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Table of Contents

Exploring customer perceptions of smart restaurants

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Abstract: AI is a cutting-edge technology and method based on an intelligent computer system that is generating enormous profits in today's industries. Smart restaurants are brand-new restaurants that use innovative technology to reduce human errors, simplify the automated process, and provide higher-quality products. Restaurants are expected to improve customer service quality, optimize supply chain efficiency, and maximize business profit in this manner. What are customers' thoughts on the smart restaurant? Is it possible for this new restaurant style to spread widely? This paper was conducted using a qualitative method, with in-depth interviews with six customers who have previously visited AI restaurants and one manager who works in an AI restaurant to clarify the customer's perception of smart restaurants. Most interviewed customers have a positive attitude toward AI restaurants, and the customers' main motivations for entering smart restaurants are curiosity and uniqueness. While the interviews revealed some reservations about this new restaurant style.
Keywords: AI, smart restaurant, customers' perception, curiosityIntroduction

1   Introduction

Just as Christopher Freeman (1987) said, "…not to innovate is to die". Freeman's words proved how innovation is important for any business, and the catering industry is no exception. AI is a type of computer science that contains ns developed methods and techniques and builds an intelligent computer system at the same time. According to an ancient Chinese proverb, "Illness enters through the mouth." Eating and drinking healthily have become important needs for customers since many diseases have occurred due to unhygienic and unsafe food in our daily life. However, AI in the food and beverage industry holds a massive opportunity to deliver better customer experiences, such as by checking food ingredients by image recognition; predicting sales cycles through historical data; understanding customers by monitoring consumers' emotions over social media networks; using natural language processing and data analytics; forecasting inventories through AI-power algorithms; improving supply chain   through

logistics, predictive analytics, and also transparency and sorting for quality checks by using a sensor-based optical sorting technique that is powered by machine learning. Overall, AI is a process of making intelligent machines that work and react like humans. Thus, robot chefs and waiters have been invented to replace humans. Companies believe that robots can decrease costs in the long run by being faster, reliable, and more efficient. Besides, drones may replace human workers in the food delivery sector in China; it has already been tested by the Chinese company Ele.me.

The objective of this paper is to investigate customers' opinions on artificial intelligence (AI) as a form of technology innovation and digital innovation in the catering industry in China. In order to have a better understanding of the customers' perception of smart catering industry in China, the study used a qualitative research method with in-depth interviews in two perspectives: customers and AI restaurants. The in-depth interview was conducted with six customers who have visited AI restaurants before and one manager who works in an AI restaurant. The duration of each interview was approximately 20 to 50 minutes, and all the discussions were recorded.

2   Literature review

According to the Absolute Reports, AI in the food and beverage industry is expected to register a compound annual growth rate (CAGR) of over 65.3% from 2019 to 2024 in the forecasting period. The main reason for the growth rate of AI in the food and beverage industry is the change of customer demands. More and more customers prefer fast, affordable, and easily accessible food options, which are leading the transactions in the food and beverages industry (Ajay, 2019). AI has the potential to improve and transform the entire restaurant experience, from the way we order food to the way employees prepare food and serve customers (Mingotto, Montaguti, and Tamma, 2021). In order to meet customer demand and interact customers with brands, many restaurants have deployed automation, AI, and machine learning. For example, automatic machine facial recognition is an important application of most AI restaurants adopt it in the payment process, which allows you to pay with your face. Moreover, robots (mostly as chefs and waiters) are another essential element in AI application. Additionally, customers service is dramatically improved by using chatbots. The main tasks of the chatbot are guiding customers through menus and helping them order food without queuing (Fleming, 2019). Otherwise, AI in the food and beverage industry holds a massive opportunity to deliver a better customer experience, such as checking food ingredients by image recognition; predicting the sales cycle through historical data; understanding customers by monitoring consumers' emotions over social media networks; using natural language processing and data analytics; forecasting inventories through AI -power algorithms; improving supply chain through logistics, predictive analytics and also transparency and sorting for quality

check by using a sensor-based optical sorting technique, which is powered by machine learning (Daxue, 2019).

Restaurants' manual systems for restaurants have been replaced by a new technology-wheeled robotic system. This system consists of infrared ray (I.R.) sensors, a serving robot, and two android applications (i.e., customer and management applications). By emitting and detecting infrared radiation, I.R. sensors are used to sense the characteristics of their surroundings. However, customers will not be able to see the infrared waves (Livisha et al., 2018). The similarity between I.R. and AI is that they have the common goal of finding information, but they do so from different perspectives: representation (A.I.) and anti-representation (I.R.). In the learning aspect, machine learning can link the AI and I.R. together and improve both (Ying, 2017). Furthermore, many restaurants decide to use robots not only in front-of-house but also in back-of-house jobs. There are many types of robots; for example, robots are used in the kitchen to help prepare food and to cook. Robots are also worked in front-of-house operations, assisting humans with various tasks, such as managing reservations. Robots can also be a good way to attract customers. The other important AI application in restaurants is the smart bot, which could play the role of waiters giving some meal recommendations, taking food, and helping customers check out at the end (Huang and Rust, 2021).

Furthermore, AI-enabled bots are also very popular in restaurants. They can do a variety of things, such as manage reservations, respond to customer inquiries and help customers order. Even some international chains, such as Starbucks and Pizza Hut, are using a voice ordering an assistant to make it easier for their customers. Customers only need a few simple voice commands to order or re-order food, and they can also order food through voice-only menus without the assistance of a human waiter (Berezina, Ciftci, and Cobanoglu, 2019). Furthermore, KFC China started to use facial recognition for ordering and payment in some restaurants. In 2018, KFC had decided to adopt a "Smile to Pay" payment system in China and bring it to 300 locations around China. Yum China, which holds the rights to KFC in the country, first introduced this system in 2017 at KPRO, which is an upscale KFC restaurant in Hangzhou. This AI-powered self-ordering kiosk saw collaboration with Alipay and leveraged its Smile to Pay system, which had previously been used to authenticate transactions on the Alipay mobile payments platform. Thus, customers did not need to worry about payment safety when they wanted to use Smile to Pay. Furthermore, customers could also link their faces to their Alipay accounts through Smile to Pay's facial recognition system, which means they could place an order and pay without having to use any physical card, cash or even mobile phone (Perala, 2018). This payment method has already been applied widely in the lending industry; however, it is still at a preliminary stage when it is used in general. However, due to the impact of the coronavirus in China, almost everyone needs to wear masks when they are outside. Due to the

current situation, facial recognition payment still needs more time to become widespread in China soon.

AI algorithms could clearly tell you the ingredients in your meal based on an image, but they cannot change people's lifestyles and taste preferences. Moreover, artificial vision systems are a powerful tool to help customers with the automatic recognition of fruits and vegetables. It could recognize how many nutrients are in food and evaluate food safety and quality based on the visual information (Luca et al., 2017). However, for the human body, balanced nutrition in the diet is quite important for staying healthy. An AI nutrition recommender system could help humans to know how many varieties of food items need to be consumed every day in order to obtain the right amount of nutrients. If many people could follow such a well-balanced diet, the risk for cardiovascular disease and obesity rates would decrease (Theodoridis et al., 2019). Thus, AI can be medical support for those who are willing to change their unhealthy lifestyles, but it is hard to prevent unhealthy lifestyles for everyone and change others' food consumption habits.

3   Methodology and data collection

In-depth interviews are commonly used in qualitative research and are the most frequent qualitative data source in restaurant service research. This paper used a qualitative research method with in-depth interviews among six customers who have visited AI restaurants before and one manager who works in AI restaurant. Typically, this method includes a dialogue between researchers and participants, guided by a flexible interview draft and supplemented by follow-up questions, probes, and comments. This method could help us collect open-ended data; in order to explore participants' thoughts, feelings, and beliefs about using AI in restaurants. Based on our primary research, one of the popular hotpot restaurants Haidilao is using AI in their restaurant in Beijing, China. Due to the pandemic influence, the interview was conducted online for around 20 to 50 minutes, and all the discussions were recorded for data analysis. The interview data were collected from April to May in 2020. The statistics samplings data were analyzed by content analysis, which is mainly used for analyzing the content of communication during the personal interview (Ishiyama and Breuning, 2011). The interview guide for customers mainly focused on customers' attitudes, motivations, and experiences. Thereafter, the collected empirical data was analyzed by using qualitative content analysis and deductive and inductive approaches.

4   Results

The findings illustrate that AI technologies have not fully been adopted by many restaurants in China yet, but AI-based technologies applied into restaurants as innovative and novel manner increased customer satisfaction. The research showed the reason for customers' willingness to visit AI restaurants and not traditional restaurants, their preferences when they eat out, the way that customers make their decisions when they need to choose a type of restaurant, the way that

they think of AI restaurants, their opinions about the main differences between AI restaurants and traditional restaurants and their experiences and satisfaction after trying AI restaurants and the way that they think of the future trend of AI restaurants.

4.1 Experience of customers in AI restaurant

In the following, the characteristics of the interviewed customers are briefly described in order to understand the background of the interviewed persons. The information was collected by online interview; it is the first part of the interview. There sample size consists of six customers (four female and two male) who have visited AI restaurants. Four of them are 25 years old; however, one is 22 years old, and another is 26 years old. Regarding education level, four have a bachelor's degree, while two have a master's degree. In addition, two of the customers come from Shanghai, while the others come from Beijing, Tianjin, Lanzhou, and Yinchuan. Regarding their professions, three are students, while the remaining are communications workers for China Mobile, a trainer in cosmetics, and an English teacher in a middle school. Table 2 summarizes the customers' demographic information. Additionally, in order to process the data analysis, all customer interviewees were assigned a number for analysis C1, C2, C3, C4, C5, and C6.

Table 1: Respondent profile

	Age	Gender	Profession	Education level	Residence
Customer 1	25 years old	Female	Student	Masters	Yinchuan
Customer 2	25 years old	Female	Teacher	Bachelor	Beijing
Customer 3	22 years old	Female	Student	Bachelor	Tianjin
Customer 4	25 years old	Male	Communication worker	Bachelor	ShanghAI
Customer 5	26 years old	Female	TrAI ner	Bachelor	ShanghAI
Customer 6	25 years old	Male	Student	Masters	Lanzhou

Source: (Online Interview, 2020)

In general, the customers belong to the millennial age group, which means that they lived through a period of rapid change, both economically and technologically. They were attracted to AI restaurants as a novelty, as they are always curious about new things and are willing to try them. Based on data collected from interviews, one of the participants said, "when I heard AI restaurants from news, I could not resist trying it and want to know what kind of services they applied, what is the differences between AI restaurants and traditional ones after I experienced it" (C1). From the data, millennials have a strong willingness to try AI restaurants.

In this part, the author would like to know the way in which customers are familiar with AI and the degree to which they know about AI and AI restaurants. Moreover, before asking the participants AI knowledge-related questions, a general definition of AI was given by the authors. The AI m was to give a big picture of AI in case the customers were not familiar with AI or they had no idea about it. The first two questions are: are you familiar with the term Artificial Intelligence (AI), and what comes to your mind if I say AI (smart) restaurants. Regarding the collected data, most of the participants were familiar with the term of AI and knew many of its applications, such as robot chefs and waiters, smart ordering systems, the voice recognition systems for smartphones, floor cleaning robots, Hema's kitchen side dishes, intelligent vehicle navigation system (IVNS) and facial recognition payment. The participants' first impressions of AI restaurants were that they are cool, futuristic, and technological, which attracts them to try this new type of restaurant.

The findings showed that the needs of customers have slightly changed due to the high-pressure and high intensity works; it caused some psychological issues to come out in our lives. However, when restaurants adopted AI technologies, the needs of the people who did not want to communicate could be satisfied. On the other hand, we realized that people eat out not only to sanitate themselves but also to enjoy the nice environment and have a unique customer experience.

Meanwhile, the majority of participants mentioned that the speed of service delivery is a key factor that could influence their satisfaction with the restaurant. As society develops, the pace of life in many Chinese is becoming faster and faster, and most people do not have enough time to spend on waiting for food. It also can be one of the reasons that customer behavior changed. Nowadays, customers prefer the combination of a fast speed of service with high-quality food. Thus, in order to increase customer satisfaction, the managers of restaurants need to decrease the waiting time as much as they can while ensuring that the food is still very delicious. Furthermore, in the catering industry, the taste of food is always an essential factor that dictates success.

Motivation can be considered as a precondition that forces human behavior to occur. It explains the reason that customers behave in a way, the inspiration for their behavior and the causes of their purchases (Deci and Ryan, 1985; Namibisan, 2002). All the participants were asked about their motivations to determine for what reason customers decide to go to AI restaurants rather than traditional ones, the driving reasons for it, and the reason they chose to visit the AI restaurant. According to the collected data, nearly all of the participants started to visit AI restaurants in 2019; however, only one participant went to an AI restaurant in 2018. The fact that AI restaurants only appeared in 2018 in the Chinese market explains ns the reason that most of the customers visited one in 2019. Moreover, due to the limited number of AI restaurants in the Chinese catering industry, customers do not have a lot of choices, which is why the frequency of eating at AI restaurants is low. Most of the participants visited them only once every three or

four months. The majority of interviewees decided to try AI restaurants because of their creative, novel, and cool aspect that could satisfy the interviewees' curiosity and provide a unique experience. For example, one participant said,

It depends on the state of my life. If I travel somewhere, I prefer to try local food regardless of whether the restaurant is AI or traditional. I only care about whether it is local or not. However, if I want to eat something after a crazy busy workday, I will choose AI restaurants because they could save me time. I do not need to wait, and the speed of food delivery is very fast. Moreover, I will not be disturbed by anyone (C2).

All of the participants have a positive attitude towards the future development of AI restaurants; they believe that it is an irreversible social trend. Although AI technology is still in the initial stage of development (the technology is not mature enough), it will become increasingly better with development. Although the current AI restaurant market size and market share are quite low, they will dramatically increase soon. On the matter, one participant said,

AI technology as an essential tool makes our lives easier and more efficient. Thus, I believe that the number of AI restaurants will increase, and I estimate that the AI market size will grow by 15 to 20% in five years. In addition, the majority of traditional restaurants will implement AI technologies. AI restaurants have a good development prospect (C3).

However, two of the participants hope that the traditional restaurants will not be completely replaced by AI restaurants. The reasoning is mainly because machines do not have emotions and feelings. If there were only AI restaurants on the market, society would become colder and have no sentiment. Moreover, innovation always plays a core role in any business. A participant mentioned, "If AI restaurants cannot keep innovating and have creative ways to attract customers, over the next few years, they will become as bland as traditional restaurants" (C1). The innovation of AI restaurants can be unique, personalized and differentiate services and delicious and exquisite food. Additionally, according to the growing market size, the merchant has to do more market research in order to know customers' preferences and exact needs.

4.2 Experience of manager in AI restaurant

Due to the limited AI restaurant development, there was only one AI restaurant manager, Mr. Li, who was interviewed as AR1.

Advanced technology (including A.I.) could help restaurants to be unique. In particular, AI technology implementation can greatly increase the restaurants' cooking efficiency and reduce the speed of service delivery. Moreover, AI recommendation systems could provide personalized customer experiences, which other restaurants are unable to duplicate. Moreover, there are three market-based sources of sustainable competitive advantage: brand, offerings, and relationship.

When the author interviewed the manager of Spacelab Weightless, the restaurant was trying to build its brand image via a special AI track system in China and by offering effective and personalized services, new and creative food dishes, and nice and eco-friendly packaging of food. It is very important to build a strong relationship between AI restaurants and customers to gain customer loyalty and improve business profits. As Mr. Li said,

The customers came to our restaurant can be offered VIP membership I.D. and discounts, or red envelopes. The customers can deposit money to their VIP membership account and the money in the card is more valuable than the customers who are not VIP members. While for discounts and red envelop, in order to gain it, the customers must subscribe to our official account and repost one of our advertisements to their social media.

Manager in an AI restaurant can observe the customer reactions and their preference or dislike. As Mr. Li said,

We are glad that our customers are happy and satisfied with the AI technology services. some of them were suggested by those customers who visited us before to feel the innovative technology in AI restaurants. Some of them are really interested in Spacelab Weightless technology, which is an AI food delivery track system.

Technology Spacelab Weightless contains three aspects from food ordering, dished delivery and payment. According to Mr. Li's experience with AI restaurant customers, they do trust the AI technology because of the well-developed technology. And they are excited and curious because they enjoy the fast dishes delivery and efficient payment way. On the other hand, the service quality was improved a lot in AI restaurants. Finally, the customers do not look happier for a long period using AI technology as they feel there is no soul in the food, and they cannot feel warm and caring during the eating experience due to too many machines instead of human beings.

5 Discussion and conclusions

Customers nowadays prefer quick service, unforgettable experiences, and delicious food in a comfortable and creative dining environment. These findings perfectly match the findings of the literature research that customers' needs and behavior are dynamic, and businesses must pay close attention to them if they do not want to be eliminated by the market. AI restaurant is a new establishment. Curiosity and uniqueness are the primary motivators for customers who want to try it. Most customers polled have a favorable opinion of AI restaurants. While most participants cannot accept the robot chef because the machine lacks human emotions.

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The influence of Artificial Intelligence in restaurants

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Abstract: AI is a cutting-edge technology and method based on an intelligent computer system that is generating enormous profits in today's industries. Smart restaurants are brand-new restaurants that use innovative technology to reduce human errors, simplify the automated process, and provide higher-quality products. Restaurants are expected to improve customer service quality, optimize supply chain efficiency, and maximize business profit in this manner. What are customers' thoughts on the smart restaurant? Is it possible for this new restaurant style to spread widely? This paper was conducted using a qualitative method, with in-depth interviews with six customers who have previously visited AI restaurants and one manager who works in an AI restaurant to clarify the customer's perception of smart restaurants. Most interviewed customers have a positive attitude toward AI restaurants, and the customers' main motivations for entering smart restaurants are curiosity and uniqueness. While the interviews revealed some reservations about this new restaurant style.
Keywords: AI, smart restaurant, customers' perception, curiosityIntroduction

1 Introduction

Artificial intelligence (AI) as a form of technology innovation and digital innovation applied in restaurants is becoming more and more common in China. The adoption of AI in the catering industry is becoming more and more common in the Chinese market, and the AI market is expected to be 11.9 billion dollars in 2023. In comparison, it was only 1.76 billion dollars in 2018. The restaurants as the core part of this study, the performance has greatly enhanced after AI was implemented. Particularly, the results from the findings that facial recognition payment and AI-powered self-ordering have been adopted in most AI restaurants and traditional restaurants. The critical reason for traditional restaurants not using other AI technologies is the high cost which includes the investment costs and the operating and maintenance costs. Many of the merchants could not afford it. The other reason is that AI technology is not mature enough. It could only do some programmed and automated simple tasks, for complex and flexible works still

need humans to do. The profits in the catering industry are increased by connecting the merchants of restaurants and customers efficiently, people's lives become easier and more convenient. The biggest advantage of the application of AI is the reduction of human mistakes and automated processes, which could bring higher quality to the product. In the near future, I believe AI will reshape the industry and elevate the restaurant business prospect.

AI could not act as human beings, especially feelings, express or imitate emotions, at least in the present state of this technology, AI technologies still cannot communicate like humans. However, most of the time, customers still need to talk with human waiters for some flexibility, and the sample size of AI restaurants may not be enough to prove the results. There are very few AI restaurants that were interviewed because of the limited amount of AI restaurants in China.

This research aimed to find the influence of AI technology in the catering industry in China. The method of this research is a qualitative research method with in-depth interviews. In-depth interviews are commonly used in qualitative research and are the most frequent qualitative data source in restaurant service research. Typically, this method includes a dialogue between researchers and participants, guided by a flexible interview draft and supplemented by follow-up questions, probes, and comments. This method could help to collect open-ended data; in order to explore participants' thoughts, feelings, and beliefs about using AI in restaurants. Based on our primary research, one of the popular hotpot restaurants Haidilao is using AI in their restaurant in Beijing, China.

2 LITERATURE REVIEW

2.1 Artificial Intelligence (AI)

As a major source of innovation, AI provides by machines that display aspects of human intelligence, and it is increasingly utilized in service and human resource management (Rust and Huang, 2014). For example, smart cars and drones, medical healthcare, smart home devices, robots for homes, hotels, and restaurants have automated many tasks, for example, virtual bots turning customer service into self-service (Fluss, 2017), big data AI applications used in finance and banking services to replace bank teller, customer service staff and risk control manager (Javelosa, 2017), and social robots instead of human greeters to welcome customers in customer-facing services (Choudhury, 2016). As one of the technology-based innovations, AI indicates that the fourth industrial revolution is coming and that many more human jobs will be replaced by AI. With the development of AI, we no longer fear the change of computers because AI or the capacity of the machines could make predictions by using a large number of data to act in a complicated and volatile environment (Agrawal et al., 2018). Consumers, employees, managers, and employers all constantly and simultaneously face complex decision-making problems at the heart of modern economies. Although many intelligent machines emerged after the middle of the

19th century, such as silicon-based computers, the aim is to discover any process of formal reasoning and simulation by digital machines (Ernst et al., 2018). Otherwise, Alan Turing (1950) argued that the difference between a computer and a brain is one of the degrees, not of principles. Thus, it is hard to distinguish between interacting with another human or with a digital machine.

Additionally, the development of artificial intelligence has benefited from three interrelated trends: the availability of large and unstructured databases, the explosion of computing power, and the rise in risky capital to finance innovative and technological projects (Ernst et al., 2018).

2.2 Business-to-consumer (B2C) in traditional restaurants

The catering industry contains small, independently owned, and large global types, from the prison food and beverage industry to the luxurious hotels. In a catering system, managers are responsible for their consumers feeling welcomed, the catering facilities work well for guests, and the whole system could serve efficiently and make profits well spontaneously (Powers and Barrows, 2003). Davis et al. (2018) explained that in the catering industry, managers' operation is the crucial point for successful management, making sure the real-time service can be offered in time for their guests. Besides, managers should make the profits obviously in their industry and balance the costs to fit the sales. In managers' daily duty in the catering industry, they should make plans, organize, motivate and control the system in catering. As the most complex and technical industry management, there are some constraints from external and internal. This research will only list the risks which could be replaced or reduced by AI technology. For example, from the external area, the risks can come from economic and technical. The cost of employees and waiters and insurance is a big resource to increase the costs. Traditional catering systems lack adequate data analysis programs and regular food production. From the internal part, food and beverage, staff, and control create risks from the waste of materials, pilferage, lack of employee knowledge and skills, less resiliency staff for instability guests flow, any inevitable reasons for absence, shortage training investment for new staffs, high-quality employees turnover, gains collection, data analysis for profits and cost supervision and design, updating of menu and pricing rules, and programs for data analysis for the whole business.

In China, the development of the catering chain still remains to improve. Even the city Chongqing, which is known as the City of Catering Industry and China has been working to make it the gastronomic capital of China since 1999, according to No. 3 Document of the State Council. For example, its characteristics are seen as backward technology, low industrialization, and organization. Especially it is in scarcity of standardized operation, stable catering servants, standard Chinese food, and the technology for low-temperature logistics (Chongping, 2011), which can be improved evidently by AI technology in practice. From a practitioner's perspective on the technology in the catering industry and hospitality industry,

Doran (2010) concluded that in the past three decades, added technology had brought great changes in the traditional catering industry, and it can only help to gain more efficiency, profits, and safety industry.

2.3 AI adoption in traditional restaurants

Before opening to foreign trade and investment and implementing free-market reform, China's economy was very poor and stagnant and relatively isolated from the world economy. However, after economic reforms and trade liberalization, China has become the world's fastest-growing economy, and the real annual gross domestic product (GDP) growth averaged 9.5% in 2018. Nowadays, China's economy has become a very important part of the world economy, and it is the world's largest economy if considered a purchasing power parity basis. While its real GDP growth has slowed significantly from 14.2% in 2007 to 6.6% in 2018. (Morrison, 2019). President Xi Jinping mentioned that AI is a new productivity power to increase economic productivity in his opening speech of the ninth Party Congress (Brookings, 2019). The future plan of the State Council targets for the growth of China's AI industry is to reach a "world-leading" level in dome AI fields, with a core AI gross industry output exceeding RMB 400 billion (USD 60.3 billion) and AI-related industry gross output exceeding RMB 5 trillion (USD 754.0 billion) in 2025 (Ding, 2018). In general, developing AI in China is to increase economic profits; PwC research from 2017 estimated that China had the most to gain from AI technologies, forecasting a potential GDP boost of around 26% from AI (PWC, 2018). Moreover, AI also could improve China's productivity levels, it could help China enable to meet a sustainable economic growth and GDP targets (Ding, 2018).

Notably, China's catering industry is booming with positive growth trends. According to the National Bureau of Statistics, the revenue of the catering industry in 2018 received 4.27 trillion yuan (about $628 billion USD), and there is a rise of 9.5% from the previous year, accounting for 11.2% of the China's total retail sales of consumer goods. In contrast, green catering and smart technology catering would be the popular trend in the future Chinese catering industry. In 2018, Chinese government announced that planning to open 5000 green restaurants and reduce kitchen waste and energy consumption per 10,000 yuan of revenue by 20% in 2022. However, restaurants in China are becoming matter, using smart management systems to analyze customers' preferences and paying with QR code or facial recognition (Xinhua, 2019). In addition, the most visible application of AI in the catering industry is the use of robots in restaurants in China, such as robot chefs and robot waiters. In 2018, one of the Chinese e-commerce companies, JD.com announced that planning to open 1000 smart restaurants in China by 2020, where all the food would be prepared by robots and all customers would be served by robots (Daxue, 2019). A compound annual growth rate (CAGR) is expected over 65.3% from 2019 to 2024 in the forecasting period on the AI food and beverage industry. The growth rate mainly results from the increasing customer

demands. The changes from traditional food style to fast, affordable, and convenient food style, also make the food and beverage industry change (Ajay, 2019). It is proved that AI technology could improve the restaurant experience both for customers and the employees from several aspects, such as the way for customers to order food and to be served, and the way for employees to prepare food and serve the customers (Walch, 2019).

3   METHODOLOGY

How do consumers feel about this novel and innovative restaurant eating way in China? In order to have a better understanding of the influence of AI technology in the restaurant in China, the research is implemented in two perspectives: managers in AI restaurants and traditional restaurants. After the secondary research analysis, the primary research was performed by qualitative method. The in-depth interview data was collected among two managers who work in traditional restaurants and one manager who works in AI restaurant. The interviews were conducted in the COVID pandemic period from April to May in 220 via online phone call, and all the discussion was recorded to document.

An in-depth interview is one of the most common formats of data collection in qualitative research. Just as Oakly (1998) mentioned that qualitative interviews as a framework, the practices and standards are not only needed to be recorded but also have to be reinforced. In addition, an interview guide plays a significant role in an in-depth interview. In order to use the interview time more efficiently, the interview guide must have to be designed more systematically and comprehensively (DiCicco-Bloom and Crabtree, 2006). The main reason the author decided to use qualitative research methods for this study is that it is an unstructured, primarily exploratory design that focuses on small samples however, this method is intended to provide insight and better understanding (Malhotra, 2003). In particular, qualitative techniques is the method are sensitive enough to catch the participants' attitudes, motives, and behavior (Strauss and Corbin, 1998).

4   RESULTS

AI restaurants as a new style based on high technology are just emerging around China, which is the reason that there is not enough data about the number of AI restaurants. This research made a conclusion for a reason for traditional restaurants merchants to adopt AI in their restaurants and what can be the difference between the AI restaurants and traditional ones.

In order to easily access the analysis data, the respondents from traditional restaurants were marked as numbers T1 and T2. The respondent from AI restaurant was marked as A1. Respondent T1 has six working years' experience in restaurants and respondent T2 has operated two different traditional restaurants. Respondent A1 is the manager of an AI restaurant with a track system, and he has four years of working experience.

From respondent T1, he mentioned he would only accept the AI-based system when this technology becomes mature. He has believed that the machine can do the cutting and cleaning works better than humans do.

From the respondent T2, the reason why he could not accept AI systems is the high cost of AI systems in restaurants. For example, the whole AI-based system costs ten million yuan (CNY). He also mentioned that he would only use AI technology to make work easier and more efficient, but he will not totally replace humans with an AI-based system.

For both two respondents from traditional restaurants, they have a mutual opinion for the reason why they don't accept AI restaurants is the food quality from human chefs cannot be replaced by robot chefs. Once the taste is lost, they will lose their customers as in Chinese customers have high requirement for food heat control, which cannot be made by robot chef. Furthermore, human chefs have their own distinct advantages. For example, human chefs can communicate effectively with their customers in order to meet their specific needs.

Even these two traditional restaurants managers did not accept AI-based systems in their restaurants, and they were still gradually adopting AI technology. For example, they used AI technology in food ordering (store ordering machine or online platforms), dish delivery and payment (facial recognition and QR payment, iPad or QR code).

According to A1's experience, the cost is the core factor for merchants whether they decide to adopt AI technology or not. Since AI technology is innovative and has just appeared in the market, the application cost is still very expensive for many small traditional restaurants. Since there are 22 track AI systems with different colors in this restaurant, customers are required to choose one of the table mat colors, and they will take their dishes based on this color later. For the restaurant's overall layout, in addition to choosing a metal track and space decoration, the restaurant's designers did not use metal devices, while they decided to use round tables, curved glass barriers, blue, pink, and yellow table mats, and soft fabric sofas in order to give customers a warm and relaxing feeling. The creative light design makes the whole dining environment very fantastic and cool. Moreover, on the second floor, not only can customers watch the flight track of the whole restaurant, but they also can utilize a special children's area. There are still some human waiters, and even the chefs are human. Thus, this restaurant is not fully smart. They have only adopted some AI technologies, such as self-payment, iPad self-ordering, and AI food delivery track, but they do not use robots in this restaurant. The creative light design makes the whole dining environment very fantastic and cool. He was confident that the AI technology in a restaurant is mature enough, and that is also why he adopted it to his restaurant. By adopting the AI-based system in restaurants, the service quality has been increased by the increased speed of the dish delivery, within 17 seconds which is eleven times faster than humans do. The food delivery track system is much more efficient than

dishes being delivered by human waiters. Compared to the methods of traditional restaurants, the food delivery track system is not only faster but also creates a unique and special dining experience for customers. It exactly meets the customers' expectations that eating out is not only to satiate themselves but also to enjoy the nice environment and have a unique customer experience. Afterward, customers will be more satisfied and feel that AI restaurants are worth their cost. Besides, the food ordering system helped to decrease 60 percent of employees, which is a high cost in restaurants. Also, the customer flow was increased a lot by using an AI-based system, especially during weekends. The customer flow could be increased, and the turnover rate could be up to ten times even. Payment and dishes delivery can be easier and simpler, which simplifies a lot the staffs' working procedure. He could not see any difficulties when the service was replaced by an AI-based system.

5   CONCLUSION

AI-based technology has grown in popularity in the Chinese catering industry, bringing significant profits while also improving the service quality. While it is still in its early stages, it is expensive, and the technology is not yet mature enough. AI cannot act like humans, particularly when it comes to feelings, express or imitate emotions, and, at the moment, AI technologies cannot communicate like humans. However, catering managers anticipate that the ideal future will be a perfect combination of AI technology and human beings in restaurants, particularly Chinese food, which requires very strictly handmade skills.

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How does China respond to the agricultural commodities market: A case study in the post COVID-19 era?

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Abstract: COVID-19 pandemic caused different levels of impact across the industries, including agriculture, since it is a food chain reaction from the raw materials to the end product. The main purpose of our review research is to find out how the Chinese government responded to food security and price in the agricultural market in post COVID-19 era and then follow with key issues that need to be considered, such as steady agricultural product prices. Also, during the post COVID-19, the conflict between Russia and Ukraine affected the world's agricultural production and market. This review research concluded the strategies of the Chinese government to respond to this global issue from the point of view of agriculture. The paper also proposed some solutions and suggestions that can be applied during this new era. In the end, we concluded effective policies and regulations that have been proven by the Chinese government and can be referred to by other countries or regions.
Keywords: post COVID-19 era; Chinese policy; agriculture; food security

1 Introduction

In 2020, the World Health Organization officially named the new worldwide pandemic COVID-19(WHO,2020). The pandemic caused by the COVID-19 disease has a comprehensive effect on many aspects, including agriculture and the food supply chain, mainly affecting food demand and, consequently, food security, with a great impact on the most vulnerable population in the world. Those countries that don't have stable agricultural production capabilities and heavily depend on food imports are influenced by the spread of Coronavirus, they are looking for substitutes and adjusting their agricultural commodities markets to solve the urgent food crisis caused in the post Covid-19 era (Boyacı-Gündüz, C. P., et al., 2021). From another perspective, the pandemic also caused the problem of labor shortage. For example, workers are ill and need to quarantine themselves. Any sector of the food supply chain lack of labor would result in a chain reaction,

factories will shut down, food shelves will be empty in the supermarket, and there is not enough labor to harvest or grow agricultural production in labor-intensive periods. (Reid et al., 2020).

And China, with its large size and significance in the world agricultural commodities market, its response to the food crisis globally is of particular importance. Overall, the three major staple grains of rice, wheat, and corn will continue to maintain a good momentum of development in the long term, even during the Covid-19 era. There is an abundant supply of rice and wheat. However, soybean and edible oil supply capacity will need a large number of imports. Nevertheless, the rate of increase in grain production in China is lower than that of grain consumption which means there is still a food supply threat, not to mention that China is a country with low arable land per capita. In the post Covid-19 era, the basic agricultural development condition still exists. Therefore, the government`s policy response is worth learning about for the development of agriculture in the post COVID-19 era.

2 Literature review

2.1 The influence of the COVID-19 pandemic on the agricultural commodities market on the view of the overworld

2.1.1 The impacts of Covid-19 around the world

The pandemic called COVID-19 disease has had a great impact on the actions and activities of humanity. Agriculture is not outside this impact. Food demand and thus food security are greatly affected due to mobility restrictions, reduced purchasing power, and a greater impact on the most vulnerable population groups. As cases of contagion increase, governments take more drastic measures to stop the spread of the virus, also influencing the global food system. The premise of any measure adopted should be to protect the health and food security of the population, to the detriment of economic growth, although some governments go in the opposite direction (Siche, R., 2020).

2.1.2 World's response to agricultural commodities in the post Covid-19 era

In the context of the global food crisis of 2007-2008 and the financial crisis of 2008-2009, the Committee on World Food Security developed the Global Strategic Framework for Food Security and Nutrition, which aimed to promote rights-stakeholders in the global, regional, and guidelines and recommendations are provided for concerted action at the country level. Meanwhile, the framework also served as a tool to provide information for the actions executed by

policymakers and all stakeholders with a role in food security and nutrition (Burdock, R., & Ampt, P., 2017).

2.2 Overview of the agriculture commodities market in China (before, during COVID-19, and in post COVID-19 era)

The producer price index of agricultural products is a relative number that reflects the trend and magnitude of changes in the price level of agricultural products sold by agricultural product producers within a certain period. The index can objectively reflect the changes in the production price level and structure of agricultural products across the country and meet the needs of agricultural and national economic accounting("Producer Price Index of Agricultural Products - Alchetron, Baidu Encyclopedia", 2022). According to the National Bureau of Statistics, the producer price index of agricultural products keeps increasing from 2017 to 2020, as shown in table 1. The producer price index of agricultural products is 96.5, but it increased to 114.5 in 2019. The producer price index of cereal, rice, and maize increased significantly (2022). Due to the influence of the COVID-19 pandemic, the producer price of agricultural products increased in China.

Table 1 Producer price index of agricultural products from 2017 to 2020

Index	2017	2018	2019	2020
Produce price index of agricultural products (previous year=100)	96.5	99.1	114.5	115
Produce price index of plant products (previous year=100)	99.5	101.2	100.8	102.8
Cereal produce price index (previous year=100)	100.5	102.3	100.3	104.1
Wheat produce price index (previous year=100)	104.4	100.1	100.1	100.5
Rice produce price index (previous year=100)	100.7	99.7	95.5	100.8
Produce price index of maize (previous year=100)	97.1	105.1	102	107.6

Source: National Bureau of Statistics, 2022

Accordingly, the food (substances intended for human consumption or drinking, including processed, semi-finished, and unprocessed foods, excluding tobacco or substances used only as medicines) commodity retail price index also increased obviously during the COVID-19 pandemic in China, and the biggest increase is for oil products (2022).

So far, we have collected the demand and supply of agricultural products in China till April 2022. Affected by the epidemic control, the transportation of grain sources in some major corn-producing areas in Northeast and North China is not smooth, and the corn inventory in northern ports is low. It is expected that the domestic corn market price will remain at a high price range. Domestically, soybean purchases and sales are in the off-season, and the market is generally stable. It is expected that domestic soybean prices will continue to run at a high

level. Internationally, South American soybeans encountered high temperatures and drought during the critical period of growth and development, affecting soybean flowering and grain filling, resulting in lower unit yields and lower total output. The international soybean supply and demand situation are tight, and international soybean prices are expected to fluctuate at high levels. The national lint sales rate was 45.6%, a year-on-year decrease of 39.5 % points. The sales progress was slow, and the cotton spot market supply was loose. The cotton price continued to run at a high level, the transmission to the downstream textile and apparel market was not smooth, and the market was generally cautious about the market outlook. Cotton in the northern hemisphere has entered a critical period for planting, and weather changes in the main cotton-producing areas have become the focus of affecting the trend of international cotton prices. With the addition of factors such as the conflict between Russia and Ukraine, and the Federal Reserve raising interest rates, the fluctuation of cotton prices at home and abroad has intensified. The high international price has restrained the import demand for rapeseed and peanut; the import volume of specialty oilseeds such as sesame is expected to increase, driving the output of specialty vegetable oil such as sesame oil to increase by 60,000 tons. The country's accumulative sugar production was 8.89 million tons, a decrease of 1.24 million tons over the same period of the previous year; the accumulative sugar sales were 3.71 million tons, a decrease of 470,000 tons over the same period of the previous year, and the accumulative sugar sales rate was 41.7%, 0.4 percentage points higher than the same period of the previous year. Due to the epidemic, some sugar mills in the Yunnan production area have delayed the harvest and crushing time, and the sugar production may be affected ("数据 - 文章详情", 2022)

2.3 China's response to agricultural commodities before the spread of the Covid-19 pandemic

Agriculture is an infrastructure industry in China. China's agriculture has experienced three stages: traditional mode (depending on natural climate and environment), biochemical mode (overuse of chemical products), and smart agriculture era(adoption of advanced technology, such as blockchain technology, smart supply chain, etc.) (Sun et al., 2021). China has been taking continuous measurements in agriculture. For example, the Rural Revitalization Strategy was first announced by China's Chairman Xi Jinping. He strengthened the importance of rural areas, agriculture, and farmer as in priority(Xu ., 2021).

In 2012 and 2014, international food prices fluctuated drastically, with an annual fluctuation of more than 40%. While China's food prices have always remained stable, the prices of agricultural products such as corn, soybeans, beef, and mutton in China have been under strong downward pressure until the outbreak of Covid-19. With the support of the Minimum Purchase Price Policy (MPPP), the market prices of rice and wheat, these two staple foods in China, have stabilized near the minimum purchase price level. The MPPP stabilized the grain output of the

current season and helped stabilize the continuous grain production capacity. (Yao, Z., & Xuan, P., 2019, April)

Besides, the red line of domestic food production of 1.8 billion mu (Approx. 1.2 million KM2) of arable land ensures the safety of staple foods such as rice and wheat, moderately importing other agricultural products and agricultural raw materials to ensure agricultural production and supplementing the policy of importing non-staple agricultural products such as soybeans/meat. The combination of mutual support and support constitutes a three-in-one guarantee structure for China to deal with food security risks. It is also the fundamental support for China to successfully cope with the severe challenges to food security caused by various emergencies such as the international financial crisis and major natural disasters over the years. (Wang, Y. S., 2019)

2.4 China's response to agricultural commodities in the post Covid-19 era

The outbreak of COVID-19 highlights the shortcomings of China's traditional agricultural economic development model. To feed the biggest national population, China's agriculture must transition to a smart farming era, focusing on both economic benefit and environmental effects. National policy or regional policy is the efficient manner to lead the direction of agriculture. In this review, we mainly discussed the policy response of China toward agriculture in the post COVID-19 era.

Many methods have been analyzed by the government, for example, to strengthen and improve the system of agricultural support policy, continue to promote the reform of the purchase and storage system of agricultural products, besides implement more effective and compliant support and subsidy measures as well as protect and improve farmers' enthusiasm of farming. Secondly, it is necessary to further increase the support for the main grain-producing regions and consolidate the local enthusiasm and sense of responsibility for focusing on agriculture commodities. Thirdly, to increase the support for agricultural infrastructure construction, promote the innovation of agricultural science and technology vigorously, and effectively improve the comprehensive grain production capacity.

The 2020 Central Document No. 1 pointed out that the construction project of cold chain logistics facilities for agricultural product storage and preservation will be launched. Industry development is the core of the Rural Revitalization Strategy. Improving the financial support role of the financial industry in the development of the agricultural supply chain is of great significance for consolidating the industrial foundation for Rural Revitalization Strategy. This construction project of cold chain logistics facilities for agricultural product storage and preservation provides support and a basis for the traditional agriculture to the financial business

model of the agricultural supply chain and its intelligent transformation(Xu .,
2021).

Referring to China's government work report in 2022, the No. 1 document of the
Central Committee, and the No. 1 document of the Ministry of Agriculture and
Rural Affairs, all those documents called for increasing the production capacity of
soybeans and oilseeds. And China will focus on two major preparations in 2022,
and the first one is to promote the model of "soybean and corn belt compound
planting" of more than 15 million mu (Approx. 10,000 KM2) in 16 provinces
across the whole country by using this special model to make full use of high-level
crops and corn and to take advantage of the expansion of the space for low-level
crops, accomplish the synergistic symbiosis of crops, and double harvest in one
season.

2.5 The conflict between Russia and Ukraine and the agricultural commodities market of China

2.5.1 The important roles of Russia and Ukraine in the agriculture commodity sector

Russia and Ukraine play a substantial role in global food production and supply.
Russia is the world's largest exporter of wheat, and Ukraine is the fifth largest.
Together, they provide 19% of the world's barley supply, 14% wheat, and 4%
maize, making up more than one-third of global cereal exports. They are also lead
suppliers of rapeseed and account for 52% of the world's sunflower oil export
market. The global fertilizer supply is also highly concentrated, with Russia as the
lead producer. ("New Scenarios on Global Food Security based on Russia-Ukraine
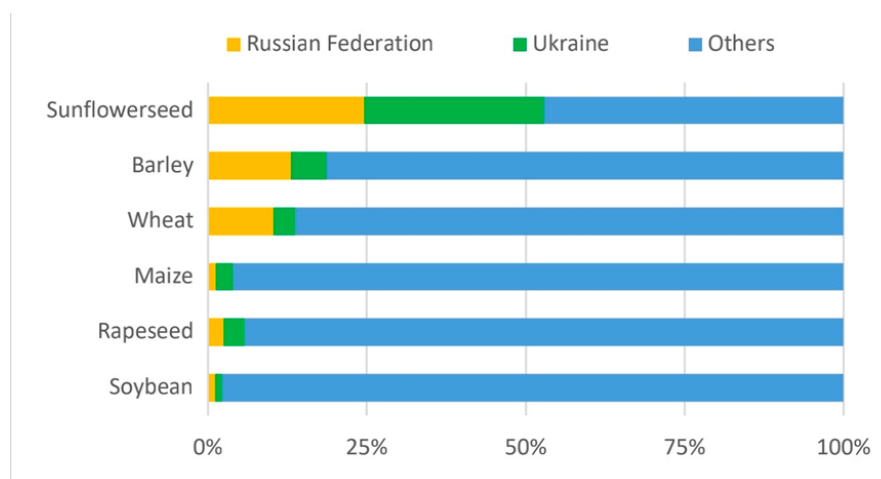Conflict | FAO in the Philippines | FAO, 2022)

Figure 1: Share in global production of selected crops (2016/17-2020/21 Avg.)

Source: FAO XCBS system

2.5.2 The impact of this conflict on Chinese agriculture

Firstly, there is no comprehensive food security issue in staple food such as grain since China's grain production per capita is 483 kg in 2021(National Bureau of Statistics of China) which exceeds the food security line of 400 kg per capita of the United Nations Food and Agriculture Organization by 21%. Secondly, China is not involved in the sanctions against Russia; neither Russia nor Ukraine would prohibit grain exports to China, but they will reduce exports due to domestic demand. At the same time, as Ukraine has gradually entered the spring plowing season, the conflict will largely affect the plowing work in spring, which will likely lead to a decrease in grain production in autumn.

2.5.3 How should China respond to the consequences of the Russia and Ukraine conflict?

In terms of ensuring food security, strengthening the ability to increase grain production and grain reserves, strengthening the construction of grain supply chains, and actively exploring alternative sources of imports to form a complete supply chain. As for the global cooperation in China's agriculture, promoting the diversification of international agricultural cooperation methods, basing itself on the domestic market, and increasing the layout of geographically adjacent areas are options. In terms of trade in China's agricultural products, from the perspective of the government, it is necessary to establish a mechanism for monitoring and early warning of agricultural products to ensure the stability of the domestic supply of agricultural products and from the perspective of industry associations and enterprises, it is necessary to allow them to have the bargaining power of industry associations and increase the active participation of enterprises in agriculture and the capacity of the industrial chain.

The conflict also brings unpredictability to the prices of agricultural products in China, especially in the context of geopolitical uncertainty. Therefore, China proposed to firmly protect the country from the bottom line of food security in the No. 1 document of the Central Committee of China in 2022. This may also predict the uncertainty of the entire international food supply, so China, as a large country with a 1.4 billion population, must further promote the security of agricultural products.

3 Methodology

To get reliable information for the research purpose, the review paper was based on a huge amount of literature study and some web information from China's

official government portal. We aimed to analyze the influence of COVID-19 on China's agricultural commodities market and China's response to the agricultural commodities market in post COVID-19 era. In the end, we will notify the suggestion for future researchers.

4   Results

Historically, epidemics affected the agricultural market development, mainly from the food supply. The COVID-19 pandemic is the biggest shock to all the counties, especially the country living on agriculture. Besides, the unstable global environment also puts agriculture in danger, such as in the conflict between Russia and Ukraine. China is one of the biggest agricultural countries, and its shortage was exacerbated by COVID-19. The influence of COVID-19 is not only a challenge but also an opportunity for China to change its traditional agriculture system to a modern smart agriculture system. China has taken continuous policies accordingly to respond to the demand and supply changing, such as the Minimum Purchase Price Policy, Rural Revitalization Strategy, establishment of construction projects of cold chain logistics facilities for agricultural product storage and preservation, and so on.

5   Conclusion

COVID-19 is a double sword to China's agricultural commodities market. It impacted negatively on China's food supply but also accelerated the transition to smart agriculture. China's policy is showing a sustainable agriculture mode for the future, paying attention to economic benefits and the environment at the same time.

6   Limitations and suggestions

In this paper, we mainly listed China's policy respondents to the post COVID-19 era from pricing and supply chain. As we know, COVID-19 accelerated the transition from traditional extensive agriculture to smart agriculture. Therefore, future research about the adoption of automation and information technology in agriculture and its effects in China will be worthwhile. And the comparison research about digital agriculture between developed countries with mature experience in digital agriculture and China will provide valuable suggestions for China's future agricultural development.

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Occupational safety layer network (OSLN)

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Abstract: Can safety organization of a company be visualized using network science? What kind of relations of occupational safety are between managers, employees, Occupational Safety Specialist (OSS) and Occupational Safety Representatives (OSR)? As a result of the knowledge of network science, We try to visualize the occupational safety layer network of the examined companies, with its tools. First of all, We examine whether this can be defined and visually represented in any randomly selected company. To explore the problem, We used directed network, weighting the connections with numbers of occurents between participants. We included six companies with an Occupational Safety Service Provider (OSP) or an OSS into the research. To map the relationships, We created a questionnaire that We made available both on paper and online as well. To process the responses We used Excel, and the Gephi application which can handle the directionality, the weighting and the graphical displaying. The results have been shown that network science can be used to present and analyze the safety layer of an enterprise. Based on the research, We came to the conclusion that the obtained results can be used to determine the areas of organization to be developed in terms of occupational safety at the examined companies.
Keywords: occupational safety layer network, human reletions network, occupational safety, ocupational safety representative

1   Introduction

We live amoung networks. More and more research is looking at organizations from a network science perspective[1]. We examinate the occupational safety relations at some companies. It would be good if OSR had a significant number of relations, because, according to an EPSARE project[2], they can play a significant role in prevention. In our study, networks are organized around nodes, as Barabási put it, in his view, most of the networks are not random is created but organized around nodes[3]. Many studies deal with multilevel networks within organizations[4][5], and although there should be isomorphism between levels for multilevel analysis[6], however, We examine the OSLN on its own. Getting to know the network of human relationships in a chain[7] has helped a lot in defining the task. Network research fits well with workplace risk management and It is, one of its areas.[8]

2   Research method

We first compiled a questionnaire and then sent it to five OSS and OSP to look for businesses in their area of operation who would be happy to participate in the

research. This area covered about two hundred businesses. When We started our research, We hoped to look into at least eight companies, but We hit a wall everywhere. Finally two Professionals helped us, and We got results from six companies in two ways, because the labour safety, and the occupation health networks are separated in many companies. The first two were examined by Imre Komlódi, He had taken questioneries to the Ownners, and asked them to help us. This organisations filled them out by theirself. The next three companies I examined myself, and I asked them personally employee by employee. The last research was made by Ferenc Faragó, who asked employees with similar method as I. The questionery was assembled by online as well, but finally nobady used it. We used directed network for my research, because We wanted to know that, if the relations were bidirectional, or not. To displayed results, We used Gephi application.

2.1 The questionery

The final version of questionery had five questions. The online questionery was similar with this. The first two questions were about titles at the company, third question was about labour safety, fourth question was about occupational health, and the fifth question was control question of third question.

Q1: Status at the company?

Q2: What is Your occupational safety task of the company?

Q3: From whom do you get instructions, education and help related to occupational safety?

Q4: From whom do you get the referral? Who sends you for a medical examination?

Q5: Who can you turn to with your remarks, problems and questions related to occupational safety?

3   Results

When We sent out questionnaires We could not be sure that everybody would send them back. Then We thought it over. Nothing would happen, because if She, or He was a hub, then She or He would appear as an unidentified person with a lot of relations, otherwise She or He would be a standalone individual with few relations. We marked them with question mark and painted them red. We displayed individuals' strength with their sizes. If the average degree was $>= 2$ then the relationships were mostly two-way, if it was <2 but it was $>= 1$ then the relationships were mostly one-way. (Except for special cases where everyone was connected to everyone with only one one-way edge)

		No answers	Nodes	Unidentified employees	Edges	Average degree
1st Company	Labour safety	11	13	2	37	2,846
	Occupation health				18	1,385
2nd Company	Labour safety	21	26	5	46	1,769
	Occupation health				20	0,769
3rd Company	Labour safety	5	5	0	4	0,800
	Occupation health				2	0,400
4th Company	Labour safety	19	19	0	18	0,947
	Occupation health				0	0,000
5th Company	Labour safety	27	27	0	1	0,037
	Occupation health				26	0,963
6th Company	Labour safety	154	159	5	504	3,170
	Occupation health				185	1,164

Figure 1
Results (Results from Gephi)
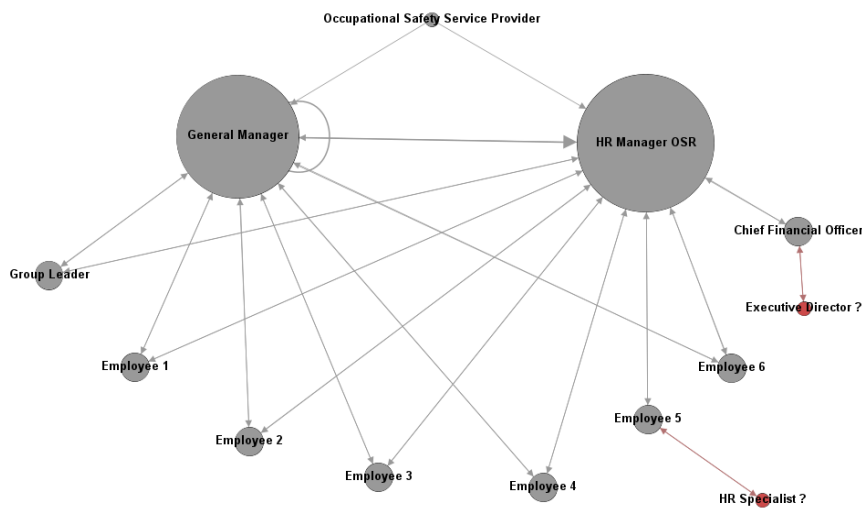
Figure 2
First company labour safety layer network

The occupation health layer network (Figure 3) presented Us the Occupation Health Care without health care provider. We could see that the relations were only one directional. It was right, because the stuff in duty sent employees to medical check. Our main problem with this illustration was that, there were two employees, who could get medical referral from unidentified personal.
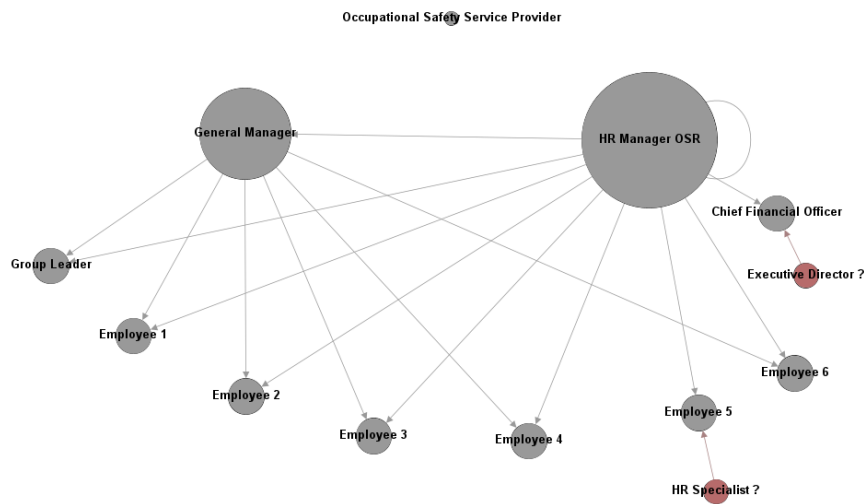
Figure 3
First company occupation health layer network

At the following results We focused on only to present the main problems.

Second examined company was a small company as well, with twenty employees. They all sent questioneries back. Problems were the same as before. There were unidentified titles, and there were employees, who got medical referral from unidentified personal.

Third examined company was the smallest company of all examined, and the occupational safety problems of a typical Hungarian company became clear. The Administrator is the Executive Director's wife, who did not do real job for the company. This company had an outsider Occupational Safety Provider. As We could see, the employees were not interested in Occupational Safety, because relations had only one direction. (Figure 4)
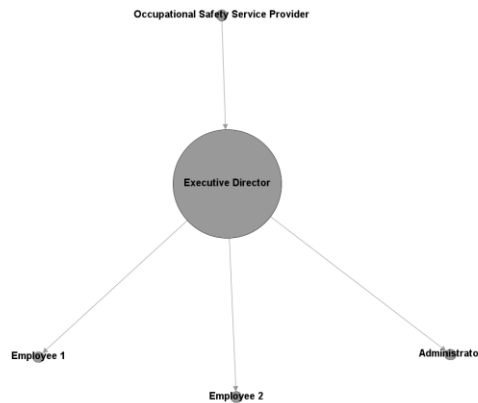
Figure 4
Third company labour safety layer network

At the next company, which was the fourth, problems were the same as before. It was a small company too. The employees were not interested in Occupational Safety because relations had only one direction. The main problem at this company was that, the employees known nothing about annual medical check. Two of them were the Executive Director's relatives. (Figure 5)
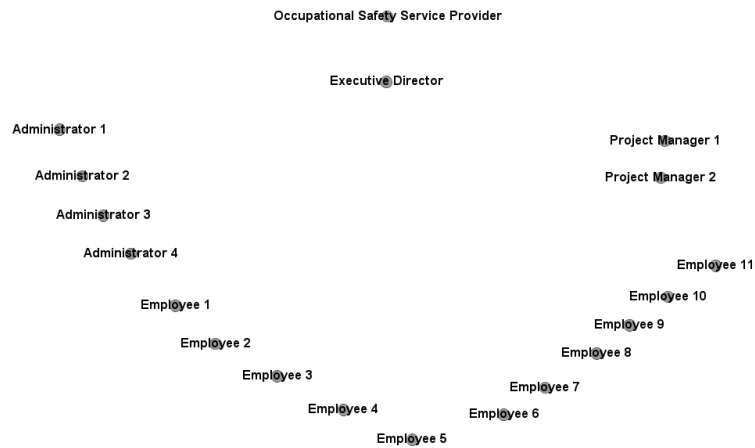
Figure 5
Fourth company occupation health layer network

Fifth examined company was a small company as well, but they were the first, which required to elect an OSR. We did not find an OSR in OSLN. They were

not interested in Occupational Safety, but They at least went for an annual medical examination. At this result (Figure 6) We thought, everything was over. Mainly because We have made the documentation of occupational safety, but We did not have contract with occupational safety services. Then We considered, and We recognised, We did not get faulty result, because it showed Us, which areas had to develop at the company.
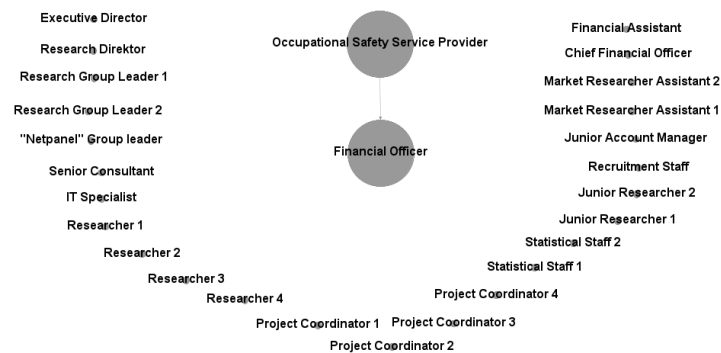
Figure 6
Fifth company labour safety layer network

The next company wich was the sixth in the row, but it was the biggest. Ferenc Faragó was a huge help in my data collection at this company. He asked employees personally too. They sent one hundred and fifty-four answers back. Processing was slower, but the results spoke for themselves. They were the nicest layer networks of them all. Nodes were well recognized, but the layer networks had the known problems.
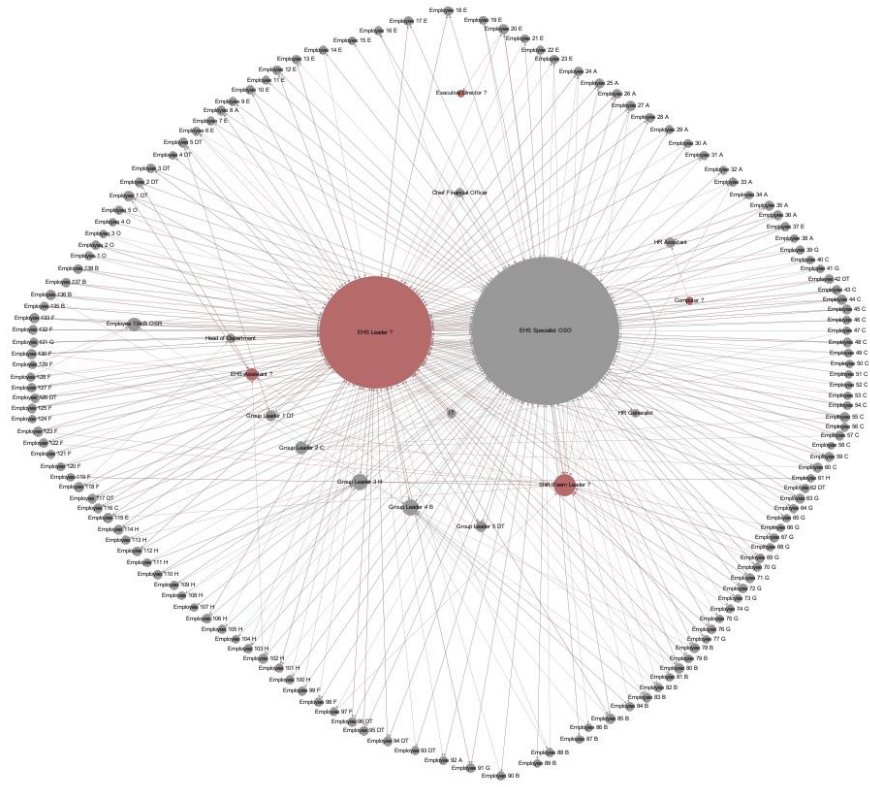
Figure 7
Sixth company labour safety layer network

There were not identified titles (Figure 7), and there were employees, who got medical referral from unidentified parcipiant (Figure 8).
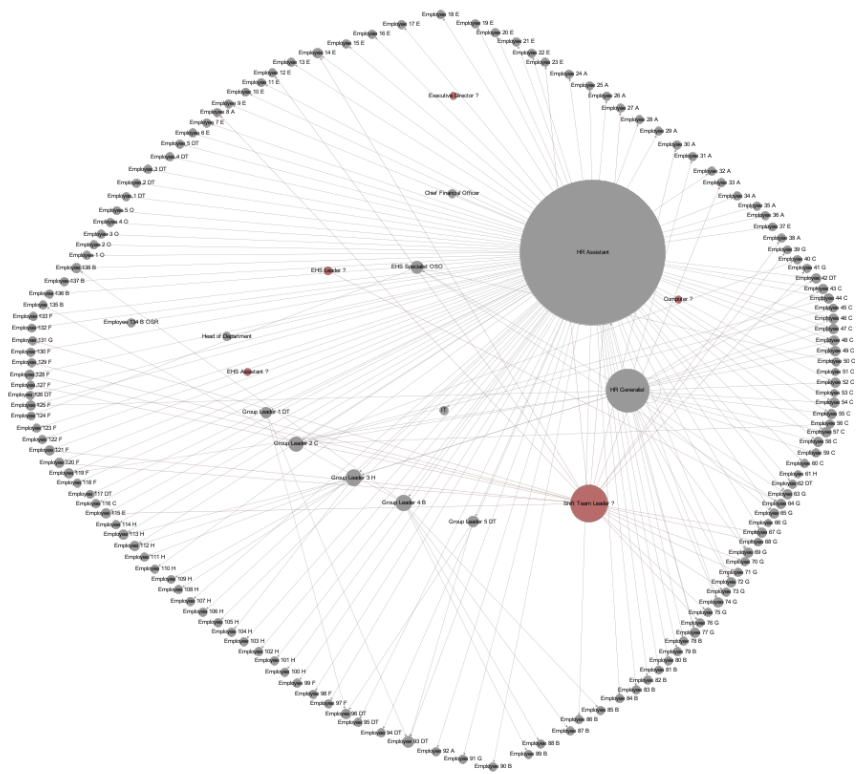
Figure 8

Sixth company occupation health layer network

Conclusions

We confirmed, We are able to display the OSLN of an arbitrary company. It helps us to recognise occupational safety deficiencies at the company. The research highlighted that we have to focus on the roles of OSP, OSR or OSS. We could recognise that, OSR do not have many relations at the examined companies, and sometimes the employees try to avoid election of OSR.

Acknowledgement

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Security Awareness from Generation Y Perspective

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Abstract: The sudden and forced digital switchover in the wake of the pandemic has created many situations for which we were not yet prepared. Businesses and educational institutions switched to online solutions overnight but failed to anticipate the problems that this would cause, such as cyber-attacks, when a significant number of these attacks could have been prevented.

In this present research, we used semi-structured in-depth interviews to explore responses to research questions on how Generation Y perceive information security, their awareness of information security and the importance they attach to protecting themselves and their data. The results show that they see their online and digital security as a significant factor. However, in practice, the picture is more different, especially, in terms of appropriate protection methods and their vulnerability. All the interviewees consider themselves as a negligible potential target, even though they are aware that anyone can become a victim. It follows that the security awareness of the respondents need to be improved.

Keywords*: cyber security, cyber defence, security awareness, Generation Y, in-depth interview, content analysis*

1 Introduction

From online shopping to employment and pleasure, information and communication technology (ICT) has altered and facilitated everyday living [1]. ICT has opened up endless commercial prospects while also posing new problems. Dramatic changes in organisational structures, data management systems, diverse technology ramifications, and information security issues are among the challenges. Information security management has hitherto been handled as a technical issue [2], with much of the focus on technology solutions, but these have proven insufficient. Information security issues should be considered in a management framework, according to several studies [3, 4]. Data security breaches, identity theft, and other internet scams may be catastrophic for businesses, therefore tackling information security is critical.

2   Literature Review

Technology alone cannot provide a reliable solution to organisational information security needs and challenges [2, 5]. Although considerable human-related information security threats remain a major issue, organisations have invested in and continue to invest in technology-based information security solutions (such as firewalls, antivirus software, and intrusion detection systems) to protect their assets [6]. Information security is a persistent challenge at both the corporate and individual levels [7], and to overcome it requires a balanced approach of technological, human and organisational factors [1, 8].

For this reason, it is essential to explore the issue of information security awareness in more detail, of which there are many examples in the literature [9], and a number of factors affecting information security awareness have been studied and identified by researchers, thus studying how to measure [10], develop [11] and predict security awareness. The present research seeks to gain a deeper understanding of the influencing factors and to explore the attitudes of individuals in the aforementioned area. In the related literature, researchers have identified a number of factors that may predict good/appropriate cybersecurity behaviour in the workplace, such as; office environment [12], cybersecurity culture [13], resilience and work stress [14], cognitive skills [15], learning styles [16], personality [17], but also information security experiences play a major role [18].

As can be seen, several factors can influence the security awareness of individuals, but there are also many ways for malicious actors to circumvent these factors. Currently, social engineering attacks are the biggest threat to cyber security [19, 20]. According to Libicki [21], they can be detected but not stopped. Social engineers exploit victims to obtain sensitive information that can be used for specific purposes or sold on the black market and the dark web. With the emergence of Big Data, attackers are using data to monetise valuable data [22]. Huge amounts of data are collected and sold in bulk as commodities in markets [23]. Although social engineering attacks are different, they share a common pattern with similar phases [24].

Organizational information security needs and issues cannot be solved solely through technology [2]. At both the business and individual levels, information security is a constant challenge that requires a balanced strategy of technological, human, and organisational variables to overcome [1].

3   Research Methods

A qualitative approach was used to answer the research questions formulated in the study. This was necessary because qualitative methodology allows us to approach the problem from a perspective that is not possible in quantitative research, thus enabling a deeper analysis [25]. As a tool for this study, we conducted semi-structured in-depth interviews to gain a deeper insight into the

respondents' awareness of information security and their perceptions and opinions about it.

Our main research questions were:

RQ1: How information security is perceived by the individuals?

RQ2: How do respondents perceive the threat posed by digital devices?

During a semi-structured interview, the interviewer follows a guideline and goes through the questions with the interviewees, thus ensuring the comparability of the interviews, and the semi-structured nature of the interview allows the interviewees to express themselves more freely than in a structured interview. This means that the pre-designed questions follow a predetermined sequence [26], and also gives researchers more freedom, as spontaneous questions may arise during the interview [27]. This approach also facilitates a deeper exploration of a more important issue [28].

An argument in favour of the interview is that answering the research questions formulated as research objectives requires deeper and more detailed answers than can be asked or answered in the questionnaire [29]. In addition we approach security awareness in a different way than the one presented above. Content analysis of the interviews was carried out. Data of a quantitative nature, such as word frequency were also analysed and illustrated with a word cloud.

After the semi-structured interviews the interviewees were asked to associate with information security and threats using projective techniques (word association, sentence completion). The essence of word association lies in the fact that, in response to the uttered stimulus words, the respondent is asked to utter the word or idea that first comes to their mind [30]. In the case of sentence completion, since it involves open-ended sentences that the interviewees are asked to complete at their discretion, thus, there are unlimited and varied options in terms of the responses received [31]. The reason for using the two techniques mentioned above was to understand deeper the conducted topic. These techniques are very suitable for this purpose, since with projective techniques, respondents do not have any clue what is the socially expected 'correct' answer to a given word or phrase, unlike in a questionnaire [32].

3.1 Sample

We used only one screening criterion for the potential respondents invited for interviews, in an attempt to reach a potentially wider audience and to get a more detailed picture of the phenomenon under research. As a consequence, the interviewees can be defined by the following parameters: Generation Y, i.e. people born between 1980 and 1994 [33], students and employees, and no restrictions were imposed in terms of education or technological background.

During the interviews, six people were interviewed, three women and three men, among them three students and three employees in terms of occupation. The

youngest interviewee was 27 years old and the oldest 36 years old. The duration of the interviews ranged between 1 and 1.5 hours, and given the pandemic situation, all interviews were conducted online.

4   Results

4.1 Security Awareness

The first research question asked how respondents perceive information security. The interviewees' responses suggest that they associate information security with data protection and control over information sharing, as well as information self-determination. In terms of importance, the interviewees consider information security to be an important factor, which is useful as well as necessary. In contrast, there were two opinions that there is no doubt that we need to pay attention to the protection of our data and smart devices, but this is not easy, as it is '*sometimes overcomplicated*'. This points to the complexity of the perception of security.

4.2 Association about Information Security

As mentioned earlier in this paper, word association and sentence completion techniques were used in the final stage of the interviews. In the case of word association, the respondents made associations about six phrases, while in the case of sentence completion, the supplements of four phrases were applied.

Figure 1. illustrates the different associations about the diverse factors of information security. The word 'spam' evoked their negative thoughts, mass-mailing, and filtering solution. The second stimulus was the term 'virus killer', about which respondents thought of as a specific antivirus program, or as a basic tool for protection. The next in line was 'cyber defence'. There were fewer identical or unanimous answers. Some of the respondents associated it with attack and perpetrators, while the other interviewees approached it from a relatively positive or neutral perspective, such as a means of defence and its role in defence. The fourth pendulum that was raised was 'data theft'. Again, the responses were mainly negative, such as 'trouble, it can happen to anyone' (I1), but there were also some who responded by monitoring and detecting data theft, or more specifically by mentioning a software tool (Wireshark) that is able to explore these kind of problems. The penultimate word 'security settings' elicited mixed and even conflicting opinions from the interviewees. On the one hand, it was referred to as a fundamental factor, but on the other hand, it was also perceived as a complex term, requiring greater expertise. Finally, the perceptions of cyber-attacks were explored. Here again, negative feelings and reactions to it dominated, such as 'never' (I3) or 'danger' (I4).
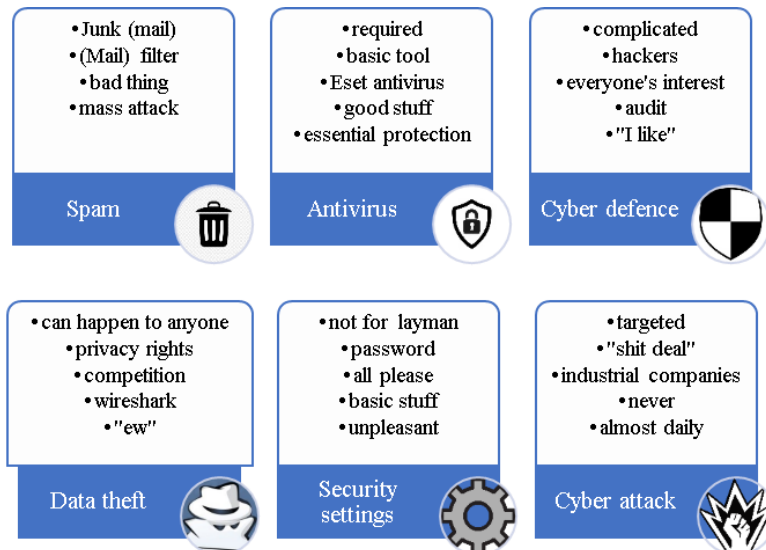
Figure 1 Word associations about different factors of information security

4.3 Assosiations about Security Awareness and Cyber Attacks

The associations obtained in the sentence completions are shown in Figure 2. Responses that may have been given by more than one person are shown only once, and the number of similar/same responses is shown in parentheses after each response.
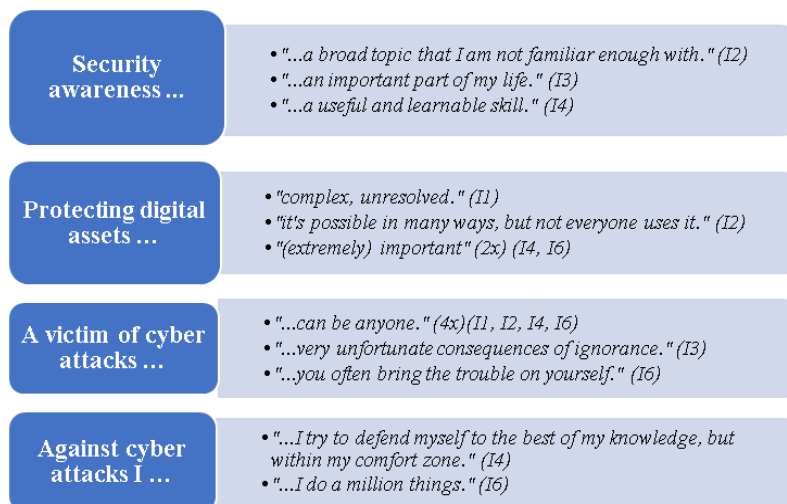

Figure 2 Associations about cyber security and attacks

An example of the multiple occurrences mentioned above is in this case the responses to the fourth sentence, where two subjects added that the victim of cyber-attacks is often the victim of their own fault or ignorance, or the consequence of these, while four interviewees said that the victim of cyber-attacks could be anyone. Figure 2 shows the most focused answers that interviewees responded to in the sentence completion. The respondents were unanimously positive about security awareness. Similar to previous results, they consider it a learnable or essential factor.

The picture is more nuanced when it comes to the protection of their digital devices, which is also considered to be an important issue in their lives, but there are also some responses that suggest that they have problems with it. Such responses include that the digital devices are 'complicated' (I4), 'too complex' (I1), or even 'almost impossible to achieve' (I3). The responses on victims of cyber-attacks were similar to the interview responses, i.e. on the one hand, anyone can be a victim, and on the other hand, the victim becomes a victim through no fault of his/her own. Apart from these answers, there is a certain level of safety awareness on the part of the interviewees, which is somewhat questioned by the answers to the next and last sentence to be added.

The answers suggest that the interviewees are trying to do something about cyber attacks, but most of them are not doing as much as they should. This is supported by the responses indicating that these interviewees are making limited efforts, as long as they are 'within their comfort zone' (I4).

Conclusions

The aim of this research was to provide a picture of Generation Y users' information security awareness, associations and attitudes towards cybersecurity and cyber-attacks. Although the qualitative nature of this research means that it is not representative, does not allow for generalisation, and broad conclusions to be drawn from the results, this can provide useful insights as a baseline study. Further research, including in-depth interviews with business leaders, would help to provide a different perspective.

The level of security awareness of interviewees is inadequate, sometimes far below their knowledge and understanding of information security. This is in line with several international studies [34, 35]. According to some research, if the user is not aware of an attack, does not recognise the signs of a potential attack, then knowledge of the threats and the means to protect against them are futile [36]. Another research suggests that knowledge of the underlying motives behind the rules protecting the user and the user's understanding of the logical relationships contribute to more security-aware behaviour [37].

A novel finding related to the foregoing is that subjects underestimate their own vulnerability. Despite the fact that, according to their own account, anyone can be a victim of social engineering, the interviewees feel that they are not targeted for

various reasons (job, income, online activity, etc.). International research shows that if someone misjudges their own risk exposure, they are more likely to engage in more risk-taking activities in the online space [38].

As the results show and suggest, there is a need to prioritise security awareness at both individual and organisational level in the near and distant future. Furthermore, it is worth reflecting on the reasons for the existence of a gap between knowledge and awareness and ways to reduce it.

Acknowledgement

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Information security awareness vs cyber security awareness vs internet safety awareness

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Abstract: One of the great challenges of the 21st century is digitalisation, which has brought with it the emergence of Industry 4.0 and the high connectivity of smart devices. This accelerated development has significantly transformed the way individuals live and think, as well as their vulnerability.
In the literature on the relationship between digital devices and individuals, there are significant differences in the way individuals' security is threatened and the factors and behaviours that facilitate and enhance their security. The COVID-19 pandemic and its aftermath, which has dominated the last 2-3 years, only adds to the importance of this area of study.
The aim of the present research is to examine the differences and similarities between publications on information security awareness, cyber security awareness and internet safety awareness and to summarise their results, for which a literature review was conducted.

Keywords: information security awareness, cyber security awareness, internet safety awareness, literature review

1 Introduction

In the last 5-10 years, we have seen a rapid development of technology, which Covid has only added to [1]. The information and communications technology (ICT) is inescapable part of our lives [2]. The rise of smartphones, smart working and the home office. The problem is more that technology is developing at a faster pace than we are [3]. The pandemic is a good example of the fact that we are, so to speak, just following and adapting to the achievements of digitalisation [4]. Looking at the research, studies and articles on digital tools, information security and the online space, there is no uniform and agreed approach either in the definitions or in the labelling [5, 6]. In the formulation of Von Solms and Van Niekerk [7], information security and cybersecurity overlap to some extent. In a later study, they defined cybersecurity as part of information security [8].

That is why the question arises: do we even know the basics, do we know the phenomena and the definitions? The research are based on the fact that these three concepts are interchangeable in the minds of many people [7], and that there are many different definitions [9] because of the many research aspects of the topic and the transdisciplinary nature of the subject [10, 11].

The structure of the paper is as follows. The Section Two presents the conceptual background and state of the topic. Section Three presents the research methodology. The findings are reported in Section Four. The research's theoretical and applied contributions are provided in Section Five.

2 Literature Review

In defining awareness, there are a number of factors that make it difficult to arrive at a single definition. Some definitions of awareness also contain procedural features, i.e., the procedures employed to create this state of mind, in addition to aspects of an individual's cognitive state of mind, such as being conscious or knowing something [12-14]. There are not many definitions that separate awareness from a certain type of activity [15].

Although security and privacy play a prominent role in research on information systems [16], research on the human aspect, such as the managerial approach to information security [2, 17], information security awareness [17, 18] and the role of human factors and CEOs [19, 20] have only become the focus of academic studies in the last few years.

The term cybersecurity is often used interchangeably with information security, and although there is a significant overlap between cybersecurity and information security, the two concepts are not fully compatible [7]. Cybersecurity and internet security are like two sides of the same coin. However, other professionals think that cyber-security is a division or subfield of internet safety [21].

Some studies have argued that cybersecurity goes beyond traditional information security and encompasses the protection not only of information resources but also of other assets, including the person. The reference to the human factor in information security generally refers to the role of the human in the security process. In the case of cybersecurity, the human being is perceived as a potential target of cyber-attacks, or even unwittingly becomes a party to a cyber-attack. This additional dimension has ethical implications for society as a whole, as the protection of certain vulnerable groups, e.g. children, can be seen as a social responsibility [7].

In order to understand the concepts we have just discussed, we need to know the basic phenomena that go with them.
- Information Security protects all forms of data from unauthorized access, modification, deletion, etc. It secures data from all types of attacks.

- Cyber Security on the other hand, protects digital data from external threats like trojans, viruses, hackers, and other malicious activities that can take place on the internet. It mainly protects data available in cyberspace from various cyber threats [8].
- Online safety refers to the act of staying safe online. It encompasses all technological devices which have access to the internet from PCs and laptops to smartphones and tablets. Being safe online means individuals are protecting themselves and others from online harms and risks [22].

3 Research Methods

This publication sought to synthesise the body of knowledge in this field. Two key sections make up this study. The quality of any review article is greatly influenced by the literature search that takes up the majority of the first section. A thorough, systematic search technique has been used to find pertinent material for this. Analysis and synthesis of the identified literature make up the second section. To this a systematic literature review was used. Before producing a review, the literature review process involves four stages: planning, selection, extraction, and execution [23].

In the research using one large digital library, ScienceDirect. International journal publications between 2010 and 2020 were examined. The reviews, proceedings, book chapters were excluded. Papers in other languages than English were excluded as well. The inclusion and exclusion criteria are determined by and used in the selection of the article. The inclusion and exclusion criteria listed in Table 1.

The next keywords were used in the search are: "Information security awareness", "Cyber security awareness", "Internet safety awareness". This resulted in 192 studies in the first round.

Inclusion criteria	• written in English, • published between 2010 and 2020
Exclusion criteria	• studies from organization report, opinion papers, and editorial, not research article, • measure security awareness, • examine what factors influencing the security awareness, • does not apply to the individual, • not relevant, out of scope, • tries to solve with technology • developed a measurement tool, or a framework • looked at the tasks of managers/CISO

Table 1 Criteria inclusion and exclusion

The relevant papers were selected in more rounds, based on different criteria, identified to ensure relevance and rigour. A first round of filtering focused on technical aspects: results were narrowed down by including only journal articles, as representative of methodological rigour [24]; documents in other languages than English were excluded; and so were duplicates across databases. A second

round of filtering focused on metadata aspects: false positives were excluded where, for example, the terms "information security awareness" helyett just "information security" were found. A third round of filtering focused on substantial aspects: extensive analysis of abstracts led to the exclusion of documents that were out of scope (e.g., the problem of information security management was solved by technical ways; research focus was only on university students, or examinded inviduals' online behaviours; or analised the ISO standards). After this refinement, a total of 55 paper were analysed deeper. To stay on topic, a systematic literature review needs clear research questions. Table 2 presents the research questions for this literature review.

	Research questions	**Research aim**
RQ1	How do some researchers interpret Information security awareness, Cyber security awareness and Internet safety awareness?	Identify the similarities and differences between each concept.
RQ2	How can organisations raise the information security awareness of their employees?	Identify suggestions and solutions for raising awareness in the area of information security

Table 2.Research question for the literature review.

3.1 Areas of analysis

The definition of the three phenomena we are looking for, their context, or who they were investigated on, and the study findings are the four areas of analysis on which we have concentrated. This refers to the advantages of increasing awareness and the methods for doing so that have been established.

Definitions	Information security awareness Cyber security awareness Internet safety awareness
Context	Target groups
Techniques for raising awareness	Main solutions used to support target groups in achieving compliance with cyber security and security-related behaviours
Benefits of awareness	Benefits resulting from improving awareness

Table 3 Aspects considered

4 Results

4.1 Applied Research methods and the target groups

We also looked at the research methods used by each researcher on the topic. We did not find any really big differences in this area, as most of the publications use questionnaires, interviews or literature research similar to ours. In details it can be seen in the Table 4 below.

Topic	Research method	Target group
Information security awareness	• literature review, • questionnaire, • interviews/ case studies, • experiment, modelling/simulations	• Students, teachers • employees, managers, professionals
Cyber security awareness	• literature review, • questionnaire, • interviews/ case studies, • experiment	• students, • professionals • users
Internet safety awareness	• questionnaire • interviews	• students • teachers • parents

Table 4 Summarized of the research methdes and target groups by awareness

4.2 Definitions of the three awareness

The 55 studies included in the in-depth analysis were also examined in terms of how the authors of the study defined the awareness in question (information, cyber or internet). Most of the studies examined did not discuss definitions, but only highlighted the importance of the topic in general terms, possibly in the direction of statistical data. However, those studies that did include some definition of the awareness in question were selected and compared with each other. The results of this comparison are presented in Table 5 below.

Term	Definition
Information security awareness	Understanding of information security policies, rules, and responsibilities, as well as security risks and the effects they have.
Cyber security awareness	The amount of users' awareness of information security's significance and their obligations to exert adequate degrees of information control to safeguard networks and data.
Internet safety awareness	Users must have the skills necessary to properly manage their online activities, understand how to handle uncomfortable and inappropriate information, and know when to ask for assistance.

Table 5 Summarized of the definitions

The table clearly shows that while information security awareness and cyber security awareness are conceptualised by many as a certain kind of knowledge and understanding, internet security awareness involves a skill in addition to knowledge.

- **4.1.2   Techniques for raising awareness and the benefits**

When it comes to increasing safety awareness, researchers have tried and identified a relatively wide range of potential tools and methods to increase an individual's safety awareness. Most of the techniques identified are related to information security awareness, the reason being that in terms of number of publications, there were more publications in the database we used to identify this term. The summary results are presented in Table 5 below.

Term	Techniques	Benefits
Information security awareness	- developing, impoving security culture - implementing a security policy - Information safety awareness programs, frameworks - workshop, trainig - promoting a safety culture - nformation security knowledge sharing, collaboration - involving IT management and employees in security precautions and policy development	- reduce the risk of employee misbehaviour and harmful interaction with information assets - improve perceptions of IS risk, responsibilities, ISP importance, and knowledge - attitude towards compliance with organizational information security policies - improve the knowledge of users' information security - IT managers can be more engaged and motivated in planning and executing IS awareness programmes
Cyber security awareness	- cyber security awareness program - education, conference, training - gamification, table and cardgames - management support in cyber security issues and related concerns - involving IT management and employees in security precautions and policy development	- avoid security incident - increase users' cyber hygiene behaviors or knowledge - players of the game can get an understanding of security attacks and vulnerabilities - preventing cyber security threats - employees can have an understanding of the limitations of cyber security technical safeguards
Internet safety awareness	- trainig - promoting a safety culture - parental mediation	- decrease incidents - employees have a positiver attitude - greater commitment to security

Table 5 Techniques to increase security awareness and their potential benefits in the studies reviewed

It can be considered as a progressive and positive observation that there is also an emergence of research that seeks to assess the results that can be achieved through gamification in an unconventional way, as well as through tools that require the active involvement of participants, and that is considered as a viable way forward in comparison to training and education.

Conclusions

With the rapid spread of digital technologies and the services they provide, users are enjoying a range of benefits that greatly enhance their convenience and simplify their lives. But it also exposes them to a number of risks. With increasing exposure to threats and potential risks, digital and cybersecurity knowledge and skills have become a vital skill for all cyber citizens. Therefore, as important and necessary skills, they need to be integrated into the everyday cyber behaviour of individuals to the extent that it becomes an unconscious action, i.e. not only increasing their knowledge and awareness on the subject, but also their awareness.

Access to the internet and the use of ICT tools present a number of risks, which can have serious consequences for users with limited or no information security knowledge. These users are therefore exposed to serious risks, the reduction of which is in everyone's interest. It is therefore essential to ensure that users are educated, understand security risks, ways of limiting risks and the basic concepts and factors involved

The literature shows that there are many studies on individual awareness [2], whether it is information or cyber security awareness or even internet safety awareness, but there are also suggestions for frameworks and guidelines for promoting information security cultures [25]. Nevertheless, it is worth taking a step back and starting from the basics, since, as this study has pointed out, there are no widely accepted definitions or guidelines on what constitutes awareness, or indeed on the relationship between the two. The present study has sought to bridge this gap and bring it closer to lay people. Although not exhaustive, which could be formulated as a limitation of the research, it highlights questions and ideas that need to be taken into account in the future.

Acknowledgement

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Factors Affecting Students' Intentions to Start a Business: Case Study Serbia

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Abstract: The aim of this study was to analyze students' intentions toward entrepreneurial activities and their desire to start their own business. This research was conducted between October 2021 and April 2022 at Technical faculty in Bor (University of Belgrade) as a part of international project (INTERGEN). Methods used in this research are independent t-test and linear regression analysis, with stepwise procedure. The obtained results have shown that there are no large differences between intentions of male and female students to start a business. Also, the results of regression analysis have shown that those students who perceive a support from their family and friends are more likely to engage in business venture.

1   Introduction

Entrepreneurship begins when a person decides to start a business. Then, the person is exposed to certain factors that encourage him or her to establish an entrepreneurial intention. Attitude, subjective norms, and self-efficacy predict intention, whereas intention predict behavior [1].

Entrepreneurial intentions, according to Sperber and Linder [2], are formed based on perception of support combined with the effort that the entrepreneur is ready and able to execute. Higher levels of support reduce the amount of effort required to achieve the desired result, whereas a lack of support demands more personal effort. The individuals' social environment is a significant predictor of entrepreneurial intention [3], particularly among young people [4]. Reference people' positive attitudes toward starting a business are likely to influence an individual's personal attitude toward entrepreneurship [5]. The majority of studies identify close family, friends, colleagues, and mates as reference people in a person's life [6].

The role of the family in encouraging people to undertake entrepreneurial activities is the subject of research in a relatively small number of studies. One of the reasons for this is the lack of integration of different scientific disciplines in entrepreneurship studies [7]. Nevertheless, one can observe growing literature on the importance of families [3, 8, 9] and on the impact of social support [10-12] in entrepreneurship advancement. Previous studies have proven the significant

influence of the family in supporting young people in starting entrepreneurial businesses. The significant role of the family stems from the inexperience of young people in performing entrepreneurial activities, lack of knowledge about entrepreneurship, and a small number of acquaintances from the business world [13]. Also, the reasons are a lack of capital and difficulties in obtaining financial support as loans and credits for starting a business [14]. Family members frequently bring resources to the business, such as time, labor recommendations, knowledge, information, or emotional support [15]. That is why it can be said that the support of the family is important both emotionally and materially. In addition to emotional and financial support, social capital, i.e. the network of acquaintances and family members' relations to the immediate environment, is emphasized. Acquaintances can provide guarantees when obtaining a loan and improve a relationship of trust with suppliers, customers, and business partners [16]. In a comprehensive study by Edelman et al. [8], the importance of the family was considered from the social support point of view of a representative sample of 12,399 university students from 19 countries. The results indicated that family cohesiveness in the entrepreneurial process is very complex and takes place in several directions.

Personality is also one of the essential characteristics that influence entrepreneurial intentions [17]. Personal characteristics are vital for entrepreneurship, according to Adgüzel et al. [18], since to be an entrepreneur, an individual's personal attributes must be fit for entrepreneurial activity. The lack of certain personal attributes impacts one's willingness and intention to become an entrepreneur [19].

In a study of university students, Arasteh et al. [20] found that when university students are given the opportunity to be entrepreneurial, their entrepreneurial characteristics emerge. Even though opportunity, support, and incentives all play a role in developing entrepreneurship, starting a business is a psychological phenomenon. Given this, some authors define entrepreneurship as a combination of personal characteristics such as risk-taking, the desire for achievement and excellence, self-confidence, creativity, trust, stress tolerance, independence, innovativeness, and proactive personality [21].

Young people are expected to have an open mind, be knowledgeable, flexible, innovative, and creative. The fact that young people have the confidence to take chances, want to make money by making a fast introduction to life, and want to show themselves within their environment are reasons why entrepreneurship can be a viable career option [22]. In selecting entrepreneurship as a career choice, there is also the desire to own a business and have complete control over your destiny, regardless of others' opinions [23]. Also, among university students, those who are interested in entrepreneurship are typically young people who wish to continue working in the family firm [24].

Based on all these facts the aim of this study was to determine what are the main factors that drive students' intention to become entrepreneurs.

2 Methodology

The research was conducted from October 2021 until April 2022 within the framework of the INTERGEN II project. The project was initiated and coordinated by the University of Russe, Bulgaria, and also included partners from Russia, Romania, Albania, Poland, Uzbekistan, Iran and Serbia. One of the objective of this Project was to determine the factors which can significantly help to explain the students' intention to engage in any entrepreneurial activity. In each partner country, a project coordinator was assigned and he/she was responsible for collecting students' responses from the home university. This paper presents the results of research conducted at the University of Belgrade, Technical faculty in Bor (Serbia).

Sample included only those students who attended Entrepreneurship courses during that or previous academic years and who were willing to participate in survey. A total of 104 students were contacted online to answer the questionnaire and all questionnaires were properly completed. The sample size was based on the availability of students during classes, which could be one of the limitations of the present study.

For the purpose of the INTERGEN II project, a special questionnaire was developed. The questionnaire consists of 49 questions, but in this study only 18 research questions were used, which were found the most relevant according to literature review. For the assessment of the answers, the Likert five-point scale was used, where 5 means „I completely agree", and 1 means „I completely disagree".

The research was focused on the following variables:

1. Student intentions towards entrepreneurship: do students want to start their own business? What are the factors affectiong their intention? Do they feel support from their family and friends? How do their personal characteristics affect their intention to start a business?

2. Demographic variables: gender, level of study, family business background.

The research included students of both genders, different ages and different family business background. The demographic characteristics of the sample are shown in Table 1: they were mostly young women, bachelor students, without a family business background.

Table 1. Socio-demographic characteristics of the sample

	N	%
Gender		
Male	30	71.2
Female	74	28.8
Level of study		
Bachelor student	92	88.5
Bachelor degree	2	1.9
Master student	10	9.6
Family background		
Yes	12	11.5
Temporary suspended	2	1.9
No	90	86.5

3 Results and discussion

In order to test the null hypothesis which says that there is no significant differences between entrepreneurial intentions of female and male students, the t-test for independent groups was used and the results are presented in Table 2.

Table 2. The differences between male and female students' responses

Female	Question	Male
4.04	I would like to have my own business	3.77
4.35	I am convinced that my family would support me by all means*.	4.27
3.76	In order to start something I need the support from my relatives and best friends.	3.30
3.59	I can convince my parents to give me some seed capital for my business.	3.17
3.23	I am ready to start my own business even without the support of relatives and friends	3.37
3.61	I may say that I am satisfied by my lifestyle.	3.50
3.85	I may say that I am a happy person.	3.77
4.40	My priority is to achieve important goals.	4.37
2.22	Most of the time I feel sorrow.	2.03

3.28	I would prefer to have intergenerational family business relations (INTERGEN), rather than totally independent business.	3.73
4.13	I have good appreciation and good support of the people around me.	4.13
3.46	I feel anxiety when I think about my future.	2.90
3.28	I have clear purpose and direction for my future.	3.67
3.73	When I have a problem I share it with my relatives and friends.	3.43
3.16	I would like to have intergenerational business with my parents*	3.30
3.26	I would involve my parents in my business as employees.*	3.00
3.38	I prefer to promote our family business instead to add a new business	3.77
4.07	I think all the time about the problems I have to solve*	3.57

*level of significance p<0.05

Based on the results (Table 2) it can be concluded that students in general (both male and female) are ready and interested to start their own business. Very high average values of their responses show that their entrepreneurial intentions are very high. One of the reason could be that they think that their family would support them in that venture (4.35 and 4.27, for female and male students respectively), which is very encouraging fact. Female students are more sure that they could convinced their parents to invest in their business, then their male colleagues. Most of the time the respondents feel happy and satisfied with their life, but female students actually do not have so clear purpose for their future, like male students do.

The regression analysis was performed in order to outline the predictors of students' intention to start their own business. For this purpose, stepwise procedure was used. Although it has often been criticized, stepwise regression has become popular with Big Data because it is a very efficient way of choosing a relatively small number of explanatory variables from a large list of possibilities. [25].

The stepwise model accounting 40 % of the variance in the intention of students to start their own business (adjusted R square 0.378; p<.000; CI=95) with the predictors is listed in Table 3.

Table 3. Regression model

Model	Beta	Sig.
(Constant)		0.141
I am ready to start my own business even without the support of relatives and friends	0.340	0.000
When I have a problem I share it with my relatives and friends.	0.226	0.008
I would like to have intergenerational business with my parents	0.594	0.000
I would involve my parents in my business as employees.	0.201	0.039
I prefer to promote our family business instead to add a new business	-0.300	0.002
I think all the time about the problems I have to solve.	0.196	0.023

Dependent Variable: I would like to have my own business

According to results presented in Table 3, the intention to start independent business is predicted by the idea that students are ready to do that even without any support. However, among other predictors are those which promote family relations in business. Also interesting is that the decision to start their own business is predicted by some personal emotions. The results have shown that those students who are more occupied with their problems and who are thinking all the time how to solve daily problems are more likely to engage in entrepreneurial activities and take their destiny into their own hands. The intention to continue family business is negatively related to idea to start independent business, which has a very logical explanation. Those who are committed to continue family business are not interested to start a new venture. But, unfortunately number of students with family business background (both active and temporarily suspended) is very low, only 13.4%.

Similar results have been obtained in other studies. In their work, Turulja et al. [26] reported that informal support, by which they consider close family, friends and partners, is a strong predictor of students' entrepreneurial intentions. Papulova and Papul [27] conducted the survey among university students in Slovakia and they found out that 51% of respondents are ready to include their family members in business. However, the results obtained in China [28] have shown that entrepreneurial intentions of university students are not directly affected by family members. According to this research, their parents and relatives who have successful business experiences have a limited influence on their entrepreneurial intention development.

One additional question What are your expectations for the next five years was trying to uncover what is the future of the business after the pandemic according to students' opinion. They had possibility to choose multiple answers. The results are presented in Table 4.

Table 4. What are your expectations for the next five years?

Response	Frequency
The business and the social life will be normalized in accordance to the period before COVID-19.	31
The business and the social life will be under different restrictions.	30
I can't answer this question.	21
I feel nothing will be the same.	26
I feel everything will be mainly online.	33

The results have shown (Table 4) that students' opinion are split. One third of them thinks that everything will be normalized after covid-19, but one third thinks that everything will remain online, even after pandemic. Some of the answers were contradictory, which only shows that this epidemiological situation is still confusing for most people and that it is hard to predict future.

In this study, the focus was on the factors that affect students' intentions to start their own business. Based on these results it was easy to conclude that young people are actually prepared and interested to deal with entrepreneurial activities, but when they enter the labor market they face with very serious problems and unsupportive environment which make them to change their decisions. That is why it is important, beside adequate education system, to ensure supportive economic environment which will stimulate youth entrepreneurship.

Of course, there are some limitations of the current study. First limitation is reflected in a very small sample size, which is due to very low number of students during classes. Second, only a limited number of variables were studied, which stepwise procedure marked as statistically significant. Third, this study was related to one country and to students of one faculty' department, so the conclusions can't be generalized. But, as a part of a big international research, this results will contribute a lot to compare the situation at different universities and countries.

Conclusions

Serbia does not have a long history of entrepreneurship. The reason for that lies in the dimensions of its national culture like collectivism, very high uncertainty avoidance, femininity values, which are not oriented toward risk taking as essential part of entrepreneurship. However, a good educational system could improve this situation. It is necessary to create an education environment that will encourage students to gain confidence in their competencies and skills and to be able to deal with uncertain situation. Besides, it is necessary to educate parents in order to develop a positive attitude when it comes to youth entrepreneurship, because a lot of parents in Serbia think that it is the best for their children to work in state companies and they are not supportive at all when it comes to business ventures.

Acknowledgement

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The relationship between fairy tales and emotional intelligence and the longer-term impact of fairy tales on some economic parameters

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Abstract: Our paper summarises the responses to the question of the impact of fairy tales on children's mental world. We also analyse its impact on economic activity. Our hypothesis is that fairy tales have a positive effect on children's psyche and a positive impact on children's emotional development. Our second hypothesis is that higher emotional intelligence leads to higher levels of health and better human relations, and thus to higher economic performance. We found that the latter holds only partially because the link is not as strong as for other factors.

1 Introduction

As the world evolves, changes and time passes, more and more theories about emotions have been developed around the world. Researchers have attached different definitions to the concept of emotion and many researchers have explored the importance of emotions and emotional development.

Today, we are confronted on many surfaces with the claim that the degree of emotional intelligence can have a decisive influence on a person's success or happiness in life. This is probably because an emotionally developed and healthy person is able to recognise other people's feelings, is aware of his or her own emotions and is able to manage and express them in the appropriate way. Throughout his life, he is able to manage his social relationships well, deal with conflicts that arise, have a realistic self-assessment and make informed decisions. However, in order to achieve this desired state, we need to place a strong emphasis on developing EQ. Nowadays, a number of training courses and different types of courses are being created to enable people to develop their own emotional intelligence. But it is important to make it clear that although emotional

intelligence can be developed in adulthood, it must be stressed that, as in any other area, emotional development in childhood is essential and much more rewarding in the long term.

Emotional development is one of the pillars of personality development in childhood, so it should be a key focus in pre-school. For most children, this is the period in their lives when they first become disconnected from their family environment. This means that from then on they have to cope in a new social environment. In order to be able to cope with this new environment, children need to be emotionally well developed. In order to achieve this, it is essential that parents and carers do everything possible to ensure that children's emotional development is fully developed.

Fairy tales are a suitable tool for this development. Children are receptive to stories because of their personality and their age. Listening to a fairy tale is an active activity for children's imagination, fantasy and empathy, and therefore a great opportunity for them to feel the emotions of the characters and to identify with them. Children enjoy stories - if they are age-appropriate - because they allow them to discover themselves and their deepest feelings. Fairy tales help children to find their way in the world and to overcome their fears and anxieties.

For centuries, economists have been studying the factors that influence how successful a country is and what factors can be improved to achieve better performance.

The aim of our study is to examine the relationship between emotional intelligence and the key parameters of national economies. That is, the research question is how, if at all, emotional intelligence affects economic outcomes.

2   Emotions

One of the biggest dilemmas in psychological research on emotion is the definition of emotion itself. Defining emotion is very difficult, as evidenced by the fact that in studying the literature, one can find many definitions of emotion (N. Kollár & Szabó, 2004).

Emotion is defined as a complex state of several components, as a result of which an individual feels the urge to take bodily action (Frijda, 1986 cited in Atkinson & Hilgard, 2005). The concept of emotion can also be defined as a meaningful and systematic feeling that arises in the course of an individual's social interactions (Martin, 1999 cited in Kádár, 2012). According to another approach, emotions, transmitted by neural and hormonal structures, are a complex set of interdependent and independent components that work together (Kleinginna & Kleinginna,1981 cited in N. Kollár & Szabó, 2004).

"Emotion is the expression of an attitude towards phenomena, events and persons in the external world. Emotions are always accompanied by vegetative signals

which do not depend on the nature of the emotion, i.e. on its pleasantness or unpleasantness" (Takács, 2006: 83.)

Emotions share significant similarities with moods, yet a distinction is made between the two concepts (N. Kollár & Szabó, 2004). Emotions are always about someone or something, or have a specific reason for their development (Oatley & Jenkins, 1996 cited in Atkinson & Hilgard, 2005). In contrast, mood is more of a diffuse, emotionally coloured state (Russell & Feldman Barrett, 1999 cited in Atkinson & Hilgard, 2005). Emotions, in contrast to moods, do not persist for long periods of time, are only perceptible for a few minutes, have a clear cause of elicitation, and consist of multiple components (Atkinson & Hilgard, 2005).

In relation to emotion, we can also mention the concept of motivation, as one of the characteristics of preschool children is that their motivation is often related to their emotions. The concepts of emotion and motivation, although closely related and mutually influencing, reveal important differences. Both emotion and motivation influence an individual's behaviour, but the primary difference between them is that while in motivation the triggering stimulus comes from within, in emotion the triggering stimulus comes from the environment, an external source (Kádár, 2012).

As in the case of motivation, we can also talk about different components in the case of emotion. The literature distinguishes 6 different components involved in emotional processes. These six components include: the mapping of the emotion at a given moment; the emotional state evoked by the emotion; the different thinking orientations; the physiological changes that occur as a result of the new emotion; the facial expressions and non-verbal communication evoked by the emotion; and the response to the emotion. We can speak of emotion when these components are involved together (Frijda, 1986 cited in Atkinson-Hilgard, 2005).

3 The functions of emotions in human life

Emotions play a major role in human life, fulfilling many functions (Rolls, 2000 cited in Kádár, 2012).

- Evolutionary function

In the case of emotions, we can speak of a so-called dual evolutionary function.

One of these is that they prepare the organism to respond to changes and impacts on the individual. In essence, they induce physiological activity in the organism, thus increasing the chances of survival and survival. Emotions are related to adaptive responses, so they are able to elicit the most practical response from the body in a given situation.

The other is that it provides information about the individual's intention to act in the future, using the tool of emotion expression (Plutchik, 1994 cited in N. Kollár & Szabó, 2004).

Furthermore, "they play a role in regulating social relationships, in communication between conspecifics, and in strengthening and regulating social relations. Through the child's behaviour and emotional expression, they influence the caregiver's behaviour and emotional state, as both crying and laughing elicit approach behaviour." (Rolls, 2000 cited in Kádár, 2012: 22.)

- Function in cognitive processes

Emotions can affect the processing of information related to comprehension and thought processes. Together with moods, they are involved in evaluating the environment and the world around the individual. They also affect memory, cognition, concentration and perception. Recollection of memories can evoke in the individual the emotional state experienced while reliving the memory (Rolls, 2000 cited in Kádár, 2012). Emotions are also actively involved in regulating decision-making processes (Kádár, 2012).

- Function in the regulation of action

In the planning and shaping of our behaviour between individuals, the perception, perception and processing of emotions, and the emotional content itself, play a major role (Forgas, 2003 cited in Kádár, 2012).

"Emotions also play an important role in making the stimulus-response relationship more flexible, allowing for more elaborate adaptation, faster processing of complex stimuli, and the emergence of a competent response. An important function of emotion is the continuous evaluation of external and internal stimuli. Emotions motivate action, but at the same time, emotions about outcomes also provide feedback about the action and its outcome, influencing subsequent behaviour." (Kádár, 2012: 23.)

Emotions also play an essential role in the exchange of information between people and in motivating individuals to act, and thus also have a motivational role (Oatley & Jenkins, 2001 cited in N. Kollár & Szabó, 2004).

"We encounter emotions every day. There is not a moment in our lives when we do not feel something, we act through our emotions, our most concrete decisions are often unconsciously modified and shaped by them. They are present in many aspects of our lives. They can have physiological, communicative, cognitive and actional aspects. Its physiological aspects can also be observed in heart function, breathing and hormonal functioning." (Spanyol, 2012: 69.)

4   Emotional intelligence

As research on intelligence has developed, there has been an increasing emphasis on competences beyond cognition, information processing and thinking. More and more researchers have started to focus on the other side of intelligence (Kádár, 2012). In recent decades, it has been recognised "that emotions do play a

constructive role in our daily lives and have a major role in guiding our thinking." (Kádár, 2012: 201.)

Sternberg, in his definition of intelligence, had already listed elements that later became components of emotional intelligence (Takács, 2006). Researchers began to investigate emotional differences between people, and the synthesis of the results of this research led to the definition of emotional intelligence (Salovey & Mayer, 1990 cited in Kádár, 2012).

"According to the ability-based definition of emotional intelligence, EQ is the set of abilities related to processing emotions." (Kádár, 2012: 187.) According to Salovey and Mayer's definition, emotional intelligence is an ability that helps a person to recognize his or her own and other people's emotions, to understand their meaning, and to be able to deal with and solve problems more effectively following that recognition and understanding. Emotional intelligence, by this definition, plays a key role in four basic areas. These four areas include the ability to perceive emotions, process emotions, understand emotions, and manage emotions (Takács, 2006). The definition of these two researchers is based on the relationship between thinking processes and emotions (Kádár, 2012).

The spreading of the importance of emotional intelligence can be linked to the name of Daniel Goleman. According to his definition, emotional intelligence consists of the social and emotional abilities of people to relate to each other. The ability to inspire oneself is also one of the EQ competencies (Kádár, 2012). According to Goleman's definition, emotional intelligence is composed of five components (N. Kollár & Szabó, 2004). These include " the accurate and conscious perception and monitoring of one's own emotions; the modification and acceptable expression of one's own emotions...; the accurate perception of and response to the emotions of others; the ability to successfully manage peer relationships; and the ability to focus emotions on the intended goal, which includes delayed gratification and adaptive relocation and channeling of emotions." (N. Kollár & Szabó, 2004: 105-106.) It differs from the original definition in some respects, as it now includes motivation and the ability to manage human relationships (Kádár, 2012).

According to other perspectives, the level of emotional intelligence can be equated with a person's success and happiness in life. In this approach, EQ can be described as a set of abilities that help a person to overcome obstacles in the external environment (Bar-On-Parker 2000, cited in Kádár, 2012). The definition can also be given as EQ "the ability to perceive, express, use and manage emotional information that facilitates a person's development." (Oláh, 2006: 702.)

5   The role of fairy tales in emotional development

Stories play a key role in developing emotional intelligence. Fairy tales, and all other genres of children's literature, provide children with hidden ways to access emotional richness (Kádár, 2012). In the content of these works, emotions and

thoughts are expressed in a way that gives children, in a selective and tactful way, information about the positive and negative aspects of life (Dankó, 2004).

"In the story, the different stages of personality development are represented." (Kádár, 2012: 268.) The heroes in fairy tales typically face some kind of trial. These trials can be compared to the life challenges and life crises that occur in the life of a preschool child. The character in the story goes through the same trials as the child in real life, so the child sees a role model to follow. For example, through a fairy tale, a child learns to trust and hope that if he does his best to achieve a goal, he will achieve it - just like the protagonist. The hero's journey, his discovery of himself and his endurance of the trials along the way are all the fairytale equivalent of the stages of human emotional development (Kádár, 2012).

The fairy tale represents the child's inner emotional world. The new emotions that emerge during the preschool years are reflected in the emotions of the characters in the story. The good and bad characters in fairy tales help the child to separate negative and positive emotions. Through them, the child accepts that everything he or she feels belongs to his or her personality, whether negative or positive. While listening to a story, the child creates internal images, visually imagining the story. This process of internal imagery helps to release overwhelming energy and emotions. The child is able to transfer the anger and resentment that has built up inside him/her into the antagonistic character in the story (Kádár, 2012). During the process of internal imagery, the child processes his/her emotional tensions in a healthy way, a kind of elaboration process takes place in him/her (Dankó, 2004).

Children's literature, including fairy tales, is a suitable means of shaping and developing higher emotions. The aesthetic and moral emotions of a preschool child are not yet separate, but they can be developed separately in literary works. The artistic elements in fairy tales delight the child and give him a cathartic experience (Dankó, 2004). "Verbs that evoke a sense of action, words with emotional connotations, imitative and mood-painting words that enhance mood effects, adjectives that emphasise character, expressive and emphatic juxtapositions, idioms also mobilise the child's aesthetic emotions." (Dankó, 2004: 66.) The moral truths expressed in fairy tales shape and mould the child's moral emotions. "From the narrative of folk tales, from the behaviour of the characters, from their characteristics, the child learns the essence of the moral concepts of honesty, truth, sincerity, generosity, etc., and from these he learns the negative moral categories of greed, lying, stupidity, etc." (Dankó, 2004: 77.) Listening to stories, telling stories together, the child experiences community. During these social experiences, the child socialises, forms and deepens relationships, and thus his or her communal emotions are in constant operation (Dankó, 2004).

In order to fully achieve the educational goals of the teacher, he or she must have a certain theoretical and practical knowledge of the hattér. Only an educator with the appropriate professional foundation and pedagogical culture can educate children through the aesthetic impact of children's literature (Dankó, 2004).

Above all, it is essential that educators who work with children are authentic in expressing their emotions, that is, that they show children what they really feel inside (Kádár, 2012). This conciliatory behaviour is the basis for a safe, loving and positive atmosphere that allows children to embrace the emotions of the literary work without hindrance during storytelling (Dankó, 2004).

For a story to have a real impact on the emotional development of the child, it is essential that the storyteller presents the story in an appropriate way. In the best case, the storyteller tells the story from memory, maintaining eye contact with the listener and using non-verbal communication. A good storyteller plays with tone, volume and pauses. When listening to a story, both hemispheres of the brain work together to help children experience the story as a whole. However, for this to happen, it is essential that the storyteller identifies with the story and feels the story emotionally. If the storyteller's performance is not in tune with the mood and content of the story, children will immediately notice (Kádár, 2012). A good storyteller does not just present the story, but tries to bring all the senses together. The combination of visualisation tools and the inner perception of the story helps to capture children's attention and develop their imagination (Zilahi, 1998). "A good and well-told story has a stimulating effect. Especially if it is repeated several times, even in repetition." (Zilahi, 1998: 18.)

In addition to the way the storyteller presents the story, the choice of the story is also an important consideration. Emotional education can only be achieved through stories in which the characteristics of the characters in the story are brought to the fore, so that the child can clearly identify the character of the character. It is important that each character in the story has a prominent negative or positive quality. This is necessary to enable children to easily decide whether they sympathise with a particular character or not (Dankó, 2004).

A fairy tale always has an impact on the actual emotional level of the child. Therefore, when choosing a story, it is important to make sure that the story chosen is age-appropriate for the children. Younger children cannot yet understand the mood world of fairy tales intended for older children, or the language in which they are expressed. In this case, for the reasons mentioned above, the developmental effect of the story is lost. However, for older children, listening to a familiar fairy tale can trigger a feeling of delight (Dankó, 2004).

"A deliberately chosen literary work, used in a planned way, develops the child's emotions and intellectual abilities and helps him or her to develop his or her mother tongue." (Dankó, 2004: 86.) A well-chosen literary work for children and the charm of the personality of the educator who performs and presents it, together contribute to the success of literary education (Zilahi, 1998).

6   Material and methodology

World Bank Indicators database, livescience journal and Travis Bradberry's article The Most and Least Emotionally Aware Countries were used to define variables

and then statistical analyses were carried out using spss version 26. The factors are the following.

- Emotional intelligence (rating scale as explanatory variable)
- Per capita emissions of greenhouse gases (kt CO_2 equivalent per capita)
- Expenditure on education as a percentage of GDP (%)
- GDP per capita (USD)
- Unemployment rate (%)
- School outs among school-age population (%)
- Number of ATMs per 100,000 adults (number)
- Life expectancy (years)
- Number of hospital beds per 1000 adults (number)
- Number of deaths per 1000 live births (persons)

Data for 142 countries were fully available from 2000 to 2012.

7   Results

As we can see the data of Figure 1, Emotional intelligence has a medium impact on GDP per capita of 12%. Emotional intelligence has a weak to medium impact on life expectancy at 7.6%. Its impact on other factors is negligible. In addition to mental health, the development of emotional intelligence should be promoted for health and economic reasons. Education and training therefore have a long-term impact on the quality of these two areas!

	greenhouse ga	educational co	GDP per capita	Unemploymen	Out of school	ATMs	expected years	hospital b	deaths
Regression parameters	0,08	0,03	0,347	0,62	0,189	0,248	0,277	0,084	0,126
R square	0,0064	0,0009	0,120409	0,3844	0,035721	0,061504	0,076729	0,007056	0,015876
Anova regression	0,01	0	0,184	0,006	0,055	0,094	0,117	0,01	0,024

Figure 1

Statistics result, own calculation

Conclusions

Emotional intelligence has a medium impact on GDP per capita. Although it could be said that it is not the most important explanatory factor. Emotional intelligence has a weak to medium effect on life expectancy. The effect of the factors we have examined is quite small. However, emotional intelligence has an impact on other factors of quality of life, which is beyond the scope of this paper. In the longer term, however, we can assume that, in addition to mental health, the development of emotional intelligence needs to be supported for health and economic reasons. Proper education from childhood onwards is of paramount importance for the health of a nation.

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Characteristics of the Hungarian labour market during the coronavirus crisis

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Abstract: Start of the COVID-19 pandemic at the beginning of 2020 has brought about substantial changes in the labour market. The aim of the article is to summarize effects of the pandemic on employment based on analyses available, and to show the changes in indicators in the Hungarian labour market. A comparison with the European Union relevant figures helps to better understand the processes in the country. The switch to work at home or telework, the decline in the employment level and the increase in the level of unemployment in terms of age groups and geographical areas had considerably different features in the three waves of the pandemic. The aggregate labour market indicators do not reflect the extent of the shock to employment as they ignore the consequences of the widely used short-time work, and that many redundant employees were less willing to register as unemployed.

1 Introduction

The World Health Organization declared COVID-19 a pandemic on 11 March 2020. The number of coronavirus cases worldwide exceeded 290 million and more than 5.4 million people died till the end of 2021 [15]. Various measures were applied due to the pandemic, and, among others, infection prevention and control guidelines were introduced to limit the spread of the virus. People were forced not to go to work, they tried to keep a fair distance from each other en masse, and whole countries chose to stay at home. Due to the intensified level of globalization and networking, with deepened trade, economic and cultural relations between countries, the pandemic reached almost every part of the world. The new situation well demonstrated that everything in our world has been so closely connected to everything. Adaptation to changes in social and economic life was different in national economies.

The pandemic has caused a direct decline in consumer confidence by keeping those consumers at home who worry about buying above basic needs because they are rather pessimistic about the future. On the supply side, if the pandemic stops production and makes critical elements of supply chains impossible, bankruptcies and layoffs can occur. These effects can mutually reinforce each other. For instance, redundancies due to supply shocks reduce the purchasing power of consumers and thus the level of consumption, which reduces the ability of

companies to generate income. Lower household incomes and decline in consumer spending reinforcing each other, negatively affect aggregate demand, because both the ability and the propensity to purchase decline.

Due to the crisis caused by the coronavirus pandemic, the global economy coped with a challenge, although there were huge differences between industries. The severe drop in demand and the forced quarantine measures had an immediate impact on the labour market. In sectors such as tourism, catering industry, event management and automotive industry, most severely affected by the pandemic, workers had to face mass redundancies and forced unpaid leave. According to the International Labour Organization, 8.8 percent of the global working hours were lost in the first year of the pandemic compared to the fourth quarter of 2019. The loss was equivalent to the disappearance of 255 million full-time jobs. This was a result of three phenomena: a shift to unemployment, a shift to inactivity and reduction in working-hours within employment. The latter factor was responsible for about the half of the job loss. Most of the employment loss translated into rising inactivity rather than unemployment. Severity of the crisis is reflected in that the labour force participation rate dropped globally by 2.2 percent which was ten times higher than the decline between 2008 and 2009 owing to the global financial crisis. Working-hour losses in 2020 were about four times greater than those during the financial crisis [8]. In terms of gender and age groups, women and young people were hit harder by the pandemic globally and in all regions and income groups.

In this paper we consider some of the most important features of Hungarian labour market during 2020-2021 in EU comparison. The structure of the paper is as follows. We examine the indicators of employment, unemployment, the spread of telework, paying attention to the differences between gender, age groups and regions. Last, we conclude.

2 Policies related to the pandemic

In parallel with the pandemic prevention measures, all countries across the EU applied several measures to protect businesses, workers, and citizens. Most of the governments including the Hungarian one, took steps to keep businesses afloat and provided access to finance, deferral of payments, or even direct support to businesses at risk because of forced closure. The Hungarian government also gave remuneration and rewards to workers in essential services and provided 40 percent wage supplement for R&D jobs in COVID-19 related research. Tax reductions or exemptions as well as protection against rent increase were provided to sectors, such as tourism and catering largely effected by the crisis, or to companies forced to suspend operation. Some EU countries had already applied short time work (STW) schemes to prevent job losses and to keep a stable employment during the financial crisis in 2008-2009, but in case of Hungary it was a completely new strategy in the COVID-19 crisis. STW employees were eligible for allowance and were protected against dismissal even for a longer period than the financial

support. However, companies with a working time banking system had to take full advantage of it before they had access to the benefits provided by the STW scheme. Hungary had the lowest level of STW allowance rate among EU27 countries providing only 10%-52% of previous wage.

As many citizens had lower or no income, the Hungarian government decided to freeze on repayment of loans and all related fees of any kinds of contracts signed before 18 March 2020. The freezing was optional, but borrowers could opt out by request. The length of the loan became extended by the length of the freeze, which lasted until the end of 2020. Also, interest free loans were available for students in higher and adult education to support their rent and living expenses [5][1].

3   Changes in employment and unemployment data

Compared to the changes in aggregate EU indicators of employment relative to the previous year, the youth, the temporary and part-time employees were affected very negatively in 2020. While the decline of overall employment was 1.3 percent, there was a 6 percent fall in the relevant indicator of the youth, and a 10 percent drop in the case of temporary and part-time employees. Statistical data show that higher age and higher education played a kind of protective role in the labour market against unemployment. The fact that the unemployment rate for low-skilled workers only rose to a limited extent suggests that their large number stopped looking for work and left the labour force.[1]

In terms of the EU-27 aggregate indicators, the pandemic crisis did not have considerably different gender impacts, but they were significantly varying by member states. Hungary, together with Finland, Iceland, and Romania, belongs to the group of countries, where women had larger declines in employment and larger increases in unemployment. Decline in employment might be attributed to that, relative to men, women have greater propensity to leave the labour force rather than choosing unemployment. The higher withdrawal from the labour force might reflect the larger childcare burdens of women due to the crisis. Particularly those with lower income and lower skills must have face difficulties [9].

Hungary belonged to the lowest quarter of the EU states in terms of life satisfaction in April and July 2020, and to the very few countries where in fact the satisfaction did not grow by July. Surveys showed that men were more likely to be optimistic than women at both points of time [6]. This finding might reflect that woman relative to men are more influenced by the pandemic crisis in terms of health risks, prevailing employment inequalities and care responsibilities. This

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[1]   In the labour market of the European Union the impacts of the global financial crisis of 2008-2009 were very similar to the consequences of the pandemic crisis in that employment of young and low-skilled employees fell to the greatest extent. However, during the previous crisis as opposed to the present one, unemployment rate of low-skilled workers declined to a greater extent than that of employees with higher level of education.

might be caused by their caregiving roles both inside and outside the home. Global data show that they are predominantly present on the frontlines against the coronavirus, and personal care workers and health professionals are predominantly female [14].

The first wave of the pandemic between March 2020 and July 2020 was not so severe in terms of death toll as it was in terms of its economic impacts in Hungary. This might have been due to the introduction of a lockdown, distance education, and closing catering facilities. The GDP shrank by 14.1 percent in the second quarter of 2020. Because of dismissals and decline in working-hours, the full-time equivalent employment fell by 9 percent in this period. According to the Labour Force Survey of the Hungarian Central Statistical Office, the share of unemployed and inactive people more than doubled and nearly doubled respectively within a year. Changes in the labour market hit employees in their twenties and sixties worse than those in their forties because the risk of losing their job particularly increased compared to the previous year. Labour market indicators were not able to reflect the shock to employment, because they disregarded an about 6 percent decline in working time. Ratio of job loss was the highest among low-qualified people. Due to the crisis income inequality deepened [10].

3.1 Changes in unemployment data by age group and gender

We can see in Figure 1 how the different age groups were exposed to unemployment. The pandemic had a similar effect on all adult age groups in 2020, with a significant increase in the number of unemployed. Only in the 15-19 age group was the indicator lower than in 2019. This may be due to that less pupils were forced to leave secondary education due to unsuccessful year-end results after age of 16 during the distance education. 2021 brought an improvement in few age groups but we can find some exceptions. Unemployment in the 50-54 age group continued to rise, and over the age of 55 it did not change too much, which might reflect the difficulty to get a new job close to retirement age in Hungary. Two age groups had an unexpected rise of unemployment from 2020 to 2021: 20-24 years and 30-34 years. The figures of these two groups are even more surprising when we further classify the data by gender [13].
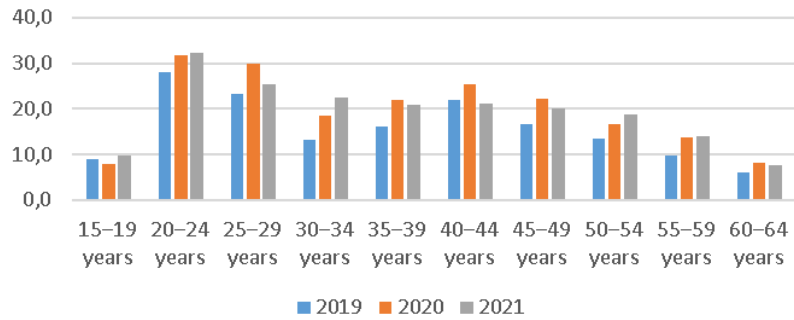
Figure 1. Number of unemployed by age groups in Hungary, 2019-2021 (in thousand)
Source: own editing based on HCSO data

As shown in Figure 2, the age group of 20-24 shows opposite trends in terms of gender: while the rate of unemployment was continuously declining among men, women experienced the opposite trend in the years of the pandemic. Further research is needed on this issue to shed light on the reasons behind the data trends in the coming years. The age group of 30-34 in which there was also rising unemployment in the year of 2021 does not show any difference in terms of gender.

Men
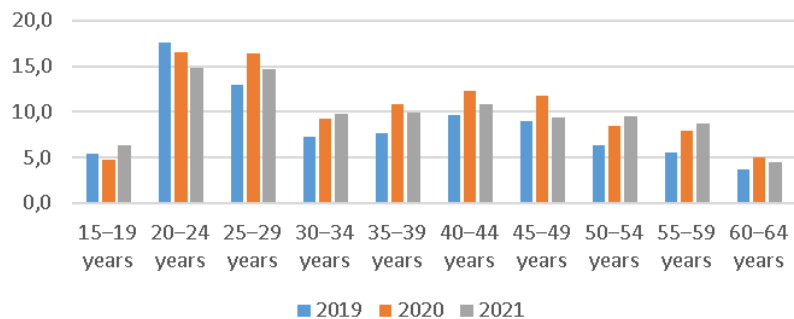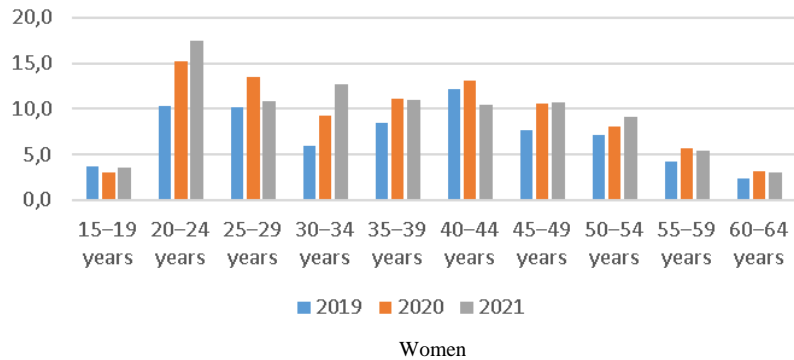
Women

Figure 2. Number of men and women unemployed by age groups in Hungary, 2019-2021 (in thousand)
Source: own editing based on HCSO data

3.2 Changes in unemployment data by region

There are differences in the economic development between the regions of Hungary. Central Hungary including the capital, and Western and Central Transdanubia are more developed, while in Southern Transdanubia, Northern Hungary, Northern Great Plain and Southern Great Plain GDP per capita is much below the national average.
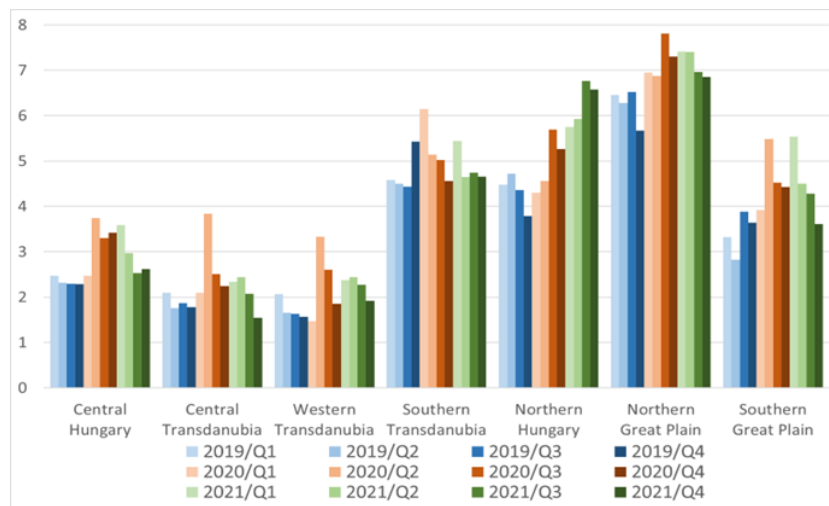
Figure 3 Rate of unemployment by regions in quarters of 2019-2021
Source: own editing based on HCSO data

As reflected in Figure 3, the more developed regions on the left side of the chart are showing similar changes: a huge rise in unemployment in the second quarter

of 2020. There was a recovery after that vaccination became available in large numbers and the last closure was over. Increase in unemployment affected those regions of the country the least, where the proportion of employees with higher education was above the average in the labour force. As a result, they were able to respond flexibly to change with the introduction of the home office [12][2].

Unemployment was higher in the less developed regions of the country before the pandemic. In Southern Transdanubia the unemployment rate only increased during the period of closures, while there was a prolonged increase in unemployment in Northern Hungary and the Northern Great Plain. And the recovery is yet to come in Northern Hungary. From the data we can conclude that employers here not just laid off the workers, but many of them might have ended operation, therefore the jobs are gone for a long time. Southern Great Plain shows mixed characteristics between the more developed west and the less developed north. The figures show that government policy should focus on helping the north.

4   Spread of teleworking

The word of teleworking[2] can be defined as a type of remote working that is carried out by employee with the use of IT infrastructure, such as personal computer or laptop, at a worksite different from the default place of work. The term "working from home" often implies that employees use computer, and for this reason this term can be used for indicating teleworking. Hungary was among those European Union countries where the ratio of employees involved in telework was below 5 percent in 2019. Prior to the outbreak of the pandemic, the proportion of teleworkers was already significant, for example, in the Netherlands (36%) and in Sweden (35%) [4].

According to the surveys of Eurofound carried out in April 2020 and between June 22 - July 27, 2020, the share of employees working from home increased from 39 percent to 48 percent in the European Union. As shown in Figure 4, in April 2020 there were only four EU states, including Hungary, where the share of teleworkers – employees working at least a part of their worktime from home – was below 30 percent. This lagging behind was particularly significant in relation to Finland and the Benelux countries.

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[2]   Jack Nilles with his co-authors used the word telework first in their book "The Telecommunications-Transportation Trade-off" published in 1973. They argued that the problem of traffic jam was in fact a communication problem, which could be eased if employees commuted to small satellite offices built by companies in city suburbs. Communication between these decentralized offices could be solved by human messengers and mainframe computers **Hiba! A hivatkozási forrás nem található.**.
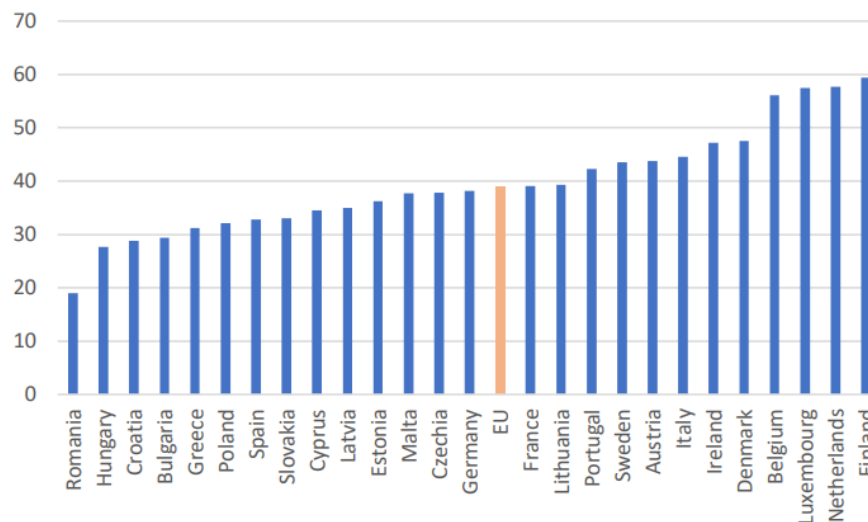
Figure 4 Employees working from home during in the EU, April 2020, by country %
Source: Eurofound, 2020

The European Union surveys showed that women rather than men were more likely to work from home, which is a new phenomenon as opposed to the pre-outbreak situation. Employees without dependent children accounted for a higher proportion among teleworkers, reflecting that not the family circumstances, but the nature of work was likely to determine the feasibility of telework. The ratio of younger employees rose to the greatest extent among the age groups. Like before the pandemic, people with tertiary education and those living in city or suburb were much more likely to do telework [7]. According to the research of Köllő and Reizer (2021), in the second quarter of 2020 in Hungary teleworking was prevalent among 10 percent of employees with a secondary school leaving certificate, but the ratio was as high as 37.4 percent among college graduates and 50 percent among university graduates. Nevertheless, people with lower-secondary and vocational school qualifications who amount to almost half of the working-age population, have little chance to be employed through telework possibilities.

Among those employees who worked from home few times a month before the pandemic, the possibility of losing job was about half compared to those who did not have such experience after the outbreak. On the other hand, during the pandemic employees working from home suffered a decline in working hours to a lesser extent. Due to the low level of teleworking in Hungary, its protective role did not prevail. At the same time those involved in homeworking suffered a decline in free time and a higher share of unpaid domestic work to a greater extent than those not teleworking [11].

4.1 Changes in the number of unemployed and employees working from home

The COVID-19 pandemic has brought about huge changes in the Hungarian labour market. As illustrated in Figure 5, the number of people in teleworking in the first quarter of 2020 was almost three times higher than in the same period in 2019. Their number was at its peak between April and June 2020, with a figure just falling below three hundred thousand. There was a radical drop in the third quarter, which was followed by a doubling at the end of the year. The change in the ratio of teleworking in 2021 was like that in the previous year, but the peak with 229,200 people was registered in the first quarter of the year. With the change in the number of people in teleworking, the number of unemployed also moved almost together. In 2020 the highest number of unemployed was also registered between April and June. This figure was a little exceeded in the first quarter of year 2021, when 214,800 people were unemployed.
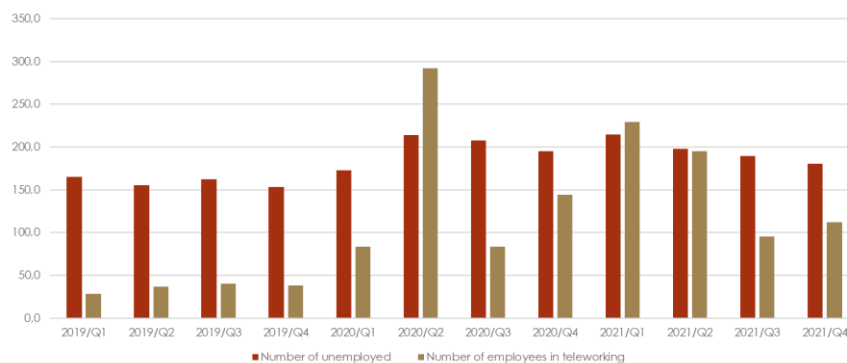
Figure 5 Number of unemployed people and teleworkers in Hungary between 2019-2021 (in thousand)
Source: own editing based on HCSO data

Conclusions

This paper has provided insight into some of the most important features of the labour market in Hungary during the coronavirus crisis from an EU perspective. To slow down the spread of pandemic, strict social and economic restrictions were introduced, which had immediate impacts on the conditions of employment. Countries implemented lockdowns, limited the operation of unvital services, and it caused an instant raise of unemployment. Companies in manufacturing suspended operation for some time, many of them implied short work. The Hungarian government also took measures to keep business afloat, to save jobs and help citizens by freezing loans. We have identified specific attributes analysing the unemployment figures in Hungary, such as the opposite move in unemployment by gender in age group 20-24, and also the harder return to employment over the

age of 50. We found that North Hungary has a longer-term high rate of unemployment, thus a policy of government assistance would be advantageous. Short work has become widely popular also in Hungary for the first time. We have found that teleworking or working from home can save jobs, which is more characteristic of workers with higher education.

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A Market Study in Implementing Mobile Power Bank Services in Budapest

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Abstract: Due to the continuous development of technology nowadays, it generates many electronic services that facilitate human life. The majority of the population uses mobile phones on daily basis and generally encounter the issue of running out of the phone's battery while they are on the move. Mobile power bank service is an emerging consumer electronics that one could borrow from one store and return it in another store and have to pay for this, like for shared bikes or scooters. This kind of service is popular in Asian countries, especially in China, but it is not accessible in Hungary, Budapest, at present. The research on the entry of mobile power bank service in Budapest is being conducted with the purpose to investigate the needs of this service, the target customers as well as the possible profitability. The quantitative research utilizes a questionnaire as a tool. The results show that there is a positive attitude toward the introduction of mobile power bank service in Budapest, however the customers are price sensitive, but would use the service at the places like clubs, restaurants, schools or at public transportation stops. Students and females would rather use the service while regardless of the possession of a power bank, the service could be attractive to people.

1 Introduction

The information society brought flexibility, changing working hours, changing in work-life balance as well as the need for information, interactivity and multitasking. The smart boom strengthened the trend of being on the move and study and work any time, anywhere and via smart devices. People use their mobile devices in the streets, on trains, at schools, practically everywhere. These devices need charging regularly, since depending on their heavy use, the batteries go flat. The traditional way of charging mobile devices means that these devices are plugged in at home or at the workplace until they are charged. However, mobility requires mobile charging possibilities like power banks that people carry and use when the device needs charging. However, should someone leave the power bank at home a rental service could help them to solve the charging problem. Such

services, namely mobile power bank service has already been introduced in some countries. It is already popular in Asia, but at the same time, not popular in Europe and does not exist in Hungary. Many researchers have been involved in market study, including Felson [1], Koehn [2] and Sundararajan [3] for example. The benefits of using joint power banks have been studied by such researchers as Li et al. [4], Zhang [5], Xing et al. [6] and Zhen et al. [7]. They study mobile power bank service in China, explain the reasons for its popularity, and forecast how this service will develop in the future. These research studies argue about the types of economy that promotes sharing power bank services and it helps to understand why it does not exist in Hungary yet.

However, research on the service of providing power bank services in shopping centers, airports, train stations and analyses on the need for this service is scarce in Europe and in the USA. Therefore, it is important to study the reasons for this discrepancy, to study how the market in Europe works and understand that it is different from the Asian market. It needs to be analyzed why the service is getting more and more popular why it is commonplace in one market but it practically is not offered in another.

This paper will consider the increasingly popular rental service of power banks in shopping centers, train stations, airports, in the streets for a small fee and the convenient return of this power bank at the nearest available point. The mobile power bank service offers convenience for people, they are able to charge their phones in several participating venues forming a network. It will analyse, through a quantitative survey, the possibility of introducing this kind of mobile power bank rental service in the Hungarian market. The scope of research will be in Budapest, Hungary. A questionnaire will be used as a survey tool.

The paper is structured as follows. After some literature review, in which the concept of the sharing economy is clarified and the popularity of mobile power bank rental service is introduced, the research methodology and the sampling structure is outlined together with the research tools. The Results section presents the survey results and the Conclusion section discusses the attitude of the inhabitants in Budapest toward such a service and gives some recommendations how 4Ps of Marketing could be utilized to introduce the mobile power band rental service successfully in Budapest.

2   Literature Review

With the support of information and network, sharing economy has been the trend in the 21st century. The concept of the "sharing economy" was first proposed by American sociology professors Felson and Spence [1]. Koehn, a business historian at Harvard Business School, defined the sharing economy as a system of direct exchange of goods and services among individuals — without an intermediary directly facilitating every transaction, which is accepted worldwide [2]. Sundararajan reified this concept by investigating four main platforms of sharing

economy: repurposing owned assets as 'rental' services, such as Airbnb; professional service provision like Uber; general-purpose freelance labor provision, for example, oDesk; and peer-to-peer asset sales like eBay [3]. Mobile power bank services, as a relatively new product exiting in sharing economy, can be borrowed from the fixed rental cabins when needed and returned in the same or different cabins. Costumers pay a relatively low price for the service and the deposit can be withdrawn after returning the mobile power bank.

The keyword "sharing economy", "mobile power bank", "market", "consumer", "implement" and "module" were searched on searching engines, for instance, Google Scholar, Connected Papers and Cnkipedia. The Chinese websites, Baidu Scholar and Cnkipedia have more relevant literature, given the fact that the mobile power bank service has blossomed from 2014 there.

Following the idea of Li et al. [4], the high frequency of charging and the need for the mobile phone have increased the demand for mobile power bank services. From a similar standpoint, the authors assume that there is a large potential market for mobile power bank services in Budapest. Drawing on the concept of Zhang [5], places with large crowds such as airports, railway stations, or small places such as restaurants and bars would be favorable for mobile power bank services in the future, however, the mentioned airports, railway stations, nowadays are already installed with the charging equipment. And unlike in China, the phenomenon that much less video surveillance is in operation could not be ignored since the equipment can be destroyed deliberately. Over the past years, there has been an increasing amount of research on the target customers. According to the survey conducted by Xing et al. [6], the proportion of females who carry power banks instead of borrowing was 84.95%, which is higher than that of males (78.82%). The difference might be due to the fact that women use phones more frequently or they are inclined to buy smaller-sized phones, whose battery has a smaller capacity. Similarly, Zhang [5] pointed out that mobile power banks are more favored by men, young people, and those with at least a college education. The jobs, in particular, door-to-door salesman, business owners and managers, who spend a lot of time on the way, are in need of mobile power bank services. Another research has concluded 4 factors that influence the willingness to use mobile power bank services in China: price perception, service perception, content perception, and personal income, which also offers new insight into the questionnaire design [7]. In addition, the market entry in Europe is interconnected with regulatory requirements, pricing, reimbursement, prescribing, and dispensing [8]. These reasonable outcomes provide both ideas for our following questionnaire design and comparison materials for a future result.

While extensive research has been conducted in China, much less is known about the market in Budapest. Therefore, the purpose of this paper is to examine the internal and external environment of mobile power bank service and investigate its market feasibility.

3 Research design

The research aims to explore whether there would be some interest in mobile power bank services in the capital of Hungary. The following research assumptions and research activities are posted: (1) Exploring the possibility of entering the market of mobile power bank services in Budapest; (2) At the moment it is known that this service is very popular in Asian countries, but it is practically not provided in Europe, it is necessary to find out why and whether it would be popular in the future; (3) Available resources can help to study how the market works, to study why shared power bank services are popular in other countries. The research aim is to explore the possibility of entering the market of mobile power bank services in Budapest. Moreover, it is to identify the importance and profitability of a Mobile Power Bank service providing business in Budapest. In order to find out how much the mobile power bank service will be in demand in Budapest, the Asian and other markets are studied, where this service is popular. The research then focuses on the Hungarian market and through a survey, it strives to find out whether there is a market for such a service.

Following the assumptions the following research questions were formed:
RQ1. Will Hungarian and international people in Budapest, Hungary be interested in mobile power bank rental services for a small fee?
RQ2. How can this service be introduced into the Budapest market regarding age, costs, places for rent?
RQ3. Why is this service not popular in Hungary now and why is it popular in Asia? How is the potential product value created in the future?
RQ4. What factors can influence the demand of customers to use this service and rent a power bank, rather than buy it?

3.1 Methodology

The methodological framework of the work will be self-administrated questionnaire survey, and then the analysis of the data obtained. Non-probabilistic, convenient type sampling is used; therefore, sampling is not representative but gives some suggestions whether the introduction of mobile power bank services would be of any interest in Budapest, Hungary. Counter type quantitative research will be conducted, as well as a comparative analysis will reveal the differences between the Asian and the European markets. Finally, conclusions will be drawn that will help to understand whether this service is needed in Hungary.

Quantitative analysis will be used for descriptive, contingency as well as correlation and regression analyses, since some characteristics are to be fined that influence the preference of mobile power bank services in the capital. The statistical software SPSS V25 and MS Excel are used for the statistical analyses.

4 Results

4.1 Demographic characteristics of the respondents

A total of 103 responses were gathered during the research period. The majority of the respondents are females accounting for 68.9% of the total respondents, and the proportion of males is 30.1%. The largest proportion of respondents is between 19-25 years old, with the ratio of 68.9%, followed by respondents with the age of between 26 and 45, then the ones between 10 and 18 and finally people from the age group of 46–55 and over 55 years old, with the proportion of 25.2%, 2.9%, 1.9% and 1.9% respectively. When it comes to the nationality, 35% of the respondents are local Hungarians, two thirds are not Hungarians (64.1%). Three quarters of the respondents are students (Table 1).

Demographic profile of respondents

		n=103	Distribution (%)
Gender	Female	71	68.9%
	I do not wish to say	1	1.0%
	Male	31	30.1%
Age	10–18 years old	3	2.9%
	19–25 years old	71	68.9%
	26–45 years old	26	25.2%
	46–55 years old	2	1.9%
	More than 55 years old	1	1.0%
Nationality	Both Hungarian and foreign	1	1.0%
	Hungarian	36	35.0%
	Not Hungarian	66	64.1%
Student	No	25	24.3%
	Yes	78	75.7%

Table 1 Demographic features of the respondents

Considering where the respondents usually stay, it can be said that two quarters of them stay in Budapest, more than half of the respondents work or study indoors, 11.7% work outdoors and one third of them work or study indoors and outdoors. One third of the respondents have postgraduate degree, or undergraduate degree, 31.1% and 36.9% respectively, while 25.3% finished secondary education (Figure 1).
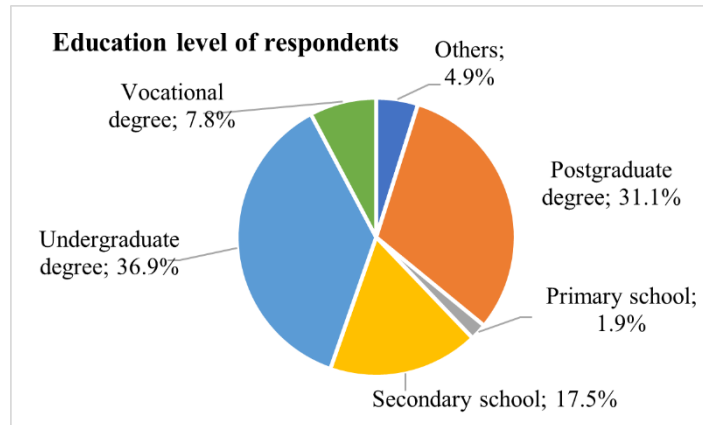
Figure 1 Distribution of respondents by education level

Two thirds of the respondents have a monthly income of less than HUF250,000 while 17.5% earn between HUF250,000 and HUF350,000 (Figure 2).
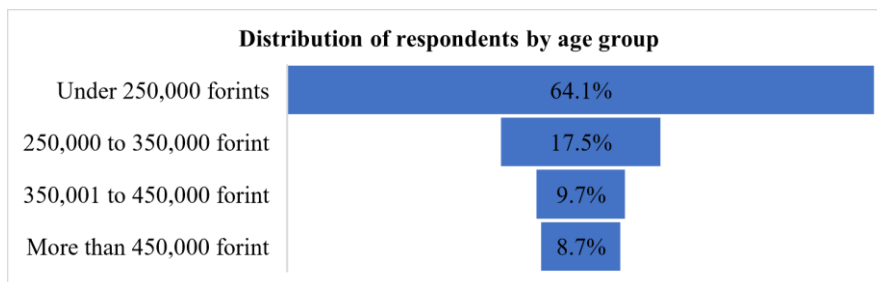
Figure 2 Distribution of respondents by monthly income

4.2 Power bank preferences

People were asked about their mobile charging and mobile power bank preferences. 42.7% of the respondents charge their mobile phone once a day, while 26.2% of them do so twice a day and even there is a 24.3%, who charge their mobile phone three or more times a day, assuming that people either have mobile phones with badly performing batteries or prefer having their mobile phones charged fully most of the time. These results imply that offering mobile power bank services — with a shorter usage time — could be beneficial in Budapest. However, three quarters (73.8%) of the respondents have their own power bank, but only 14.5% of the ones who have power bank carry it with themselves all the time, and 25% of the respondents carry it rarely or sometimes (52.6%) while 7.9% never take it with themselves. It also assumes that people do not pay attention to carry a power bank with themselves all the time, so again providing mobile power bank services can be justifiable.

Out of the 103 respondents 4.7% is familiar with the service while 28.2−28.2% of them do not know it or it is the first time they hear about the service (Figure 3). Half of the respondents would try out such services while 15.5% would never use it and 34% of the respondents are unsure.
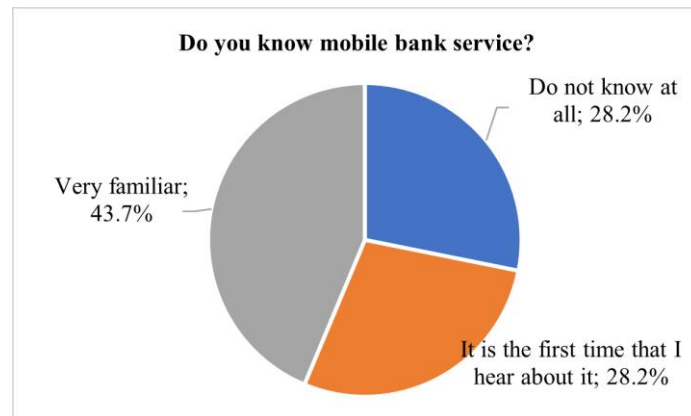
Figure 3 Distribution of familiarity with mobile bank services

A significant relationship was detected between the familiarity with mobile power bank services and the willingness to use it (Chi2=20.19, p=0.000, Cramer's V=0.443). Table 2 displays that 32% of the respondents are familiar with the services and would definitely use it and 18.5% would try it out as newcomers in using these services. The 34% who are unsure, can be convinced, since the service is new to 23.3% of the respondents and 8.7% would try the service.

	Would you try any mobile power bank services? (%)			
Do you know mobile power bank services?	Definitely yes	Not at all	Not sure	Total
Do not know at all	7.8	8.7	11.7	28.2
It is the first time that I hear about it	10.7	3.9	13.6	28.2
Very familiar	32	2.9	8.7	43.7
Total	50.5	15.5	34.0	100

Table 2 The relationship between familiarity with mobile power bank services and willingness to try out the services

Even if respondents would try out mobile power bank services almost 30% would prefer a free of charge service, and 44.7% would pay less than HUF200 for half an hour. 22.3% would be willing to pay between HUF200 and 300 while only 3.9% would pay over HUF 300. None of the amounts reaches a euro at present. Moreover, no significant relationship was found between the income level of the respondents and the price they would be willing to play for mobile power bank services (Chi2=9.824, p=0.132, Cramer's V=0.218).

4.3 Affecting factors of the mobile power bank service usage

Study of correlations between the factors and motivation of the usage of mobile power banks services revealed some significant influencing factors. The overall results illustrate that the factors affecting the potential use of mobile power bank services in Budapest within the framework of this research are gender, monthly income, the status of being a student followed by whether the respondents possess their own power banks. Table 3 summarizes the results and highlights the significant factors.

Would you try any mobile power bank services?	Chi2	df	Asympt.Sign. (2-sided)	Carmer's V
Gender	10.254	2	**0.006**	0.317
Age	2.590	2	0.274	0.19
Monthly Income	9.841	4	**0.043**	0.219
Do you have your own power banks?	7.268	2	**0.026**	0.266
Student	7.172	2	**0.028**	0.264
Work or study inside or outside	3.389	4	0.495	0.181
Where to stay (Budapest vs not Budapest)	3.846	2	0.146	0.193

Table 3 The relationship between trying out mobile power bank services and different demographic features

Gender significantly determines whether respondents would use the service provided (p=0.006). Females would definitely use power bank services (42.2% of the total respondents), while 8.8% of the male respondents would do so. 20.6% and 12.7% of the respondents, who are females and males respectively, are not sure they might also be convinced to use mobile power bank services.

The *monthly income* is also in association with the motivation of using mobile power bank services, with a p value of 0.043, however, the correlation is relatively weak (Cramer's V=0.219). Respondents with a monthly income between HUF 250,001 and 350,000 have the highest favorable motivation to use mobile power bank service (66.7% of the respondents in the group), followed by the group with monthly income less than HUF250,000 (51.5% of the respondents in the group). 36.8% of the respondents with monthly income over HUF350,000 would definitely not use the service, however, the unsure and the convinced respondents are of the same percentage (31.6%). Furthermore, 36.4% of the respondents with less than HUF 250,000 monthly income are not sure about using such a service, meaning that together with the 27.8% and the 31.6% of the respondents from the other two groups there is a potential in introducing such a service.

In case of the respondents *having their own power banks*, the relationship is significant with p=0.026, Half of the respondents would definitely use such a service regardless of whether they possess a mobile power bank. For those 27 respondents who don't own a traditional power bank, 14 respondents (51.9%) would like to consume the mobile power bank service. On the other hand, 77

respondents have traditional power banks, of which half respondents have a favorable attitude toward mobile power bank services.

The status of being a *student* influences the intention to use the service observed. More than half of the students would definitely use it (55.1%) but there is a group (34.6%) of indecisive, while respondents who are not students, equally share among the 'Definitely Yes', 'No' and 'Not Sure' groups meaning that both students and no students have a group of unsure people, who can also be convinced of such a service if introduced in Budapest. Students, furthermore, prefer such services at low costs or at no costs (Figure 4), since a significant relationship was detected between the status of being a student and the price paid for the service (Chi2=8.714, p=0.033, Cramer's V=0.281).
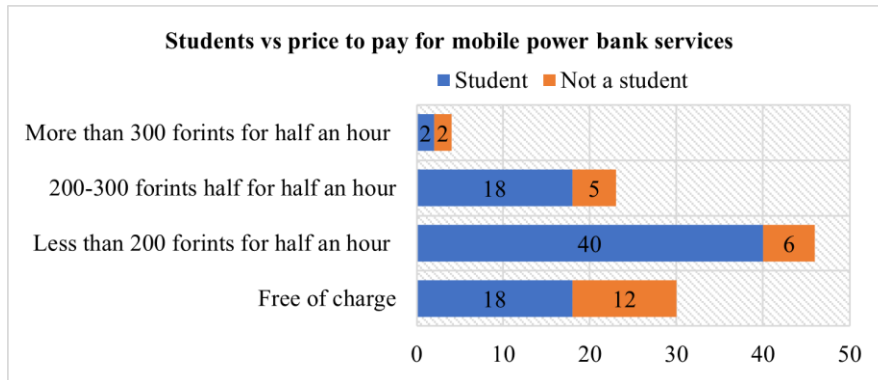
Figure 4 Price tolerance of mobile power bank services among students

The age of the respondents, or whether they work inside or outside, or stay in Budapest or not, did not show a significant relationship with their intention to use mobile bank services.

4.4 Competitive advantages of the mobile power bank service

By using the multiple response questions, the motivation of the respondents using the power banks service in the external environment was analyzed. Figure 5 shows that individuals would use mobile power bank services mostly when they are long time outdoors (58.25%), or because their cellphone and other commonly used electric device run out of charge (42.72%), or in case of emergent preparation (53.4%), however, there are some who follow the general trend as well (6.8%).
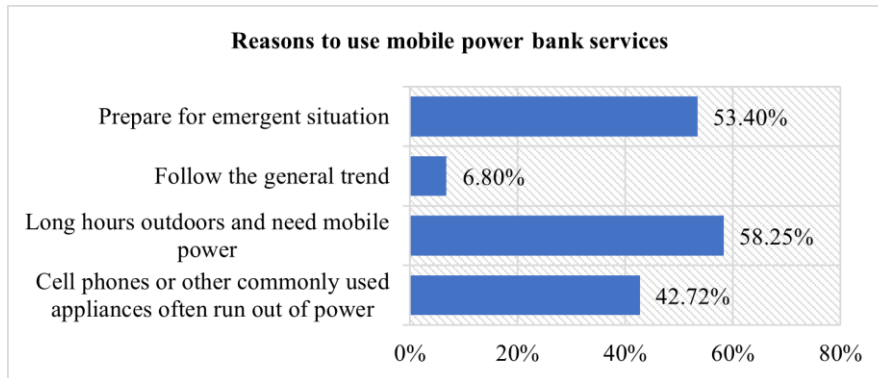
Figure 5 Reasons why respondents would use mobile bank services

Figure 6 presents, on the other hand, the frequency distribution of the respondents' motivation of choosing mobile over traditional power banks. The quick availability has the highest proportion with a ratio of 71.84%. Charging multiple types and charging without carry have similar preferences (34.95% and 35.92%, respectively). Twenty-five respondents chose the option of large electrical capacity, which accounts for 24.3% of the responses. As other reasons, respondents mentioned that '*I have my own (charger)*', or there is '*sometimes emerged using*' or even '*The phone battery is not enough*'.
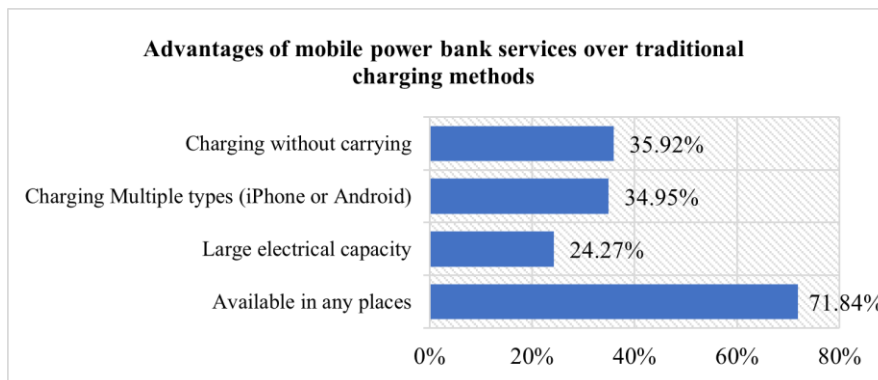
Figure 6 Distribution of preference of mobile power bank services over traditional one

Finally, the researchers were interested where such a service would be preferred by the customers. Over 50% of the respondents would use mobile charging services in shopping malls and restaurants while around 40% of them would use it at schools or in clubs (Figure 7). There was an option for '*Public transport point'* as well.

Places where mobile power bank services should be available

Schools	40.78%
Restaurants	55.34%
Clubs	37.86%
Shopping malls	58.25%
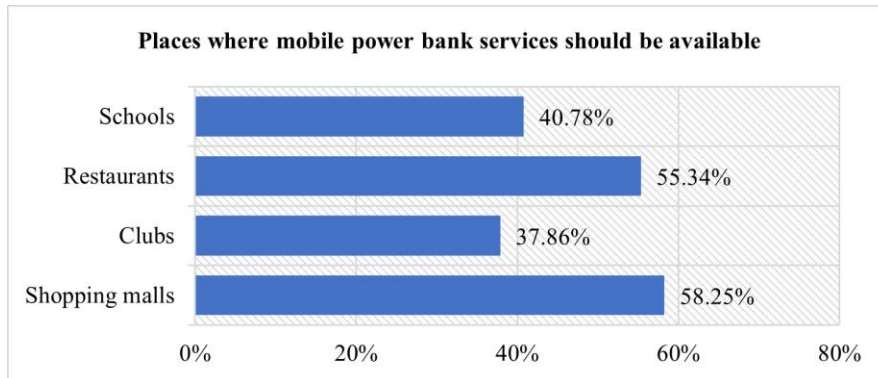
Figure 7 Places where respondents would use mobile power bank services

Conclusions

This result shows that the attitude toward trying mobile power bank services is positive, since more than half of the respondents would try out the service. The reason individuals would use the mobile power bank service is that they spend a long time outdoors, their cellphone and other commonly used electric devices run out of charge or some emergent need crops up. Among the expectations of customers, the quick availability would be highly preferred followed by multiple types charging possibilities, charging without carrying and the large electric capacity seems to count the least.

Interestingly age, location and whether the respondents spend most of their time inside or outside does not have an impact on their preference of trying out mobile power bank services, while females would significantly use the service more often, as well as people with a monthly income between 250 and 350 thousand forints, and surprisingly half of the respondents owing and not owning power banks would try out the service. Students would also prefer such a service and not surprisingly prefer cheap or free of charge services.

According to the findings, over 90% of respondents charge their phone at least once a day, which is consistent with Li et al.'s idea of the high frequency of charging [4]. Besides, the finding that high support for placing mobile power bank in shopping malls, clubs, restaurants, and schools is also mentioned by Zhang [5]. What's more, the finding that outdoor workers are in need of a mobile power bank is noted by Zhang [5] too. However, our findings that age does not impact the motivation of using the mobile power bank service is contrary to that of Zhang [5]. The reason might be that 94.2% of respondents are between 19-45 years old. A rather disappointing result is how much people are willing to pay for such a service, considering that a positive attitude was found towards the introduction of mobile power bank services. Further research is necessary to explore the reasons why people expect services at such a low price, despite the fact, that no relation

was found between the price people are willing to pay for this kind of services and their income level.

However, the current research was mainly limited by the lack of data, especially from those aged less than 18 and more than 45, and the research did not concentrate on cities outside Budapest. Therefore, the sample was not representative. Consequently, more data needs to be collected and representativeness needs to be ensured. One issue emerging from the findings is the effect of respondents' monthly income on the price of the mobile power bank service, which can be improved in future research.

This has been the first research project to explore whether there is a demand for mobile power bank service in Budapest. A positive attitude was found and a significant proportion of the surveyed were not sure whether they would use the service. Combined with the 4Ps of Marketing, the study also suggests a way to develop the market for mobile power bank services in the capital.

From the point of Product, the cool color and warm color of the mobile power bank are more popular than medium color and metallic color; charging multiple types, large electric capacity, and charging without carrying should be taken into consideration when designing the power bank.

When considering mobile power bank spots— the place aspect of 4Ps of Marketing —, mobile power banks should be accessible at places with large crowds such as shopping malls, clubs, restaurants, and schools, because the feature "available in any place" ranks the highest in the advantage list of the mobile power bank services.

According to the Price expected by respondents, around one-third of people hope to use the mobile power bank services for free, while the majority of the respondents prefer the price less than 200 forints for half an hour, and less than a quarter think that 200-300 forints for half an hour is also acceptable.

Finally, Promotion is also significant, because "following the general trend" is also a reason why people are willing to try mobile power bank services. Based on the mentioned price range, the free trial will be a great option to develop the new market.

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Characteristics of and development opportunities for work integration social enterprises in Latvia

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Abstract: Social entrepreneurship is becoming increasingly popular in Latvia because it allows enterprises to implement economic activities while tackling social problems relevant to society. Since 2018 when the Social Enterprise Law came into force, the number of registered social enterprises has reached 204 (in 2022). Work integration is the most common field of activity of Latvian social enterprises. According to the Latvian legislation, 13 groups at risk of social exclusion may be employed in a work integration social enterprise (WISE). The research aimed to analyse the operations of WISEs and identify the development opportunities. The research identified the strengths and weaknesses of WISEs (based on expert interviews and a literature review) and the development opportunities therefor.

1   Introduction

Social entrepreneurship is an integral part of the diverse social market economy of Europe. By linking the creation of economic and social values, social enterprises play a key role in building an inclusive economy and society. Social enterprises, in particular work integration social enterprises (WISE) that are viewed as an alternative to creating a niche for a specially supported and protected labour market, play a key role in facilitating the integration of groups at risk of social exclusion into the labour market [1].

WISEs operate in almost all European countries [2], yet their legal forms and the employed groups at risk of social exclusion vary. The approaches applied stem from the national welfare system, the legal framework, traditions and the development of the non-governmental sector in a particular country [3]. Totally, social entrepreneurship accounts for about 10% of GDP in Western European countries, while in Latvia, considering the limited experience in such entrepreneurship and the current situation, the share of social enterprises in the total enterprises is unlikely to be higher than 3% [4]. Although the number of social enterprises in Latvia, incl. WISEs, increases every year, yet it is still small,

reaching only 204 social enterprises in 2022 (including 28% operating in the field of work integration).

In recent years, many researchers have focused on WISEs, highlighting various aspects of such enterprises. For example, Escribano and Gonzales have analysed the establishment of and decision-making in WISEs [5], Chiaf and Giacomini [6] and Urmanaviciene [7] have focused on assessing the performance and social impacts of WISEs, while Jioyce et al. [8] have described the impact of such enterprises on individual health and well-being. Researchers have also identified the challenges most often faced by WISEs [9]. Researchers in Latvia have analysed the situation in the field of WISEs, mainly emphasizing the employment of persons with disabilities by such enterprises [3, 10], yet it is important to identify development opportunities for such enterprises based on their strengths and weaknesses.

The research **aim** is to analyse the operations of WISEs and identify the development opportunities. To achieve the aim, the following specific research **tasks** were set: 1) to give insight into the nature and historical evolution of WISEs; 2) to identify development opportunities for WISEs in Latvia based on a SWOT analysis. The strengths and weaknesses of, as well as opportunities for and threats to WISEs were identified based on expert interviews and a literature review.

2   Methodology

The research conducted expert interviews with a representative of the Ministry of Welfare, the director of the Social Entrepreneurship Association of Latvia, six owners and managers of WISEs, as well as a social entrepreneurship researcher at one of the largest universities in Latvia. The list of the experts and their characteristics showing their competences and knowledge are presented in Table 1.

Table 1

Expert's code	Characteristics of experts
Ex_1	Owner of a WISE providing social care services
Ex_2	Owner of a WISE providing restaurant and mobile food service activities
Ex_3	Owner of a WISE producing corrugated paper and paperboard, paper and paperboard containers
Ex_4	Director of a WISE organizing accommodation in a guest house and other short-stay accommodation
Ex_5	Owner of a WISE producing knitted and crocheted apparel; footwear and clothing wholesale
Ex_6	Director of a WISE providing call centre operations
Ex_7	Representative of the Ministry of Welfare

Ex_8	Director of the Social Entrepreneurship Association of Latvia
Ex_9	Researcher in social entrepreneurship from one of the largest state universities in Latvia

The research also analysed the literature on social entrepreneurship (incl. WISEs) as well as the legal framework governing social enterprises in Latvia.

3 Specifics of work integration social enterprises

The initiative of WISEs in Europe dates back to the 1970s when civil society actors rushed to find ways to help people excluded from the labour market and unable to enter it [11]. Due to their background and prevalence, WISEs are also often referred to as a synonym for social enterprises, although it is only one kind of social enterprises [12]. The target group of WISEs is mostly people with disabilities, while other groups at risk of social exclusion are also targeted, e.g. people of pre-retirement age, people after imprisonment etc. [13]. However, in most cases such enterprises contribute to the integration of people with disabilities into the labour market. WISEs often work with several target groups, for example in Spain and Portugal they simultaneously employ minorities with long-term unemployment problems, young people and people with severe social problems [14].

In Latvia, the establishment of social enterprises and the acquisition of social enterprise status are governed by the Social Enterprise Law (in force from 1 April 2018), while the target groups of WISEs are determined in accordance with Cabinet Regulation No. 173 (in force from 27 March 2018); in total, the legal framework allows for the employment of 13 groups at risk of social exclusion. However, the roots of WISEs in Latvia are older than the current legal framework for social entrepreneurship. The origins of WISEs date back to Soviet times, as at that time there were various "combines" of the disabled blind and deaf people that were employed. After the restoration of independence, these organizations were privatized and some continue to operate, however, not all of them are recognized as social enterprises [7].

According to the Ministry of Welfare (data as at 31 May 2022), 204 social enterprises were registered in Latvia, incl. 28% were involved in work integration. Since the entry into force of the Social Enterprise Law, the percentage distribution of social enterprises by kind of economic activity has not changed significantly, which means that most of the registered social enterprises operated particularly in the field of work integration.

4 SWOT analysis of work integration social enterprises operating in Latvia

To identify development opportunities for WISEs in Latvia, a SWOT analysis with strategies was performed to assess the strengths and weaknesses of WISEs and the opportunities and threats of the external environment of WISEs (Table 2).

Table 2

SWOT matrix with strategies for work integration social enterprises

	Endogenous factors - strengths and weaknesses	
	Strengths	Weaknesses
Exogenous factors - opportunities and threats	Enterprising management/ entrepreneurs; Attitudes of employees; Demand for jobs; Social benefits/ public support; Support from the Social Entrepreneurship Association of Latvia for its members	Partial dependence on public funding; Insufficient free funds for business expansion; Limited marketing activities; Low-skilled labour; Small or medium quantities of goods or services produced
Opportunities	**SO strategy**	**WO strategy**
More cooperation with the State Employment Agency; More public funding and support; Establishment of cooperation with the local government; Development of cooperation with educational institutions; Use of social media to promote goods/ services	In the short term: establishing and expanding cooperation with the local government, using its support to foster social entrepreneurship. In the long term: more public support to increase market demand and create new jobs.	In the short term: initiating or increasing cooperation with the State Employment Agency, attracting employees and public funding. In the long term: encouraging the use of social media, thereby increasing demand in the domestic and foreign markets and consequently reducing dependence on external funding.
Threats	**ST strategy**	**WT strategy**
Decrease in private funds and grants; Pandemic-related restrictions; Lack of qualified labour; Decrease in market demand	In the short term: building up the skills and knowledge of current and new employees by providing additional funding for training courses. In the long term: cooperation with the Social Entrepreneurship Association of Latvia to acquire public funding for long-term investments (similar to Altum grants).	In the short term: establishing cooperation with professional education institutions to hire qualified employees. In the long term: establishing long-term cooperation with private entrepreneurs to meet market demand.

Source: authors' own compilation

Strengths. As Ex_8 and Ex_9 have noted in the interview, social entrepreneurs are usually very **motivated and enterprising** in solving various socio-economic problems. They often lack business skills, yet overall, social entrepreneurs were referred to as "enterprising", "brave", "motivated", "ambitious" etc. Often social entrepreneurs come from the non-governmental sector where they have already solved current social problems, working in their associations or foundations [15].

Research studies have found an acute problem in the labour market of Latvia (an imbalance between its supply and demand): on the one hand, relatively high unemployment rates, and on the other hand, job vacancies [16]. This means that there is a high demand for jobs from individuals at risk of social exclusion. This has also been indicated by Ex_2, i.e. when opening a cafe employing disabled people, the entrepreneur received a large number of applications for the vacancies. "*We still receive several applications every week. Despite the fact that we have not published a job advertisement at the moment and are not looking for employees and we even have to lay off some employees now [because of the Covid-19 pandemic], nevertheless there are still a lot of people calling and saying that they are ready to come and do any kind of job, as being employed is very important for them*". Besides, the entrepreneurs also had a positive opinion about their employees' **attitudes towards work**, especially those at risk of social exclusion.

To foster the development of social entrepreneurship in Latvia, the Social Enterprise Law prescribes various **public support mechanisms** available to all social enterprises (not only WISEs), i.e. various expenses related to the achievement of their goals or any operational improvement are exempt from enterprise income tax; the local government is entitled to grant property tax relief; a public person has the right to transfer the movable property belonging to him or her to the ownership or use of the social enterprise free of charge; it is allowed to hire volunteers. However, the most financially significant kinds of support for social enterprises are the financial support administered by the financial institution Altum and the Ministry of Welfare (hereinafter Altum grants). Ex_2 stated in the interview. "*In our case, the Altum grant was the most important support without which we would not have started and survived. Every day, municipal and national orders helped us very much, and there have been three privileged procurement contracts – we received orders that we were able to process*".

However, there are few specific support mechanisms or tax relief for WISEs in Latvia. It is positive that from 1 January 2021, WISEs may apply for a tax credit. This means that the social enterprises that employ disabled or mentally handicapped persons are entitled to a lower employer mandatory state social insurance contribution (MSSIC) rate (21.94%). %). In addition, a one-time salary has also been introduced – if a person with disability or mental disorder has been unemployed, the enterprise is entitled to apply for the one-time salary for the first month of the employment. Although the number of support instruments for WISEs is small, the entrepreneurs interviewed appreciated and used the available support instruments.

Ex_5 stated that their company, as well as other social entrepreneurs were involved in the activities carried out by the Social Entrepreneurship Association of

Latvia (SEAL), through which they tried to influence and improve the social business environment at the national level, while at the same time the SEAL provided significant support for social enterprises (mainly in terms of information provision).

Weaknesses. Battilana et al. [9] point out that one of the weaknesses of WISEs is the **low productivity of their employees**, which is significantly affected by their abilities and qualifications, especially in situations if people with disabilities are employed. Disability researcher Russel also points this out [17], emphasizing that in many cases employees with disabilities are viewed as a burden that incurs additional costs and reduces enterprise profits. Other research studies have also stressed that the main barrier to integrating people with disabilities into the labour market is incompatibility related to the lack of a qualified, skilled and motivated labour force and low qualification supply [16]. This was also indicated by Ex_3 in the interview: *"Some of the employees are entrusted low-skilled tasks: cleaning premises, arranging materials etc. The most capable employees are involved in the production process. The knowledge and skills of employees are limited. For example, for one of the employees, this was the very first work experience at the age of 45".* Ex_6 stressed similar challenges. However, this is a challenge not only for social entrepreneurs who employ people with disabilities but also for entrepreneurs who employ other groups at risk of social exclusion. Ex_4 gave the following explanation in the interview: *"Often people are not very motivated because if they may get some social support, they often apply for it. The managers and owners of social enterprises should also be prepared for the situation where the performance of an employee could be affected by his or her health and psychological condition".*

In relation to the weaknesses of WISEs, it was also emphasized that they were partly dependent on public funding. This was pointed out by Ex_9, which, analysing the experience of several social enterprises, concluded that they would not be able to develop effectively without public support. This was due to the unsteady financial performance of companies, which was affected by factors in both the external and the internal environments. For example, Ex_5 indicated that the enterprise incurred large losses in 2018; however, in 2019 and 2020 it was able to recover and end the years with profits. Ex_9 indicated that WISEs should also be **more active in marketing**, incl. on social media, to contribute to both their visibility and the overall popularity of social entrepreneurship.

Opportunities. To involve people with disabilities efficiently into the labour market, there should be more necessary, well-considered and result-oriented measures with new more effective and complex mechanisms, based on mutual interest partnerships between government institutions, employers and workers organisations and training institutions [16]. One of the opportunities identified by the research is to **increase cooperation with the State Employment Agency (SEA)**. Ex_5 pointed out that in their practice, they used the opportunity to cooperate with the SEA to provide a subsidized job. The entrepreneur pointed out the high bureaucratic burden as a negative side of cooperation, as it was necessary to fill in a large number of various documents related to the involvement in the project, personal employment characteristics and other criteria. This does not

encourage entrepreneurs to participate in this programme, yet overall the availability of such programmes was viewed positively. Ex_6 also pointed out that the enterprise has cooperated with the SEA in providing subsidized jobs and receiving the tax relief specified in the programme, which was an important resource for providing employees; however, it required some time to fill in the documents.

Ex_2 pointed out that it was important for the **government to support** WISEs, especially the salaries of employees at risk of social exclusion. *"It is better to support my enterprise because if not, they will turn to the State Employment Agency and social services to receive the same money through social benefits".* Ex_2 also stated that **cooperation with the local government** was essential: *"We cooperate with the local government of Riga on the use of premises without rent. This is important support for us to expand and develop".* Ex_1, however, pointed out that municipal social services often perceived them as competitors rather than partners in the provision of social services. This indicates that experience in cooperation with the local government was different. It is also noted that cooperation could be implemented in various ways, incl. using the support instruments specified in the Social Enterprise Law, as well as other opportunities and resources available to the local government [18]. Ex_6 considered positive cooperation to be an important opportunity: *"At the beginning of operation of the enterprise, we participated in a competition and received financial support from the local government of Riga, which was quite significant support for the purchase of equipment, rental of premises and meeting other needs at the initial stage of our business".*

Ex_9 pointed out that it was also important to **increase cooperation with educational institutions**. This was essential to develop the skills and competences that meet the needs of the labour market. The mentioned expert also pointed to the following opportunity – **use of social media to increase the sales of goods/services produced by WISEs**.

Threats. The **pandemic-related restrictions** made a significant impact on social enterprises. According to the results of a survey [19] during the first wave of Covid–19 (mid-March to late May 2020) among social enterprises, most of them were extremely worried, very worried or somewhat worried about the impact of the coronavirus on their social enterprises. Of the total social enterprises surveyed, 46.3% worked in limited mode during the crisis, while 27.78% were closed. Some respondents noted that the crisis hit them severely since their activities depended on buyers, and the number of quarantine and pandemic orders practically zeroed. Even when the quarantine was lifted, it was not possible to return to the initial phase. Of the total social enterprises surveyed, 70.37% reported that their revenues declined during the crisis. During the second wave of Covid-19 (ongoing from October 2020), almost 50% of the total social enterprises surveyed worked in limited mode, 12.96% were closed (downtime) and for 3.7% respondents the crisis had a fatal impact on them, and they supposed that their enterprise would have to close in the follow-up months or they were closed already [19]. It could be concluded that the Covid-19 pandemic significantly affected the entrepreneurs, incl. social ones. Ex_2 noted that *"in November, all the activities, all the premises*

leases and orders were cancelled. As a result, the question was what we would do and how we would do it. We cannot survive with the output what we have today. The question is how to respond and operate".

A **decrease in financial support and grants** is also a significant threat. According to the entrepreneurs who had been granted an Altum grant, it would be much more difficult to develop their social enterprises without the grant. However, it should be taken into consideration that such grants are not unlimited. A shortage of **skilled labour** (especially those who can and want to work with individuals at risk of social exclusion) as well as an **overall decrease in market demand** because of the economic situation are also significant threats. This is also proved by the literature review, i.e. social entrepreneurship development is influenced by the demand (desires of the public for social services/products as customers or users) [20].

Strategies for developing WISEs in Latvia were developed based on the strengths and weaknesses, opportunities and threats identified.

An **SO strategy** is a strategy considering an enterprise's internal strengths and external opportunities, which would be the most desirable position for a WISE, building on its strengths and external opportunities and benefiting from it in the long term. A short-term strategy involves establishing or expanding cooperation with the local government, promoting social entrepreneurship as well as raising public awareness of WISEs. This can contribute to the establishment of new social enterprises, thereby increasing the employment and quality of life of the surrounding population and groups at risk of social exclusion. In her doctoral dissertation, Oborenko too [3] has pointed out that local governmnets have both an interest and an important role to play in creating favourable conditions for social enterprises in the areas in which they are engaged in, thereby contributing to meeting social needs. However, the development of such enterprises depends on the attitude and activities of local governments, the professional competence of municipal officials and their overall interests. Since the social issues and problems faced by social enterprises and local governments are similar in many cases, it would be useful for both parties to agree on cooperation. In practice, however, it is often difficult for social enterprises and local governments to find common ground, and the path to an effective and productive partnership is time-consuming and difficult [21]. In the interview, Ex_4 also noted the important role of local governments in social entrepreneurship: *"Local governments are those being aware of their small enterprises and being able to help them to develop. The money that is earned by the small enterprises also goes to the municipal budget through taxes etc. If the local government is involved, the owners of small enterprises go to it and talk about what they need, and the local government can help to the best of their ability".*

In the long term, it would be necessary to increase public support to stimulate the demand for goods or services produced by WISEs, thus contributing to the performance of the WISEs and increasing the number of jobs. Ex_2 noted that *"it would be good if national and local institutions gave orders to each social entrepreneur, for example, to make gifts, and then nothing else would be needed. For example, a national institution would order all souvenirs from a particular*

social enterprise. Or we would serve all coffee breaks for a ministry. Then there should be no talk of tax relief. We would have public support in this way".

An **ST strategy** is a strategy considering internal strengths and external threats, and the enterprise's strengths are used to minimize the impact of external threats. In the short term, additional funds should be invested in upgrading the skills of current and new employees by providing additional training or courses, thus reducing the low level of skills of employees and increasing job performance. In the long term, WISEs, in cooperation with the Social Entrepreneurship Association of Latvia, would need to attract more public funding for long-term investments in order to contribute to the viability and development of the enterprises.

A **WO strategy** is a strategy based on weaknesses and external opportunities, which minimizes the impact of weaknesses and uses external opportunities. In the short term, social enterprises would need to increase cooperation with the State Employment Agency by attracting additional funding from employment programmes and reducing their direct costs. In the long term, social enterprises would need to expand their marketing activities through social media to stimulate the demand for goods or services, develop their business and reduce their dependence on public or other funding.

A **WT strategy** is a strategy considering weaknesses and external threats. In the short term, social enterprises would need to establish cooperation with professional education institutions that train persons with disabilities and hire employees trained in needed specialities, thereby reducing the risk of shortage of qualified employees. Such a strategy is important because education and skills are a significant factor in employment. In order for people with disabilities to be able to perform not only low-skilled work, their education and professional rehabilitation have to meet the needs of the labour market. It is important to shape the professional rehabilitation process towards the needs of labour demand. In the long term, however, it would be important to establish cooperation with various private enterprises in order to stimulate a constant demand for goods or services and to contribute to the enterprise's stability in market conditions.

Conclusions

In the world, the origins of WISEs date back to the 1970s, and the WISEs focus on the integration of people with disabilities into the labour market. Such enterprises were already known in Latvia in the mid-1970s and 1980s, yet they were not defined as WISEs. In Latvia, the Social Enterprise Law entered into force in 2018, allowing enterprises to officially acquire social enterprise status (including specifying the field of activity, e.g. work integration), and statistical data on the number and performance of WISEs are now available. In Latvia, such enterprises mainly employ people with disabilities, yet in total they may employ 13 groups at risk of social exclusion.

In Latvia, the main strengths of WISEs are enterprising people who start up and manage social enterprises, as well as the attitude of employees at risk of social exclusion towards work and the desire to work. Public support instruments and support from the Social Entrepreneurship Association of Latvia to its members,

incl. WISEs, were positively rated. However, the main weaknesses were the dependence of WISEs on public support, as well as the insufficient marketing activities. To foster the development of WISEs, it is important to increase their cooperation with the State Employment Agency, local governments and educational institutions, as well as to use IT and social media to promote WISEs and their products. Of course, the threats to the external environment should also be taken into account: the Covid-19-related restrictions, a lack of qualified labour and a decrease in external funding in the future.

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Emotional Intelligence of international university students – A Case Study

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Abstract: Often, students with a high level of intelligence having good social skills, maturity of thinking and emotional stability, may not adapt well to the new cultural context. Emotional intelligence can be considered a separate kind of intelligence and considered a reasonable form of approach to the data that we receive through emotions. The concept quickly became widely used, becoming an important part of business psychology and workplace dynamics research. The aim of this research is to observe the definition of Emotional Intelligence and analyze the level of Emotional Quotient (EQ) of international university students at Óbuda University. "The emotional intelligence self-assessment tool" standardized questionnaire was provided. Quantitative analysis of the results of the provided questionnaire to the respondents were conducted. The findings show that international students of males and females studying at Óbuda University have the same medium level of Emotional Intelligence in the sample and have differences in components of Emotional Quotient, such as Self-Awareness, Self-Management, Social Awareness and Relationship Management. Correlation was found between the highlighted components of Emotional Quotient but no significant difference between the age and gender of the participants and the EQ component could be detected.

Keywords: Emotional Intelligence, EI, Emotional Quotient, EQ, Relationship Management, Self-Awareness, Self-Management, Social Awareness, University students

1   Introduction

Recently, more and more works have been devoted to the study of such a component of the psyche as emotional intelligence. In a broad sense, it refers to the ability to understand one's own and others' emotions and manage them.

In this study, we mainly relied on the works of such authors as Mayer, Salovey & Caruso, [1] Goleman, [2] Andreeva, [3] Stein & Book [4, 5].

There are various approaches to the interpretation of this phenomenon. Mayer et al. [1] define emotional intelligence as a group of abilities that contribute to the awareness of one's own emotions and the emotions of others. We can say that the model of [1] included only cognitive abilities that are associated with the processing of emotional information. Further, the concept of emotional intelligence changed in the direction of strengthening personal characteristics.

The special popularity of research on emotional intelligence begins with Goleman's book "Emotional Intelligence" [2]. The author brilliantly shows how important it is for such a sphere as business to pay attention to emotional processes [6]. Coauthors Stein and Book conclude that emotional intelligence "is the ability to correctly interpret and influence a situation, intuitively grasp what other people want and need, know their strengths and weaknesses, resist stress, and be charming" [7, 5, p. 45]. This contains a lot of interesting, non-clichéd thoughts, as well as a large number of exercises for the development of various components of emotional intelligence.

Most of all, our research was influenced by the works of modern researcher of emotional intelligence, Andreeva, as they cover a wide range of aspects related to the concept of emotional intelligence. They examine the evolution of ideas about emotional intelligence, provide characteristics of the components within the framework of the ability model, analyze gender differences in the field of emotional intelligence, indicate the issue of its interaction with other psychological phenomena, as well as the problem of its predictive value [3, 8]. Andreeva defines emotional intelligence as the ability to interact with the internal environment of one's feelings and desires; the ability to understand personality relationships and manage the emotional sphere based on intellectual analysis and synthesis; a set of emotional, personal and social abilities that affect the overall ability to cope with the demands and pressures of the environment. She believes that individual manifestations of self-actualization are interconnected with the level of development of emotional intelligence in adolescence. Also, she notes that the ability to establish deep and close relationships with other people is due to highly developed emotional intelligence, which in turn contributes to the natural emotional manifestation and positive self-attitude [9, 10].

Based on the analysis of scientific literature sources, emotional intelligence can be defined as a complex phenomenon that is necessary to explain and predict a person's reaction in an emotional situation and is an effective tool for analyzing the emotional sphere of a person. Based on what we have learned, we believe that further development of the concept of emotional intelligence should contribute to the understanding and detailed consideration of such scientific and practical problems as the prevention, correction and rehabilitation of deviant behavior, emotional burnout, the development of creative abilities, the socialization of the individual, the increase in stress resistance and the standard of living of the individual as a whole.

2 Review of theoretical studies of emotional intelligence

2.1 The concept of emotinal intelligence in the context of cultural diversity

Emotional intelligence is a concept that emerged in the 1990s [6]. Generally speaking, emotional intelligence (EQ) is seen as the ability to work with emotions and show empathy. This includes the ability to recognize emotions, to recognize negative and positive feelings, to separate personal perception from visual facts, to manage one's own and others' emotions. It is the "ability, capacity skill or self-perceived ability to identify, assess and manage emotions of one's self, of others, and of groups" [11, p. 329]. This is a kind of human ability to feel the situation very correctly and sensitively, to understand the desires of others, to be resistant to stress and the influence of negative emotions. At first, this interpretation may seem too abstract and absurd, but our mind is a kind of system that must be taken seriously. As humans, we know how to tune, improve, and manage systems to make them work as efficiently as possible. The same approach can and should be applied to our own emotional state.

Developed emotional intelligence skills contribute to a more productive, motivated, healthy and happy work environment. You don't have to become the best friend of every and each team member. It is much more important to understand what your colleagues think and how they perceive your own behavior and actions.

By working on emotional intelligence, you can prevent your emotions from having a negative impact on your work or relationships with your team. This means that you know how to use your strengths and how to overcome your weaknesses. People with high emotional intelligence do not ignore problems or negative feelings that arise. On the contrary, they decisively oppose them, acting pragmatically.

2.2 The concept and components of emotional intelligence

Developing high emotional intelligence (EI) is incredibly important for a successful career. When we have high levels of emotional intelligence, we're able to build strong working relationships and manage difficult situations more effectively.

Influential psychologist Daniel Goleman developed a framework of five elements that define emotional intelligence [2]:

1. Self-awareness.

2. Self-regulation.

3. Motivation.

4. Empathy.

5. Social skills.

Even if you already have many of the elements of emotional intelligence, it's important to look for opportunities to build it further. This will increase your leadership potential, and improve the quality of your relationships. The part of the brain, it turns out, that supports emotional and social intelligence is actually the last circuitry of the brain to become anatomically mature [12].

3 An empirical study of emotional intelligence

3.1 Sampling method and methods of empirical study

This research is a quantitative type by its nature. It uses a standardised questionnaire of Emotional Quotient adapted form Sterrett and Feldman [13, 14] (see Appendix) that was distributed among the international university students of Obuda University to prove three empirical hypotheses:

H1$_1$: Age and Gender do not significantly influence the Emotional Intelligence level of the international students at Óbuda University.

H1$_2$: The higher the level of Self-awareness, the higher the level of Self-management, Social Awareness and Relationship Management of international university students and vice versa.

H1$_3$: The higher the level of Social awareness, the higher the level of Relationship Management and vice versa.

The standardized questionnaire included four elements of EQ, namely, Self-awareness, Self-management, Social Awareness and Relationship Management as defined by [13, 14], which elements partly match and map with the elements defined by Goleman [2], but it leaves out Empathy as an element. Focusing on students studying abroad the selected four elements allowed the researchers to draw conclusions on the above hypotheses.

Convenient and target sampling method was used in the research since international students at Óbuda University formed the target group. For statistical analysis MS Excel and SPSS version 25 was used to analyse the responses. Descriptive statistics as well as correlation and regression analysis were conducted to reveal the relationship between the elements of Emotional Intelligence.

3.2 Results of empirical study

Finally, a total number of 22 participants – international full-time students of Óbuda University from the age of 20 to 35, males and females from Syria, Russia, Kazakhstan, Kyrgyzstan, Egypt, China, Ghana, Nigeria, Jordan, Ukraine and Azerbaycan responded, which does not make up of all the international students but gives a good representation of the population in question.

Results were calculated in Excel and SPSS Version 25. The descriptive measures including Mean, Median, Mode and Standard Deviation were calculated and shown in Table 1. Calculations also showed that there were around 30% of the answers above the average indicator. An overall EQ level over 72 is considered a high EQ level (Total EQ) [13, 14].

Table 1 Descriptive measures of the responses by the international students in survey

	1. Self-awareness	2. Self-management	3. Social awareness	4. Relationship management	Total EQ
Mean	19.18	17.9	18.8	18.7	74.5
Median	19	18	19	19	72.5
Mode	19	18	19	21	67
SD	2.6	2.5	3.3	2.5	8.5

The results show that these students have the highest Self-awareness EQ level, while the level of Self-management is the lowest among them (Figure 1).

Figure 1 The average score for the elements of EQ among international students at Óbuda University
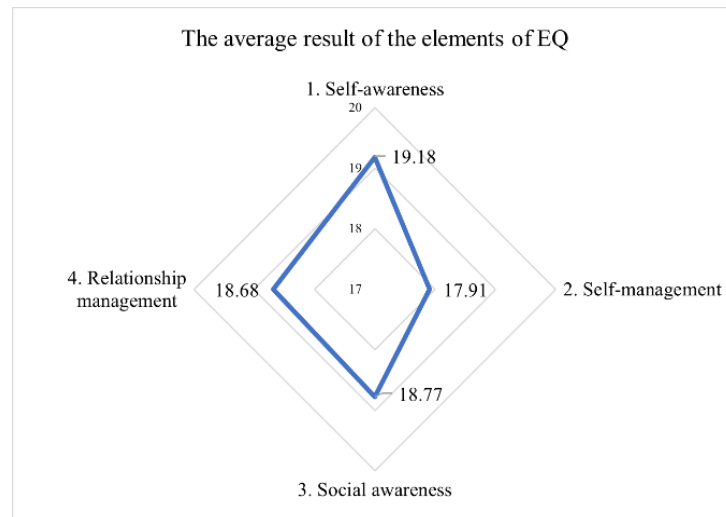
The levels of Social Awareness and Relationship Management are similar. This implies that students need to be trained to improve on their Self-management, but as being international students, they took to lead to go abroad to study, their Relationship Management and Social Awareness are very similar. The highest value of the most frequent responses was achieved in the Relationship Management component.

Analyzing whether there is a difference in the elements of EQ between males and females showed that regardless of gender no significant difference could be detected in the level of Emotional Intelligence neither by the elements nor by the combined measure.

Table 2 No significant differences between EQ and its elements by gender

	Levene's Test for Equality of Variances			t-test for Equality of Means		
	Equal variances	F	Sig.	t	df	Sig. (2-tailed)
1. Self-awareness	assumed	3.341	0.083	1.905	20	0.071
2. Self-management	assumed	2.795	0.110	2.020	20	0.057
3. Social Awareness	not assumed			0.442	13.94	0.665
4. Relationship Management	assumed	0.100	0.755	1.709	20	0.103
Total EQ	not assumed			1.842	12.89	0.089

Despite the non-significant relationship by gender, it can be seen in Figure 2 that more than half of the female participants achieved a result above the average. The figure displays the points by age and gender. It is assumed that by age EQ increases, however based on correlation and regression analysis, the assumption could not be justified. The correlation between age and EQ is weak and non-significant (r=0.185, p=0.205) and the linear regression function did not prove to be significant (F=0.706, p=0.411). Furthermore, age did not prove to be a significant predictor (t=0.841, p=0.411), which means that EQ does not depend on age among the international students at Óbuda University.

Figure 2 EQ level of students by age and gender at Óbuda University

20th International Conference on Management, Enterprise, Benchmarking. Proceedings 116
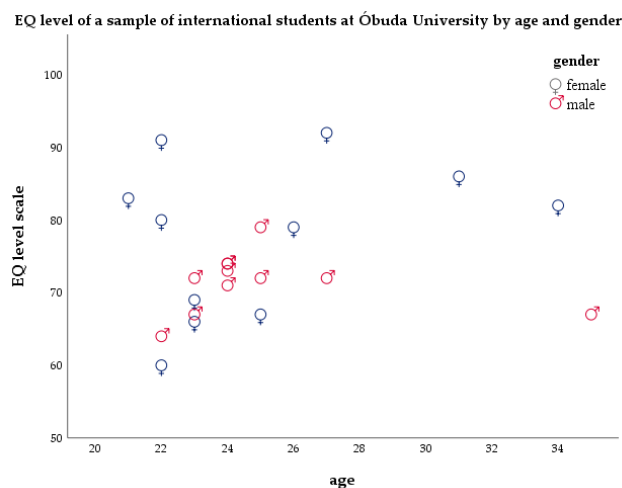
For further analysis of the relationship between the four elements of EQ, correlation analysis was conducted. Significant correlations were found between certain elements which is shown in Table 3.

Table 3 Correlation between the four elements of Emotional Quotient

	1. Self-awareness	*2. Self-management*	*3. Social Awareness*	*4. Relationship Management*
1. Self-awareness	1	0.450[*]	0.732[**]	0.738[**]
2. Self-management	0.450[*]	1	0.269	0.165
3. Social awareness	0.732[**]	0.269	1	0.520[*]
4. Relationship management	0.738[**]	0.165	0.520[*]	1

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Strong correlation can be detected between Self-awareness, Social Awareness and Relationship management, while medium strong correlation was found between Self-awareness and Self-management, however, there is no significant correlation between Self-management and Relationship Management. It implies that while Social Awareness and Relationship Management boost Self-awareness and vica versa, therefore strengthens students' emotional intelligence, Self-management might significantly boost Self-awareness but does not significantly contribute to Social Awareness or Relationship Management.

Evaluating the weights of these elements for Emotional Intelligence, it can be seen in Table 4 that despite the fact the Self-awareness is highly correlated with the other three elements, Self-management plays a crucial part in the Emotional Quotient, having a weight equaling 1, followed by Relationship Management weighing 0.450 and Social Awareness with a weigh of 0.412. Self-awareness did not weigh a lot in the model, which seems contradictory in the model and requires further research.

Table 4 Weighs of the elements of EQ in the model

Attribute	Weight
1. Self-awareness	0
2. Self-management	1
3. Social awareness	0.412
4. Relationship management	0.450

Conclusion

The present research posted three hypotheses namely

H1₁: Age and Gender do not significantly influence the Emotional Intelligence level of the international students at Óbuda University.

H1₂: The higher the level of self-awareness, the higher the level of Self-management, Social Awareness and Relationship Management of international university students and vice versa will be.

H1₃: The higher the level of Social Awareness, the higher the level of Relationship Management and vice versa.

Using hypothesis testing, correlation and linear regression analysis the first hypothesis could not be confirmed, since no significant differences could be detected between gender and EQ level and no significant correlation was found between age and EQ level among the international student at Óbuda University.

Using correlation analysis on the sample data collected Hypothesis 2 is proved thanks to the positive strong correlation between the elements, so the higher the level of Self-awareness, the higher the level of Self-management, Social Awareness and Relationship Management of the international university students and vice versa.

At the same time Hypothesis 3 is also proved due to the strong correlation between the two elements, so the higher the level of Social Awareness, the higher the level of Relationship Management and vice versa among the international students at Óbuda University.

Therefore, it can be stated that Emotional Intelligence is a construct as important for study as it is debatable. The theoretical analysis showed that the problem of emotional intelligence is an important research topic, both in general psychology and in management psychology. The research also showed that elements of EQ are highly correlated implying further studies in the latent factors hidden in the model.

As a result of the study, it was possible to establish that the international students surveyed have rather high level of development of Emotional Intelligence and its components. Based on the results of the research conducted, the following conclusions can be drawn:

To understand the essence and nature of the intellect, it is necessary to consider it as an integral, complex, multi-level structure that does not exist separately, but is included in a more general system of interaction between the external environment and internal conditions.

Emotional intelligence is a professionally important quality. The productivity of our professional activity depends on our emotional state. Developed Emotional Intelligence allows you to use emotions for your own benefit.

Empirical data have been obtained confirming the possibility of an arbitrary increase in the level of Emotional Intelligence of a person through a targeted educational impact on the development of each of the four components of this construct within the framework of a model of cognitive abilities.

Research on the problem of Emotional Intelligence is of particular interest to business, since in the modern world of fierce competition, it can become the main resource for the development of a company. First of all, this applies to those whose business is directly related to communication. It is quite obvious that today there is an urgent need for further research into the possibilities of developing emotional intelligence. For the practical development of this topic, conditions are very important that will allow building communications between science and business, connecting them in one information space and strengthening the scientific and practical status of the concept of emotional intelligence.

For students it is important to pay attention to themselves and take care about themselves, which may improve the daily routine management and social interaction skills.

The research had its own limitations since the sample size needs to be increased to do further research and as such did not give a representative sample of the international students at Óbuda University. The research requires more data collection by size and by higher educational institutions as well. On the other hand, the internal correlation of the components of EQ calls for further research in the field.

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Appendix

EMOTIONAL INTELLIGENCE SELF-ASSESSMENT TOOL –

1 never

2 rarely

3 sometimes

4 usually

5 always

Rate each question below on a scale of 1-5.

___ 1. I am aware of the physical reactions (twinges, aches, sudden changes) that signal a "gut reaction."

___ 2. I readily admit mistakes and apologize.

___ 3. When I feel angry I can still stay composed.

___ 4. I generally have an accurate idea of how another person perceives me during a particular interaction.

___ 5. In assessing a situation, I look at my biases and adjust my assessment accordingly.

___ 6. I can keep going on a project, despite obstacles.

___ 7. I can engage in an interaction with another and pretty well size-up that person's mood based on non-verbal signals.

___ 8. Others feel encouraged after talking to me.

___ 9. I consider my "emotional temperature" before I make important decisions.

___ 10. When I feel a strong impulse to do something, I usually pause to reflect and decide whether I really want to act on it.

___ 11. I can deal calmly, sensitively, and proactively with the emotional displays of others.

___ 12. I can identify the emotion I am feeling at any given moment.

___ 13. I am able to honestly say how I feel without getting others upset.

___ 14. I can show empathy and match my feelings with those of another person in an interaction.

___ 15. I think about the emotions behind my actions.

___ 16. I am respected and liked by others, even when they don't agree with me.

___ 17. I watch how others react to me to understand which of my own behaviors are effective and which are not.

___ 18. I am good at managing my moods, and I refrain from bringing negative emotions to work.

___ 19. It's easy to understand why other people feel the way they do.

___ 20. I can effectively persuade others to adopt my point of view without coercing them.

Scoring the Tool

Enter your ratings for each numbered question in the category where it appears. Add the ratings for each category to obtain a total for that specific facet of Emotional Intelligence.

Self-Awareness	Self-Management
1. _____	3. _____
5. _____	6. _____
9. _____	10. _____
12. _____	13. _____
15. _____	18. _____
Total _____	Total _____
Social Awareness	**Relationship Management**
4. _____	2. _____
7. _____	8. _____
14. _____	11. _____
17. _____	16. _____
19. _____	20. _____
Total _____	Total _____

Interpreting Your Score

Your score on these four components of Emotional Intelligence can range from a low of 5 to a high of 25. Any component where your score is below 18 is an area in which you could improve.

Emotional Intelligence is learnable and developmental. Use feedback from others, mentoring within your organization or friendship circles, and books and seminars to develop in those areas.

(Adapted from Emily A. Sterrett, Ph. D., in The Manager's Pocket Guide to Emotional Intelligence, 2000, HRD Press: Amherst, MA and from The Handbook of Emotionally Intelligent Leadership by Daniel E. Feldman, 1999, Leadership Performance Solutions)

Challenges of introducing flying drones and creating automated systems for goods and food delivery

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Abstract: Most people still believe that pilotless vehicles flying over our heads and carrying goods is just a fantasy straight out of a science fiction movie. But the world's largest e-commerce companies are in strong competition to control the drone delivery market. As the need for commercial deliveries in the big cities grows, businesses are confronted with a fundamental constraint in surface road capacity. Drone delivery tries to circumvent this limitation by taking advantage of the vertical dimension above city streets. This research investigates the vehicle design components of the delivery drone problem, such as flying efficiency, energy consumption, loudness, safety issues, which are critical to delivery drone feasibility. The qualitative research conducted found that companies are facing challenges like finding size and cargo balance, they are confronting with the problem of writing complex software, the need to optimize for battery consumption or even project costs rise high.

1 Introduction

Today drones are used by many people in different sectors. The number of industries using drones is increasing. One of the main usage areas of drones is food and goods delivery sector [1]. During the COVID-19 pandemic, the demand for food and goods delivery has increased significantly. Customers of delivery companies are wary of using courier services, as this can lead to infection with the coronavirus. At the same time, the food delivery segment is actively developing as well, which is facilitated by both the development of technology and the coronavirus pandemic. However, despite the growth, the market faces a number of problems. Basically, they are all related to the pandemic, which has not only a positive (for this business segment) effect, expressed in an increase in the number of food orders, but also a negative one [2, 3], namely the lack of couriers, people are afraid to work in a pandemic, the couriers themselves become carriers of

infection. Companies trying to cover the increased demand were faced with the fact that traditional delivery methods were not effective, which, combined with increased security costs, made the companies unprofitable [4, 5].

The aim of the present research is to identify the main problems that delivery companies face when trying to implement effective automated courier systems using drones for the delivery of food and other commodities. It is necessary to classify the existing problems that stand in the way of companies and try to find a solution to these problems.

The very direction of delivery of goods via drones is new for business, companies are just beginning to develop automated systems that allow the delivery process to be carried out with minimal involvement of human personnel in this process. [6, 7, 8]In this regard, this research work is of high relevance and may be of particular interest both to companies involved in the area under study and to other researchers interested in the field of delivery. Furthermore, this research aims to figure out the main problems that delivery companies face when they implement automated delivery systems using drones for the delivery of food and other goods. It is important to find out the existing problems that stand in the way of companies and try to issue a solution to these problems. Today main business operators, traders are introducing automated systems for drones to deliver goods and food. The research question is why drone-based automated delivery systems are still not widely used. The research objectives are firstly, to conduct an analysis of existing projects of automated delivery systems. Secondly, to identify, based on the analysis, the stages of their (systems) implementation, strengths and weaknesses. Furthermore, it is necessary to identify the problems faced by companies in the process of implementing their initiatives. And finally, to identify the main factors hindering the implementation of projects.

Today many engineers try to develop a system where drones are controlled automatically [9]. There are some companies in different countries which operate automated visual drone shows. Hundreds of drones are controlled from one system and can result with eye-catching visuals [10].

Of course, controlling drones with one automated system makes it easy and enjoyable, but it may have some difficulties too. If the drone signal is lost it can fall down onto the people, roads or cars; for long-distance deliveries, drones may do not have enough battery to be able to come back or to reach the client. Problems can occur.

By doing this research, some important key points of problems can be identified. Companies that use automated system for drones now, and those who want to start to do business in this sector can benefit from this research paper. Based on these, the results can be used not only by organizations which apply automated system in industries, but also by newcomers, who can implement these methods.

As mentioned before, the number of drone deliveries, especially with automated system raises day by day. So, this sector continuously is challenged by minor and giant problems. By doing this research the problem, challenges will be covered and some potential solutions and recommendations will be given by the interviewees and the researchers.

The following chapters will give an introduction to the world of drones through literature review, the research methods and the interview results will be summarized. Finally, the challenges and problems will be discussed and some recommendations will be given.

2 Literature review

The potential of delivery drones to be an important part of our future trading activities is very high. This issue has become a topic that has been constantly discussed by both the business and academic communities. It's worth noticing that, there are not many works devoted to this area of business, and most of them touch upon solving problems that are no longer relevant or consider mainly the technical aspect of such projects. On the one hand, some authors [5] mainly deal with the aspect of the development of an automated system, the ecosystem of unmanned aerial vehicles, energy consumption issues, etc. However, the aspect of legislative regulation is only slightly affected. On the other hand, authors in their work are devoted to the legislative regulation of the use of drones in the commercial sphere, as well as the creation of a classification that divides countries by levels of legislative regulation [4].

This type of information resources is the primary source, as they give a possibility to track the status of certain projects implemented by companies at the current stage, assess their commercial effectiveness and interest in working with similar projects by various companies which discussed by groups of authors in their works [4, 5, 3], These sources consider the prospect of introducing automated delivery systems, its role in the logistics system and its impact on the daily life of the urban population. Aspects of the design and technological development of drones are touched upon, as well as the problems faced by companies. An example of such a problem can be the situation with Amazon, when the incompetence of managers ruined a project associated with an automated delivery system using drones [11, 12].

The first studies in this area were conducted by Murray and Chu [13], addressing some difficulties connected to decrease the journey time for drones when they return to the depot. Subsequently, Gonçalves et al. [14] addressed the issue of safety by presenting a safety model which is based on place/transition (PT) nets to demonstrate evidence of drone safety, which is essential in the airworthiness certification procedure.

Given the novelty of this area, the scientific community has not yet managed to form a fairly wide range of fundamental research in this area. Basically, most of

the serious academic work is concentrated in the field of engineering and deals with the design and development of drones, as well as software for them. There are not enough works that affect the development of business in this direction and related problems, and of those works that can be found in the public domain, they mainly affect the legislative side of the issue. The situation is slightly different in information sources, such as the media, private publications and analytical reviews. Such sources are represented by a large volume of articles that are devoted to companies developing automated delivery systems based on drones. However, as a rule, such sources consider the commercial side of the issue and practically do not pay attention to the problems that companies face in the implementation process.

3   Research Method

The research project is planned to include a quantitative and a qualitative phase. For the first phase of the research that is the present research, qualitative method is used. Four in-depth interviews with the organizations using automated system for drone deliveries will be conducted, their responses will be analyzed to evaluate their experience, experiment in order to test their system before and after some corrections. The key research approach is interview with users, system generators, designers and (IT) engineers to find what the real problems they face at present and have already faced lately. Based on the interviews, difficulties and real experiments of using automated system will be explored. Interviews are planned with the designers, IT engineers and system managers in order to learn exactly their experience, obstacles and how they overcome the problems.

The interviewees gave their consent to the interviews, anonymity was ensured, and the interviewers strived to create a pleasant and comfortable atmosphere during the interviewee process. The interviews lasted around 31 minutes and the interviewees previously received the open questions so that they could prepare for the interview.

4   Results

4.1 Demographic profile

Interviews were conducted with 4 representatives of companies which operate in drone delivery sector. Except 1 of them (45 years old), all are 23 and 25 years old young people. All have degrees from higher education which makes us think about the importance of higher education in this field. Three of the interviewees are married. All respondents are at different positions, departments of the companies such as software developer, electrical engineer, engineering designer and CEO. The companies they work are of different ages – aa young company with three years, two relatively young enterprises with 7 and 9 years of age and one mature company were represented.

4.2 Experience with drones for deliveries

The different companies face different problems, that results from their experience in the field and the company's age. The CEO and founder of the investment fund of the company defines problems as they do not carry out engineering tasks themselves, but first of all it is the development of new technologies, as well as application and flight frameworks, flight permission. The company works with high technologies and is specialized in UVL (drones) technologies. As a result of these problems, projects become more expensive and take longer time to complete. The second company which is one of the market leaders in its home country, does IT business, and is also known with food delivery services and taxi services. The representative of the company, who is programmer, says he cannot speak about the design features of the project as these are sensitive data. He finds that there are many difficulties in writing software, problems occur when drones must avoid obstacles, they cannot not get lost on the ground but need to interact with traffic on the road, etc. *"The implementation of all these tasks is a very difficult job even for an experienced team and requires many hours of tests and error correction"* he adds. It is mentioned that, in the final version of the software, it is necessary to cut down on potential working ideas due to very complex technical implementation, sometimes outright churches are used because there are simply not enough resources to implement certain special technologies.

The third interview was hold with a company that makes developments in the field of automated industry. From the interviewee's point of view, who is an electronics engineer, the main problem is to achieve a balance between the size (weight and overall dimensions) of the drone and the cargo that it is able to carry. The size of a drone should not be too large, as its task is to deliver small-sized goods to people. If the drone is large, then it will be impractical to use within the suburban and even more so in urban areas. But it is necessary to design drones so that they can carry enough cargo, which finally, results in an increase in the size of the drone itself. He admits that it is a difficult task. Therefore, the engineers try to make drones from lightweight, but durable material like carbon. As a result, he added, their team managed to design a fairly balanced model. He states that, however, the overall dimensions of the drone are still too large, the model needs to be refined and reduced in size. So far, it is far from working in urban conditions.

The last, the fourth interview was conducted with a specialist of engineering design of a company which develops drones for the needs of the Russian business and government. He finds several problems the company faces in the process of developing new products, technical difficulties arise both at the design stage and in the process of direct implementation. Often there are problems with fuel cells, the weather conditions hinder the developments, since it is cold in winter in Russia and very hot in summer so it is rather difficult to choose a fuel element that can provide the necessary amounts of energy so that it does not refuse in winter and does not overdo it in summer. In order to solve this problem, the company is

implementing a system in drones that cools the batteries in summer and warms them in winter.

Concerning legislation concerns, most of the interviewees mention that there are direct effects of legislations on the companies and projects. Especially in case of personal data protection and personal information case, governments are too strict, which makes situation extremely difficult for the companies. The electronic engineer (third company) mentions several security and legal problems, i.e. the delivery drone is not currently able to work in urban environments because it is too large, it cannot fly at an acceptable height; the modern urban infrastructure is not yet ready for such changes, and, moreover, there is also potential security and safety issues like the threat of hackers hacking their drones. Therefore, their country's legislation to try to protect the citizens, does not allow the implementation of such projects at the moment.

While the CEO of another company operating in Russia, also mentions that in Russia, the situation with legislative regulation is not yet the most difficult, but the clients face a large number of difficulties. For example, in Moscow, it is not possible to just launch a drone without special permission, and in the case of commercial use, one has to go through complex bureaucratic procedures, e.g. each drone must be registered.

The pandemic situation's effect cannot be excluded from questions. Each interviewees accepted that the pandemic situation had a positive impact on the drone related companies. Interest in the projects as a whole increased with the onset of the covid pandemic. People were afraid of contacts with couriers because they did not want to get accidentally infected, many couriers were also afraid of catching an infection from clients, so projects, which were aimed at minimizing human personal contacts and encouraging contactless deliveries became especially relevant during this period. While for programmers, the pandemic brought more work and business, the demand for a variety of remote services, including delivery, has significantly increased. The company's management managed to attract more employees to implement projects in this industry, including drone delivery projects as well.

Regarding the competitors in the sector, the interviewees believe that because of the political environment and the legal regulations these companies don't have serious competitors at the moment. The CEO of the company operating in Russia has mentioned Yandex as their main competitor, even though Yandex is currently developing a ground-based version of the courier drone [15]. Another competitor, Wildberries, was mentioned which is developing large-sized delivery drones. These are large companies, with large resources, and accordingly, they have more opportunities. The CEO of other company states that the competitors are mostly from China, for example DJI.

On responding to questions on mass promotion and related problems the CEO of the company from Russia responded that *"The demand for courier drones is*

growing now, but it still does not make up the bulk of companies' revenue, but it's expected to change in the near future. Now the growth of interest is observed not only among private companies but also among government agencies, for example, the Russian post". The software developer mentions their rule such as corporations are not willing to replace business processes that are understandable to them with new ones. In the other two companies, they have not started to work busily on this mass promotion as they are still in the test period and the company plans to deal with mass promotion after the testing and pilot phase is completed.

Interviewees were asked how the see their partners' and people's reaction to these projects. In general, all four interviewees mention positive feedback and high interest from partners, customers and people in general. *"But still some ordinary people do not really like it when drones fly over their private areas, but our company works on it"* stated by the specialist in engineer design.

The last question was related to safety issues, especially in the urban areas. The interviewees all mention that it is one of the most difficult problems in the implementation of such projects. From an engineering point of view, it is not so difficult to make a safe small-sized drone model, the technology is quite developed, but from programming point of view, it is difficult, especially considering the fact that the drone will have to work autonomously. Therefore, protection systems are integrated into the drones in case they run out of charge or go off course, these drones must find a place to land where it is safe and must wait for a specialist technician there. While the CEO frankly admits that no one has an absolutely safe solution right now, drones may break down right in the air, they may bump into obstacles, there may be a malfunction in the system, or they might be hacked. The company can only make the drones as safe as possible; the company strives to implement the maximum safety and security possible at present. It is exactly like with cars, they can get into an accident for a variety of reasons, they can crash or simply break down, these problems make them a dangerous invention for humans. However, they are used in our everyday life.

5 Conclusion

Based on the interview results the following challenges can be summarized related to the mass introduction of drones in delivery services, especially in rural and urban areas (Figure 1).
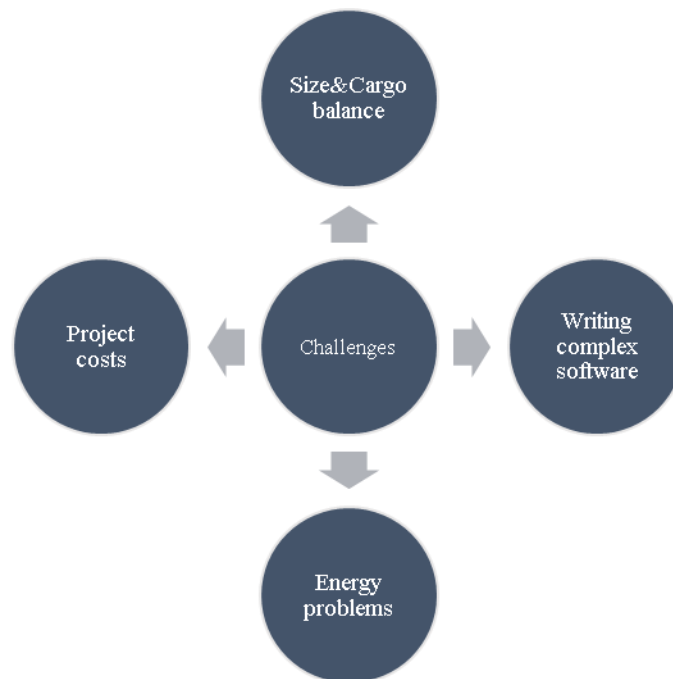
Figure 1 Problems of developing a delivery drone

A number of problems that were identified as a result of the interviews has already been touched upon in scientific papers. For example, the issues of managing groups of drones and creating a group AI for them were studied by Mustaev [16]. If the opposite approach is considered, then it is worth paying attention to the work of Krasovsky et al. [17]. However, a number of issues currently faced by engineers developing automated delivery systems have not yet been addressed by the scientific community. This can include such problems as balancing the size of the drone and the load it can carry, in general, this is a rather complex area that includes both problems with energy consumption and the development and implementation of new materials.

However, if we talk about the issue of energy consumption, then in related areas (the use of drones in agriculture) research is already underway on this issue, and here it is worth paying attention to the work of a group of authors, Simdyankin et al. [18] or Wang et al. [19] or even [20]. But at the moment it can be stated that the available scientific work on the above problems is further to improve.

In this paper we analyzed the drawbacks and the benefits of using drones in the delivery process in urban areas. We conducted interviews with four companies. Companies mentioned several problems which they face. They are about difficulties of writing software, fuel cells, balance between the size of the drone and the cargo, costs of projects.

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Reasons of high employee turnover in hospitality sector in Hungary

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Abstract: Employee turnover is crucial for organizational performance, profitability and productivity. Evidence reveals that the employee turnover in hospitality is connected to dissatisfaction with relationship with supervisors, working conditions, working schedule, benefits and salary. In order to maximize staff productivity, customer satisfaction and organizational revenue, hospitality leaders must reduce employee fluctuation and turnover. The aim of this research is to survey the factors affecting employees' intention to turnover in hospitality sector in Hungary. A cross-sectional quantitative design was implemented to answer the questions of the research. The results show significant evidence to support a greater focus on employee retention methods and the promotion of satisfactory working environment for hospitality staff. The results of the study can be used as a basis for making decisions regarding employee welfare, designing retention strategies, implement it for future planning and development of human resources.

1 Introduction

The considerable contribution of hospitality sector to economy in many countries is undeniable. Hospitality is one of the fundamental concepts of modern society, which, due to a long stage of development, has become a powerful industry that brings together thousands of professionals who create all the best conditions for consumers of services — guests and residents of the region. At the present stage of its development, the concept of "hospitality industry" still remains collective for numerous and diverse forms of business that specialize in the market of services related to serving guests [1, 2].

As being main part of tourism sector, hospitality sector includes restaurants, hotels, accommodation, etc. The present research is focused on one of the main problems in the hospitality sector, namely, the high turnover of employees. According to previous research studies hospitality sector has significant staff turnover rate compared to other industries [3, 4, 5]. According to Schindler [5] the employee turnover rate is 44% in the hospitality sector, which is higher than in

other sectors. The present research investigates what the reasons of high staff turnover could be in Budapest, Hungary. In Hungary the rate of workforce as a share of the total dropped to 3.8% in 2020 [6] showing a downward trend from 2015, which implies that leaving the sector is as grave a problem as high staff turnover. The result of this research can be used for developing strategy against high turnover in local restaurants and hotels, it can also be useful during recruiting process for restaurant as well as Human Resource Managers.

The high turnover in any organization affects competitiveness, customer satisfaction and in the end the profitability of an organization. Increasing loyalty can positively contribute to longer job tenures, however, the hospitality sector suffers an increasingly high turnover of staff due to low wages, low social status in some countries [7]. This fact draws attention to the importance of the present research since long working hours or poor assessment might also have an impact on high turnover and job dissatisfaction. The present pandemic situation has also revealed that the problem must be urgently solved. The hospitality sector is a customer satisfaction-based sector, and it basically goes through human resource satisfaction because customers are directly contacted with the employees of the organizations. Based on these arguments the following research questions were formulated:

RQ1. What are the financial and non-financial motivations of employees in the hospitality industry?

RQ2. What are the main reasons most of the employees leave their job in the sector?

RQ3. What kind of solutions can be applied to reduce turnover intention?

At a general level, we argue that the indicators such as wage satisfaction, working situation psychological contract violation, corporative values, management style and other subjective factors are among the main reasons of turnover intention, i.e. employees' intention to voluntarily change jobs or companies.

The next section introduces some theoretical background about the hospitality industry and motivation of the employees in the sector. It will include motivation theories, financial and non-financial motivations of employees, understanding of corporative values, analysis of management styles. Then the results of a questionnaire-based survey will be presented, and the findings will be discussed to reveal the motivation of employees to leave jobs in the hospitality sector mainly in Budapest, Hungary.

2 Literature Review

2.1 Employee Turnover Definitions

One of the earliest concepts of employee turnover was defined by Price [8] as the ratio of the number of organizational members who have left during the period

being considered divided by the average number of people in that organization during the period. Frequently, managers refer to turnover as the entire process associated with filling a vacancy. Each time a position is vacated, either voluntarily or involuntarily, a new employee must be hired and trained. This replacement cycle is known as Turnover Woods. Denvir and McMahon [9] considered Employee Turnover as the act of an employee leaving an organization by being employed by another organization, while Price [8] considered in a more broader sense of employee turnover as a change in an individual's status as a member of an organization. The concept of employee turnover includes all kinds of job changes, such as entry, promotion, demotion, and employee turnover.

2.2 Influences of Employee Turnover

Muchinsky and Morrow [10] have concluded after their study that there are three main factors that influence employee turnover, namely job-related factors, economic opportunity-related factors, and employee personal factors. Among them, job-related factors focus on the influence of the organization on employee turnover, economic opportunity-related factors describe the influence of external labor market laws on employee turnover, and individual factors describe the influence of personal differentiation on employee turnover.

Lambert et al.'s study [11] classified the factors influencing employee turnover into four categories, and they also presented job satisfaction as a separate variable, while the remaining three categories were demographic variables, work environment variables (including elements such as role conflict, job diversity, coworker relationships, employee autonomy, and job involvement), and the variable of available job opportunities.

Organizations are now conducting research to determine the causes of employee turnover. When a new employee is hired, there is a cost associated with induction and training [12]. Hiring a new employee is frequently more expensive than maintaining an existing and experienced employee [13]. Employee loyalty for instance was investigated by Ineson et al. [7], where the research revealed that the managers' treatment and assessment of employees as well as the benefits of social involvement greatly contribute to higher loyalty and lower turnover. The research also found that job satisfaction is not directly linked to monetary compensation.

When an employee is unhappy with their job, or when their functions in the organization are limited or constrained, turnover intention can appear. Employees start not to see a future in the same company or industry [14]. According to Tett and Meyer [15], turnover intention is an employee's willingness to leave the company. From the standpoint of an employer, losing an experienced and skilled employee is unquestionably a loss. However, it can also present a chance for employers to hire new and better recruits instead of dissatisfied and incompetent employees.

The most likely causes of high staff turnover in the hospitality industry, according to Fallon [16], are as follows: long working hours, disrespectful superiors, high job pressure, overloading, less fringe benefits, low income, greater physical work, and better opportunities in other sectors are the most common causes. We can further divide the turnover intentions into two groups. Employee turnover has both avoidable and unavoidable intentions [17]. If appropriate efforts are done in a timely manner, avoidable intentions can be averted. These can occur as a result of management neglect. Low wages, work stress, relationships with bosses, working hours, and transportation facilities, particularly for late night shifts, all contribute to avoidable intents. While the employee's unavoidable intents are due to personal concerns. These intentions may arise as a result of illness, a family member's death, family troubles, pregnancy, or leaving the area.

2.3 Tools for the implementation of personnel policy

The personnel policy of an organization in a broad sense is understood as a system of norms and rules, on the basis of which the main areas of personnel management (selection, training, promotion) are planned in advance and agreed with a common understanding of the goals and objectives of the organization. Weber [18] defined it as the ability to achieve obedience from other people, regardless of what this obedience is based on. He highlights, firstly, the presence of those in power, those who exercise power, secondly, the presence of subordinates, those over whom power is exercised, thirdly, the norms of domination (rules, procedures), fourthly, sanctions for violation of norms and reward for their implementation. Such an institutional interpretation of the concept of politics correlates with the concept and content of personnel policy.

According to Gudin and Gavrenkova [19, p. 96], there are general requirements for personnel policy that should be applied to it in modern conditions. Firstly, personnel policy should be closely related to the development strategy of the enterprise. In this respect, it represents the staffing of the implementation of this strategy. Secondly, the personnel policy should be sufficiently flexible. This means that it must be, on the one hand, stable, since certain employee expectations are associated with stability, and on the other hand, dynamic, i.e. be adjusted in accordance with the change in the tactics of the enterprise, the production and economic situation. Since the formation of a qualified workforce is associated with certain costs for the enterprise, the personnel policy should be economically justified, i.e. proceed from real financial possibilities. And, finally, personnel policy should provide an individual approach to its employees.

3   Data and Research Methods

The present research used a quantitative method applying judgement type non-probabilistic sampling. A self-developed questionnaire was distributed among employees of selected restaurants in order to meet the research goals in Budapest, Hungary. A questionnaire with four sections with 36 questions was outlined to

capture different aspects of demographics, job and salary satisfaction and communication. The data was obtained from selected restaurants and bars in Budapest particularly from members of staff serving at tables, baristas, welcoming and kitchen teams and was analyzed with SPSS software. Descriptive as well as inferential statistical analyses were conducted. As a first step Socio-demographic characteristics were analyzed.

Budapest was selected as the target city since during the pandemic a higher rate of business in the hospitality sector survived. The research instrument was divided into 4 sections: Section 1 covered demographic questions, Section 2 was related to job satisfaction, Section 3 investigated communication at workplaces and finally Section 4 was concerned with financial matters. The information was gathered from more than 30 members of the serving staff. Initially, two restaurants were selected through judgement sampling, and further data was acquired from employees using simple random sampling. Apart from that, some qualitative research was conducted, data was gathered through informal discussions with employees and managers in order to have a better understanding of the research and to identify answers to the problems [20]. According to Dubois and Gadde [21, p. 10] 'the interaction between a phenomenon and its context is best understood through in-depth case studies'.

To narrow down the scope of the research question the research was limited to one city, Budapest, Hungary and the research has strived to figure out what the reason behind high turnover rate in hospitality sector in Budapest, Hungary could be.

In the context of ethics, the research complies carefully with data protection legislation when using personal data of the respondents, to protect the privacy of their data subjects and to avoid the risk of any harm occurring to all participants of this research. The fact that ethical concerns can happen in every phase of our research made this point very significant.

4   Results

4.1 Demographic Profile

Data collection was carried out in the capital city, Budapest, however, the willingness rate resulted in a low number of responses, namely a total number of 33 employees could be reached. The sample is far not representative, however, some tendencies can be noticed and compared to research of larger samples. The result of demographic data showed that 55% of the respondents are females while 45% of them are males, 88.8% of the respondents were younger than 30 years of age (Figure 1). 82% of the respondents have experience in the hospitality sector up to 2 years. Around 48% of the respondents are married or are in relationship. 37% of the workforce has worked in the same restaurant for less than or a year, this shows the instability of the workforce in the sector.
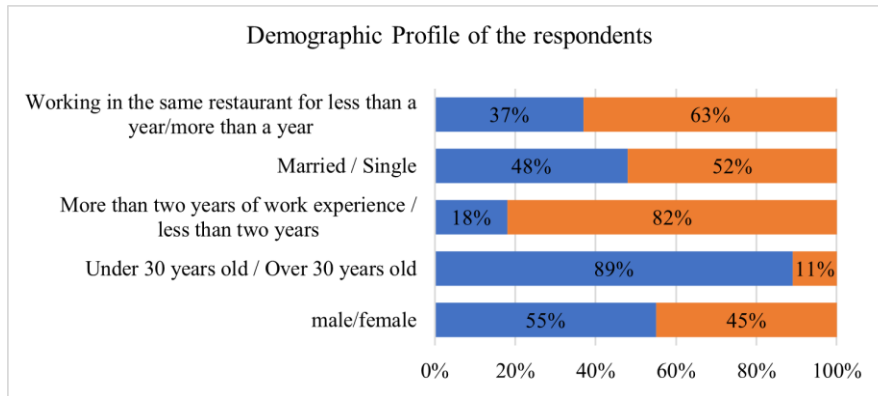
Figure 1 Demographic profile of the respondents

4.2 Job satisfaction results

Regarding the experience in the profession as well as in the hospitality sector and the respondents' workload, the sample shows that employees have an average 3.5 year of experience in the profession and the sector, while their average working hour is 42.73 hours, higher that the standard 40 hours per week in Hungary. Half of the employees have been working for at least 3 years in the profession and for at least 2 years in the sector, and half of the respondents work at least 44 hours per week (Table 1). The standard deviation depicts that there are relatively large differences in the employees' experience and workload. Based on skewness it can be stated that the experience of the employees and the years spent in the sector are relatively low while the working hours are high among these people. Meanwhile 36.4% of the respondents are satisfied with the current working hours, and 48.5% of them would like to work less. Gender had no impact on the number of working hours, and while males work 38.47 and females work 46.28 hours a week respectively in the sample, the difference is not statistically significant (p=0.28, equal variances assumed (p=0.311)).

Employees' experience and workload

	Years in profession	Years in the sector	Number of working hours per week
Mean	3.41	3.48	42.73
Median	3	2	44
Mode	1	1	60
Std. Deviation	3.154	3.134	20.552
Skewness	1.879	1.854	-0.050
Kurtosis	4.711	4.694	-0.374
Percentile 25	1	1	28
Percentile 75	5	5	60

Table 1 Employees' experience and workload

It was also checked whether experience increases the number of working hours that might lead to turnover intention in the end. It was found that there is a medium strong correlation between experience and working hours (r=0.492) and the years spent in the sector explains the differences in the number of working hours by 24.2%. The experience in the sector is a significant factor (t=3.144, p=0.004) and interestingly one year of experience results in 3.225 hours more working hours a week according to the linear regression function.

The responses are quite balanced regarding whether they would like to change workplace because of the working hours, 48.5% would change workplace, while 51.5% would not do so due to working hours. At the same time 60.6% of them feel sometimes overloaded but 15.2% responded 'always' to this question and 21.2% feel often overloaded, which means that 97% of the respondents feel overloaded in the hospitality sector. 42.4% of them believe that the higher workload is due to the management requirements while 24.2% of them attribute it to the customers. Three quarters of them respond that the management asks employees to do tasks that are not in the job description. Two thirds of them believe that changing workplace would help to improve the work-life balance despite the fact that 69.7% of them think that the working hours are the same as agreed during the hiring process. Employees are undecisive regarding the question whether the organization has broken many of its promises (51.5% agree vs 48.5% disagree) while job insecurity is high only for 9.1% of the respondents. According to the responses employees were fired mainly due to behavioral issues (42.4%) and attendance issues (24.2%).

Respondents were analyzed should they change workplace because of the working hours they would be willing to work more, or they would rather work less. While a significant and medium strong relationship was found between the two intentions, (Chi2=7.76, p=0.021 and Cramer's V=0.485), 68.8% of the respondents who would change workplace wishes to work less (Table 2) and 58.8% of the ones who would not change workplace are satisfied with the current working hours. 18.8% of the ones intending to change workplace are willing to work more while 29.4% of the ones who do not wish to leave job would like to work less at their current place.

	Willing to change workplace because of working hours		
Willing to work more or less	No	Yes	Total
I am satisfied with the current working hours	58.8%	12.5%	36.4%
Less	29.4%	68.8%	48.5%
More	11.8%	18.8%	15.2%
Total	100.0%	100.0%	100.0%

Table 2 Relationship between turnover intention and willing to work more or less

Work-life balance has become an important issue in the job market recently. As it was found two thirds of them believe that changing workplace would help to

improve work-life balance, and half of them have already had some argument due to the working hours with their family/partners, but not so often. However, it was found that 42.4% of the respondents believe that working less and changing workplace would improve on their work-life balance, while 12.1% are satisfied with the current working hours but think to improve work-life balance with changing workplace and 9.1% would even be willing to work more (Table 3). The relationship between willingness to change working hours and workplace because of work-life balance was found significant (Chi2=8.728, p=0.013) with a medium strong Cramer's V (Cramer's V=0.514).

Willing to work more or less	**Do you think about changing your workplace because of work-life balance?**		
	No (%)	*Yes (%)*	*Total (%)*
I am satisfied with the current working hours	24.2	12.1	36.4
Less	6.1	42.4	48.5
More	6.1	9.1	15.2
Total	36.4	63.6	100.0

Table 3 Relationship between changing workplace due to work-life balance and willingness to change working hours

4.3 Results on salary satisfaction

Employees were asked about their satisfaction with their salary. Since financial questions contain sensitive data, the questions were mostly Yes/No questions. Table 4 displays the ratios of employees based on salary satisfaction. Two thirds of the respondents are familiar with the current average salary in the sector and half of them are satisfied with their current salary. 72.7% of them would change workplace provided they were not satisfied with the salary and 57.6% of them expect salary promotion soon. Over two thirds in the survey received the contracted salary. Based on the responses over half of the employees are not satisfied with the current salary and do not expect salary promotion.

	No (%)	***Yes (%)***	***No answer (%)***	***Total (%)***
Do you know the average salary in your profession?	33.3	66.7		100
Are you satisfied with your current salary?	48.5	51.5		100
If you are not satisfied, would you change your work to place with more salary than current place?	18.2	72.7	9.1	100
Do you expect salary promotion soon?	42.4	57.6		100
Do you get the salary what you agreed on hiring process?	24.2	75.8		100

Table 4 Employees' satisfaction with salary

Consequently, when it was checked whether salary dissatisfaction would lead to change workplace a significant relatively strong relationship was found

(Chi2=11.647, p=0.003, Cramer's V=0.594). 66.7% of the ones who are not satisfied with their current salary would change workplace. There are, however, employees who would change workplace despite being satisfied with their current salary (33.3%). As a result, it can be stated that salary dissatisfaction would lead to turnover. Employees were also analyzed whether the amount of the current salary motivates them to work more. Table 5 presents the distribution of the employees in this question.

	Willing to work more or less			
Are you satisfied with your current salary?	I am satisfied with the current working hours (%)	Less (%)	More (%)	Total (%)
No	33.3	68.8	20	48.5
Yes	66.7	31.3	80	51.5
Total	100.0	100.0	100.0	100.0

Table 5 Employees' satisfaction with salary and intention to work more or less

Based on the results the relationship cannot be confirmed, since no significant relationship was found between the responses (p=0.069). According to the results, 68.8% of respondents who are not satisfied with their salary would like to work less. 80.0% of respondents who are satisfied with their salary are willing to work more. Two thirds of the respondents are satisfied with their current salary and the current working hours but still there is a 33.3.% who are satisfied with the working hours but not satisfied with the salary.

5   Conclusion

In this paper the reasons behind high employee turnover in the hospitality industry was examined. It is evident from the review of literature that the hospitality industry is experiencing high employee turnover globally and finds it difficult to retain their experienced and skilled employees. The present quantitative research included a small non-representative sample however, it allowed the authors to see some of the difficulties employees in the hospitality sector face in Budapest. The results are alignment with the results found in other research studies.

The research posed three research questions namely, what the financial and non-financial motivations of employees in the hospitality industry are; what the main reasons most of the employees leave their job, and finally what kind of solutions can be applied to reduce the turnover intention.

The research partly answered to the posed questions since it found that gender has no influence on the working hours, so it does not seem to be a reason for job turnover intention. However, employees who intend to leave their current job would do it due to financial motivation, high workload problems and due to work-life balance problems. Employees, who experience problems of work-life balance are willing to change. Employees wish to work less but it is only partly due to low salary. As the analysis found a year spent in the sector increases the working time by more than 3 hours, which is a heavy workload increase. Work-life balance

plays a significant role in turnover intention since half of the employees have already had argument with family members due to the high number of working hours.

Job satisfaction is also part of the problem. Half of the participating employees are dissatisfied with their job, and salary dissatisfaction also leads to turnover intention.

Organization staff is the backbone of any company or organization, and they need to be retained by the organization to get ahead of the competition. Other companies are always in search of experienced and talented people. So, an organization should give enough reason to motivate and remain with the present employer. For reducing employee turnover, management should come forward to develop a suitable retention strategy.

But before we need to understand the reason why the employees leave their organization. The employee turnover causes may be different from one organization to another. In summary it can be argued that some of the common reasons for high employee turnover in the hospitality industry are low salary, compensation, harsh working environment, long working hours, poor working relationship with superiors, psychological contract breach low job engagement, fewer chances of promotion, etc.

After finding the causes, the management should develop effective human resource practices which include recruitment of candidate with career goals, value, and plans which matches the goal of that organization. Employees should be given compensation and salary which can also be linked to their performance to recognize their work. Management should draft a policy for the employees to get timely bonuses and promotions. Also, the family-friendly initiatives can be introduced. Employees should be given challenging work to keep them engaged and sometimes organize events, sports, shows, etc. This retention strategy would help hospitality organizations to reduce employee turnover.

The present research has its limitations since the sample size was low and the sample was non-representative, the research focused on Budapest. However, in the future the research can be extended to the rural areas and some other cities in Hungary to increase the sample site and investigate the high turnover intention reasons in the country.

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Impact of Internet Misinformation on Generation Y and Z

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Abstract: The rise and wide spread of misinformation has had severe impact on the choices people make on a day-to-day basis. The research focused on narrowing down this impact to generations Y and Z. The study hence conducts research on how Internet misinformation may have affected members of these generations which includes finding out if they intentionally or unintentionally take part in spreading misinformation. The research uses quantitative analysis to arrive at the results. The researchers found that although a majority claimed to have never shared misinformation either intentionally or unintentionally, a majority of them claimed to have already made decisions as a result of misinformation from the internet. This shows that they may have been victims of being misled and thus the originator of the misinformation may have achieved the set objective of misleading the target audience. Furthermore, some personal characteristics could be identified for those social media users who share misinformation intentionally therefore might harm other social media users.

Keywords: Internet, Millennials, Misinformation

1 Introduction

1.1 Background of the study

The millennials or rather generation Y is the first generation and then generation Z which are heavily influenced by the internet [1]. This is because both grew up in an era of rapid technological advancements. These advancements involved the introduction of high-speed internet devices which are easily accessible for purchase and ownership.

The technological advancements also include the rise of the use of social networking platforms such as facebook, whatsapp, instagram and twitter. Most of the early adopters of this kind of platforms at the point and time of their creation were the millennials whom, at the time, were within the adolescent period of their life. The social networking platforms which were created to increase efficiency in communication also used additional features such as photo and video sharing tools

which were advertised using young people to highly target the millennials. Therefore, these two generations might have fallen prey to misinformation caused by the high-speed growth of internet usage.

The internet made communication and the spread of information easy and effective. It also decentralized the source of information and with that came the rise of misinformation [2]. This endangers the society especially when people cannot verify between being factual and misinformed [3].

There are numerous categories for spreading misinformation. For the purpose of this research, misinformation can either be categorized as unintentionally or intentionally spread misinformation. With the first category, those who unintentionally spread misinformation do so because they have sincere trust of the source of information for example a friend or a family member. The second category involves those who willingly spread the incorrect information.

Misinformation existed before the internet which has become the main and easily accessible tool to influence the society today. The internet provides a platform of freedom where any user can become the source of verified or unverified news.

The researchers undertook the task of finding out the impact of internet misinformation specifically focusing on generation Y and Z. Generation Y and Z have become an integral part of the internet through social media platforms, they also have high internet knowledge as compared to the previous generation X [4]. They are the generation that encountered high internet plorification that directly influenced their culture and transition into adulthood which made them key in the digital society.

The present research aims to explore how much these generations have been affected, whether these effects can be reversed or what available solutions have been or could be implemented in order to curb the impact of misinformation. The paper is structured so that after literature review and research design section the result of the quantitative research is presented, and the paper closes with the conclusion section.

2 Literature review

Misinformation is defined as incorrect or misleading information [5]. The word "disinformation" is also described as "false, inaccurate, or misleading information, presented and promoted to obtain revenue or intentionally cause public harm" [6, para 4]. Fake news is also a word which has become synonymous to misinformation and has been described, "as a type of propaganda or yellow and misleading journalism that consists of deliberate misinformation, spread via traditional media outlets (their print or online editions) or online social media" [7, para 4]. Misinformation can also be referred to as disinformation but defers from concepts such as rumors which can be either verified or unverified information. A person becomes misinformed when he or she holds firmly wrong information [8].

Misinformation tends to alter the cognitive process of the target audience or individual and hence influence the decision-making process. Previous research done shows that it is difficult for people to know whether the information they read is true or false [9]. The decision-making process can either be factual, based on explicit knowledge or based on belief [10]. It is also worth noting that, the ability to impact what people know, believe or understand is a highly coveted asset [11].

In order to make well-informed decisions, the individual undergoes through an adult learning model which has four stages [12]. These stages or levels are (1) unconscious incompetence, (2) conscious incompetence, (3) conscious competence and (4) subconscious competence.

On the first level, *unconscious incompetence*, the person does not know that he or she does not know the information at hand. This means that decisions are easily made out of ignorance. On the second level, *conscious incompetence*, the person is away that they have scanty knowledge about the subject matter, but this does not make them informed. Rather it is mirrored to them that they need to do more research on a particular item. The third level, the person having gathered information, becomes learned but can easily make biased decisions and revert back to *conscious competence*. On the final level, *subconscious competence*, the person can now make well informed decision and cannot be easily deluded into behaving contrary to what is true.

However, misinformation can also be caused not only through lack of conscious or unconscious competence to comprehend the knowledge but through the misinformation effect [13]. This effect is described as situations or rather phenomena where an event such as a tragic accident gives rise to multiple different accounts or narrations from the eyewitness perspective or even those who were involved in the accident themselves. Therefore, the narration may change to suit the beliefs of the informant.

One of the key tools of the internet used for disinformation is social media [14]. Social media allows regions that were previously inaccessible or rather not connected to any major information outlet to be connected [11]. The use of social media platforms as a tool for disinformation can be highly attributed to the high number of users as well as the high number of various media networks competing for subscribers, followers and likes. This type of competition can be motivation for social networks to spread misinformation [15]. The motivating factors can be categorized as either for revenue generation in terms of income generated on advertising or ideology or propaganda spreading [15].

Based on the literature review and the research aims the following hypotheses were formulated:

H1$_1$: Members of generation Y and Z are aware of misinformation on social media mainly through entertainment and political posts.

H2$_1$: Generation Y and Z members tend to share fake news intentionally and/or unintentionally when exposed to them frequently.

H3$_1$: Indifferent social platform users from generation Y and Z tend to share fake news and misinformation unintentionally.

H4$_1$: Exposure to misinformation and fake news has an impact on decision making among Generation Y and Z members regardless of frequency of exposure and level of degree studies.

H5$_1$: Based on the human approach to misinformation some personal and habitual characteristics of those sharing misinformation intentionally can be identified.

3 Data and Method

The research used for the present study will be quantitative using a self-developed questionnaire. The target group shall be both generation Y and Z members and the questions will relate to [1] internet consumption, [2] social media networks consumption and [3] misinformation and fake news. The questionnaire survey includes questions on demographic data, questions rated on Likert scale and questions requiring binary responses. Data is collected through Google form where anonymity is ensured and by filling in the questionnaire respondents give their consent as well. The target population is both local and foreign students from Hungarian universities between the age of 18 and 30 years old. The researchers used non-probability convenient sampling method focusing on self-selection sampling.

The research is fully guided by the scientific cannons of inquiry where the main objective is getting information that is reliable and valid. Through the data collection method, the participants were fully aware that they were subjects of research thus also adhering to the ethical guidelines. The researchers fully adhered to the ethics of research in order to avoid or minimize any unethical concerns and practices while conducting the research. The research team considered authenticity and originality as high ethical values which have been implemented during this research process.

The research included quantitative data analysis which was conducted using SPSS version 25 and using descriptive statistics, inferential statistical analysis, namely hypothesis testing using contingency analysis. Finally, cluster analysis was applied to help identify clusters that behave differently when misinformation sharing and exposure to fakes news is concerned.

4   Research Results

4.1 Demographic data

A total of 62 valid responses could be collected from university students, out of which 28 were males and 34 were females, meaning 45% and 55% respectively. The majority of those who responded were between the age of 22 and 25 years old (45%) followed by those between 18-21 (40%). These two groups, the members of which are from generation Z take up 85% of the responses, while generation Y is represented by a mere 15%. The sample is not well balanced in this sense; therefore, behaviors of generation Z is more represented in the research. 68% of the respondents are pursuing their master's degree while 32% of them are at undergraduate level, however all the respondents are university students.

Gender (%)		age group (%)				education level (%)	
male	female	18-21	22-25	26-29	above 30	bachelors	masters
45	55	40	45	0.09	0.04	32	68

Table 1 Demographic data

4.2 3.2 Internet and Social Media usage habits

Majority of the students in the sample spend an average of 5 to 9 hours per day on the internet. Only 3 students from the sample spend an average of 10 to 14 hours on the internet per day (Figure 1), while the time spent on the internet per day does not depend on the respondent's level of education (Chi2=1.856, p=0.395), on their age (Chi2=5.093, p=0.532) or on their gender (Chi2=1.293, p=0.524).

Figure 1 Hours spent on internet by respondents
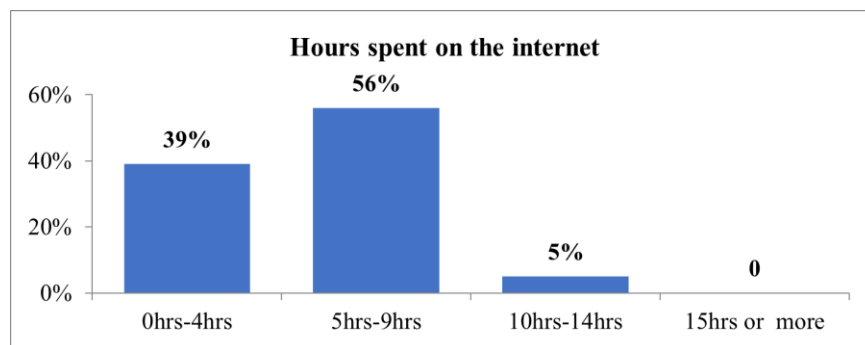
At the same time 89% of the participating students spend up to 4 hours on social media out of the maximum 4 or 9 hours spent on the internet, implying that when they spend time on internet, they spend it on social media (Figure 2). The rest of the respondents spend up to 9 hours on social media, which means they are exposed to information shared by other social media users. None of the

respondents spend over ten hours on any social media platform. The most frequently used social media platform is WhatsApp (58%), followed by Instagram (16%), then Youtube (10%), while Facebook and Twitter are mostly used by 8% of the respondents respectively.
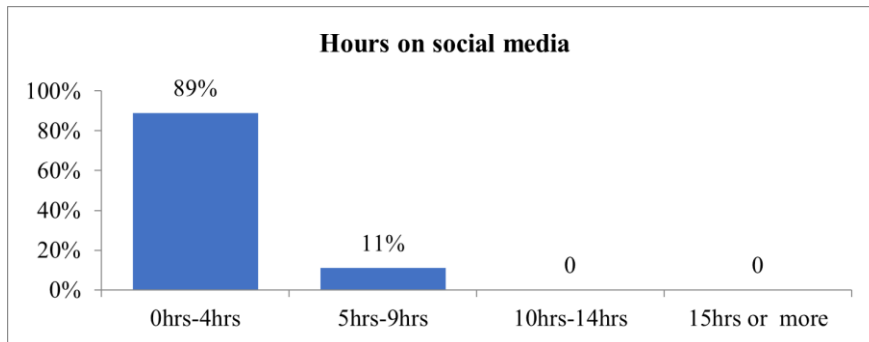
Figure 2 Hours spent on social media by respondents

Regarding content consumption, 65% of the students observed claimed to use the internet mainly for entertainment and culture, followed by educational purposes (19%) and politics (10%). Only 6% of the respondents claimed to consume more of healthcare information from the internet (Figure 3).
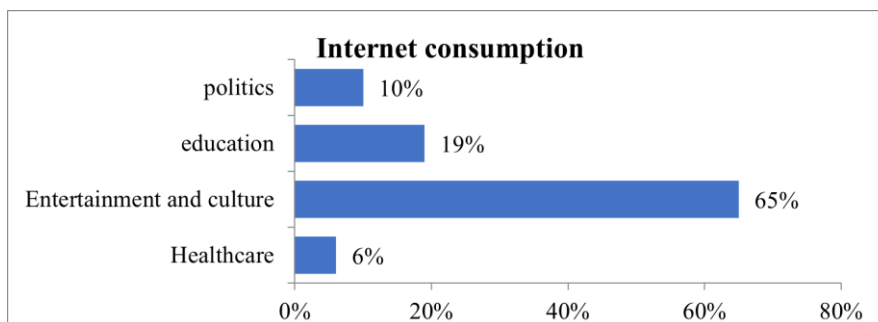
Figure 3 Internet content consumption by respondents

4.3 Interaction with misinformation and fake news

Students were asked how many times they think they interact with fake news and on which platform they believe fake news are published more frequently (Table 2). More than half of the respondents (58%) were neutral/indifferent about this aspect while only 4% of them believe that they meet fake news very frequently and 14% think that they interact with fake news frequently. Noone thought that they are not exposed to fake news. Despite that the participating students use WhatsApp the most frequently, they believe that Twitter shares fake news the most frequently (41.9%) followed by facebook (22.6%) and Youtube by 16.1%.

WhatsApp is thought to share fake news by 12.9% of the respondents and 6.5% of the students think that Instagram shares fake news.

	Which Social media platform do you think has the highest amount of fake news? (%)	Which Social media platform do you use the most? (%)
Facebook	22.6	8
Instagram	6.5	16
Twitter	41.9	8
WhatsApp	12.9	58
Youtube	16.1	10
Total	*100*	*100*

Table 2 Social Platform usage and fake news content

When checking the hours spent on social media platforms and the platforms considered to share the highest amount of fake news, no significant relationship was found (p=0.564), which means that students' awareness of social platform posting fake news is not associated with the hours spent on them.

At the same time, however, the cross-checking of the frequency of meeting with fake news and the purpose of information consumption, a significant difference was found (Chi2=28.168, p=0.001, Cramer's V=0.389). Those who are on the internet for educational purposes do not suppose that they interact with fake news, while most of the ones who use it for political or entertainment purposes believe to be exposed to fake news frequently or very frequently. Consequently, hypothesis one stating that members of generation Y and Z are aware of being exposed to fake news and misinformation when consuming content for political and entertainment purposes is justified. Educational content sites are not supposed to share a large proportion of misinformation and fake news according to the respondents.

4.4 Sharing misinformation intentionally or unintentionally

As a next step, students were asked whether they share misinformation intentionally or whether they realize that they happen to share misinformation unintentionally. From the sample, 72.5% claimed to have never shared misinformation intentionally while the remaining 27% claimed to have ever done so. Meanwhile 89% claimed to have never shared misinformation unintentionally so while 19% claimed to have ever shared misinformation unintentionally. Not surprisingly respondents who did not share misinformation intentionally fall in the trap to share it unintentionally (54.8%), Over one quarter of the participating students (25.8%) shared misinformation intentionally as well as unintentionally, which is surprisingly a high percentage. 17.7% of the respondents did not share misinformation neither intentionally nor unintentionally. No tendency could be

detected since these responses were independent from each other at a 5% significance level (Chi2=2.724 and p=0.099).

Since the nature of social platform usage includes sharing posts and contents users might share fake news either intentionally or unintentionally. The results show that 58.1% of the respondent share misinformation intentionally even though they are indifferent about how often they interact with fake news (Chi2=36.876, p=0.000). The relationship between the frequency of exposure to fake news and sharing it intentionally is significantly strong as shown by Cramer's V being 0.771. Those who frequently or very frequently meet fake news tend to share it intentionally, while those who are indifferent about fake news or do not meet misinformation frequently do not tend to share it intentionally.

Similar significant difference can be depicted between the frequency of misinformation exposure and misinformation sharing unintentionally (Chi2=15.303, p=0.002). The relationship is significant with medium strength (Cramer's V=0.497). Interestingly two thirds of those who are indifferent share misinformation unintentionally, those who frequently or very frequently meet fake news shared misinformation unintentionally. As result, the second and third hypotheses are justified.

According to the findings, the level of education does not show a significant difference whether the respondents share misinformation intentionally. A higher percentage of respondents do not share misinformation intentionally in both groups (Bachelor and Master) (Chi2=0.853, p=0.356). No significant relationship was found when unintentionally misinformation sharing is examined for bachelor and master students (Chi2=0.359, p=0.549). Similar results were found when gender was analyzed. Regardless of gender people share misinformation intentionally (p=0.449) or unintentionally (p=0.708).

4.5 Impact of misinformation on decision making

As a third step it was analyzed how the exposure to misinformation influences decision making. It was found that regardless of bachelor or master studies, university students in the survey react similarly to misinformation in the context of decision making (Chi2=3.374, p=0.541). Those with master's degree seem to be less affected in their decision-making process (90.47%) as compared to those with a bachelor's degree (95%). Altogether 91.9% of the respondents believe that they are influenced by misinformation when making decisions. Even when students meet fake news its impact on their decision making is independent from the frequency of fake news interaction (Chi2=0.153, p=0.675). Even in this case 91.9% of the respondents feel that they are affected by misinformation when making decisions. Therefor hypothesis 4 claiming that misinformation and fake news have an impact on decision making process regardless of level of degree and frequency of exposure was justified.

5 Clusters of Generation Y and Z students in terms of misinformation

A two-step clustering was conducted to explore whether there is a pattern in the behavior of youngsters regarding misinformation. The analysis identified three clusters with members of 24, 28 and 10. The first cluster included 16 females, mainly between 18 and 21 (81%) at their bachelor studies. The second cluster's gender ratio was balanced while they are mainly between 22 and 25 in their master studies. The third cluster had an equal number of males and females, under 25 and mainly at master study level. The clustering process, the Silhouette measure of cohesion and separation was fair. Figure 4 presents the clusters visually.

The visualization of the clusters show that the clusters behave similarly concerning internet consumption, unintentional sharing of misinformation (yes), whether misinformation has an impact on their decision making (yes) and the number of hours they spend on social media platform (up to 4 hours). However, there are some unique characteristics describing the clusters.

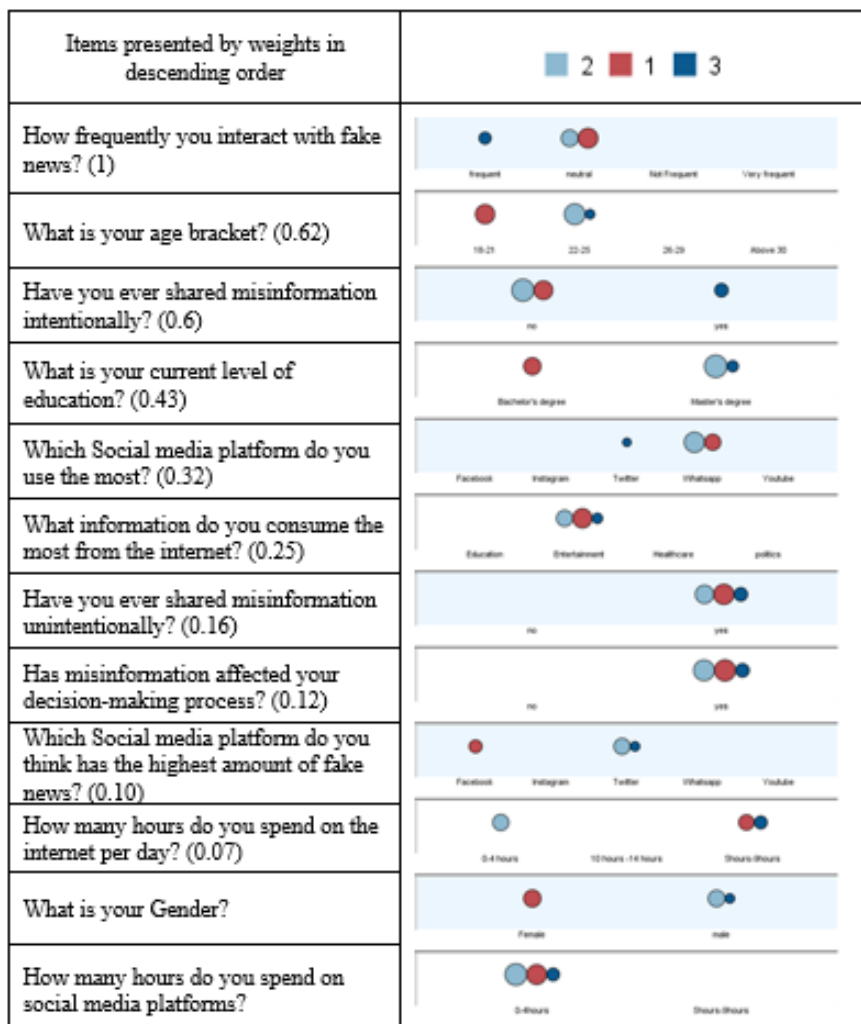| Items presented by weights in descending order	■ 2 ■ 1 ■ 3
How frequently you interact with fake news? (1)	frequent ・ neutral ●● Not Frequent ・ Very frequent
What is your age bracket? (0.62)	18-21 ● 22-25 ●● 26-29 ・ Above 30
Have you ever shared misinformation intentionally? (0.6)	no ●● ・ yes ●
What is your current level of education? (0.43)	Bachelor's degree ● Master's degree ●●
Which Social media platform do you use the most? (0.32)	Facebook ・ Instagram ・ Twitter ・ Whatsapp ●● ・ Youtube
What information do you consume the most from the internet? (0.25)	Education ・ Entertainment ●● Healthcare ・ politics
Have you ever shared misinformation unintentionally? (0.16)	no ・ yes ●●
Has misinformation affected your decision-making process? (0.12)	no ・ yes ●●
Which Social media platform do you think has the highest amount of fake news? (0.10)	Facebook ● Instagram ・ Twitter ●● Whatsapp ・ Youtube
How many hours do you spend on the internet per day? (0.07)	0-4 hours ● 10 hours -14 hours ・ 5hours-9hours ●●
What is your Gender?	Female ● male ●●
How many hours do you spend on social media platforms?	0-4hours ●●● 5hours-9hours

Figure 4 Three clusters identified among Generation Y and Z regarding misinformation

As can be seen cluster 3 (blue) is the one that frequently meets with fake news and shares misinformation mainly intentionally. This group of students thinks that Twitter has the most fake news on, and all the same, this group uses Twitter the most. They are rather characterized by males.

Group 2 (light blue) — again mainly males — spends up to 4 hours on the internet, they are also rather males, they rather use WhatsApp but similarly to group 3 thinks that Twitter has the most fake news on. This group has not shared misinformation intentionally, but the members are indifferent concerning fake news.

Group 1 (red), similarly to group two, is indifferent about the interaction with fake news, they are the youngest between 18 and 21, mostly females, and claim that they have not shared misinformation intentionally. They also use WhatsApp the most, spend 5-8 hours on the internet as group 3, but believes that facebook has the highest amount of fake news.

In summary it can be said based on the responses that young females spend 5-8 hours on internet, uses WhatsApp and when misinformation is concerned, they do not share misinformation intentionally and they think that facebook shares the highest amount of fake news. However, group 2 and 3 have more male members, who are older between 22 and 25, and believe that Twitter is the social platform sharing the most of fake news. The groups' social platform preferences are different, WhatsApp (group 2) and Twitter (group 3). The biggest difference is in sharing misinformation intentionally and the number of fake news they meet. Members of group 3 spend 5-8 hours on internet per day and share misinformation deliberately which might mean a great risk to the society of social media platform since this group is aware of fake news and misinformation. The other two groups are aware of the risks, and the presence of misinformation but the members strive to stop the spreading of fake news and misinformation. With the help of clustering and characterizing cluster members, the hypothesis stating that personal characteristics can be identified for those who share misinformation intentionally was proved.

Conclusion

The purpose of this study was to find out the impact of internet misinformation on Generation Y and Z. As the results depict, many of the respondents were highly influenced by misinformation as well as partake in sharing the information either intentionally or unintentionally.

In terms of social media usage, there was high correlation between the least used social media platforms as well as the platform thought to contain the highest amount of misinformation. This shows that there is room for improvement for the twitter platform on creating systems that verify information when it is uploaded on the internet as well as when it is being shared.

Furthermore, clustering was used to reveal human characteristics that could easily help people to identify those who use the social media platform to share fake news and misinformation and therefore can harm people. These results might serve as input to some artificial intelligence or automated algorithms to filter the persons who do not use social media platform for the good. Both problems raise the question of cyber safety and security, and privacy.

The research has its limitations, since sampling focused on very limited group of people mostly in higher education and does not give a representative sample. However, it provides a good ground for further similar studies in the future that allows for a larger pool of social media users regionally and globally. This

research calls the attention to the fact that young social media platform users are highly impacted by internet misinformation and both males and females must go alert when they meet misinformation and must be aware of not sharing it intentionally or accidently unintentionally.

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Analysis of reaction and adaptation capabilities of SMEs and multinational companies during times of uncertainty

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Abstract: Uncertainty in business can be defined as an unexpected event that has a direct impact on organizations. It cannot be measured. Thus, the impact that business uncertainty can cause can be great, especially on the income of companies. As a result of globalization, uncertainty in business occurs more frequently, and it impacts organizations globally, despite their sizes. The primary intention of writing this investigative study is to investigate how Small and Medium-sized Enterprises and multinationals react to business uncertainty. The research uses the European Central Bank's survey on enterprise access to finance to measure SMEs' uncertainty response capacities. A strong negative correlation between profits and debt-to-asset ratios implies that the growth in profits is directly related to the availability of credit in the financial system. The more uncertainty rises, the more accessible debt financing becomes, and, as a result, the more profits decrease. During a crisis, it has become increasingly clear that SMEs' principal response is to seek loans.

1   Introduction

Uncertainty refers to the lack of sureness or knowledge of circumstances. [1, p. 976] explained it as "a set of conditions and factors, unidentified and unpredictable in terms of occurrence and evolution; even if they are identified and predicted they are highly unstable, their probability being". In business, uncertainty occurs continuously as a result of globalization, and it causes a significant impact on organizations. Researchers have explained uncertainty in business as a situation where the organization has poor or no probability of managing at all [2]. While [3, p. 1], on the other hand, explained it as "an inherently abnormal, unstable and complex situation that represents a threat to the strategic objectives". In other words, the term business uncertainty can be described as a sudden change that impacts businesses. The impact of it could be

either positive or negative, depending on how the organization perceives it [4]. Recent studies have stated that business uncertainty can be categorized into four types, (1) variation, (2) foreseen uncertainties, (3) unforeseen uncertainty, and (4) chaos [5]. The major events such as the 2008 financial crisis, 2016 Brexit referendum, COVID-19 pandemic and geopolitical tension between Russia and Ukraine have affected businesses globally, despite their sizes. Therefore, it is intended in this research paper to explore, as well as discuss the differences between small and medium-sized businesses (SMEs) and multinationals, in terms of how well these organizations respond to business uncertainty. The study will mainly highlight the reaction, ability to plan and adapt to crises of each enterprise. The comparison between SMEs, and multinationals will also be discussed in this study as well.

1.1 Research project topic, proposal, statement

Over the last ten years, the corporate landscape has shifted dramatically. The role of uncertainty, risk management and risk hedging are becoming a more vital part of any companies' business structure. Crises come in many shapes and forms. Whether the crisis is external, like the 2008 global recession, or whether the crisis is internal, like an organizational crisis, identifying them in a timely and systematic manner could mean the difference between success and bankruptcy. SMEs and multinational companies comprise the greater economy of any country. Recessions brought by economic crises severely affect the functioning of smaller companies.

Understanding the current methods of counteracting contingencies in an organization is key in building a wider picture of the current state of companies' readiness to face hardships. With this knowledge, proper legislation could be proposed that would require companies to be more prepared for contingencies and crisis events. The question of this research is how companies react to emerging and existing contingencies and crises. The planning and implementation process of risk hedging corporate strategies will be revealed and examples will be provided.

1.2 Research aims and objectives

As a result of globalization, businesses around the world are growing exponentially. However, at the same time, the risks of business uncertainty are also growing. The term business uncertainty can be defined as an event which affects the businesses. Uncertainty in businesses has been divided into four categories by the scholars [5] as (1) variation, (2) foreseen uncertainties, (3) unforeseen uncertainties and (4) chaos. Events such as natural disasters or economic recessions are considered to be business uncertainties. Two of the most obvious events that have occurred in the last couple of decades, which have affected the businesses, are the 2008 financial crisis and the 2011 earthquake and

tsunami in Japan. In terms of reaction and adaptation, different types of businesses have different ways of reacting as well as adapting to these types of situations. However, there are no patterns to it, even though the sizes, as well as industries of the organization, are identical. Therefore, the primary intention of this research is to look into the reaction and adaptation capabilities of small and medium-sized enterprises (SMEs) as well as multinational organizations during a time of uncertainty. Moreover, the impact of business uncertainties on both types of businesses will also be addressed within this research. The rest of the paper is structured the following way.

In section two, a brief literature review is presented containing a theoretical background, definitions and concepts supported by the works and findings of prominent researchers in the field of corporate risk management. Section three presents a case study on the types of strategies that multinational companies and SMEs follow to counteract and minimize risk. The section analyses the profit and confidence index indicators in proportion to debt to asset ratio and draws conclusions on it. Section five provides conclusions and summarizes the research.

1.3 Research background

This paper is investigating the ability of SMEs to adapt as well as the reaction of both SMEs and multinational companies during times of uncertainty. As a result of globalization, business uncertainties happen quite frequently compared to the last few decades. Events such as natural disasters, wars or economic recessions are considered to be uncertain situations for businesses. These types of situations happen to affect different types of businesses, both directly and indirectly, despite their sizes. SMEs dominate in terms of creating jobs and their input on GDP. The report published by the World Bank Organization has suggested that SMEs accounted for approximately 90% of businesses these days, as well as created more than 50% of jobs in many countries [6].

SMEs have more limitations than multinational companies when it comes to responding to crises. As a result, many contingencies arise as a result of the limited number of tools that can be used to counteract crisis events, according to [7]. Multinational companies as well as SMEs, on the other hand, have been a sector which helps drive the world economy nowadays. Both sectors have created numerous job opportunities and bring various advantages to countries worldwide. Although it is widely known that these types of situations affect both SMEs and multinational companies, their reactions are not yet fully understood, and neither is their ability to adapt. Moreover, given the current situation with pandemic and geopolitical tensions, this study could not be more relevant. Therefore, this research is needed. It is essential to understand the concepts of strategic expansion, retrenchment, and operational adaptation first introduced by [8]. During times of uncertainty, it is critical to have a thorough grasp of both SMEs and multinational organizations' reactions as well as their ability to adjust.

1.4 Research design and strategy

The plan of the research is to discuss and compare the reactions to crises between enterprises across the organizational spectrum. An explanatory research design will be followed, which will allow the formulation of a hypothesis through a rigorous and multilateral literature review.

Independent studies, peer-reviewed articles, publications, and works by well-known authors such as Gertler, Bourletidis, Gao, and Eshaghoff were used to answer the questions. Because the fact that these authors are experts in their fields and the researched information is balanced, credible and unbiased.

1.5 Research method

Following the research statement, it is vital to determine what those strategies are that SMEs and multinational organizations implement to counteract the adverse impact of contingencies and crisis situations. We believe that in order to uncover the crisis reaction patterns and understand the reason for their implementation, the application of a case study applying quantitative research strategy would grasp the subject from the widest angle possible, since it is essential that the case study is approached from a positivist perspective as to explain the subject inductively and, as a result, enable us to develop a theoretical hypothesis of how companies adapt to uncertainties. The case study applies statistical methods, namely regression analysis using MS Excel.

1.6 Ethical guidelines

Since the case study research strategy will be implemented in the research paper, it is crucial that the information retrieved from the sources is unbiased, objective, and above all – veritable. To ensure that scientific integrity is maintained, the research is valid. In order to protect the rights of the participants, the research follows internationally acknowledged ethical guidelines.

2 Literature review

Al-Harwi [9, p. 1] claimed that "SMEs are businesses whose personnel number fall below a certain limit". Other researchers also categorize SMEs based on several aspects, for instance, their loan from the bank or the number of personnel, etc. However, based on the definition given by the OECD organization, small and medium-sized enterprises can be described as organizations that operate with a number of employees fewer than 250 people [10]. Apart from the number of employees, SMEs can also be defined by their turnover or balance sheet. For instance, a medium-sized company will have a turnover of up to 50 million euro and a balance sheet of up to 43 million euro, while a small-sized company, on the other hand, have up to 10 million euro on both their balance sheet and turnover [11]. In business uncertainty events, the sector is considered to be the first victim

of a prolonged crisis [12]. The main disadvantages that restrain them from responding quickly to uncertainty in business are the lack of technological, managerial, and human resources, as well as their dependence on bank loans [7, 13]. Multinationals, on the other hand, tend to be bigger in terms of size, when compared to SMEs. According to [14, p. 75] "the multinational corporation is a business organization that has their headquarters in one country and operates wholly or partially owned subsidiaries in other countries, activities are located in more than two countries and are the organizational form that defines foreign direct investment". While SMEs are businesses that maintain revenue, assets or number of employees below a certain threshold. In other words, the term can be defined as an organization that invests in or controls business in foreign countries. Their engagement in other countries can be in various forms, depending on that particular company. Besides, according to [15, p. 2] "multinational companies exist in a variety of forms, ranging from smaller companies that invest abroad to large groups that manage subsidiaries in an important number of countries". While their reactions to business uncertainty are identical, such as readjusting their plans in terms of expansion and postponing any investment projects to save cost [16], the strategies that multinational companies implement to counteract those risks are anything but, and are worth exploring to get a clearer picture of the market in times of a crisis. While adapting, a number of studies have indicated that there are four different strategies that have been commonly used within multinational organizations to adapt to business uncertainty. The approaches are (1) strategic expansion, (2) strategic retrenchment, (3) operational adaptation, and (4) status maintenance [8]. Firstly, strategic expansion is referring to the increase in terms of organizational activities. According to [8, p. 28] "increasing resource commitments when the economy is at its lowest point will enable the firm to reap long-term benefits". Retrenchment, on the other hand, is the opposite of expansion. It is referring to decreasing the activities. Besides, the operational adaptation refers to maintaining as well as ensuring that the short-term sales of firms are still at the same level [8]. Finally, the strategy of status maintenance is referring to a strategy where organizations refuse to adapt or respond to any type of situation.

In the next section, the results of the quantitative case study is presented.

3   Results

In order to find support for the hypothesis and strengthen the model for risk assessment and uncertainty identification, the research proceeds with a quantitative investigation. Detailed in the table below are the data from two separate data warehouses: The European Central bank as well as the website of the European Commission. Table 1 below displays the survey on the access to finance of enterprises (SAFE). It shows the availability of external funding to companies of different sizes. The survey is conducted semi-annually. Both the ECB and the European Commission jointly cooperate to conduct the survey to maximize the

response rates of multinational companies as well as SMEs. It was determined that to analyze the crisis reaction capabilities of companies, five variables should be considered – the weighted average turnover of SMEs, Labor costs of SMEs, Profits and weighted Debt to Asset ratios of SMEs. The time series is comprised of 25 observations.

Table 1 SAFE ECB survey series. Source: [17]

Half-year	Turnover	Labor costs	Other costs	Profit	Debt to asset	Confidence Index
6/30/2009	-28.2	22.9	25.0	-38.5	3.420081	-31.0
12/31/2009	-23.7	20.4	27.5	-34.1	-0.4704	-15.7
6/30/2010	0.6	35.1	50.0	-21.3	-4.72227	-4.4
12/31/2010	3.0	45.1	70.0	-20.7	-4.23894	4.9
6/30/2011	9.1	42.6	60.2	-15.8	-5.302	2.8
12/31/2011	-2.3	44.5	67.2	-27.1	-4.6289	-5.8
6/30/2012	-10.3	45.0	69.4	-34.1	-3.16914	-10.5
12/31/2012	-11.7	46.5	68.9	-33.7	-2.79596	-12.3
6/30/2013	-3.6	42.6	60.0	-25.2	-6.89137	-10.4
12/31/2013	-1.0	46.2	59.4	-22.2	-8.52934	-2.8
6/30/2014	10.2	47.7	50.0	-10.2	-5.5796	-3.5
12/31/2014	9.7	46.6	40.6	-10.0	-4.95058	-3.8
6/30/2015	17.1	41.4	34.1	-0.6	-6.00704	-1.9
12/31/2015	16.0	44.2	28.6	-0.6	-7.08199	-1.3
6/30/2016	19.0	44.1	36.5	0.0	-7.76981	-2.0
12/31/2016	18.7	49.3	50.2	0.5	-8.12377	1.2
6/30/2017	27.3	49.2	47.9	5.0	-9.94811	5.0
12/31/2017	24.0	50.1	53.5	3.8	-7.19286	9.1
6/30/2018	25.0	51.0	57.5	3.4	-7.61877	7.3
12/31/2018	21.4	52.0	56.8	-0.3	-6.57288	2.7
6/30/2019	20.2	50.1	52.8	-0.8	-6.54872	-5.1
12/31/2019	-1.7	45.7	45.0	-15.0	-4.37669	-8.8
6/30/2020	-46.2	3.2	10.5	-47.0	8.378053	-21.6
12/31/2020	-29.0	17.2	36.0	-34.5	8.022222	-7.0
6/30/2021	15.4	42.8	70.8	-6.4	-0.50079	11.5

Complimenting the table is the column of the confidence level of company owners. From the table it can be said that uncertainty in business has a huge influence on SMEs, especially on the income as well as turnovers of the company. We can clearly see how the two uncertainty events such as 2008 financial crisis and Covid-19 pandemic, affect turnover as well as profits of SMEs in Europe. Turnovers of SMEs was approximately -28.2 in June 2009, while in June 2020, the number of turnovers was around -46.2. Profits also decreased heavily. It was around -38.5 in June 2009 and -47.0 in June 2020. The confidence index is an indicator of responses by businesses in five sectors and consumers to questions covered by the EU Business and Consumer survey: industry (40%), services (30%), consumers (20%), retail (5%) and construction (5%). It is important to further mention the importance of the debt to asset ratio indicator as a variable for

determining the crisis responsiveness of SMEs. Values lower than 1 indicate that the asset ratio is larger, therefore a stronger company balance sheet. Conversely, a positive debt to asset ratio indicates a disbalance between the assets and debt of a company. If a company grows faster than it accumulates debt, the result is a negative debt to asset ratio.

It becomes increasingly clear from the table that throughout the past 10 years, companies have had a negative debt to asset ratios – indicating a slow debt growth, and a strong accumulation of assets. According to Table 1, it is clear the pandemic had a huge impact on the organization. The global pandemic crisis resulted in a sudden and significant jump in debt accumulation in SMEs – a trend, which was essentially broken by the end of the second quarter of 2021 – indicating an economic rebound.

Based on the data in Table 1 the following hypothesis is postulated:

H_α: *An increase in the profit results in a decrease in debt to asset ratios.*

Figure 1 shows that the profit and debt to asset ratio are highly correlated which would mean that an increase in profit would result in a decrease in debt to asset ratio. It clearly shows that unlike common facts an increase in debt in a company does not necessarily increase profits.

To better visualize the relationship between SME profits and debt to asset ratios, an optimal least squares regression analysis has been conducted, resulting in a strong negative correlation between debt to asset ratios and company profits.
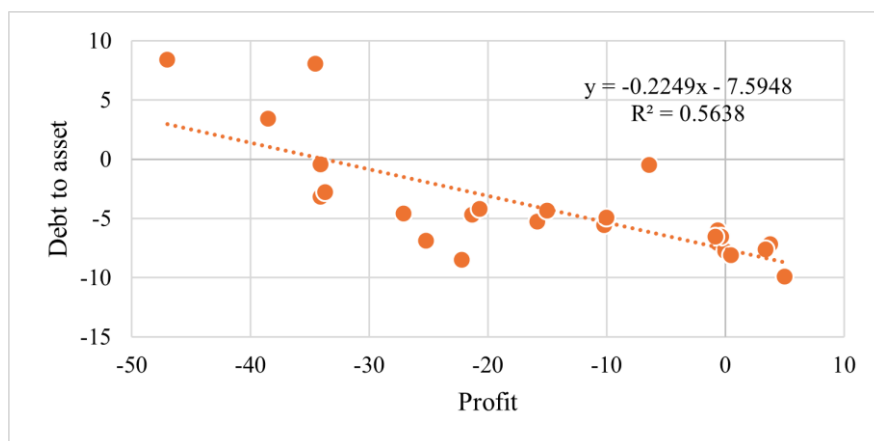
The regression function is the following:

$$\hat{y} = -7.595 - 0.225x \tag{1}$$

Where the predictor is the volume of profit, and the dependent is the debt to asset ratio.

Figure 1 Profit and Debt to asset appear highly correlated. Source: [17]

A clear downward trend of the regression function indicates a strong negative correlation of the above variables. The profit explains 56.38% of the variance in the debt to asset ratio while the model and the independent variable, the profit is a significant contributor in the model. Profit and debt to asset ratio are in high correlation (r=−0.751). Nevertheless, the value of p=0.00 is significantly less than the hypothesized 0.05, and thereby, this allows us to accept the alternative hypothesis.

Table 2 Significance of the model and its predictor Source: [17]

| Regression Statistics			Intercept	Profit
Multiple R	0.751	*Coefficients*	-7.595	-0.225
R Square	56.38%	*Standard Error*	0.898	0.041
F	29.73	*t Stat*	-8.455	-5.453
Significance F	0.00002	*P-value*	0.000000	0.000015

Essentially, the above figure (Figure 1) should be interpreted with a statement: "an increase in profit results in a decrease in debt to asset ratios". The statement points to the rather unobvious fact that the increase of debt in a company may not necessarily increase profits.

The increase of uncertainty usually results in the increase of contingencies, and, as a result, the increase in debt. Companies expect rougher times, The government reacts by easing monetary policy and regulation. Interest rates decrease, and access to debt becomes more available and cheaper as well. Profits, as a result, decrease. This is a natural and completely predictable pattern that occurs cyclically and that can be forecasted by identifying key leading indicators. This becomes increasingly obvious during the 2020 recession as a result of the COVID-19 pandemic. As a result of the contingency rise from the effect of lockdowns because of increasing infections, the government reacted with a steep decrease in

interest rates, essentially enabling borrowing at 0% interest rates. This made debt financing an incredibly attractive source of stabilizing the companies' increasingly unbalanced capital structures. Debt rose, while assets remained the same. The debt to asset ratio tipped in favor of credit – cutting profits and making a bigger dent in the companies' balance sheets.

Figure 2, however, displays the relation of confidence index to debt to asset ratio. Researching the relationship between debt to asset and the confidence index ratio was also in the scope of the objective of this research paper. Apart from a few outliners, the observation is highly concentrated in the bottom right corner of Figure 2. The lower the debt to asset ratio is, the higher confidence index tends to be. The confidence index and the debt to asset ratio are also high negative correlation (r=−0.597) as the previously the profit and the debt to asset ratio.

Figure 2 Debt to asset and Confidence appear highly correlated. Source: [17]
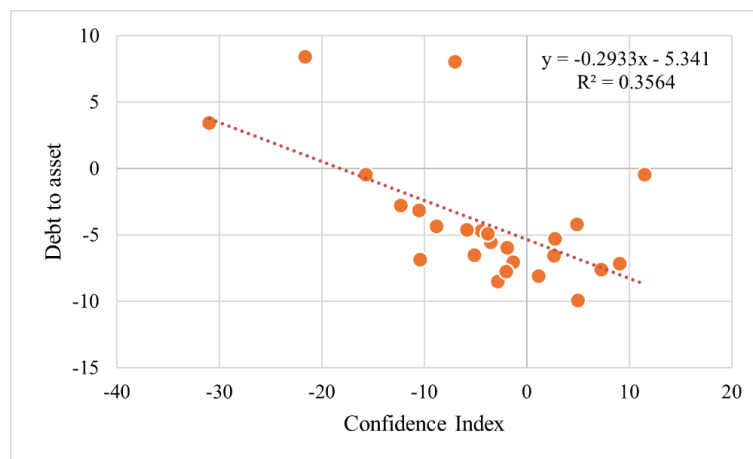
To further strengthen the statement presented in the above figure (Figure 2), the research proposes a second hypotheses:

H_α: *An increase in the confidence index results in a decrease in debt to asset ratio.*

To test the hypotheses, a regression analysis was applied that would allow us to determine if the model is significant and whether the predictor is significant in the linear regression model. The results of the test are presented in table 3.

Table 3 Regression analysis. Source: [17]

Regression Statistics			Intercept	Confidence Index
Multiple R	0.597	*Coefficients*	-5.341	-0.293
R Square	35.64%	*Standard Error*	0.842	0.082
F	12.73399	*t Stat*	-6.340	-3.568
Significance F	0.00163	*P-value*	0.000002	0.001631

Therefore, the regression function is the following:

$$\hat{y} = -5.341 - 0.293x \qquad (1)$$

Figure 2 visually presents the regression, while the table above details the p-value, as well as the R-squared statistic. The −0.597 R-value presents a medium strong relationship between the two variables. Only 35.64% of the change in the debt to asset ratio is explained by the confidence index. The model is significant (F=12.734, p=0.002) as well as the predictor 'confidence index' (p=0.000), implying that as confidence index, i.e. trust or the profit increase they have a direct effect on the debt to asset ratio, which results in better economic performance.

Table 4 displays the list of multinational companies' net sales between the year 2019 and 2020. The data for this table was also gathered from the European Commission [18]. From the table, it can be said that there was not much difference between SMEs and multinational companies, in terms of the impact that uncertainty has on business and the organizations. In 2020 net sales of companies decreased heavily. For Siemens, the net sales decreased by as much as −34.2 from the previous year, as the result of Covid−19 pandemic.

Table 4 List of MNCs net sales between 2019-2020. Source: [18]

№	Company	Country	Industry	Net sales in 2019	Net sales in 2020	Net sales growth in 2020 (%)
1	VOLVO	Sweden	Industrial Engineering	41350.3	33729.1	-21.7
2	SIEMENS	Germany	Electronic and Electrical Equipment	86849.0	57139.0	-34.2
3	AIRBUS	Netherlands	Aerospace and Defense	70478.0	49912.0	-29.2
4	ERICSSON	Sweden	Technology Hardware and Equipment	21749.8	23159.7	2.3
5	SAP	Germany	Software and Computer Services	27553.0	27338.0	-0.8

Table 4 above clearly indicates that many multinational companies were heavily impacted by uncertainty in business as a result of decreasing company income. During the period of the COVID-19 pandemic, the sales of well-known multinational companies (MNCs) such as Volvo, Siemens as well as Airbus decreased significantly. This might be due to the fact that strict lockdowns were enforced in many countries within the European Union, which resulted in temporary shutdowns of major manufacturing sites of these companies. Therefore, as observed from the table above, their net sales in 2020 have decreased sharply and significantly. Only a limited number of MNCs were actually performing well during this period. Companies such as Ericsson and SAP were performing slightly better than others in their industry. This might be due to the fact that these

companies are in the industry, which adapts to uncertainty quicker compared to other industries.

Figure 3 displays the comparison of number of employees within multinational companies between 2019 and 2020. The datasheets of top 1000 companies in Europe were used as an information source. The choice fell on these companies because of the leading positions within their industries. It can be seen that the number of employees between 2019 and 2020 were highly different from each other, especially in Siemens. The company had to laid of many employees as a result of Covid-19 pandemic.

Figure 3 Comparison of the number of employees of MNCs between 2019-2020. Source: [18]
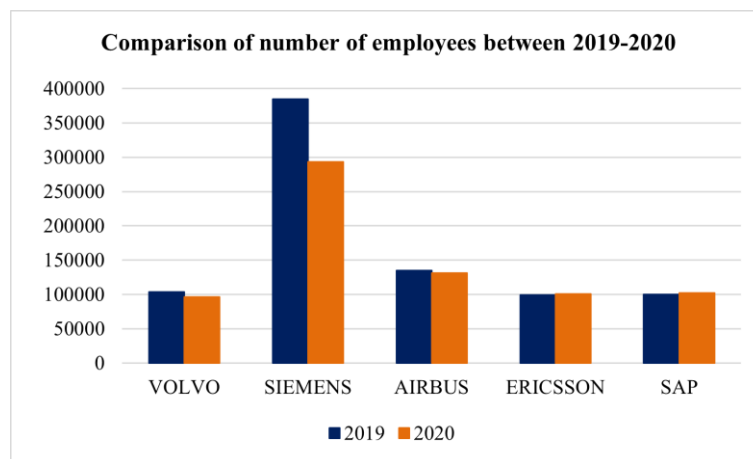
From figure 3 it is also indicated that, in order to adapt to these kinds of situations, MNCs have made it clear that cutting costs is the priority in order to survive. Therefore, many of them have decided to lay off employees when uncertainty hit. It was concluded from the analysis that the more loss a company incurs, the more employees are sacked. Take Siemens for example. Compared to other companies, Siemens incurred the greatest losses out of the analyzed companies during the period of the COVID-19 pandemic. During the time of contingency, the company also sacked a large number of employees during this period.

4   Conclusion

As a result of globalization, businesses around the world are growing exponentially. However, at the same time, the risks of business uncertainty are also growing. The primary intention of this research was to look into the reaction and adaptation capabilities of small and medium-sized enterprises (SMEs) and Multinationals

Evidently, SMEs have more limitations than multinational companies when it comes to responding to crises. While variables like the debt to assets ratio of SMEs are concerned with the ability to access external funding, the confidence index debt to asset ratios was measured against, are in themselves excellent uncertainty indicators, since they focus both on entrepreneurs and on consumers.

While SMEs tend to take additional lines of credit during times of uncertainty, multinational companies go with the cost-cutting approach and asset restructuring. It has been determined that the greater the loss of the company, the more employees are sacked, and therefore, the more unemployment rises. While it is undeniable that SMEs provide the most workplaces and the largest output in the economy, it is essential to understand that the role multinationals play in the labor market and the economy, as a whole, is no less important. It has further been determined in this research that the performance and uncertainty reaction of both SMEs and MNCs heavily depend on the industry the companies operate in. Sectors exposed to rapid change, like the tech sector that SAP and Siemens are in, adapt to uncertainty with less effort and smaller losses. Altogether, evidence from this research points to the fact that uncertainty should be forecasted, and companies must have reserves and plan for contingencies.

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The Impact of Instagram on Women's Psyche – Case Study

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Abstract: In the modern world, social media plays a crucial role in the young generation. Although Social Media platforms are used by every age group, it is most widespread among the youth. One of the most commonly used platforms is Instagram. More than 60% of the Instagram audience are 18-34 years old users. The aim of this paper is to understand the lifestyle around the use of Instagram with a special focus on women between the age of 18 and 34. The research makes use of different research methods starting from the data collection, going up to the questionnaire, quantitative and qualitative analysis. Usage of these methods helped to discover fundamental patterns. The results confirmed the assumption that the more often people check comments and likes the more pressure they feel by watching content on Instagram. Furthermore, the more women follow comments, the more likely they will use editing app before posting something on Instagram, while unrealistic beauty standards do not make women use more editing apps.

Keywords: Instagram, psyche, social media, females

1 Introduction

Nowadays social media has become a part of life for lots of people. Instagram has 1.386 billion users and is ranked 4th most used social media platform worldwide [1]. More than 60% of the Instagram audience are 18-34 years old users [2]. If we speak in words of generation theory, Millennial or Generation Z are the majority. The average time spent on Instagram is 29 minutes per day [1]. According to statistics, females (51.4%) use Instagram more than males (48.6%) [2]. In a binary way of looking at gender, there is almost a balance in using this social media.

Females and males spend time on social media differently. For females it is more about visiting social media, messaging, and posting while for males it is more about spending time on computer gaming [3].

For several years, the mental health of young users has been on the news due to the huge impact of social media on their lives. Instagram always shows colorful photos, attractive bodies, and ideal landscapes. It all looks like this is a perfect and ideal life that you need to live. It forces people to compare themselves to

influencers from Instagram and to want to live like others. In addition to that, it leads to the development of complexes and feelings of inferiority, because no one tells the truth that for example most of these photos have passed through many filters [4].

In this new age, technology and social media have brought the world a lot of good. The same tech solutions have their negative and positive sides to humanity. The use of the mobile device and the associated lifestyle has sparked several debates on what is deemed appropriate ways technology can enhance life on earth with little or no negative. The present research would contribute to the area of psychology when it comes to social media. Here we focus especially on the development of young women and the psychological impact that platforms such as Instagram have on women between the age of 18 – 35 years. The focus is laid on the social media platform Instagram and international female students in Hungary were studied in more detail.

This research aims to understand the lifestyle around the use of Instagram amongst young women with a special focus on female international students in Budapest. More importantly, the research would highlight the positive and negative impacts (addiction and others) of Instagram on young women and also discusses possible ways to maintain a good psyche on Instagram. The present research can be a reference to similar academic works in this field in the future and can also help to understand women's behaviors concerning social media activities to a greater extent.

The paper is structured as follows: after a Literature Review, the Data and Methods section outlines the research process, then the results and findings of the quantitative research and the evaluation of the open-ended questions are presented followed by the conclusions and recommendations.

2   Literature Review

Castells [5] states that "in general, networks are quite old forms of materialization of human activity, but today they have gained new life as a result of their transformation into information networks, connected by the Internet. The central concept of the theory by Castells is the "network structure", which is a "complex of interconnected nodes" meaning the ability to communicate. This book for the first time provides a theoretical justification for the presence of the logic of social networks in social processes and phenomena. This process is important for the research of Instagram communication, because it helps to understand the way people communicate with each other [6].

There are also some questions that arise for example why people go to virtual social networks, what they do there and how it affects their real social life. The answer lies in what needs are realized in social networks, how virtual socialization occurs and what its' consequences are.

One example is the study by American sociologists, who used the theory of reasoned action by Agen and Fishbein [7] to study the motives for using social networks. According to this theory, the actual behavior of an individual is formed under the influence of four factors: social attitudes, social norms, intentions and behavior itself [8].

At the same time there are studies of social networks as well. This group includes studies focusing on the practices of using social networks by adolescents, their audience of communication, and time budgets. They analyze the features of behavior depending on gender, age, education, financial situation, place of residence of users. The Pew Research Center's studies of teenage social media audiences are best known [9] among them.

Edosomwan [10] suggests that Facebook and Twitter grow to be fully assimilated into our life, becoming an indispensable part of our lifestyles and a norm of activities to do. Nowadays we can see that this is completely true and Instagram as a part of Facebook company is not only part of our life, but in some ways, this is the new reality where we spend most hours of our day [10].

According to Brand Analytics, approximately 30 million new messages appear on social networks every day, and 35 million people leave at least one public message per month [11]. Social media has both positive and negative impacts on our lives. There are some negative effects of social media that make that networking not very safe for usage. For example, by using Instagram women can face serious concerns in terms of "privacy issues" and "sexting," along with Internet addiction and "concurrent sleep deprivation" [12]. Also, what is more important in researching an impact on women's psyche, Instagram is developing body image perceptions and today more and more women complain about imperfect body. Williams et al. mention some concerns related to this topic, including "exposure to unrealistic body images, the pressure to conform, internalization of appearance ideals, gender-type socialization" [13]. Their research once again proved that social media grows a stereotypical view on women's life and appearance.

Based on the literature review and the research aims and objectives the following research hypotheses were formulated:

$H1_1$. The level of pressure between different types of Instagram users is significantly different.

$H1_2$. There is a considerable difference in the level of pressure by age groups.

$H1_3$. There is a significant difference in the evaluation of beauty standards by various age groups.

$H1_4$. The ratio of people who think that Instagram presents unrealistic beauty standards is considerably different in various types of Instagram users.

The following section will cover the Data collection and Research Methods applied for the present research.

3 Research Methods and Data Collection

The purpose of this study is to investigate, analyze, discuss and recommend ways to maintain a good psyche when young women use Instagram, A quantitative approach is used for the study. To understand the online behavior and impact of Instagram on the observed group, a self-developed and self-administered Google survey form was circulated for data collection. The questions in the form were self-developed and not standardized, they were designed to highlight the respondents' behavior on social media platforms and was to measure how it affects their psyche. Most of the questions had pre-set answers guided by the research objective; the questionnaire included Yes/No questions; questions measured on the Likert scale — categorical data - as well as some questions measured on a numerical scale. The form also had two open-ended questions focused on collecting opinions on how respondents deal with the challenges on the specific social platform, Instagram.

The target group of the survey was females between 18- and 35-years old living in Budapest. The questionnaire was shared via WhatsApp community groups, Facebook groups and email to some selected individuals. Consequently, non-probabilistic quota sampling was applied in order to reach the target group. The respondents were informed and aware of the subject and gave their consent. Anonymity was ensured and data protection was secured.

As most of the responses are categorical, numeric code was used to prepare the responses for proper analysis. For quantitative analysis two software products were used to find patterns, SPSS and RStudio. Descriptive statistics, correlation analysis, and ANOVA were applied to reveal the impact of Instagram on women's psyche. Qualitative content analysis was also used for the evaluation of the open-ended questions.

4 Findings

4.1 Demographic characteristics of female respondents

Fifty-seven female students from Budapest, Debrecen and Gyor — three large cities with universities in Hungary — took part in the survey. The sampling size is relatively small and after data cleansing and preparation, the dataset included 51 valid responses. The respondents were females between 21 and 25 years old on average, who have 101-1000 Instagram followers on average and believe that Instagram is important for them.

The survey received responses from three different age groups: more than half of the participating females are between 21 and 25 (57.5%), 27.5% of them are between 26 and 35 while the youngest group under 20 made up 15% of the responses (Figure 1.). Despite a higher representation of females between 26 and

35, the results can be considered valid because all groups are represented in the survey.
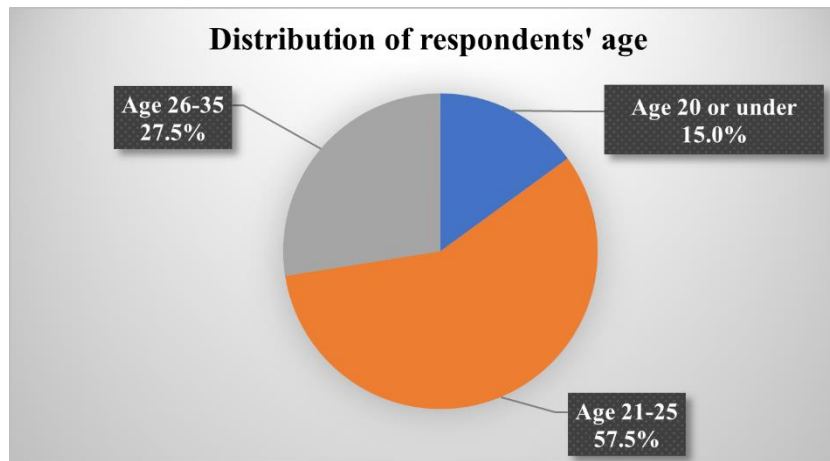

Figure 1 Distribution of respondents' age

4.2 Instagram usage habits

Participants were asked whether Instagram is important to them and what kind of Instagram users they are. Most of the respondents are interested in Instagram, 55% of them agree that Instagram is important for them and a quarter of them does not have a strong opinion about its importance, implying that they tend to use it, because otherwise they would disagree with the statement. Figure 2 displays the agreement with the statement about the importance of Instagram.
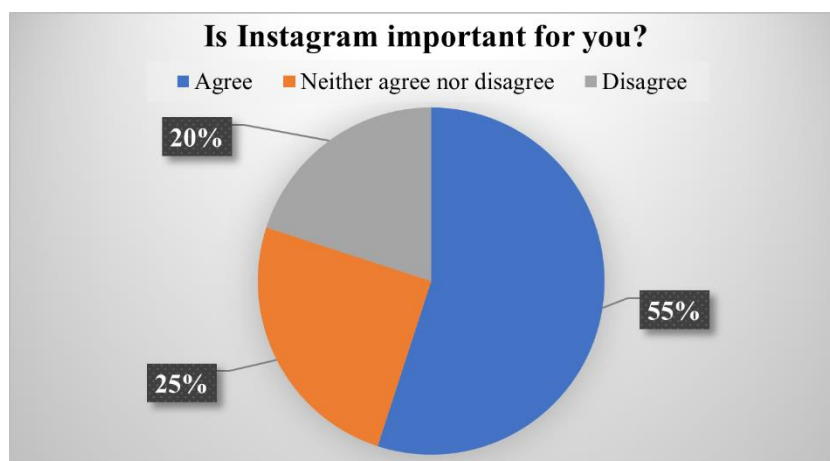

Figure 2 Importance of Instagram

Next to the importance of Instagram the research asked whether the users consider themselves as Followers, Influencers or both, since these behaviors also reflect on numerous phenomena. Figure 3 shows what type of Instagram users these females in the research consider themselves.
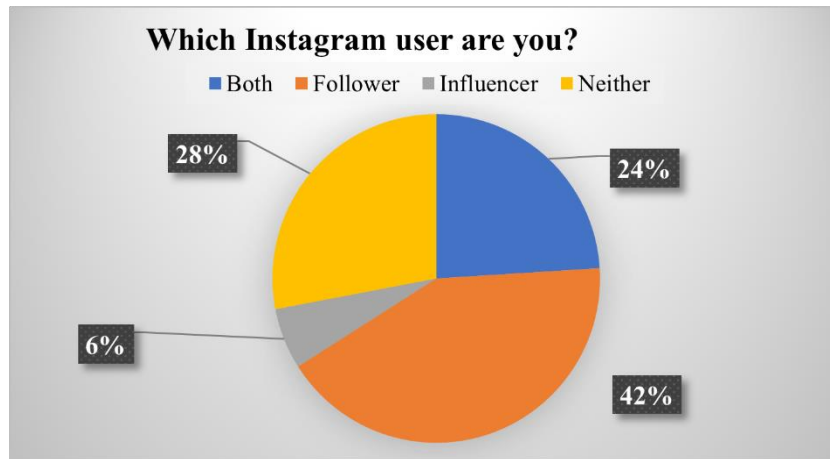

Figure 3 Distribution of Instagram user types

Followers took up the largest group (42%) followed by the ones who believe that they are Influencers as well as Followers, while a mere 6% think of themselves as Influencers. Still 28% of the respondents are neither Influencers nor Followers. Depending on the type of female users they are, they check whether their post has more likes, comments or been shared or reposted. They tend to think that they are more influenced by Instagram and that social media reflects real life, but at the same time these women feel pressure and anxiety by watching content on Instagram.

Looking into the details of the individual question responses, three quarters of the respondents have claimed that Instagram present unrealistic beauty standards and more than 55% of them used apps for editing photos occasionally or frequently. More than half of the participants check whether their posts have more likes, comments or been shared or reposted occasionally and almost every fifth does it often. What is more, approximately two thirds of the participants respond that occasionally Instagram feed is the last thing that they see before falling asleep, and more than a quarter of the surveyed women claim that this happens regularly. Majority of the respondents rated Instagram quite high from 7 to 9 out of the maximum 10.

As a next step, correlation analysis was conducted to reveal some relationships between the responses and find behavior pattern among women as well as explore what kind of influence Instagram usage has on the respondents' psyche. To see the pattern Figure 4 displays the correlation heat map; color red shows positive

correlation while lilac shows negative correlation, furthermore the darker the color the stronger the correlation. The questions are listed in Appendix A.
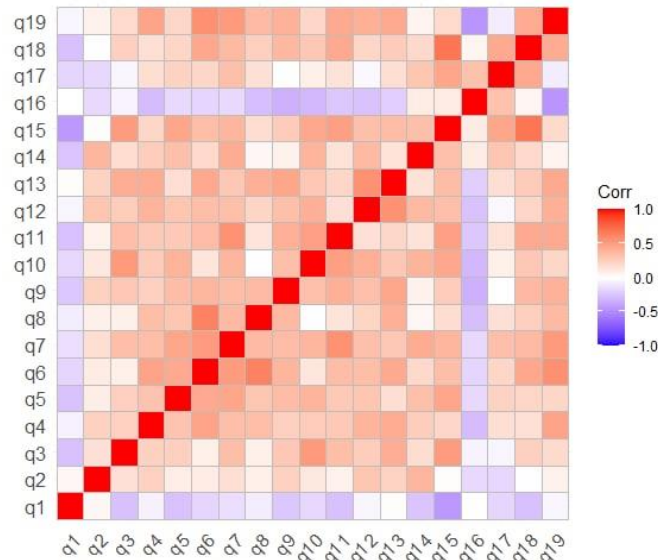

Figure 4 Correlation between responses of the questions

As revealed by the correlation matrix the more women have followers on Instagram (q4) the more stories per day they post (q6). But at the same time story posting frequency affects the desire of females to have more followers (q5). Also, the frequency of posting stories (q6), the number of followers (q4) and more strongly the desire to have more followers (q5) encourage women to check their likes, comments and reposts more often (q7). The number of posts per day (q6) also affects the length of time women spend on Instagram (q8), which in turn leads to anxiety (q18).

These women who tend to think that social media reflects real life (q19) have more followers (q4) and post on Instagram more frequently (q6). Even though they disagree that Instagram presents unrealistic beauty standards (q16), but even they feel worried, nervousness and unease (q18). Due to the inverse nature of q16, it is in negative correlation with the questions with positive sentiment.

Females who mentioned that Instagram has quality-approved content (q13) aspire to have the same lifestyle as certain Influencers (q12). Furthermore, Instagram is more often the last thing they see before going to sleep at night (q9).

Females who agreed that Instagram is detrimental to people's self-esteem (q17), likewise, feel anxiety after scrolling through the Instagram feed (q18). Also, these women highly evaluated the pressure caused by watching content on Instagram (q15). Surprisingly, unrealistic beauty standards (q16) don't make women use

more editing apps (q14) and using these apps is not affected by anxiety or pressure after scrolling feed or watching Instagram content (q18). As expected, the agreement with Instagram presenting unrealistic beauty standard (q16) negatively correlates with social media reflecting real life (q18).

4.3 Factors influencing the impact on Instagram

In order to explore how Instagram affects females' psyche and whether the age of the respondents or the type of Instagram user females identify themselves with and whether the different types of Instagram users evaluate the suggested beauty standards realistic or unrealistic further statistical analyses were conducted.

A significant difference was detected in the pressure level the different Instagram users (Followers, Influencers, both or neither of them) feel when watching Instagram content (F=4.831, p=0.006). People who identify themselves as a "Follower" and "Influencer" have more pressure by watching content on Instagram; much lower, but still quite high level of pressure is experienced by people who think that they are solely "Followers" on Instagram, as can be seen in Figure 5. "Influencers" have lower level of anxiety — as supposed since they are Instagram content producers —, and the least pressure is perceived by those who do not identify themselves as Followers or Influencers — the ones who just look and scroll contents —, which is reasonable. Consequently, hypothesis claiming that the level of pressure between different types of Instagram users is significantly different was justified.
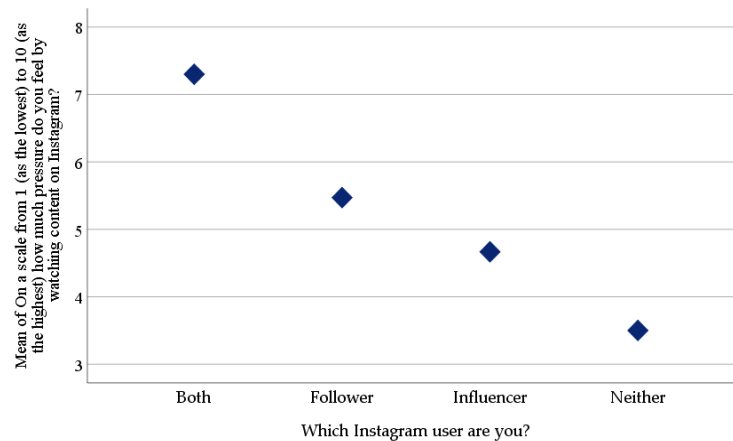

Figure 5 The level of stress perceived by different Instagram user groups

Secondly, it was justified by ANOVA that female Instagram users from different age groups experience significantly different level of pressure when watching Instagram content (F=5.425, p=0.009). Females from the group "20 and under"

are more stressed by watching Instagram feeds (Figure 6), respondents from the group "21-25" have slightly lower level of pressure while interviewees between 26-35 years old have noticeably lower level of stress. As a results, the hypothesis stating that there is a considerable difference in the level of pressure by age groups is justified.
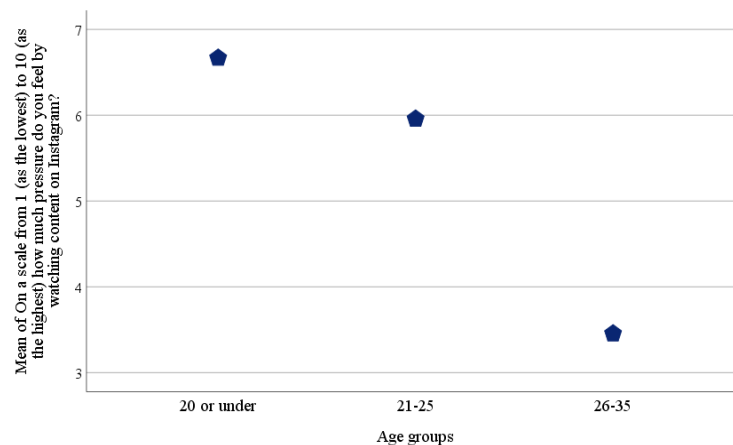

Figure 6 The level of stress of different age groups

Thirdly, it was assumed that there is a significant difference in the level of trust in representing realistic beauty standards between the age groups. However, no significantly different evaluation was found between the females from the different age groups (Chi2=1.444, p=0.837), so the hypothesis could not be justified.

Finally, it was examined whether Followers or Influencers think significantly differently about Instagram presenting unrealistic beauty standards. A significant difference was found between the groups (Chi2=12.817, p=0.046) with a medium strong Cramer's V equaling 0.4. Looking into details, Influencers mostly disagree with the statement that beauty standards on Instagram are unrealistic, while the level of trust in presenting realistic beauty standards among Followers is considerably lower. 76.5% of the Followers and 70% of the ones who consider themselves Followers and Influencers as well agree that Instagram presents unrealistic beauty standard. Furthermore, those who just look at, scroll or browse Instagram content also agree with the statement. Consequently, the hypothesis stating that the ratio of people who think that Instagram presents unrealistic beauty standards is considerably different in various types of Instagram users was justified.

The questionnaire contained some open-ended questions, the analysis of which is as follows.

Females react differently when they realize they are pressured by social media (Instagram). The content analysis categorized the respondents into quitters and non-believers. Quitters are those who would immediately stop using the app or even deactivate their account or uninstall the app in the event they feel pressured. They would do anything to separate their daily endeavor and conscience from what happens online. The quitters may not necessarily have a strong will or selective conscience to know what to ignore or absorb online. The second group of non-believers were the respondents who were able to still use the app regardless of the pressure. They were able to do so because they constantly reminded themselves that nothing is real on social media, or they are focus-driven. During this analysis, the tally showed that the survey respondents were half quitters (50%) and half nonbelievers (50%).

Upon analyzing the responses to how society and Instagram can correct these misconceptions and the effect on women's psyche, the following trend was identified. Females see the solution to the problem of Instagram's impacts either in changing the standards of beauty in society or in controlling the application. More than 50% of the respondents noticed that the problem is not in Instagram itself, but in the human psyche. Women are easily influenced by trends, beautiful pictures or other people's lifestyles. The respondents understood the effect Instagram has on them when it comes to women's behavior online.

The main idea of most of the answers is to be more realistic. People are really tired of filters, fake bodies and the way people pretend they are better. Nowadays it is easy to recognize where fake is. Photoshopped life is not trendy anymore, women want to see real human bodies, they want to be proud of who they are, and they do not feel sorry for their appearance. One fifth of the respondents stated that the way to be free from Instagram standards for women is to work on their self-esteem. The more confident they are, the less impact Instagram has on their psyche and self-appreciation. Furthermore, eight percent of the respondents claimed that focusing on real-life could change the negative impact. Therefore, less use of Instagram is the way to reduce the effect on women's psyche. Some respondents have noticed that most women focus on influencers' accounts with rich life, travelling and clothes, but, on the contrary, there are plenty of accounts about science, history and entertainment content as well.

Additionally, there is a group of respondents who do not believe that there could be anything that would change this effect on women, neither society nor Instagram. 16% of all the respondents believe that it is really hard to change people's behavior and there might be no need to do anything with that fact.

5 Discussion

5.1 Discussion of Findings

As according to literature and the findings Instagram indeed has a great influence on the development of young adults especially on young women. The survey confirmed the statements already made by Williams and Ricciardelli [13]. It is also clear that female participants in this survey consciously distance themselves from Instagram. However, this could also be related to the fact that with age females are more conscious and aware of the influence of Instagram on their psyche, more than half of the respondents were between 21 and 25 while over a quarter was over 25. After all, they are well aware of the influences and the current generation of young adults has not yet grown up with social media in the way that future generations will.

Even though the participants are mostly mature of age, still over 36% feel the pressure to gain more Instagram followers, and over 68% check occasionally or frequently how many likes and reposts their content has. This suggests that individuals are already feeling an increased pressure for recognition on social media platforms. This comes in hand with the fact that over 50% of the participants use editing apps before posting pictures on Instagram. This underlines, that individuals take many measures to create the most successful and outstanding content.

Therefore, it gets clear that for some young adults Instagram becomes the new reality and they are not able to make a difference between reality and the content provided on Instagram, as stated by Edosomwan et al. [10].

The research had its limitations since the sample cannot be considered a large and representative sample, and the group did not cover a fully international pool of female students. However, the research findings revealed certain important factors that could result in pressure in females' psyche, which could provide a good ground for further similar studies in the future.

5.2 Discussion of Recommendations

There are many approaches to resolve the described problems. Within the survey some participants felt powerless and did not believe that there was anything that could be done against the negative impacts of social media on young adults. On the other hand, other participants had concrete suggestions for Instagram itself. For example, the marking of edited pictures and the use of artificial intelligence to recognize negative and fake images. In addition to that there is also a similar solution needed for harassment, sexual assault, and other similar problems. These solutions however are very dependent on the social media platforms itself. They will have to introduce those concepts and an individual citizen cannot do much about it. Other participants of the survey suggested that the society itself needed to

raise awareness about real bodies and beauty and that there should be a focus on educating young women about unreal beauty standards. This is a solution in which everyone can individually participate in order to sensitize their fellow citizens to this topic and at the same time encourage their fellow members to be themselves.

Conclusions

In summary, it has become clear through this research, that Instagram and social media, in general, does have an impact on the psyche of young adults. Some feel a kind of pressure to perform well in the social media-based world and seem to lose touch with real life. However, it was also shown, that many young adults start to distance themselves from social media platforms and the standards that are shown there [14]. They understood the problematic impact and rather choose to distance themselves.

However, not participating in the social media world is not a sustainable solution for everyone. Platforms should introduce concepts for the identification of heavily edited content. As well as concepts to prevent harassment, assault and hatred. In addition, society should be sensitized to these issues in order to protect citizens from the pressure of unrealistic standards.

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Appendix A

q1	How old are you?
q2	On a scale from 1 (as the lowest) to 10 (as the highest), how would you rate Instagram as a social media platform
q3	Is Instagram important for you?
q4	How many Instagram followers do you have?
q5	Do you feel pressured to have more followers?
q6	How many times do you post Instagram stories per day?
q7	How often do you check whether your post has more likes, comments or been shared or reposted?
q8	How many hours do you spend on Instagram each day? (Please check the analysis on the app)
q9	How often is Instagram the last thing you see before going to sleep at night?
q10	Do you think you get influenced on Instagram?
q11	Which Instagram user are you?
q12	Do you aspire to have the same lifestyle as certain Influencers?
q13	Do you think there is an Instagram approved quality for content?
q14	How often do you use a different photo editing app before posting to Instagram?
q15	On a scale from 1 (as the lowest) to 10 (as the highest) how much pressure do you feel by watching content on Instagram?
q16	Would you agree that Instagram presents unrealistic beauty standards?
q17	To what extend to you agree with the following sentence? "Instagram is detrimental to people's self-esteem.
q18	Please evaluate the following statement: "I feel anxiety after scrolling my Instagram feed.
q19	Is the following statement accurate? "Social Media reflects the real life."

Appendix B Questionnaire

1.How old are you?
- 20 or under
- 21-25
- 26-35
- 36-45
- 45 or above

2.What gender do you identify with?

• Female   • Male   • Diverse

3.On a scale from 1 (as the lowest) to 10 (as the highest), how would you rate Instagram as a social media platform?

4. Is Instagram important for you?

Strongly disagree 1   2   3   4   5 Strongly agree

5. How many Instagram followers do you have?
1. 0-100
2. 101-300
3. 301-500
4. 501-1000
5. 1001-10000
6. over 10000

6. Do you feel pressured to have more followers?

• Yes   • No

7. How many times do you post Instagram stories per day?

1. 0   2. 1-2   3.   4. 3-5   5. 6 and more

8. How often do you check whether your post has more likes, comments or been shared or reposted?

• Never   • Occasionally   • Frequently

9. How many hours do you spend on Instagram each day? (Please check the analysis on the app)

1. 0 - 2hr   2. 2 - 4 hours   3. 4 - 6 hours   4. 6 hours and more

10. How often is Instagram the last thing you see before going to sleep at night?

• Never   • Occasionally   • Frequently

11. Do you think you get influenced on Instagram?

• Yes   • No   • I don't know

12. Which Instagram user are you?

  • Influencer   • Follower   • Both   • Neither

13. Do you aspire to have the same lifestyle as certain Influencers?

  • Yes   • No

14. Do you think there is an Instagram approved quality for content?

  • Yes   • No

15. How often do you use a different photo editing app before posting to Instagram?

  • Never   • Occasionally   • Frequently

16. On a scale from 1 (as the lowest) to 10 (as the highest) how much pressure do you feel by watching content on Instagram?

17. In what area do you feel pressured
  • Bodyweight
  • Branded Clothing
  • Relationships
  • Lifestyle
  • Career
  • Social Interactions

18. What do you do when you realize you feel pressured by social media (Instagram)?

19. Do you think Instagram presents unrealistic beauty standards?

  Strongly disagree 1   2   3   4   5 Strongly agree

20. To what extend to you agree with the following sentence? "Instagram is detrimental to people's self-esteem."

  Strongly disagree 1   2   3   4   5 Strongly agree

21. Please evaluate the following statement: "I feel anxiety after scrolling my Instagram feed."

  Strongly disagree 1   2   3   4   5 Strongly agree

22. Is the following statement accurate? "Social Media reflects the real life."

  Strongly disagree 1   2   3   4   5 Strongly agree

23. How can society and Instagram correct these misconceptions and the effect on women's psyche?

Cooperation in conflict-an educational approach

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Abstract: The purpose of this study is to examine the relationship between the conflict management styles according tot he Thomas-Kilmann Model and how economics and manager students vote to manage conflicts within their relationships and with other entities. For this reason, a review of the literature on conflict management styles has been carried out, focusing on trust, conflict management theories, models that have distinct influence in conflict management. In addition, a study of conflict management has been carried out in Óbuda University and in Pontifical University of Salamanca. The aim of the study was to identify the comparison of the most striking conflict management styles, that explain how students manage conflicts. The study is based on answers collected in 2022.

1 Introduction

Following the mediation procedure (Act LV of 2002 on Mediation), trust may rise to an even higher level than it was before the conflict, as in mediation the parties to the conflict are more likely to consider their business partner, business partner, customer or neighbour, their family members, their friends, as well as responsible and reliable persons, with whom they can overcome conflicts and can resolve conflicts peacefully in a reasonable way without recourse to a court. (Zaleski, 2019)

Trust, of course, plays a key role not only in business, in the management of conflict between legal entities, but also in the management of conflict between natural persons and in organizational conflict management in organizational systems. Building on trust is the foundation of how the mediation process works.

Trust is a psychological state that involves the intention to accept a vulnerability based on our positive expectations of the other person's intention or behavior. (Rousseau, 1998)

Research argues that trust-based societies show increasing productivity by having an impact on the organizational system of enterprises. (Bloom et al, 2012)

Examining economic alternative dispute resolution, there is a proven relationship between leadership styles and conflict management styles among managers, senior executives, in dealing with interpersonal (managerial and subordinate) conflicts. (Saeed et al, 2014) Personality, a person's relationship to themselves, also results in economic effects. (Akerlof, 2000) Furthermore, exploring the relationship between leadership and team performance and creativity - communication and

trust are our key words in this area. Numerous theoretical and practical works have demonstrated the link between transformative leadership and group performance and creativity. (Boies et al, 2015)

It is an important and relevant factor that the parties in a conflict situation (Balázs, 2013) be able to communicate with each other and that the existing conflict of interest does not worsen, prolong, cause burdensome and excessive costs and, as far as possible, resolve the dispute and reach an agreement.

This paper also includes a study based on secondary research that links trust as a significant factor in the competitiveness of organizations to the mediation process, which seeks to build and strengthen trust.

2 Literature review

Trust can be understood on the one hand as a judgment of trust in the subject matter of a trust and on the other hand as an intention to give trust to the parties. The two basic elements of trust are risk, as the other party's intentions and behavior are uncertain, which leads to the perception of the possibility of loss, and the interdependence between the parties, which is manifested in the fact that neither party's interests can be realized without trust. (Rousseau et al, 1998)

The two sources of reliability information are personally acquired knowledge and knowledge from or about a social or impersonal system that replaces it. Personal knowledge can come from dispositional, general expectations of trust and a person- and situation-specific belief in trust, the so-called relationship trust. The other party is not always known in person, so substitute sources can also serve as a basis for a trust decision. This may be personal information from a third party that may relate directly to the trustworthiness of the object of trust, or indirectly, to a group or system that includes the object of trust (category-based trust). In addition, in the case of larger social organizations (system trust), the predictable operation of the impersonal structure of the system that includes the transfer of trust, as well as the knowledge and belief about it shared by members, can lead to role- and rule-based institutional trust.

The foundations of trust in organizational relationships can thus be grouped according to the source and subject of trust. Upon entry, general trust is characteristic, and as relationships progress, trust can appear in interpersonal (peer and hierarchical) as well as group relationships. In addition, a kind of common, shared orientation towards other units and between one's own and other organizations develops.

Trust is an attitude towards the object of trust, and based on this, its cognitive and emotional components can be distinguished. In terms of organizational trust, interpersonal trust in peer-to-peer and hierarchical relationships, category-based

trust influencing group relationships, and impersonal institutional trust levels across the organization may play a role. According to research definitions, organizational trust is considered to be a belief shared by organizational members that results from the interpretation of an individual's experienced or perceived organizational experience and includes favorable expectations for the reliability of the organization as a component system. It manifests itself in individual attitudes towards the organization (with cognitive and emotional components) and the resulting personal or interpersonal trusting behavior. It includes perceptions of predictability from operating predictability, acceptability of promises, predictability from performance, and a sense of goodwill arising from organizational care and the emotional bond between the organization and its member. Studies on trust, involving different levels of phenomena, have to date shed light on the idea of the unilateral positive effects of trust. The negative effects of overconfidence have also been shown. Consequently, the question may arise as to what is the optimal level of trust and how different levels of trust affect the functioning of the organization. In addition to the cognitive evaluation of experiences in the relationship of trust, emotional factors also play a role in information processing. Uncertainty about the risk of trust builds direct emotional reactions. There are six background emotions (positive / negative) and emotions resulting from the evaluation of the consequences. Dual and parallel models of information processing examine the role of emotions and cognition in decision-making.

Some researchers distinguish between systematic and experiential information processing systems. The effect of personal involvement and emotions is a feature of the experiential system, but recent research suggesting the interrelationship between uncertainty, risk, and emotion also proves that although emotional and cognitive evaluation may diverge, behavior is defined together. Depending on the situation, one of the processing may come to the fore, but at the same time the controlling role of the subdominant system and the cooperation of the two systems can be assumed. (Sass, 2005)

3   Material and method

On trust, McKnight (1996) and Rousseau et al., (1998) stated that it can support conflict management and provide a picture of the general state of society and can influence individuals — individuals, legal entities, communities, states, countries, nations — including. Mediation, mediation, and alternative dispute resolution (ADR) as one of the options for resolving and resolving conflict also serve to restore trust that has typically broken down in a conflict situation.

The topic of trust has been an issue for many since the global financial crisis erupted, and the level of trust in organizations and companies remains low. Having trust in an organization brings significant benefits and advantages to both

the organization and the employees. Studies show both direct and indirect benefits, such as better performance, reduced costs, and increased social behavior. There is a direct link between trust and the efficiency and performance of organizations. Many believe that trust indirectly improves an organization's performance by fostering desirable workplace behavior and creating a more conducive atmosphere to improve collaborative organizational performance. In addition, trust contributes to increased knowledge sharing and innovation, discretionary behavior, and greater motivation and a positive attitude. Research shows that employees with a high level of organizational trust put more effort into their work as well as collaborate with others. In contrast, those with low levels of organizational trust are less effective or leave the company. Thus, trust can be linked to positive workplace behavior that supports the achievement of the organization's goals. This is clearly related to the central idea of human resource management, which emphasizes the facilitation of positive and desirable behavior for the organization, which contributes to the achievement of corporate goals, results in employee engagement and better performance. Today, organizations where lack of trust can be detected cannot remain competitive in the marketplace. (Csókás, 2019)

The responses of 135 persons show that more people choose to settle amicably than to settle litigation. 57 answers were collected in Óbuda University Budapest and and 78 answers were collected in Salamanca University from students during alternative dispute resolution lecture. According to the Thomas-Kilmann conflict model (1974), for the adaptive type (A), the answer "I always choose out-of-court settlement" is more than four times the answer "Decide the court". None of the evading (E) persons chose to go to court, and more than ten times as many of the problem-solving (P) persons would settle their conflict out of court as they would through litigation. The compromise seeker (K) would sue 5 of the 12 main respondents and 7 would not, and more than 4 and a half times more of the competing (V) would settle a dispute out of court than they would sue. In total, 46 main respondents would be out of court, while 11 main respondents would settle their conflict in court in 2022.
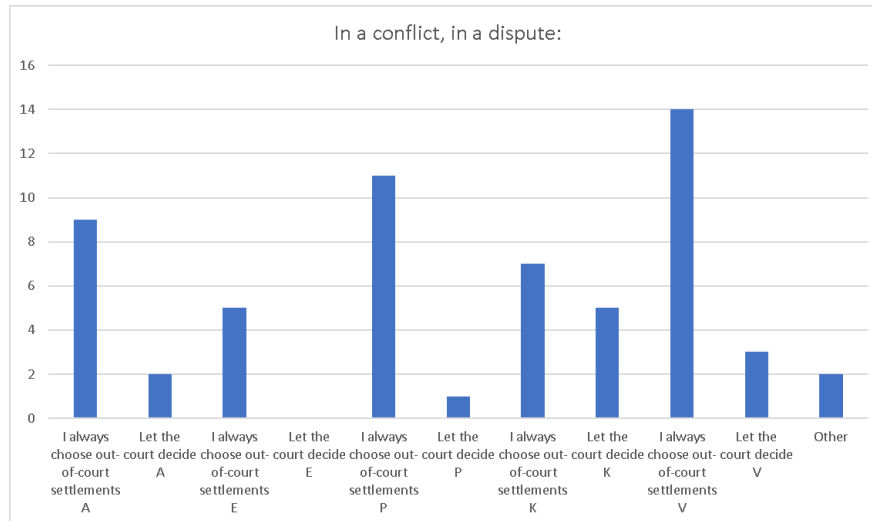
Figure 1: Conflict resolution decisions based on the Thomas-Kilmann model - Question: In a conflict, in a disputed situation: a.) I always choose out-of-court settlement, b.) Decide the court - own editing, 2022

4   Results

Both internal and external measurable trust have an impact on the financial performance of an organisation. By internal trust I mean the level of trust employees have in each other and in the organisation's leaders. External trust is the trust that customers, partners, vendors and investors have in the brand. Trust is made up of several factors. The first component is competence; the belief that an organisation is capable of delivering what it says it will deliver. It can sustain itself and compete in the market. The second component is integrity; a belief that the organisation is fair and just. The third component is trustworthiness; the belief that the organisation will keep its promises and act consistently. Trust is a dynamic process and therefore needs to be measured consistently, not just through simple processes. It involves everything from cognitive and emotional perception to the intellectual level (Csókás, 2019).

The mediation process is preceded by one or more conflicts. In addition to the clash of interests in the conflict, there is a loss of trust between the individuals, without which it is difficult to reach an agreement. Trust is necessary to conclude a contract. The objective and motto "Trust in the other party's implementation of the contract, its voluntary compliance" often sounds at first sight unusual, surprising and unexpected to the persons in conflict who are just starting the mediation process. And this is an essential element of the process - the mediation process seeks to rebuild lost trust, or to strengthen it, to transform it by reaching a settlement. Figure 2 summarises this process. It is emphasised that clashes of

interests often result from their inappropriate expression, or from one party not understanding what the other party's needs or interests really are.

Person 1	Person 2
1. 1. conflict of interests, values, breakdown of communication:	1.clash of interests, values communication breakdown:
2. 2. loss of trust	2.loss of trust
Mediation procedure:	
voluntary participation	
disclosing and expressing interests	
expression of needs	
restoring trust	
Promoting effective, peaceful, cooperative communication	
agreement, conciliation	
feedback (voluntary implementation)	

Figure 2: Trust in mediation proceedings (Act LV of 2002 on mediation proceedings) - own editing

Conclusions

Where trust characterizes the organizational system, individuals perform better in that organization. Internal trust builds, strengthens, trust works back and forth, as does the opposite of trust, with distrust — of course, the opposite consequences. In a conflict situation, the organization and its leader can decide which path to take. Alternative Dispute Resolution, Settlement, a realistic option for the existence or restorability of trust in the event of a conflict between persons. The number of legal disputes and lawsuits may decrease if trust is present in the organizational system and dispute-based dispute resolution is in place.

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Trends in the disappearance of Hungarian SMEs

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This article is part of a broader study of the causes of business closures. The primary aim of this paper was to explore the tendecies prevalent among Hungarian SMEs in recent years. Based on secondary research, we analysed differences based on size, regional location and scope of activity. The number of registered companies have been increasing in recent years, however the ratio of actually working companies have dropped significantly. Out of the working companies the number of existing firms has not changed significantly.
Keywords: SMEs, failures, key competences, entrepreneur

1 Introduction

In the literature, authors often look for the secret to corporate success, trying to measure competitiveness but fewer articles address the causes of business failure.

Only about 50% of businesses live to see their third year (Watson, 2003). Micro and small businesses are most at risk because they have the least liquid capital to help themselves in difficult situations. In addition, for most of these businesses, their lack of skills puts them also at risk.

This article is part of a broader study of the causes of business closures. The primary aim of this paper was to explore the tendecies prevalent among Hungarian SMEs in recent years.

2 Literature review

2.1 Possible causes of SME failure

There is no uniform definition of business failure in the literature. There is not even a consensus among the authors on what constitutes organizational failure and what the consequences may be (Cameron et al., 1988). In his study, Argentini (1976) calls business failure organizational collapse, while Laitinen (1991) calls it bankruptcy, Chowdhury and Lang (1993) prefers the term decline, and Swaminathan (1996) uses exit or organizational death. Ropega (2011) views corporate failure as a process. He believes it is important to study failure because, on the one hand, managers need to understand and find the real causes of failure

(Crutzen - Van Caillie, 2007) and, on the other hand, corrective measures can be taken to prevent a company from collapsing.

In a 2017 survey, Nikolić et al. investigated the reasons for the closure of Serbian micro, small and medium-sized enterprises (Nikolić et al., 2019). They believed that the reasons for the failure of SMEs could be divided into individual and non-individual factors. Individual factors were identified as the abilities and characteristics of the entrepreneurs. Dividing the non-individual factors into two further groups, it was considered that the internal, non-individual factors are represented by operations within the SME, while the external factors are to be found in the business environment, in the external effects. The authors also found in their research that failure should be considered in the context of all three factors, as some characteristics of SMEs may depend on internal non-individual factors, but also on the characteristics of owners / managers. Accordingly, the way the organization is organized and the type of decision-making (centralized or decentralized management) or internal business communication can be related to the type of management, the business ethics and social responsibility of the owners.

Ropega (2011) saw that failure is not a sudden, unexpected event but a consequence of a dynamic process and a pattern can be discovered in the process. He distinguished five types of failure:

1. An Unsuccessful start-up: This is the most common situation where a business fails immediately after its launch because of one management mistake after another. Inexperienced management decisions result in inadequate control systems, with the consequence that operational weaknesses develop. This process causes serious survival problems for the company shortly after its start-up, with the consequence that the company fails.

2. A Dazzled Growth Company: In this case, the initial success of the company causes the managers to become overly optimistic and ignore the problems that threaten the long-term survival of the company. The organisational structure is not changed despite the growing size of the company. Capital expenditure increases with financial leverage. Management sees the problems as an external effect and ignores the negative signs, losing control of the company, which also leads to its failure.

3. An Apathetic Established Company: management is unable to evolve and innovate because of past successes. Managers are unmotivated and lack commitment, they promote the same old, tried and tested business strategy and fail to recognise turbulent environmental changes. Sooner or later this leads to a loss of strategic advantage for the company. At this point, restructuring efforts are no longer helpful. Wickam's research shows a similar result: some of the strategic objectives set by a company may be achieved, while others may fail (Wickam, 2004:256).

4. An Ambitious Growth Company: this type is similar to the first case, with the difference that the management of the company wants to make the company an important company in the industry from the start. In order to do so, it is willing to take high risks and not attach much importance to long-term planning. Excessive optimism, short-term success leads to misguided management optimism, which causes management not to realise that sales do not cover costs, liquidity problems arise and this leads to insolvency.

5. Excessive Internal Consumption. In order to achieve this, the owners consume company resources excessively in order to improve their own social status. The symptoms of financial collapse of companies do not become apparent until relatively late.

In their research among Iranian companies, Arasti et al. (2014) examined what could be the cause of corporate success and failure along 4 dimensions (individual, immediate environment, general environment, and corporate policy) and a total of 17 components (Arasti et al., 2014).

In our research, we rely on the study of Mayr et al. (2019), which found that entrepreneurial characteristics play a significant role in the background of business closures. They believe that the age, gender, educational experience of entrepreneurs influences whether or not their business is successful. It has been found that businesses run by older entrepreneurs are less likely to go bankrupt due to a lack of equity. In women-led businesses, weak economic competencies do not, but high cost pressures increase the chances of failure. Management experience plays a particularly important role in reducing the risk of bankruptcy (Mayr et al., 2019).

This is confirmed by Arasti's 2011 research, which found that 'poor governance' is the most important failure factor for SMEs in the UK, and that many critical factors can be linked to management failures in countries such as Iran. (Arasti, 2011)

Based on Cox's hazard model developed in 1972, Justino (2015) systematized the general components of the business environment and its impact on failure. These are:

The entrepreneur/business manager. The entrepreneur's planning design skills, organisational skills, financial (i.e. ability to manage and control cash flow) skills, ability to price appropriately, and ability to manage cash flow problems.

The micro-environment (market environment and its effects), which includes the impact of customers, competitors, intermediaries and suppliers on the success or failure of the business.

Macro-environmental effects, such as the impact of political, technological, socio-cultural, economic and globalisation factors.

The majority of authors (Cronje et al., 2004; Wu, 2010; Dasgupta and Sanyal, 2010; Tengeh, 2011) therefore agree that business failures stem from different sources and do not occur overnight, but are the result of a process.

3   Methods

In the first part of our study we have conducted exploratory research by reviewing recent literature in the topic. Within the framework of secondary research, we have also analyzed the current situation and recent trends of SMEs within Hungary. Through the databases available from the Hungarian Statistical Office (KSH) we have explored sectoral, regional and size differences among SME's for the last 20 years regarding the number pf registered, operating and terminated companies.

4   Results

4.1   Registered, operating and terminated companies

The proportion of companies in actual operation compared to all registered companies has fallen significantly since the crisis of 2008, from 60% to 40%. This cannot be explained by a decrease in the number of operating enterprises, as their number shows a slight increase overall, but by a drastic increase in registrations of almost 30% in 2008 (Figure 1). The creation of many new companies was not driven by economic growth or investment, but by the fact that in many cases, new companies have been set up to replace companies that have left unpaid bills behind. This sudden jump has also been reinforced by the new option of a simplified company creation procedure (e.g. electronic company registration).
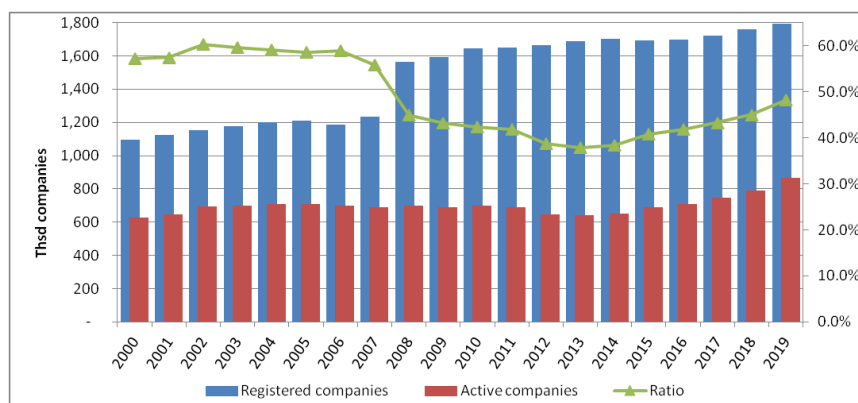

Figure 1

The number and ratio of registered and operating companies in Hungary between 2000- 2019 (KSH data)

The number of companies going out of business remained broadly unchanged, although there were several outstanding years (notably 2005, 2008, and the period between 2010 and 2012), after which however there was a resurgence (Figure 2). Between 2000 and 2010, the liquidation rate compared to active companies was at 9.5%. Between 2010 and 2012, this has jumped to 12 percent, but has been moving at around 8.5 percent since then. Correspondingly, the number of businesses surviving their first year has also increased by 40% in the last 5 years. However, looking at a longer term, nearly 30% of all start-ups disappear before reaching the age of five. The survival rate of new businesses is drastically low despite the fact that forced cancellations were put on hold during the coronavirus epidemic.
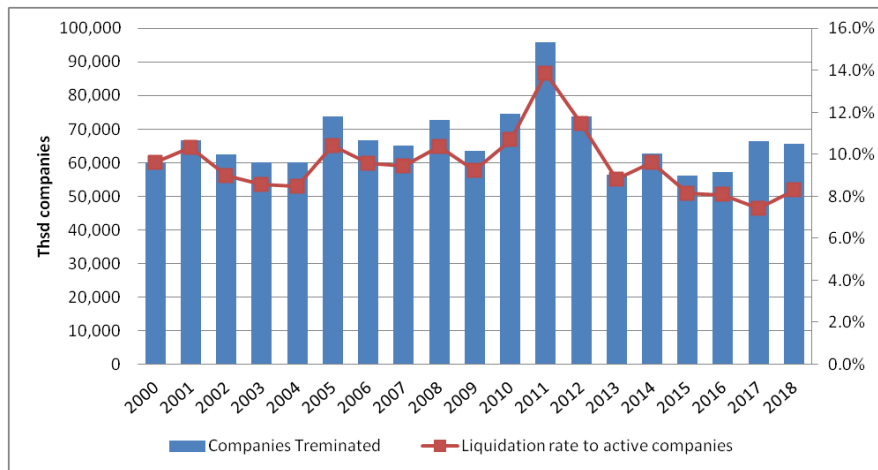

Figure 2

The number of terminated companies and their ratio to active companies in Hungary between 2000-2019 (KSH data)

4.2 Data by sector

In terms of the composition of registered companies, Agricultural companies are still in the first place, followed by Real Estate, Professional, scientific and technical activities, Trade and repair of motor vehicles, followed by Construction and then by Industry (KSH, 2019).

If we look at the breakdown of companies by national sector, the share of companies going out of business in Agriculture has not changed in the last 15 years. There is a slight decline within Industrial and Construction companies, while there is a stronger increase of failures in the Service and Trade sector (Figure 3).
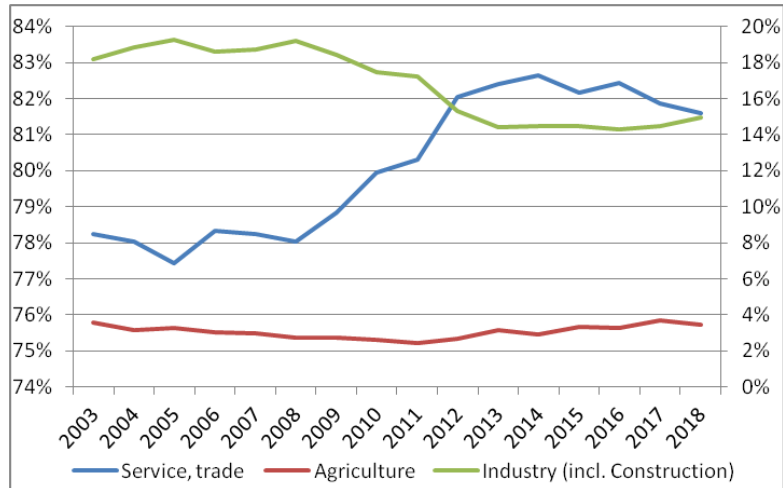
Figure 3

Terminated companies by sector as a percentage of total companies disappearing in Hungary between 2003-2018 (KSH data)

Within the Service and Trade sector, the proportion of companies going out of business has increased the most, by more then double, among "Professional, scientific and technical activities" and "Education". It should be emphasized that the biggest increase in the number of newly registered companies since 2010 was observed in the fields of Agriculture (12.08%) and Professional, scientific and technical activities (24.34%) (KSH, 2019).

4.3 Data by region

SMEs are mainly present in the largest numbers in the capital city of Budapest and its surroundings (35% of all SME's), and obviously have the densest presence in this region as well (SME's per thousand inhabitants for Budapest is 237 versus 184 for Hungary overall). The other six region is moving between 8-15%.

One outlying county is Szabolcs-Szatmár-Bereg with its 212 company per thousand inhabitants, representing 6.9% of all registered companies in the country. This county currently has the highest unemployment rate (9% to 4.2% of Hungary). Almost two third (70%) of these companies are in agriculture and employ less then 10 people. 48% of the registered individual enterpreneurs are working in their company part time and 25% as pensioners (N.N., 2020)

In the case of the disappearing SMEs (Figure 4), the Central Hungarian (Budapest and Pest County) region is over-represented, while those of the Great Plain are under-represented.
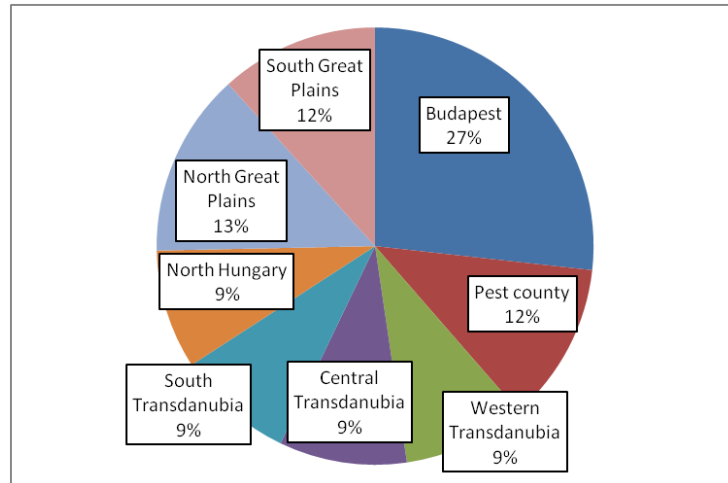
Figure 4
Terminated companies by regions in Hungary in 2020 (KSH data)

4.4 Data by size

Not surprisingly, the majority of companies going out of business fall into the micro-enterprises (10 heads and below) category. There is even a slight increase in this area, while in the case of the companies between 10 and 50 employees the trend is the opposite with about 25% fewer companies disappearing compared to 2014 (Figure 5). In 2020, 94% of the 38,594 companies under liquidation (bankruptcy, voluntary liquidation, liquidation, or compulsory termination) were partnerships and 95% of these were micro-enterprises with less than 10 employees.
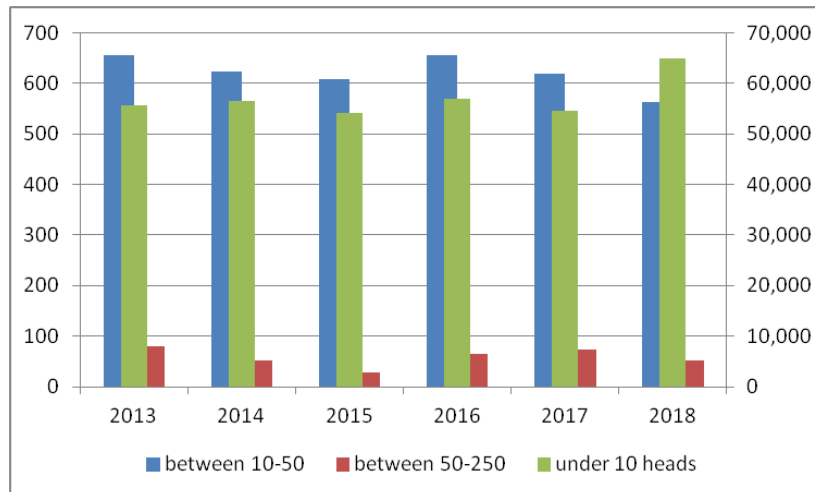
Figure 5

Terminated companies by number of employees in Hungary between 2014-18 (KSH data)

5 Conclusion

Overall, it can be stated that the number of companies have been stagnating for the last couple of years as is the number of companies going out of business. However, the proportion of companies in actual operation compared to all registered companies has fallen significantly. It is also important to emphasize that if a company does not go out of business, it does not necessarily remain active in the market. There are still tens of thousands of "sleeping" businesses in Hungary today.

Professional, scientific and technical activities shows the highest number of newly registered companies, and also the highest number of failures. Regionally, the capital has the highest number of SMEs per inhabitant. The Central Hungarian region is also overrepresented in terms of terminations. The majority of companies going out of business fall into the micro-enterprises.

In the next part of our research, we plan to conduct in-depth interviews with business leaders to explore the decisions that ultimately led to business closures. We aim to primarily focus on individual factors, abilities and characteristics of the entrepreneurs. It is important for managers to understand and find the real causes of failure as these reasons are often time not coming from the outside but stemming from the enterpreneurs themselves.

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Women in the labor market in the light of social gender and safety of social

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Absztrakt: At the end of the XIX. century, the systems of the former welfare states had undergone tremendous changes due to the Industrial Revolution. Three major social security systems were widespread in Europe, the care system such as the Bismarckian, Beveridge, and Scandinavian countries. [6] Chancellor Otto von Bismarck is associated with the name of the first state-regulated care system built on today's professional social systems (based on the principles of the "Iron Chancellor"). The Bismarckian model's characteristics can be discovered in most European Union Member States (Austria, Belgium, etc.), the first of which appeared in Germany as this form of a welfare state. [1]. While a generation earlier, only men were meant to be the family's head, this fact is no longer valid. Fifty years ago, only the men created the economic conditions for the family to survive. Today, women also participate in this process by returning to the world of work shortly after their child's birth, even though their social expectation is to stay at home, raise their children, and do the housework. [9] The socio-cultural changes taking place in Hungary have also transformed the expectations regarding male and female roles. [23] In the article of Pongráczné in 2005, we read that although students in higher education in Hungary were over-represented in favor of men, the prevailing social norms still show that the main task of women is caring for their family, while the men are responsible for the family's secure standard of living. [18]
Keywords: gender, labor market, social safety, segregation, women

1 The world of work and the social gender

Whether what is the gender, what is it of mainstreams? On the EIGE's website readable „Gender mainstreaming has been embraced internationally as a strategy towards realising gender equality. It involves the integration of a gender perspective into the preparation, design, implementation, monitoring and evaluation of policies, regulatory measures and spending programmes, with a view to promoting equality between women and men, and combating discrimination. Gender mainstreaming does not only aim to avoid the creation or reinforcement of inequalities, which can have adverse effects on both women and men. It also implies analysing the existing situation, with the purpose of identifying

inequalities, and developing policies which aim to redress these inequalities and undo the mechanisms that caused them." [EIGE[3]] [12].

There are several definitions in the literature to define the word: gender[4]. Szekeres writes about important areas of research on gender inequality within the household and its consequences. [21] All researchers agree that the basic perception of gender is that people's biological sex does not necessarily determine their behavior. Andorka believes that gender focuses on non-biological appearances that have a psychological, sociological origin and are influenced not only by society but also by culture. [1]

According to the following definition, gender shows gender roles, expectations, norms, and cultural characteristics acquired during socialization. Consequently, social gender is behavior defined by a society made up of men and women, non-observance of which, or behavior other than that, entails society's sanctions. Members of the population create these norms, which they maintain or even change. [11] Bourdieu [3] also confirms that human biological sex is a feature, whereas a system of norms based on physiological sex is already a consequence of a construction. While searching the literature, perhaps the following definition can be found: *"Gender defines the psychological, social and cultural differences between men and women, what a man and a woman should be like in a certain society, how they should behave, think and feel. There is no doubt that gender has a biological basis, and consequently (but beyond) it is based on differences in power, organized along with complex relations (e.g., depending on the historical-political context, culture, personal life cycle) and it works institutionally"*. [10] Due to several aspects, current issues arise in the world of gender.

Differences between women and men appear not only in lifestyle or at school but also in the labor market. Gender researchers have been preoccupied with women's labor market situation since the time women entered the world of work. [7]

2 Labor market segregation

Gender segregation is present in all countries' labor markets, even though each state's economic and social environment differs. [5] Several articles and declarations have already been published on the subject, according to which measures should be taken to strengthen women's position in the labor market and close the wage gap compared to men. Koncz [16] considers that the opinion just mentioned is not valid in several aspects. *"Due to the different competencies of women and men for biological and social reasons and the resulting efficiency requirements, gender segregation is a natural consequence of employment. It is*

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[3]   The European Institute for Gender Equality created this Platform on Gender Mainstreaming to support the EU institutions and governmental bodies with the integration of a gender perspective in their work.

[4].   Gender is not equal to the English term "sex," as the former refers to social gender and the latter to man's biological gender.

not the segregation that causes social inequalities, but labor market mechanisms that shape employment in the employment structure as a social disadvantage." [16]

In the 1950s in Western Europe and North America, women appeared en masse in the labor market.[5] Research in this area back then has shown that the situation of men and women in the labor market is not the same, even at that time. There was less income available in the ladies' positions, the social recognition of these jobs was treated less, and advancements within the organization were almost impossible for them. Barron-Norris [2] considered that the reason for these distinctions was that women's educational attainment remained lower than that of men. The nature of the qualification obtained also differed between the two sexes.

Gender segregation in the labor market is a good indication of gender inequality, as it is almost inextricably linked to today's social values. In jobs held by the stronger sex, men can reach the top of the ranks and earn the higher incomes that come with it. In contrast, women appear en masse in positions where social and economic recognition is negligible.

Chang, who, in his publication in the American Journal of Sociology, analyzed some of the main types of the welfare state by gender in terms of segregation [4]. During his analysis [Figure 1] he developed a typology of gender policy of the state and gender segregation of occupations to connect. He outlined what the state is doing to reduce occupational segregation.
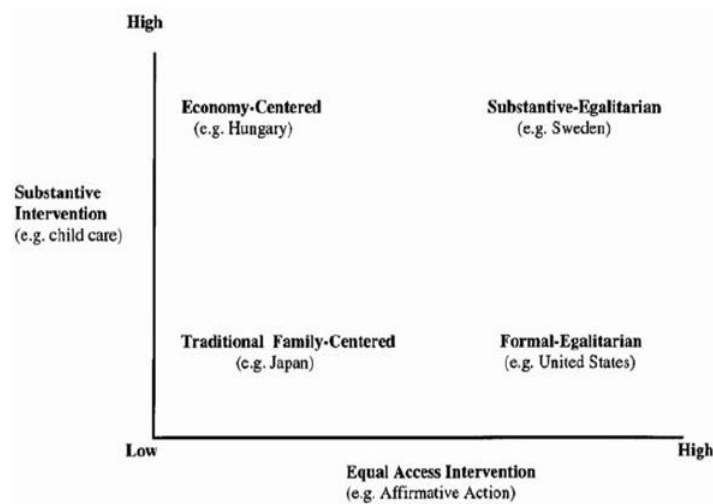

Figure 1.: Varieties of state intervention targeted at reducing levels of occupational sex segregation
Source: Chang, 2000: page 1664., [4]

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[5]   The literature makes the appearance of the research related to labor force segregation at that time.

Many researchers are interested in gender segregation in the labor market, and perhaps the most common form of approach is vertical and horizontal segregation. In both cases, the focus is on the difference between women and men, and are very closely interrelated. While in the first case, the higher the position is, the fewer women fill it when examining the organization's hierarchy (glass ceiling phenomenon). In the second case, men's ratio to women is analyzed in some professions (glass wall phenomenon). Everyday life also confirms, such as these two phenomena do, the prevailing view that women are in a worse position in the labor market than men.

"In Hungary, women's situation in the labor market is very different from the male employees' situation. The too-high inactivity of women with small children is also striking in Europe. However, it is also difficult for unskilled, pre-retired, and, more recently, young women to find employment. Women work more and earn less than men. Just a few of them are in leadership positions and bear the burden of reconciling work and private life due to the ambiguous division of labor and inflexibility at work. " thinks Vajda [23] The group of women is disadvantaged not only in their chances of participating in the labor market, not only due to their biological characteristics [childbirth] but also by fulfilling the role expected by society [household management]. According to Vajda, the different proportion of work to be done in the household, the social views that fix it, and consequently the expectations of employers depending on the gender of human capital have the most significant impact on women's labor market potentials. [14]. Further distortions in women's labor market opportunities are the distortions and harmful mechanisms of the market itself, which dig more profound inequalities between men and women. The labor market situation in countries, including assessing women's situation in the labor market, also has a significant impact on the security of life. The distortions and the market's harmful mechanisms have further impacts on women's opportunities in the labor market, which dig inequalities deeper between men and women. [14]

The countries' labor market situation, including the assessment of women's situation in the labor market, also significantly impacts creating security of existence.

3   Safety of social

Abraham Maslow (the pioneer of humanistic psychology) created a superimposed pyramid of human needs in the mid-1940s. The model is based on meeting the needs of the lower levels in order to meet the needs of the levels above it. In the lowest level of the hierarchy, physiological needs, above it, security needs (security of existence), then the need for love and belonging, followed by the need for appreciation, and self-realization needs, occur in the highest level [Figure 2].

According to the renowned researcher, the top-level can be satisfied if all the steps below have been satisfied. [17]. The study continues the approach of the topic from the aspect of the safety of social. Working mothers have indeed reached the lowest, the most elementary needs, so they move to the second level of the pyramid where security needs to occur, including their own and the family's security.
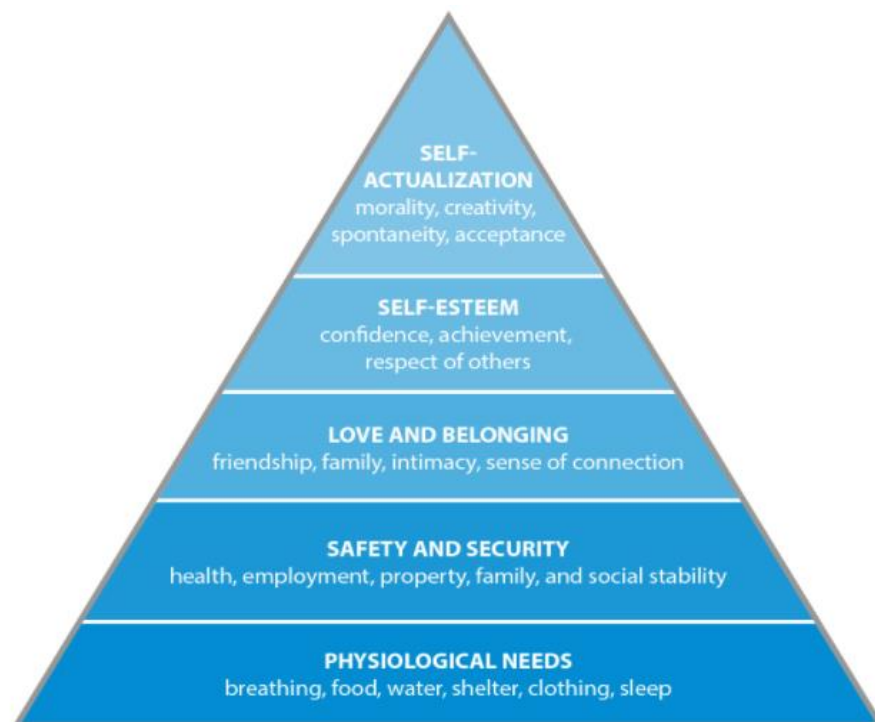

Figure 2.: Abraham Maslow's pyramid
Source: https://www.homelesshub.ca [13]

The results of the research found in the bibliography support that in Hungary, both general (security) and unique "security" (security of existence, the security of family) occupy a prominent place among the population. It is confirmed by the conclusions drawn from the research known as the "Good State,[6]" which says

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[6]   The research has been carried out within the National Civil Service University framework since 2014. The Good State Report measures the processes, outcomes, and impacts of government capabilities and activities that fall within the remit of security and social trust (external security; public safety and disaster management; legal

that "peace" is in the first place and "security of existence" is among the most important values of our society. Firstly, for our population members, security means the security of existence, material well-being, and a secure livelihood. [15]

According to Síklaky: "Security of existence: the security of knowledge and skills necessary for the maintenance of daily life and family, food, clothing, health services, and wage-earning, and a society that provides security against the violence that threatens it for all members." [19]

Its security of life indicators characterizes the state's ability to provide the lowest level of livelihood. The first principal component of it is the labor market situation within the country. It is the approach to the unemployment rate since irregular income endangers the individual and the family's security of existence. [15] The data in Figure 3 show well that the unemployment rate in Hungary decreased between 2006 and 2016. However, there is still a tendency for women to participate less in the world of work, which, according to Kádár: "In the case of women, inactivity is explained by the time spent caring for children" [8, pp. 18]. The difference in the employment situation of women and men is mainly due to events around having children.
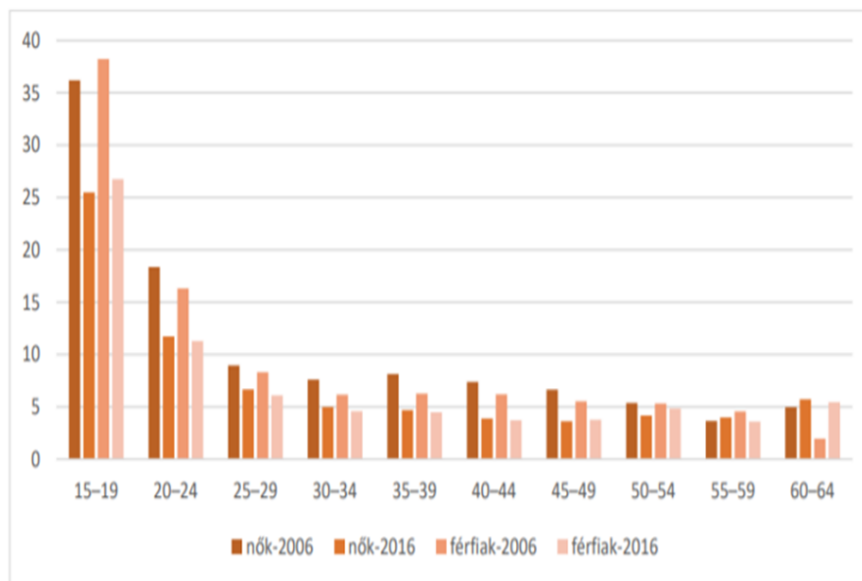

Figure 3: Source: Analysis of the activity rate, 2018,

Source: page 17 [8]

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certainty; public trust and transparency in government; security of existence) in five dimensions

According to Kiss [15], another feature of security of existence is income security. In Hungary, the sense of financial security of society has improved in the last seven years. However, this tendency seems to stop because of the number of families who would collapse under an unexpected expenditure burden increases.

Summary

Labor market segregation is one of the attributes of today's employment. By returning to the world of work, women also contribute to creating and maintaining the family's security. However, it is still real about their labor market situation that they are less active but over-represented in atypical and temporary employment. Their wages are lower than men's, which is mainly represented in management positions. Also, statistics show that women are also under-represented in entrepreneurship. [20] I agree with Szekeres [22], who says that: "At the same time, there is a different aspect of the entrepreneurial way of life because it provides an opportunity to create real equality of opportunity between the sexes. Leaving the glass ceiling phenomenon and other direct or indirect forms of discrimination "within the framework of the workplace organization" may open up more space for self-realization and personal abilities development. Simultaneously, there is an opportunity to achieve a higher level of income, closely linked to removing the constraints on employee status and the possibility of more flexible coordination of work and family activities." In my opinion, concerning the reconciliation of work and family life and family subsistence distribution would change women's judgment in the labor market favorably.

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The European Green Deal Agreement A real Green Revolution or something else?

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Abstract: Many people do not know what this concept means or what it may mean for their lives. The European Green Agreement is a package of measures for the European Commission to restructure and modernize the entire European economy. The package identifies eight areas where it aims to achieve a resource-efficient and competitive economy through clear legislation and resource allocation. In this study, I would like to detail the processes and measures leading to the Agreement and all eight sub-areas and their expected modelable effects on the European economy and resource exposure, as well as the expected structural transformation processes and societal impacts in the Member States. In my view, the package of measures will, in addition to the stated objectives, generate significant social transformations that will contribute not only to the economic structure of the Member States but also to changes in the political structure of the Member States. This could lead to unforeseen political transformations, such as the strengthening of regionalism, the growth of centralized legislation and political governance, and a measurable change in the role and importance of the EU at global level.
Keywords: European Green Agreement, European Energy Security Strategy, Energy Union, Diesel-gate, circular economy, renewable energy sources, energy mix

1   Introduction

The relatively short history of the European Union is due to the conclusion of new raw material trade agreements in support of lasting peace after the Second World War. However, this move did not automatically lead to the creation of the Union, as the European Union itself is an even younger supranational organization, established almost thirty years ago by the Maastricht Treaty concluded by the former contracting states as the successor to the European Economic Community. It is important to note that the European Coal and Steel Community, which was initially set up to make a special common market, created a structure whose effects to this day determines the basic objectives of the EU and the fundamental criteria for its operation. As a result, the most important acquis of the Community is the protection of the principle and values of the single market (free movement of goods, capital, services and persons) as a priority for the Commission, also known as the Guardian of the Treaties. Apart from further elaboration of the concept of the single market, I would like to highlight one essential element of it, namely the free movement of services. In this aspect, services should be

understood not only as those provided by the classical craft or SME sector, or possibly as services of multinational companies in the traditional sense, but also as services provided by special sectors such as e.g. the energy sector. The Energy Union project was set up to end the fragmentation of energy supply systems in the 27 Member States, which are completely disjointed and show significant differences. Its primary task is to ensure energy transformation at European level, leading to an affordable, secure, competitive, and sustainable energy system. I think it is important to note this because it was created as a linear consequence of what has been described so far, but it can also be considered one of the most important antecedents for the European Green Agreement. Why? I will attempt to elaborate on this in more depth and shed light on its details in this study.

2 Energy Union and its antecedents

2.1 European energy security strategy

On 28 May 2014, the Commission presented to the Parliament and the Council its conclusions on the establishment of a coherent European energy security strategy, with a detailed description. The Union recognized that the structure and framework at the time did not guarantee an adequate energy supply for some Member States, and this strategy was developed. In this, reducing dependence is the most important element. Citizens have a fundamental "right" to have access to energy in all circumstances. This means that energy is available to citizens everywhere in the EU, without exception. Legislators have also recognized that one of the guarantees of the well-being and security of citizens is ubiquitous and cheap energy, which is why Member States make security of supply a top priority in their national energy policy decisions.

In the second half of the 2000s, many Member States were forced to face an international conflict in which they could not guarantee security of supply, despite the fact that the conflict did not have an active participant. Ukraine's series of domestic political problems have meant that a third party has been able to influence security of supply within the EU by using it as a weapon of extortion in its deteriorating bilateral contractual relationship with Russia. Fortunately, the EU has tried to find a quick and coherent response to the problems. As a first step, it identified the characteristics that determine exposure and responded to tangible improvements in infrastructure in addition to reducing the number of Member States exposed to a single gas supplier. However, the energy exposure has not been eliminated immediately with this step. In the submission, the Commission analysed in detail that the EU imports more than half of the energy it uses. The dependence on energy imports was around 90% for oil, 66% for natural gas, 42% for other solid fuels and around 40% for nuclear fuel.

The document found that more than half of the Member States that joined in 2004 (Central and Eastern European and Baltic states) have low interconnected energy infrastructure and low integration with Western Member States. Another

important finding of the document was that for 6 Member States there was a strong dependence on a single natural gas supplier and for 3 others on a single electricity supply and operating company. In order to maintain the competitiveness of supply and the economy, the EU imported € 1 billion a day in energy from external partners, according to 2013 data, which accounted for more than one-fifth of total EU imports. Another important issue for energy security is that modeling global economic and market changes has shown that energy demand is projected to increase by 27% by 2030, resulting in a gradual transformation of energy supply and trade. In the strategy paper, the Commission identified issues affecting critical infrastructure and areas of security of supply for which short, medium and long-term decisions need to be taken.

Therefore, while respecting the principle of subsidiarity, the Commission has identified eight areas for national energy supply decisions in which it envisages coherent and closer cooperation based on solidarity between Member States:

1   take immediate measures to correct security of supply problems affecting the winter of 15/15/2014,

2   strengthening emergency and solidarity mechanisms, protection of strategic critical infrastructures,

3   reducing energy demand,

4   building an integrated and well-functioning internal market in the energy sector as well,

5   increasing energy production in the EU,

6   increased development and expansion of energy production and storage technologies,

7   diversification of external sources of supply and related critical infrastructures,

8   Increased coordination and improvement of national energy policies and a common position at EU level on external energy policy issues.

2.1.1   Immediate measures for energy supply problems affecting the winter of 2014/2015

In 2014, the Russia-Ukraine gas dispute shook the mood, which not only exacerbated tensions between the two countries, but also indirectly involved many EU member states in the conflict. The basis of the conflict between the two parties was established by a dispute arising from the settlement and non-payment, which then escalated further to the entire region. The Ukrainians wanted to pay the Russian side in accordance with their contractual obligation, but the Russians issued an adjusted invoice taking into account the development of exchange rates and world market prices, which the Ukrainian party did not accept and only

wanted to buy natural gas at the contract price. The controversy escalated and escalated to the point where the Ukrainians shut down the natural gas pipelines through which the Russian side supplied natural gas to the Central European states in accordance with the treaties. Of course, the Ukrainian side was charging the Russian side a transmission and operation fee for the pipelines passing through its territory, but at the same time, during the dispute, it gave it a bargaining position in the pursuit of its own interest. This incident has led to the realization in Member States and EU leadership that any energy exposure to third countries could lead to an economic crisis affecting the internal market for the EU as a whole, which could undermine not only the effective functioning of the internal market but also both economic and political stability. The Commission has therefore worked with Member States to improve the EU's immediate response capacity in a crisis that threatens security of supply. This, together with the expansion of storage capacities, has meant the development of reverse flows, the preparation of regional security of supply strategies and the examination of the economic and security of supply potential of liquefied natural gas.

2.1.2 Strengthening emergency and solidarity mechanisms

The number one priority for the Union's leadership in the energy supply strategy is to enable the Community to increase its resilience to energy supply disruptions and to provide priority protection for critical infrastructure. Joint support for vulnerable Member States in the event of persistent energy supply disruptions is also an important consideration. The primary or, in other words, the most important energy raw material used by EU industry in large quantities is oil. In accordance with Community and International standards, Member States must build up a reserve of crude oil corresponding to 120 days of consumption. Inventories created in this way improve the negative effects of market price fluctuations in the event of a crisis, which at the same time eliminates the lack of physical supply.

These basic measures are typically standards for economic protection and a sustainable energy supply developed by the International Energy Agency in response to the 1974 oil crisis. In addition, the EU's own regulations and directives regulate the legal criteria and rules for securing the supply of gas to primary or protected customers in the event of disruptions or temporary supply shortages. These common rules require the strengthening of coordination capacities and mandatory investments in security infrastructure development. In addition to the physical protection of critical energy infrastructures, the security of the IT systems that operate them must also be guaranteed. The economic policy objective of the measures taken to diversify and decentralize energy production activities is to create a universal energy supply system in the Union that is economically efficient but indifferent to the downturn of certain assets. In order for solidarity mechanisms between Member States to operate automatically, for example in the event of a major energy supply disruption in a Member State, mutual assistance

should ensure the delivery of fuels in accordance with the rules laid down in the emergency plans.

2.1.3   Reducing energy demand

The EU's energy efficiency goal is for Member States to take appropriate and realistic action to reduce energy dependence and exposure to external suppliers. The first step in this was to set a 20% energy efficiency target. The target resulted in significant savings of around 371 million tonnes of oil equivalent by 2020. In order for the EU to achieve real energy savings and energy demand reduction, it had to identify priority sectors and set specific energy efficiency targets for them, as well as the applicable legal framework, in compliance with the strict measures of the relevant legislation. One of the priority sectors thus identified is construction, which accounts for 40% of energy consumption and 1/3 of natural gas consumption in the EU. Accelerating the renovation and energy modernization of existing buildings in the Member States in the construction industry (use of modern heating and cooling technologies) could reduce the sector's energy demand in the EU by approximately ¾. To accelerate carbon-neutral investment by citizens and the private sector, the Commission has earmarked € 27 billion in the European Structural and Investment Funds in the previous seven-year budget.

2.1.4   Building an integrated internal market

A key element of energy security is the creation of a well-functioning integrated internal energy market, an EU mechanism that achieves cost-effectiveness and energy efficiency at a practical level. Member States' energy measures, such as the decisions to invest in nuclear power generation, in renewable energy and the development of critical energy critical infrastructures, aim to create a single energy supply system in the Union that guarantees security of supply for protected customers, a diversified system created. Internal market mechanisms, TEN-E guidelines and public incentives ensure that the physical development of the system in one Member State does not disrupt security of supply in another. Regional market integration and liquid markets exposed to competition ensure that suppliers are not abused by either market or political power. In the oil and trade sector, this is already a well-functioning system, but it will only be introduced in the gas and electricity sectors if pipeline capacity and network development are ensured in all regions of the EU.

Regionalism and a regional policy and professional approach are prerequisites for the integration of the single energy market and a high level of security of supply. The high level of regional energy market integration created by the Nordic countries is NordPool, which was later joined by several similar European initiatives. Following this example, the Benelux countries, together with Germany, France and Austria, have established a pioneering integration of the electricity sector and the gas industry. Network and transmission system operators interested

in the electricity sector, together with the regulatory bodies, have developed the single market in electricity by interconnecting the different network systems in the Member States. As a result of regional cooperation, network operators and power exchanges in 16 Member States set up a single system in 2014, known as 'next day market interconnection'. The PRISMA platform was created in 2013 in the gas sector, where 28 transmission system operators supplying 70% of EU natural gas auctioned their interconnection capacities in a uniform manner. Unfortunately, the Baltic States and South-Eastern Europe have lagged behind in developing a well-integrated and competitive energy market, at least at regional level, so that these Member States remain highly dependent within the EU and the international environment.

The completion of the single energy market is not necessarily due to a single legal framework, but to the unification of energy transport infrastructure, including cross-border connections between Member States. When drafting the regulation, the European Parliament, together with the Council, sought to identify in the legislation which projects the Union needed along the 12 priority corridors and areas. The so-called the first list of projects of common interest was drawn up in 2013. Of these, 27 were projects related to natural gas and 6 to electricity. These projects have been identified as critical for the EU's energy security in the short to medium term, as they will lead to increased solidarity and diversification of supply opportunities in the most vulnerable regions. In this context, back in 2014, the Council concluded that at least 10% of Member States' installed electricity generation capacity should be interconnected. In the meantime, taking into account technological components, interconnectors enhancing security of supply and further growth of the internal market, the Commission has proposed to increase the interconnection target from 10% to 15% by 2030.

The relatively balanced functioning of the European oil market may be due to the low number of stakeholders, which is also inherent in unilateral dependence or exposure. Russia is the main supplier to EU oil refineries, and the refineries have been optimized for crude oil from there. The EU is a net importer of petrol and diesel, the first of which is met by Russia and the latter by Russia and the US. Due to the interdependence, the EU's oil supply is not in imminent danger, but it still has a number of critical points on which to improve the strategic coordination of EU oil policy:
- the dependence of the EU oil refining industry on Russian oil
- the concentration of the Russian oil industry and their increased share in the EU refining industry
- refined products used in transport.

2.1.5 Increasing energy production in the EU

Since the birth of the Union in 1992, energy production within the EU has been gradually declining. It is interesting to note that the increase in renewable energy

production within the energy mix has also shown a linear increase compared to the data on the decrease in total domestic energy production. From this we can conclude that, in addition to the renewable energy sectors, with the increase in nuclear power generation and the production of competitive fossil fuels, this declining trend will be slowed down or stopped at least in the medium term. Thanks to the increase in the use of renewable energy, the EU can save around € 30 billion a year in imported fuel costs. This means that in 2012, energy from renewable sources contributed almost 14% to total EU energy consumption. There are significant cost-effectiveness factors in reducing the use of imported natural gas and the resulting unilateral dependence on suppliers in renewable electricity and heat production, which can significantly reduce the amount of imported fuels used in the EU, for example in connection with renewable heat production. The positive result of the growing volume of investments in renewable energy sources lies not only in replacing the amount of imported fuels, as technological developments also reduce the costs of technologies that enable the exploitation of renewable energy sources.

This means increasing the competitiveness of renewables within the existing energy mix vis-à-vis other energy-producing sectors. In parallel with the increase in the share of renewables, the development and increase of energy storage capacities and the integration of these systems into a smart energy grid also play a key role. The resumption of conventional or unconventional oil and gas extraction and the mapping of strategic stocks will only be possible in the future with full compliance with stricter EU legislation. In the future, it will be worthwhile to use non-conventional energy sources that can replace these conventional energy sources, such as shale gas extraction. Until the environmental impact problems associated with the extraction of unconventional energy sources are resolved and the acceptance of the technology increases proportionately, we will not be able to use this alternative energy source. The other classic source of energy is the production and consumption of coal and lignite, which is steadily declining in the EU. Despite the declining trend, its share within the energy mix is still significant. Due to carbon emissions, coal and lignite can only have a long-term future in energy production if the right level of carbon capture and storage is applied.

2.1.6 Development of energy technologies

In addition to the development of modern energy technologies, decisive steps to reduce the EU 's energy dependency offer a reassuring solution to reduce the EU' s energy dependency. In addition to reducing the need for primary energy, the use of new technologies can also diversify supply options and optimize energy network infrastructure, which will also speed up the functioning of the single energy market. These new technologies make it possible to modernize buildings and local heating systems with energy-efficient and cost-effective solutions. The EU and the Member States must therefore make significant investments in energy research and innovation. Innovative solutions will have to make it possible to produce

energy from new raw materials that can be safely extracted and are available in sufficient quantities in the EU so that dependence on external sources continues to show a declining trend. In order for this technological change and renewal to take place in the energy-producing sectors, it is essential that increased coordination between Member States and the Commission. The financial instruments provided through the European Investment Bank will speed up the process of accelerating processes and increasing investment in innovation and new technologies.

2.1.7 Diversification of external sources of supply and related critical infrastructures

70% of the gas consumed in the Member States of the Union comes from import sources. The distribution rate shows relatively high exposure to imported gas to certain suppliers, but there is a slow shift in favor of new alternative suppliers. Russia leads the list of importers with 39%, followed by Norway with 33% and North Africa (Libya and Algeria) with 22%. The share of gas imports from LNG sources is variable, but is expected to increase in the coming period. In the global LNG market currently dominated by Qatari and Nigerian suppliers, recent discoveries in East Africa will result in significant diversification of liquidity and market size. Several liquefaction plants will start operating on the east coast of the U.S., which will lead to further growth in the global LNG market and, as market competition accelerates, purchase prices are also expected to decline. It is important to note that in Norway and North Africa, as yet unexplored and untapped hydrocarbon deposits have additional growth potential. These deposits are of major importance for EU gas imports, in which geographical proximity is a very important criterion.
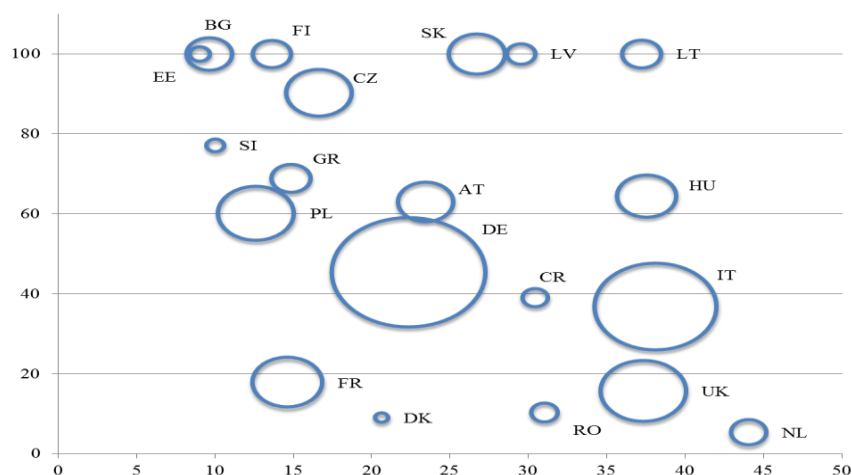
Horizontal axis: share of natural gas in the energy mix (%)
Vertical axis: share of Russian imports in the Member States natural gas consumption (%)

Circle size: the used annual volume of natural gas imported from Russia

Figure no.1: Dependence of European Union Member States on natural gas from Russia in 2013

Source: Communication from the Commission to the European Parliament and the Council, European Energy Security Strategy, COM(2014) 330 final

The policy aims to get natural gas from different sources to the EU through different channels. An important element of this was the now-frozen Southern Stream or Southern Gas Corridor project, which would have secured the EU's supply of natural gas from Asia Minor, the Middle East and Central Asia and reduced dependence on Russian gas imports. The project would have provided nearly 10 billion cubic meters of natural gas from Azerbaijan and an additional 25 billion cubic meters of natural gas from Turkish, Turkmen, Iraqi and Iranian sources through the connected Turkish pipeline network. The risk factor for the project is the EU's foreign policy strategy, because the Union can only trade with these countries (in addition to its global military and political partnership) through special bilateral agreements. A similar foreign policy dialogue with North African countries is needed in order to build a gas distribution center in southern Europe in the Mediterranean region, in line with the goal set out in the energy security strategy.

This center will be the guarantee for the Member States in the region in a crisis situation. Within the EU energy mix, nuclear energy is an emission-free baseload electricity supply and also plays a key role in European energy security. The cost of producing and procuring uranium is only a small fraction of the total cost of nuclear fuel. The fuel market shows a well-diversified and stable trend in global comparison. Few companies in the market are able to enrich uranium into fuel for use in nuclear power plant reactors, while the EU nuclear industry is a technological leader in the global chain, including fuel reprocessing. Nuclear safety is a top priority for the EU. It is important to enhance nuclear safety while maintaining the EU's global technological leadership within the sector. In the nuclear sector, Russia is one of the biggest competitors because they not only compete in uranium enrichment and fuel fabrication, but also offer a complete investment package. The aim of reducing dependence on Russia is to ensure that the future supply of fuel for nuclear power plant investments in the EU based entirely on Russian technology can also come from diversified sources and not depend solely on Russian suppliers.

2.1.8 Increased coordination and improvement of national energy policies and a common position at EU level on external energy policy issues

The explanation behind the points made so far is that Member States need to recognize the need to coordinate their energy policy decisions in order to achieve a

stable and secure energy supply throughout the Union. Decisions on the energy mix, which is a national competence, decisions on infrastructure and energy market harmonization, attempts to reduce dependence on external suppliers, must be taken at European level with the Commission and discussed in agreement with neighboring countries. With the idea of establishing an Energy Union, the Commission has launched a mechanism that allows Member States to inform each other before discussing and adopting detailed decisions on changes in their energy mix.

The creation of a stable, transparent and rules-based liquid single energy market is in the fundamental interest of the Union. In the short term, it will help coordinate the EU's coherent foreign policy action and increase its advocacy capacity. The Community must also be at the forefront of the development, promotion and global diffusion of sustainable energy technologies, guaranteeing a competitive advantage and the benefits of an economy that operates independently of competitors. In order to guarantee the EU's energy security, the short-term goal is to expand energy relations with neighbouring third countries and give them access to the single energy market and the necessary infrastructure developments. The enlargement of the Energy Community is also open to countries participating in pre-accession or trade partnerships with the Union.

Candidate countries in the pre-accession phase can use EU funds to integrate their energy sector and energy infrastructure already during the pre-accession process, which will make it easier for them to complete not only the EU accession process but also their social and economic integration. The development and application of a common foreign policy will help Member States to find a negotiated, bilateral solution to their energy issues and exposure at EU level. This will allow Member States to take a position in the negotiations that is inherent in the economic power of the single market vis-à-vis the Member State's own sovereign negotiating position.

Therefore, the European External Action Service has an important role to play in sectoral policies and in discussing energy security and the dissemination of renewable energy technologies. At the level of national policies, Member States' energy relations with third countries should comply with relevant EU energy regulations and be in line with EU energy security policy and interests. Member States are required to inform the Commission before concluding energy agreements with third countries or international companies that may have a potential impact on the EU's energy security and diversification of energy supply.

2.2 The Energy Union

The Energy Union Strategy (COM / 2015/080) was presented by the Commission to the co-legislators in February 2015. One of the top priorities of the Jean-Claude Juncker Commission was to adopt this strategy during the cycle. The document highlighted the supply of secure, sustainable and affordable energy to consumers

(including households and the SME sector in particular). Following the publication of the strategy, the Commission presented a number of packages of measures, which were adopted jointly by the European Parliament with the Council and amended the rules of each sub-area of the Energy Union strategy, facilitating its coherent coordination. We distinguish a total of five pillars of the strategy itself:

1   Security, trust, solidarity - developing a diversification of energy sources and cooperation based on solidarity between Member States and an energy security strategy

2   An integrated energy market - ensuring the free movement of energy throughout the EU, using the right infrastructure, removing various legal and technological barriers

3   Energy efficiency - reducing dependence on imported energy by improving energy efficiency, creating a low-emission economy and creating new green jobs and economic sectors

4   Climate strategy and decarbonisation of the economy - conclusion of the Paris Agreement as a party and global leadership in renewable energy production

5   Research, innovation and competitiveness - priority support for the development of low carbon and clean energy technologies, the rapid integration of research and innovation results in clean technologies into the European economy and the enhancement of global economic competitiveness.

The Regulation on the governance of the Energy Union, which contains the details of the practical implementation of integration along the strategy outlined above, entered into force in December 2018. With this, we can say that the Juncker Commission has successfully completed one of its major tasks and adopted with the Member States one of the most important strategic documents for the geopolitical and economic future of the Union. Of course, this document can also be seen as another step on the road to deeper integration. Examining the issue from the perspective of Member States and national sovereignty, we can conclude that, along with the geopolitical changes of the 21st century, EU Member States can no longer independently assert their interests or ensure and maintain compliance with stricter global standards. their economic, social and political weight and leadership in a global comparison. Based on the five fundamental dimensions outlined in the strategy, the Governance Regulation sets out detailed objectives for the Union as a whole and for the Member States:

1   The key is to develop legal measures and strategies that implement the key objectives of the Energy Union, in particular the 2030 climate protection and emission reduction targets, and ensure that these targets

are in line with the GHG emission reduction commitments made in the Paris Convention.

2   Enhance cooperation between Member States on the basis of reciprocity in order to achieve the objectives of the Energy Union Regulation

3   Strengthen long-term investor confidence in the EU's predictability and stable economy, creating green jobs and increasing social cohesion, and reducing administrative burdens on businesses

4   Renew the current compliance and monitoring reporting system from 2021 by ensuring the reporting obligations required by the UN Framework Convention and the Paris Agreement.

Of course, the regulation on the governance of the Energy Union is based on the National Energy and Climate Plans drawn up and integrated by the Member States. The regulation thus sets out a strategy for the EU and the Member States for the next ten years, including regulation of reporting, monitoring and reporting obligations.

2.3 Effect of Brexit

With the UK leaving the EU, it has also decided to leave the Energy Union. During the exit negotiations on energy and regulatory issues, the British side decided to modify its now sovereign objectives and commitments in line with the objectives and principles set out in the Energy Union Regulation and the underlying long-term Energy Security Strategy. During the negotiation of the exit agreement, it was indicated that they would make smaller and less ambitious climate protection and emission reduction commitments than the EU 2030 targets, or that they would only meet the targets set in international treaties. Contrary to ambitious EU and Member State commitments, this means less investment in renewable energy technologies and a slower transformation and greening of the UK's energy sector.

In the less ambitious British plans, in addition to reducing the integration of their energy systems with the EU, they also decided to enter into their own energy supply trade agreements with independent suppliers. During the exit negotiations, an agreement was reached on the continuation of North Sea energy cooperation, in which both parties undertook to continue renewable energy investments in the North Sea and the Irish Sea without hindrance and also agreed with Norway to expand investment and technological developments. With the agreement, the main goal of the EU -- to increase wind energy capacity to 60 GW per year -- remains a priority until 2030, and then to increase it to another nearly 300 GW by 2050.

2.4 Dieselgate

2.4.1   Details of the scandal and its antecedents

The emissions scandal, also known as the VW scandal, Diesel-gate, has reassured policymakers and citizens of the need to accelerate steps toward energy security and climate neutrality, and large industries need to adapt to this as quickly as possible. As is well known, the outbreak of the emissions scandal began in the fall of 2015 with false data from an official emissions measurement in the United States, and swept around the world and forced automotive companies to pay huge amounts of compensation and replace or retrofit affected vehicles at their own expense. Briefly, the scandal is worth noting that regular vehicle emissions inspections by the EPA, the U.S. Environmental Protection Agency, have on one occasion revealed that a vehicle manufactured by the VW Group and sold in the States showed compared to emission values during actual use, produced higher values under similar conditions.

The investigation of the causes led to the finding in the vehicle's engine electronics control software of factory program codes that ensured that the vehicle would generate better emission values by simulating the official measurement conditions through means changing the characteristics of the running engine from those in actual use. The scandal affected more than 11 million vehicles sold worldwide and involved tens of billions of euros in damages from manufacturers. European legislation also reacted immediately to the news and a review of the relevant legislation and a parliamentary hearing of the producers concerned were launched in the framework of a special parliamentary committee of inquiry. Contrary to the information obtained at the hearings and the progressive legislative changes presented by the Commission, the Member States in the Council have slowed down the process of resolving the scandal and have set out to protect producers. This has exhausted the European response to the scandal by further tightening the details for manufacturers to comply with the forthcoming stricter emission standards and bringing forward the required deadlines.

Manufacturers were required to make immediate changes to the warranty conversion of the models manufactured with the engine code concerned and to the rewriting of the software for the new vehicles to be sold. The joint lobbying activities of the Member States and the producers have resulted in the producers concerned not being legally obliged to compensate consumers at European level, nor have they been required to pay fines at European level. Managers of the companies involved, who were found to be aware of the use of circumvention or fraudulent software and its sale in vehicles, were prosecuted and sentenced to prison in both the United States and Europe.

2.4.2 The political and social impact of the scandal

The effect of the scandal accelerated social changes and consumer behavior, which had not been previously achieved, in addition to the direct imposition of stricter emission limits and deadlines in legislation. Consumers have also become more environmentally conscious about cars and have a green attitude towards manufacturers. The trade in zero-emission vehicles (BEV - Battery Electric Vehicle) has started to develop enormously, despite high costs, and several manufacturers have been forced to rethink and modify their future plans and technological development investments as a result of the scandal. To this must be added that before the scandal, there were already companies producing pure electric vehicles that were at the forefront of the spread of electromobility, but they did not have a significant impact on changing consumer behavior and needs from a global perspective.

The scandal, and its handling and legalization in the United States in particular, was the globally measurable and interpretable point that removed the hitherto resistance of traditional producers and led to a rethinking of their manufacturing and sales philosophy. In addition to the press coverage of the events, its main stimulus was the system of financial sanctions by national governments and the EU, which significantly affected the profit margins of companies. In addition to the system of sanctions, the other incentive that was created was a support system offered to producers and consumers that effectively contributed to changes in consumer behavior.
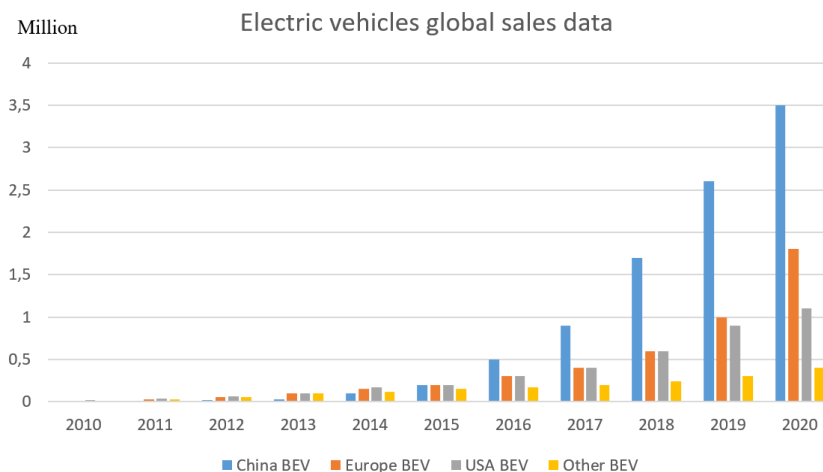

Figure no.2: Development of new electric car sales globally over the last ten years

Source: IEA Analysis - Global EV Outlook 202, Trends and developments in electric vehicle markets,

Own editing

This different levels of VAT rebates and replacement scrapping subsidies to encourage the purchase of zero-emission vehicles have made it possible to withdraw polluting, obsolete or scandalous vehicles from the market. In a global perspective, China, the United States and Norway offered the biggest discounts on the purchase of electric vehicles, and France through a special scrap car offset program.

In the spread of electromobility, we can distinguish three types of state incentives:

- Subsidies to encourage the purchase of electric cars: this group mainly includes price or fee reductions that can be applied when the vehicle is placed on the market, but also includes the possibility of VAT exemption and tax relief at the time of sale, as well as tax write-offs.

- Support for the use of electric vehicles: this category includes various public motorway discounts and parking discounts, and for companies car or fleet discounts, as well as other toll reductions or even discounts on the electricity bill.

- Discounts on restrictions: this group includes benefits such as the right to use the bus lane or the possibility to enter closed areas.
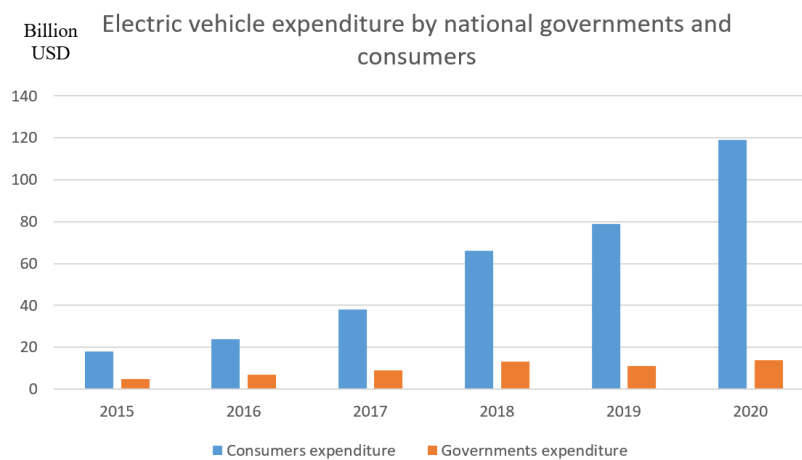

Figure no.3: Expenditure by national governments and the general public on the purchase of electric vehicles

Source: IEA Analysis - Global EV Outlook 202, Trends and developments in electric vehicle markets, *Own editing*

The figures above illustrate that before the scandal that erupted in 2015, the electric car market showed a slow rise, sometimes stagnant, globally, but the scandal led to a rapid change in consumer habits, not only in terms of retail spending, but also also in terms of government incentive support programs and

benefits. The data in the first figure show that, as a result of the Pandemic, new car purchases showed an upward trend globally, primarily affecting the electric car market. Global sales figures for conventional ICE vehicles (Internal Combustion Engine cars) have been declining over the past 1.5-2 years since the world has come to a standstill in economic terms as a result of the epidemic.

At the same time, not only the emergence of environmentally conscious consumer behavior and expectations, but also completely new sales processes played a role in the 70% increase in sales of electric vehicles. Currently, in addition to more and more companies that manufacture only electric vehicles, traditional automakers are also switching to online sales and home delivery methods. The advantage of this is that the vehicle selected in the online configurator can be purchased immediately on the surface, in a preferred installment payment scheme, and the product is delivered to the home and delivered to the residence in a similar way to parcel services. This shortens the supply chain, relieves manufacturers from maintaining the costs of a network of traders and importers, without consumers having to finance the extra costs, and finally makes it possible to purchase a high-value product with minimal physical contact due to epidemiological requirements.

- Europe: the number of electric passenger cars sold and registered on the European market doubled in 2020. In the largest markets, see. Germany, France, Italy, Norway or the United Kingdom have produced significant increases in sales, e.g. In Norway, electric vehicles accounted for 75% of total new car sales. The jump in BEV sales figures in 2020 can be attributed to two important factors. One is that this year, for the first time, producers had to meet previously tightened CO_2 emission targets at fleet level, while the other was the impact of purchase support incentives provided by Member States, partly hoping to change consumers' purchasing habits and partly an attempt to offset the economic downturn caused by the pandemic by an artificial increase in demand.

- China: Chinese new car sales and marketing barely declined due to the Pandemic, with the market shrinking by only 9%. At the same time, the electric car market produced strong growth by the second half of 2020, exceeding the previous year's sales result by nearly 1%. This value doesn't seem like much, but it can still be said to be the world's largest electric car market, where the combined application of government rules and state incentives has induced an explosive demand following the outbreak of the diesel scandal. The Chinese government recognized the market and economic benefits of the scandal and was able to enforce it quickly against late and slow European and American companies, putting domestic manufacturers and industry at an advantage, not only in their own domestic markets but also globally.

- United States: The pandemic forced the double-digit decline in the US market for new vehicle registrations and a decrease of about 2% in the

number of electric cars sold. The products of Tesla and GM, which previously dominated the market, were excluded from the scope of the federal fleet sales tax credit, so it can be said that this was also an important but not decisive element of the downturn.

- Other countries: the year 2020 showed extreme market developments. One good example of a market extreme is Canada, where, despite a decline in vehicle sales of nearly 20%, there has been no change in the number of new cars sold, so their market share in total sales has increased. In contrast, another extreme example is Japan, where the electric car market fell to 0.6% of total sales, with total new car sales shrinking by 11%. This is partly due to the behavior of Japanese consumers and partly to the behavior of local producers. As a result, customer confidence in new green-powered vehicles has remained low and local manufacturers have not been forced to change their product structure and make significant development technology investments. Since 2017, therefore, the registration of newly sold electric cars in the country has been steadily declining. Nor did the diesel scandal have any distorting or changing effect on the local market, as only petrol and LPG or CNG vehicles are in demand among local consumers.

2.5 Paris Agreement on Climate Protection

A major breakthrough came at the 2015 UN Annual Conference on Climate Change. The members of the United Nations Framework Convention on Climate Change (UNFCCC) decided to adopt a convention based on commitments made by all and based on serious commitments to reduce greenhouse gas emissions. The text of the Paris Convention on Climate Change was adopted by the UN General Assembly the same year. With the convention, all the countries of the world have committed themselves to reducing their greenhouse gas emissions along certain quotas and thus creating the steps needed at least mitigate, if not to stop altogether, global warming.

The importance of the Convention is shown by the fact that all major global powers signed the final document of the Convention and at the same time undertook to achieve the goals declared in it. Russia, the United States and China have so far refused to sign any similar UN conventions to protect their own economic defense and global trade positions. In 2015, however, the agreement was signed as a result of the combined effect of the global diesel scandal and the scientific opinion predicting a global climate catastrophe. This has created a global consensus on climate change and climate protection, which is now the basis for a change in environmental attitudes in industry or even in other sectors of trade and the economy.

The purpose of the convention is:

a) Keeping global average temperature rises well below 2 ° C above pre-industrial levels and then continuing efforts to keep global temperature rises below 1.5 ° C above pre-industrial levels, recognizing that this will significantly reduce the risks and impacts of climate change;

b) Enhancing the capacity to adapt to the adverse effects of climate change, resilience to climate change, and promoting development with low greenhouse gas emissions, while these processes do not threaten food production; (c) Consistent cash flows to move towards low greenhouse gas emitting and climate resilient development opportunities.

It seeks to achieve the objectives of the Convention outlined above through country-specific national commitments. In practice, this means that each country makes its own national contribution (Natonally Determined Contributions - NDCs), which must be an ambitious offer in accordance with the principle of the Convention. The resulting NDCs are collected by the UNFCCC Secretariat and monitored every five years for emission results against set reduction targets. If a signatory Member State is unable or unwilling to fulfill its obligations under the NDCs, no international legal or economic sanction will be imposed, and the Convention itself will deal with the fulfillment of the obligations in a kind of "name and shame" system.

In 2017, the United States led by President Donald Trump withdrew from the convention, but on the first day of the inauguration of the new Joe Biden-led administration, the United States was reconnected to the convention by presidential decree. The international importance of the document is also demonstrated by the fact that all the countries of the world signed the convention and 184 of them have already ratified it and incorporated it into their own domestic legal order.

China and India, as the two biggest polluters, are among the states that have ratified the convention, but neither the United States nor Russia, which has followed a special path, has taken any steps to ratify the convention since signing. An interesting parallel is that after ratification in China coincided with the diesel scandal, sales of electric cars jumped and have since become the world's number one electric car market.

3   European Green Deal Agreement

The conclusion of the European Green Agreement can be seen to have been unprecedented. Europe has recognized in time that the environment and climate change pose an existential threat to it. The EU has achieved this problem in several steps by laying down a Green Agreement. As I have shown in previous sections, the Energy Union and the European Energy Security Strategy and a number of international events, taken together and separately, have reinforced in

European leaders the importance of developing and putting into practice the most effective response to existential threat. The main objective of the Agreement is to transform the European Union into a modern, resource-efficient, competitive and environmentally conscious economy in the shortest possible time. The main objectives of such an in-depth transformation of the European economy are: - reduce greenhouse gas emissions and achieve net zero emissions by 2050, - decoupling the volume and pace of growth of the European economy from resource use, - and that all regions and citizens of Europe benefit from the benefits of economic transformation. Eight policy areas have been identified to achieve the objectives of the Agreement. It proposes actions to Member States in the framework of these policy areas. In addition to the new measures, the Commission, in cooperation with the Member States, monitors compliance with and implementation of previously enacted EU legislation (regulations and directives) and policy decisions.

The eight policy areas are:

1. Climate policy
2. Energy
3. Agriculture
4. Industry

5. Environment and oceans
6. Freight and passenger transport
7. Finance and regional development
8. Research and innovation

The effects of the Agreement can be felt in the short term, not just in the long term. A precondition for this is that the ratifying states take their commitments seriously. The short-term benefits are:

- Fresh air, clean water, biodiversity and good quality soils
- Modern and energy efficient buildings
- Healthy, affordable and GMO-free foods
- Efficient, cost-effective and carbon-neutral public transport
- Clean, green energy and innovative technologies
- Long-lasting, repairable, recyclable and reusable products
- Green jobs, competitive education
- Globally competitive and resilient industry

Under the Agreement, the Commission has already drafted a number of legislative proposals that have made it possible to achieve the desired objectives in the eight policy areas.

- Sustainable Europe Investment Plan (COM (2020) 21 final): the plan envisages an annual investment volume of € 260 billion per year to meet the 2030 climate targets. This amount goes mainly to the energy sector

and to the construction and transport sectors. A combination of EU budgetary resources and public and private investment is needed to make this amount available at a level commensurate with investment needs in these sectors. In the current 7-year budget period, the Commission has earmarked more than € 500 billion for climate and environmental investments, to be complemented by an additional € 114 billion in national co-financing from Member States. In addition to the amount released and called by the Commission, the InvestEU Fund has set aside an additional € 279 billion to mitigate financing risks in the sectors.

- Fair Transition Mechanism (COM (2020) 22 final): the Commission has set up a fair transition mechanism for the transition to a circular economy, allowing fossil fuel-using countries or emission-intensive industries to switch to clean technologies, so that they can stay on the same path as other EU regions. The mechanism itself relies on three basic pillars:

  a) Fair Transition Facility: Member States can apply to finance the restructuring of their economies. This framework cannot be used for nuclear, tobacco and certain fossil energy investments.

  b) Targeted support program within InvestEU: a targeted support framework for investments to promote and support decarbonisation, private sector investment in the development of transport and energy infrastructure.

  c) Public Sector Credit Facility: A support facility set up with the European Investment Bank to help boost public finances in economically disadvantaged regions and thus focus further investment in these areas. The investments can be used mainly for the development of energy, transport infrastructure and district heating, as well as for the reduction of emissions from residential buildings.

The Fair Transition Mechanism has a budget of € 100 billion, in addition to the support envelope listed so far and available to Member States and investors. With these economic incentives, the EU is accelerating the process of economic transformation set out in the Agreement, in line with its ambitious commitments. In addition to the more important sources of support for economic transformation discussed here, the EU has so far adopted a number of packages of measures that primarily contribute to the practical objectives of the Agreement in legal terms.

The European Climate Regulation (COM (2020) 80 final), the New European Industrial Strategy (COM (2020) 102 final), the Circular Economy Action Plan (COM (2020) 98 final), but the Producer-to-Consumer Strategy (COM (2020)) 381 final) or the Biodiversity Strategy (COM (2020) 380 final) all aim to achieve

an efficient, rapid and effective transition to a green economy in the eight policy areas set out in the Agreement.

4 Conclusions

The political debates on the Energy Union and the Energy Security Strategy, which preceded the European Green Agreement, and the simultaneous scandals and international events, have shown and confirmed that efforts to restructure the European economy have proved to be a politically and socially sound decision. In the light of the above, the consequences of the Agreement are:

- The European Union has recognized that it can only maintain and / or increase its geopolitical weight and economic power globally if it can decouple its energy sector from external suppliers. All the steps taken in this direction have been aimed at enabling the European Union to develop a more cohesive economic structure and to simplify its political and decision-making mechanisms, which will enable it to maintain its global market position and technological superiority in the long term,

- Modern energy sources ensure that it can meet its entire energy needs without any problems,

- Research and innovation based on modern energy sources ensure that know-how is retained in Europe and sold globally,

- In the long run, a complete economic transformation will give us a global competitive advantage over competitors in the traditional energy industry,

- A further competitive advantage is the high level of innovation and technological developments, which provide an opportunity to manage and shape global market processes and trends,

- Global market share based on the new economic structure provides an opportunity to increase the European Union's international political weight,

- As the Union's role in international politics grows, so does its military strength and political responsibilities.

5 Summary

Overall, the European Union has recognized in time the fragmentation and exposure of its energy infrastructure, its long-term unsustainable and polluting industrial structure based on a traditional economic structure. As a first step, it has improved energy security by integrating and increasing its internal critical infrastructure, and then harmonizing the entire energy sector and the supervisory bodies operating it by creating a single internal energy market. This has removed

obstacles to the Union that have reduced its bargaining power vis-à-vis external suppliers.

With the creation of a single internal energy market and the increase in the number of external supplier partners, diversification has also taken place in all areas of the sector. The diesel scandal that erupted during the same period, and later Brexit, all proved to be external economic or political factors that accelerated the integration of Member States' energy systems and increased political and social support for economic restructuring. The European Green Agreement has created an opportunity in the hands of the EU to decisively accelerate the transition to a circular economy while increasing its global leadership in the use and development of renewable energy sources. It can play a leading role in reducing emissions and using sustainable, carbon-neutral clean technologies, giving it greater influence in the global market.

Finally, Europe has recognized the historic opportunity and the changing circumstances have helped it to embark on this path of renewal. It has reached a stage in European economic development that clearly shows the direction and leadership. Attempts to reverse or slow down development are already weakening Europe's economic strength and competitiveness in the short term. "Unity in diversity" as the Union's motto is, and so is the Green Agreement. Unified economic transformation and growth of competitiveness in the single internal market, but with the application and development of diversified, diverse but clean technologies.

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