International Labour Office (ILO), WorldData, Statista. After data has been collected, it is categorized, cleaned, aggregated, and input into Excel software in order to calculate the necessary criteria and generate illustrative charts.

(iii) Data analysis: In the study, descriptive statistics and comparative analysis were utilized to look at how the analytical criteria fluctuated over time.

## **Finding and Discussion**

### **Southeast Asia**

Southeast Asia is a tropical area with a comfortable temperature and many cultural, historical, legacy-related, and ecological attractions. The countries there have put a lot of effort into developing tourism through ministries of tourism or the establishment of national tourism committees and other tourism organizations to maximize tourism industries and resources. In Southeast Asia, tourism is a development activity and a well-established economic sector that dates back to the nineteenth century (Hitchcock et al., 2009). Asia-Pacific is one of the most dynamic regions in the globe, attracting both domestic and international tourists. With so many different places to visit in Southeast Asia, the tourism industry has been growing quickly and is expected to grow even more.

There are 29 World Heritage Sites in Southeast Asia. Of these, 17 (59%) are cultural sites and 12 (41%) are natural sites. Indonesia has seven of them, Vietnam, Philippines, and Thailand each have five, and Malaysia has three (the historic cities of the Straits of Malacca recently added to the list include two sites, George Town and Melaka, which are both in this book), and Cambodia and Laos each have two (Hitchcock, 2010).

Table 1. Southeast Asian sites recognized as World Heritage by UNESCO

	<b>World Heritage Site</b>	<b>Year</b>
<b>CAMBODIA</b>		
Angkor	Cultural	1992
Preah Vihear Temple	Cultural	2008
<b>INDONESIA</b>		
Borobudur Temple Compounds	Cultural	1991
Komodo National Park	Natural	1991
Prambanan Temple Compounds	Cultural	1991
Ujung Kulon National Park	Natural	1991
Sangiran Early Man Site	Cultural	1996
Lorentz National Park	Natural	1999
Tropical Rainforest Heritage of Sumatra	Natural	2004
<b>LAO PDR</b>		
Town of Luang Prabang	Cultural	1995
Vat Phou and Associated Ancient Settlements within the Champasak Cultural Landscape	Cultural	2001
<b>MALAYSIA</b>		
Gunung Mulu National Park	Natural	2000
Kinabalu Park	Natural	2000
Melaka and George Town, Historic Cities of the Straits of Malacca	Cultural	2008
<b>PHILIPPINES</b>		
Baroque Churches of the Philippines	Cultural	1993
Tubbataha Reef Marine Park	Natural	1993
Rice Terraces of the Philippine Cordilleras	Cultural (in danger)	1995
Historic Town of Vigan	Cultural	1999
Puerto-Princesa Subterranean River National Park	Natural	1999
<b>THAILAND</b>		
Historic City of Ayutthaya	Cultural	1991
Historic Town of Sukhothai and Associated Historic Towns	Cultural	1991
Thungyai-Huai Kha Khaeng Wildlife Sanctuaries	Natural	1991
Ban Chiang Archaeological Site	Cultural	1992
Dong Phrayayen-Khao Yai Forest Complex	Natural	2005
<b>VIETNAM</b>		
Complex of Hue Monuments	Cultural	1993
Ha Long Bay	Natural	1994, 2000
Hoi An Ancient Town	Cultural	1999
My Son Sanctuary	Cultural	1999
Phong Nha-Ke Bang National Park	Natural	2003

Source: Hitchcock (2021)

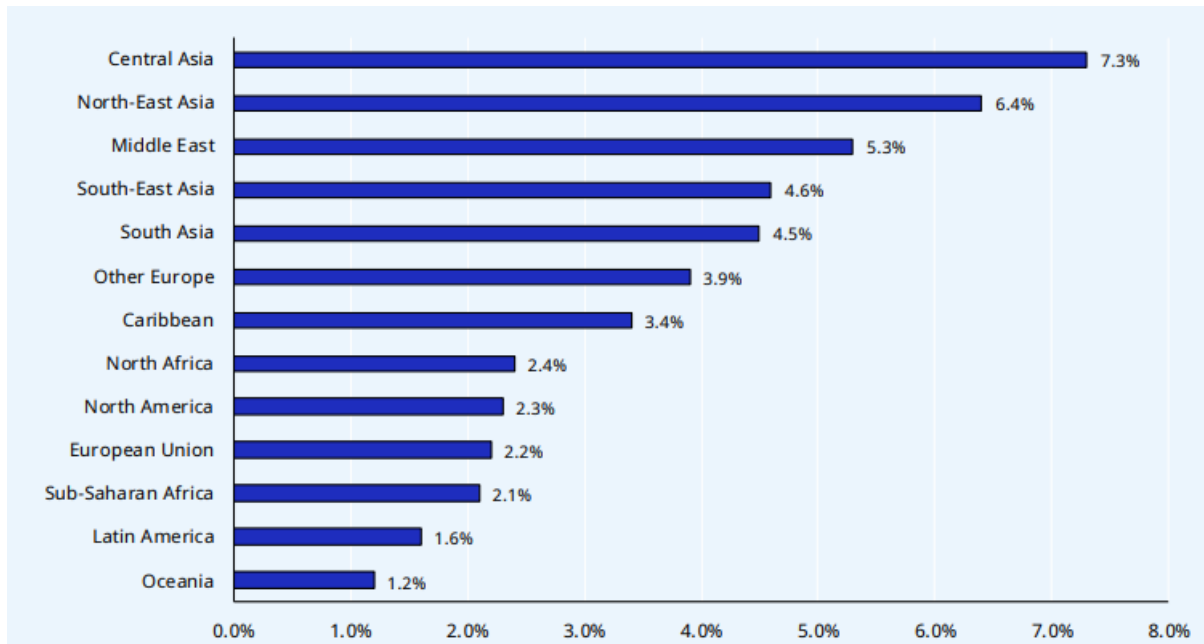
Tourism can help the area's economy grow in more than one way and support and encourage the growth of other associated services and industries, such as the arts, hotels, catering, transport, and handicraft manufacturing. Developing infrastructure concurrently with tourism can facilitate industrialization and modernization (Chon, 2013). However, Southeast Asian tourism is extremely susceptible to financial and political instability in the region and additional external disturbances, such as the spread of terrorism, pandemic diseases, and natural disasters.

### **Tourism and Development in Southeast Asia**

#### **Tourism and Economic Growth in Southeast Asia**

Prior to the COVID-19 epidemic, Asia and the Pacific were the primary regions where the tourism industry expanded, with the most rapidly expanding regions being Central Asia (7.3%), North-East Asia (6.4%), the Middle East (5.3%), and South-East Asia (4.5%), respectively (see Figure 1). Since 1990, global tourism has grown at a rate of approximately 4% annually, but this growth has not been evenly distributed across the world's regions (ILO, 2022). As a result of their economic development and the diversification of their tourism destinations, the growth rate of Southeast Asia's newly industrialized nations has been accelerating at a rapid rate.

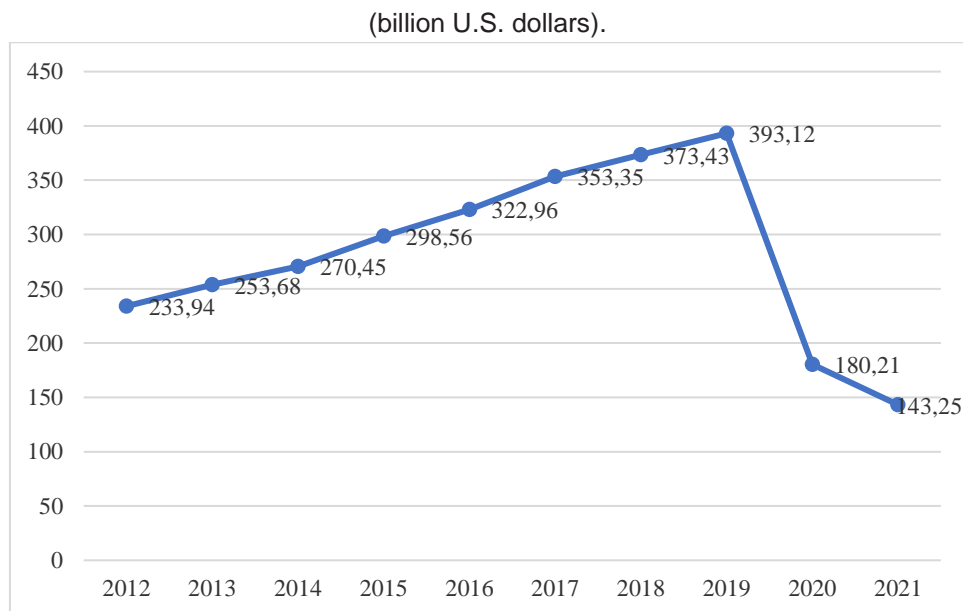
Figure 1. Subregional travel and tourism GDP growth, 2019



Source: ILO (2022)

The travel and tourism industry in Southeast Asia added a little over 143 billion U.S. dollars to the region's GDP in 2021. In comparison, in 2020 the tourism industry in Southeast Asia added over 180 billion U.S. dollars to the GDP of that region (Statista, 2023a). Since the beginning of this decade, contributions to Southeast Asia's GDP from the travel and tourist business have been on an upward trend. However, this trend was abruptly cut in half in 2020 as a direct result of the worldwide pandemic.

Figure 2. Southeast Asia's travel and tourism GDP contribution from 2012 to 2021



Source: Statista (2023)

The following table depicts the development of tourist arrivals by Southeast Asian countries from 2010 to 2021 (see Table 2). Thailand received the most international visitors (39.92 million) in 2019, followed by Malaysia (26.11 million) and Singapore (19.12 million). In addition, Indonesia (16.11 million), Vietnam (18.01 million), Philippines (8.26 million), Cambodia (6.61 million), Lao PDR (4.79 million), Myanmar (4.36 million), and Brunei Darussalam (4.45 million) account for the remainder of international visitor arrivals (WorldData, 2022).

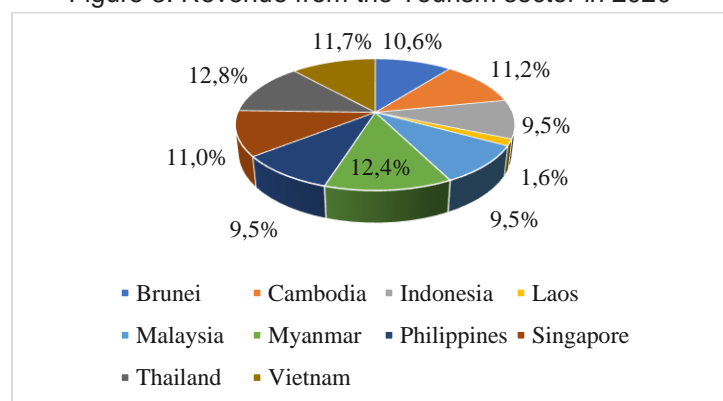
Table 2. Arrivals of tourists by country of destination, 2010-2021 (in million)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
<b>Brunei</b>	0.214	0.242	0.209	0.225	0.201	0.128	4.26	4.32	4.52	4.45	1.07	1.947
<b>Cambodia</b>	2.51	2.88	3.58	4.21	4.5	4.78	5.01	5.6	6.2	6.61	1.31	0.196
<b>Indonesia</b>	7	7.65	8.04	8.8	9.44	10.41	11.52	14.04	15.81	16.11	4.05	1.56
<b>Laos</b>	2.51	2.72	3.33	3.78	4.16	4.68	4.24	3.87	4.19	4.79	0.89	0.83
<b>Malaysia</b>	24.58	24.71	25.03	25.72	27.44	25.72	26.76	25.95	25.83	26.1	4.33	0.134
<b>Myanmar</b>	0.79	0.82	1.06	2.04	3.08	4.68	2.91	3.44	3.55	4.36	0.90	0.13
<b>Philippines</b>	3.52	3.92	4.27	4.68	4.83	5.36	5.97	6.62	7.17	8.26	1.48	0.163
<b>Singapore</b>	11.64	13.17	14.5	15.57	15.1	15.23	16.4	17.43	18.51	19.12	2.74	0.33
<b>Thailand</b>	15.94	19.23	22.35	26.55	24.81	29.92	32.53	35.59	38.18	39.92	6.7	0.43
<b>Vietnam</b>	5.05	6.01	6.85	7.57	7.87	7.94	10.01	12.92	15.5	18.01	3.84	0.16

Source: WorldData (2022)

The outline presented above reveals a pattern of tourism development. Thailand also received more than two times the visitor arrivals than Singapore which is the largest country in Southeast Asia. However, South East Asia's tourism business took a major hit as a result of the COVID-19 outbreak. All the countries were experiencing a rapid decrease in the number visitor international arrivals during COVID-19. In 2020, Thailand conceded as the most visited destination, which reduced to 6.7 million total tourists arrival, subsequently neighboring countries of Malaysia (4.33 million), Philippines (1.48 million), and Vietnam (3.84 million) respectively.

Figure 3: Revenue from the Tourism sector in 2020



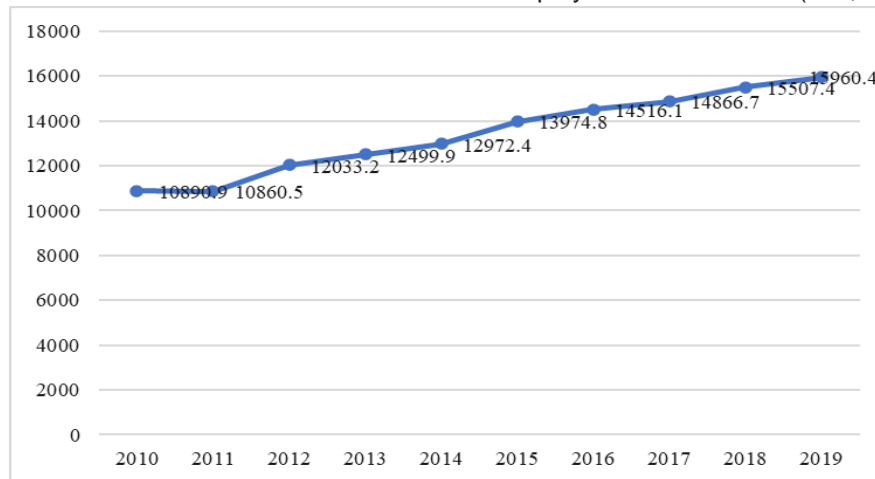
Source: Khant (2022)

According to Figure 3, Thailand has the greatest percentage of its GDP coming from the tourist industry at 12.8% in 2020. Myanmar comes in a close second with a percentage of 12.4%, while Cambodia, Singapore, and Vietnam all have percentages that are almost the same and range from 11.0% to 11.7%. Brunei, Indonesia, Malaysia, and the Philippines all have percentages that are lower than the global average, ranging from 9.5% to 10.6%. At 1.6%, Laos has the smallest proportion. In 2019, the tourism sector was responsible for 10.4% of global GDP (USD 9,170 billion), but this figure was projected to drop to 5.5% (USD 4,671 billion) in 2020. As a result of the Covid-19 pandemic, the travel and tourism sector's contribution to ASEAN countries' GDP fell to 7.52% of GDP in 2020 (Khant, 2022).

#### 4.2.2. Tourism and Decent Work in Southeast Asia

From 2010 to 2019, the provided data illustrates the role that tourism plays in creating jobs in Southeast Asia. The number of individuals employed in the tourism industry continues to increase each year (figure 4). In Southeast Asia, the tourist industry was directly responsible for the creation of about 16 million employments in the year 2019. Since 2010, when there were over 10.9 million employments created directly as a result of tourism in Southeast Asia (Statista, 2023b), there has been a consistent increase in the quantity of jobs created as a direct consequence of the tourism industry in that area.

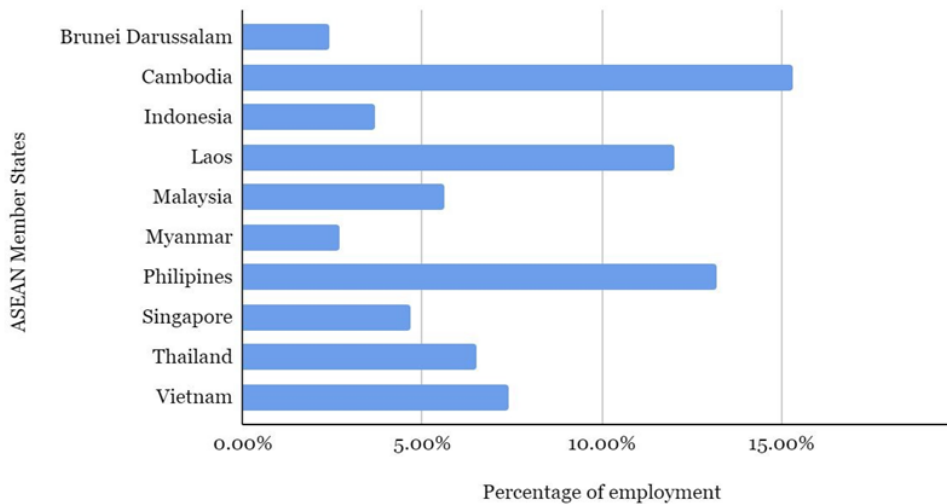
Figure 4: Southeast Asia tourism's 2010–2019 direct employment contribution (in 1,000s of jobs)



Source: Statista (2023)

The data indicate that tourism has been a developing source of employment in Southeast Asia over the past decade. The rise in employment indicates that the tourism sector has assumed a greater role in the region's economy and employment opportunities.

Figure 5: Travel & Tourism Total Contribution to Jobs in Southeast Asia in 2019



Source: Khant (2022)

The proportion of individuals employed within the tourism sector in 2019 is highest in Cambodia, accounting for more than 15% of all jobs, while Brunei, Indonesia, and Myanmar have the lowest proportion, less than 5%. In addition, 10% to 15% rise in the quantity of persons employed in the tourism industry in Laos and the Philippines. Furthermore, Thailand, Vietnam, and Malaysia have a 5% to 10% direct tourism contribution to employment (see Figure 5).

Table 3: Employment Situation in the Travel & Tourism Industry of ASEAN Nations 2020

ASEAN Member States	Employment Condition in Tourism Sector
Brunei Darussalam	2.74% decline in the employment rate
Cambodia	3.2% unemployment rate
Indonesia	6.88 million were unemployed till February
Laos	38% falling

Malaysia	3.4% the rate of unemployment
Myanmar	4.80%
Philippines	4.68 million people
Singapore	4.63%
Thailand	11.1 million
Vietnam	Shrink by 60%

Source: Khant (2022)

The pandemic of COVID-19 in Southeast Asia halted all tourism activities. Millions of individuals were gravely affected by the abrupt disappearance of the income source. Brunei's tourist sector lost 2.74% of its jobs. Cambodia (3.2%), Malaysia (3.4%), Myanmar (4.8%), and Singapore (4.63%) each have a rate of unemployment. There were 4,68 million and 11,1 million unemployed in the tourism industry in the Philippines and Thailand, respectively, indicating a significant impact on employment opportunities in this industry. Vietnam had a shrinkage of 60% in the tourism sector, indicating a significant reduction in job opportunities in this industry.

### Unsustainable trends of mass tourism

#### Socio-economic effects

The concept of mass tourism is synonymous with the idea of tourism that is not sustainable (Alampay, 2005). The loss of biodiversity, the degradation of nature, the extinction and endangerment of wildlife, and the negative effects on local communities are among the most significant challenges posed by Southeast Asia's mass tourism (Kaiwa and Countries, 2017). However, it is critical to keep in mind that economic sustainability does not simply mean that more tourists mean more tourism receipts or money spent by tourists from other countries. There is a clear correlation between the volume of tourist arrivals and the growth of national economies. Financial leakage from investors, foreign hotel chains, and expatriates in Southeast Asian tourism destinations keeps just a small fraction of tourism money in the host country and benefits local populations (Gössling et al., 2009).

Critical to the lack of social sustainability of mass tourism in Thailand is the proportional contribution of travel and tourism's contribution to GDP and its induced effects. In particular, the induced effects are the benefits to the local community, such as hotel workers using their pay to buy food and stay in nearby places (Stynes, 1997). In addition, increasing medical tourism as one of Thailand's marketing strategies is negatively impacting local communities (Kaiwa and Countries, 2017). The Philippines' tourism marketing and branding prioritized arrival numbers over sustainable development due to the focus on expansion. Boracay, one of the most popular beach and sun destinations in the Philippines, is a case of a geographically isolated island experiencing social and cultural difficulties as a result of an enormous influx of tourists (Ong et al., 2011).

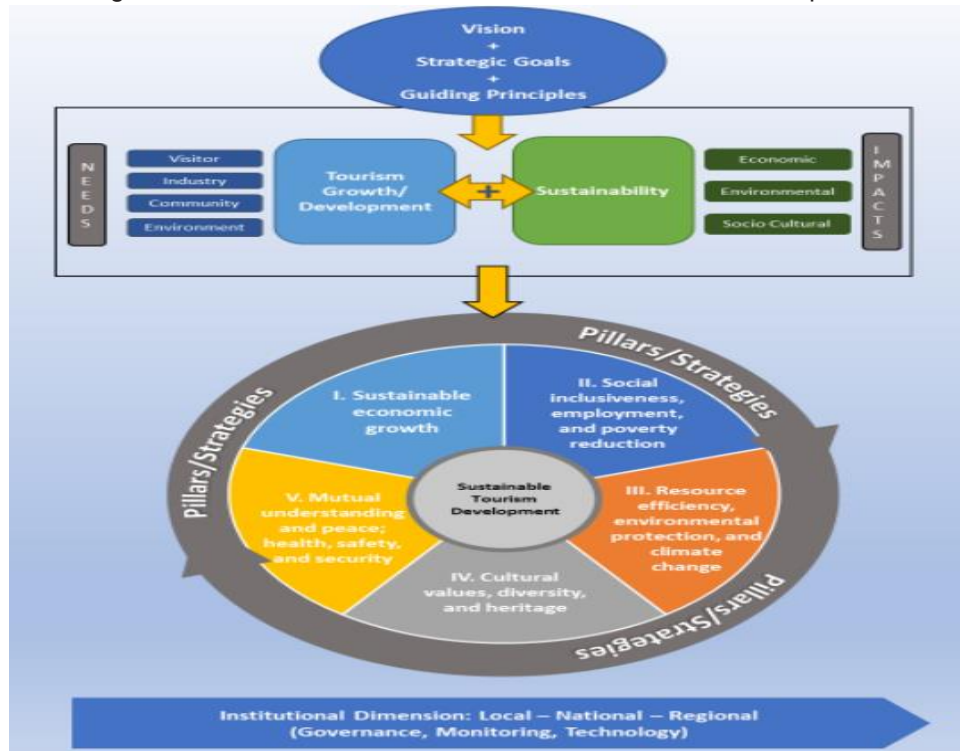
#### Mass tourism and climate change

Tourism is also in charge of 5 % of global greenhouse gas (GHG) emissions, in addition to revenue leakage and destitution. The tourism sector could theoretically be considered a polluting business primarily due to emissions from conveyance services (Gössling et al., 2015). Rising household incomes and rapid economic growth in many regions of Southeast Asia encourage more travel, in order for the airline business, has added more carriers and flights to meet the demand. The entry of low-cost carriers (LCC) into the market has increased passenger arrivals (Duval, 2013) and Dioxide emissions (Gössling et al., 2009; Peeters and Eijgelaar, 2014). Little research has been conducted on the correlation between tourist arrivals and CO2 emissions. Nonetheless, it is essential for policymakers to comprehend the actual effect of national tourism policies on economic growth through increased visitor arrivals. To mitigate tourism's unfavorable effects, host countries must implement a long-term strategy and rigorous monitoring system (De Sausmarez, 2007). According to the study of Kaiwa & Countries, 2017 indicated that roughly 55 million tons of carbon dioxide were released into the atmosphere as a result of transportation in Thailand in 2010. When comparing the selected nations, Thailand not only had the largest IVA growth (6.3 million) but also the highest average CO2 emission per capita (1.4 metric tons) from 2000 to 2010. In fact, in the past decade, Vietnam has seen the largest annual increase in CO2 emissions from transportation, at 20 million tons. However, higher GDP countries like the Philippines, Thailand, and Vietnam, have a smaller share of CO2 emissions from total fuel used by transportation than lower GDP countries like Laos and Cambodia. This trend demonstrates that the contribution ratio to CO2 emissions from the tourism industry is likely to decrease as the country's economy grows, whereas the quantity of CO2 emissions from transportation is typically high. The Philippines' time series are comparable to those of Vietnam and Thailand, with the exception of the increase in CO2 emissions (Hitchcock et al., 2009).

## Sustainable Tourism Policies in Southeast Asia

According to the ASEAN Economic Community Blueprint 2025, Southeast Asia's ultimate goal is to become a region of excellent tourism destinations that provide distinctive experiences and are dedicated to the growth of sustainable tourism. With the support of the Economic Research Institute for ASEAN and East Asia (ERIA), the ASEAN Framework on Sustainable Tourism Development in the Period After COVID-19 was recently launched. Southeast Asia's vision, as outlined in the AEC Blueprint 2025, is to become a quality tourism destination that offers a diverse and unique ASEAN experience and is devoted to sustainable tourism development (Asian, 2022). The framework aims to identify areas of concentration where efforts to rebuild ASEAN tourism industry can be maximized, especially in 2025.

Figure 6. ASEAN Framework on Sustainable Tourism Development



Source: Asian (2022)

The framework specifies five fundamental pillars and their respective strategic priorities:

- *Sustainable economic growth* includes giving priority to sustainable tourist strategy and policy, investments in green and infrastructure, and environmental marketing initiatives.
- *Social inclusion, employment, and the reduction of poverty*, giving priority to quality jobs in the tourism sector; equitable and widespread distribution of social and economic benefits; interventions customized for SME; women-specific obstacles, and public-private-community collaborations to empower and engage local communities.
- *Environmental protection, resource efficiency, and climate change mitigation* include, but not be restricted to, the following, prioritizing efficient and low-carbon use of resources; protecting the environment, preserving ecosystems, and conserving biodiversity; and mitigating the impacts of global warming.
- *Promotion of heritage, diversity, and cultural values* with an emphasis on the prioritization of cultural tourism, the preservation of intangible and tangible cultural heritage, and the development of living cultures and creative industries.
- *Mutual peace and understanding; security, safety, and health*, prioritizing the management of multi-hazard management of risks; crisis preparedness planning; better partnership and communication; and international information-sharing efforts.

Particularly, the five interconnected and intersecting central pillars were identified as the essential factors of sustainable development to which tourism could make a substantial and enduring contribution, thus refocusing attention on implementation efficacy. Considering a global epidemic, which heightened the significance of hygiene and health as a crucial aspect of tourism, the fifth and final pillar is revised to explicitly include this characteristic. Governance systems at multiple levels were introduced as the sixth pillar of the overall structure, defining the Framework's operation and control, the instruments and mechanisms for implementation, and the mechanisms



and structures for interactions among the various stakeholders. Specifically highlighted is the function of technology as an overall critical driver of the synergies between the various sustainability and stakeholders pillars.

## Conclusion

Southeast Asia is ideal for developing a sustainable tourism industry that can help achieve Sustainable Development Goals related to local economic development and decent employment. Southeast Asia's geographic location, rich topographical, faunal, and floral biodiversity, and cultural and multi-linguistic diversity make it a fertile ground for sustainable tourism. This study examined the current situation regarding tourism growth in Southeast Asia. However, the main emphasis was focused on Sustainable Development Goal 8 "Decent Work and Economic Growth". The study provides answers to three research questions. Increases in GDP and employment opportunities demonstrate sustainable tourism's advancement. The percentage of Southeast Asia's gross domestic product (GDP) that is contributed by the travel and tourism industry has been on an upward trend since the beginning of this decade. In addition, there has been a continuous rise in the quantity of jobs that have been created as a direct consequence of the tourist industry. This growth can be directly attributed to the growing number of visitors. Even though some governments in the region have promised to put the development of the tourism industry at the top of their agendas as a way to stimulate local economic development in areas without other natural resources and industries, this has not yet occurred. Secondary data analysis revealed the existence of general and fundamental obstacles that make sustainable tourism a difficult possibility. Some of the biggest challenges were unsustainable trends of mass tourists that were hurting nature, reducing biodiversity, putting wildlife at risk, or even killing them off, and hurting local communities. The study also provides the ASEAN Framework on sustainable tourist development by the ASEAN Economic Community, through which the region's tourist sectors can be reconstructed to their full potential, especially by 2025.

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