



Palacký University  
Olomouc

# KNOWCON 2021

## Knowledge on Economics and Management Conference Proceedings

Pavla Slavíčková – Jan Stoklasa (Eds.)

Palacký University Olomouc  
Olomouc 2021



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Management**  
Conference Proceedings

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Olomouc 2021

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## CBDC choices

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**Abstract:** CBDC (central bank digital currency) is a rising economic topic internationally in the last few years. CBDC is not yet introduced as payment tool, beside the pilot projects. The first choice to be made is to use the CBDC in a certain national economy or not, and it is based on political aims, economic interests, objectives of business development and social welfare. Meanwhile the taxonomy of CBDC is quite complicated and growing in abundance, even before the official circulation had started. There is not “one option fit all” scenario for CBDC. It is theoretically possible in one and the same national economy different CBDC types to be used, as per aims to be reached. Highly developed economies are likely to have different choices than the lower developed ones; the macroeconomic reasoning, might lead to decision on CBDC different than the micro economic ones. The choice for a CBDC volume/ share of all national money, the choice when to have CBDC, other choices like convertibility, trans border CBDC operation opportunities, privacy, specific incentives and limitations continue the list of complex choices to be made for CBDC. The final decision compromise is up to the prevailing economic philosophy of policy makers. Although CBDC as any fiat money form is a state matter, it could not survive without the support of the population. The final choice belongs to money users- companies and people.

**Keywords:** CBDC classification, CBDC taxonomy, CBDC design choices, digital currency, electronic money

**JEL classification:** M40, M48, M49

### 1. Introduction

CBDC (central bank digital currency) is a rising economic topic internationally in the last few years. CBDC is not yet introduced as payment tool, beside the pilot projects, but is vigorously disputed and researched in professional circles. The first decision to be made is whether to use the CBDC in a certain national economy or not. The question is far from being only technical, concerning the money form and payment system. The reasons behind are based on political aims, economic interests, objectives of business development and social welfare. Often they do not coincide and might be opposing. Meanwhile the taxonomy of CBDC is quite complicated and growing in abundance, even before the official circulation had started. The multiple design choices of CBDC are a result of economic and political targeting. The aim of the paper is to summarize the main CBDC choices. The tasks are to clarify the options for introducing CBDC, to present types of CBDC among which a concrete forms should be chosen, to discuss the choice when CBDC might be introduced. The methods used are deductive literature review, logical analysis, summary and classification. The paper is concentrated on the European Union dynamics in CBDC processes.

### 2. To introduce CBDC or not

To introduce CBDC or not was a real burning problem just a year ago. Now it is a rhetoric question. There was a line of events to form the conviction in policy makers that CBDC must be introduced.

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The process of electronic money development has been continuous since the 80s of the 20th century. The share of fiat currency digital payments is growing rapidly around the world. A tendency to reduce the use of cash is obvious, although advanced with different tempo in national economies. The total value of fiat digital transactions in the world is expected to show an average annual growth rate of 12.01% in the period 2021-2025 (Statista, 2021).

The term CBDC was formed about 10 years ago, shortly after the emergence of crypto currencies. Crypto currencies are already accepted by the global financial system as a serious factor to be taken into consideration. Crypto currencies are nearly 11,500 different types with a market capitalization close to two trillion dollars as of August 2021 and more than 50% of it coming from Bitcoin (Coinmarketcap, 2021). A new energy for the creation of CBDC gave the introduction of stable coins: crypto currencies with the ambition to have a stable value, due to the fact they are backed by assets (fiat currency, commodities or another crypto currency). Stable coins are currently around 200 different types with the Facebook Libra/ Diem being the most famous one (A Complete List of Stablecoins, 2021).

The COVID-19 pandemic significantly accelerated the adoption of digital payments as carrying a lower health risk, being more convenient in the substantial rise of online shopping and life in isolation. Governments and companies openly discouraged the use of cash. The pandemic made more relevant all forms of digital money, including CBDC.

An impetus in the global digital financial race is the activity of China, the world's second-largest economy, which has been working intensively on CBDC since 2014. In July 2021 China released a White paper on its CBDC pilot project initiated in 2020, reporting substantial progress. It is not a secret that China has the ambition to make the digital Yuan a world international transactions currency in the race for economic dominance and diminish the role of American dollars as reserve currency. The United States launched a CBDC pilot project for creation of digital dollar in August 2020- a joint initiative of the Federal Reserve Bank of Boston and the Massachusetts Institute of Technology. Russia is also working on CBDC, as a possible tool for international transactions, hopefully circumventing the sanctions imposed on it. The Bank for International Settlements (BIS) issued an official report on 9 October 2020 on the fundamental principles and characteristics of the CBDC. The report is the result of a joint effort to develop a CBDC concept between The Bank of Canada, European Central Bank, Bank of Japan, Sveriges Riksbank, Swiss National Bank, Bank of England, Board of Governors of the Federal Reserve and Bank for International Settlements. The report focuses only on retail (general purpose) CBDC, without considering the requirements for wholesale CBDC. The response from the European Central Bank (ECB) has been swift. The ECB launched a public consultation process on CBDC- digital euro, based on an electronically accessible questionnaire, in the period 12 October 2020-12 January 2021. In April there was published a brief summary of the results. In July 2021 The European Union, through the ECB, declared a start a two year pilot project on digital euro- a decision which marks the positive proactive EU position on CBDC. (ECB, 2021).

The intensifying international competition in the field of CBDCs is obvious, even before their introduction. The countries involved in pilot projects on CBDCs represent the majority of economic output and population in the world (Boar, C., Holden, H. & Wadsworth, A., 2020, p.2). The publications on the topic are prevalingly positive. The political decision to implement CBDC seems

already taken. Central banks are challenged to use the opportunity to modernize or loose in the long run. The real questions about CBDC now are: what type, when and how will be introduced as a real payment tool.

### 3. What type of CBDC to be used

CBDC design choices are multiple. They range from pure technical and organizational to economic, and security ones. The possible CBDC types are summarized in Table1.

**Table 1: Types of CBDC**

Classification Criteria	Types of CBDC, as per classification criteria				
1. Mode of existence and usage	Through bank accounts		Through tokens		
	Wholesale	Retail (for the general public)	Wholesale	Retail (for the general public)	
2. Organizational and technical design of CBDC	Direct	Direct	Direct	Direct	
		Hybrid		Hybrid	
		Intermediated		Intermediated	
		Indirect		Indirect	
3. Usage of electronic network in real time	Online		Online (possible but not likely to be used offline)	Offline	Online
4. Technical infrastructure usage-type of network	Distributed ledger in three possible forms: centralized, semi centralized and fully decentralized (the last type not likely to be used for CBDC)				
	Conventional centralized non distributed ledger				
5. Technical infrastructure usage-payment infrastructure system operated by central banks	New Payment system controlled by central banks				
	Existing payment system operated by central banks				
6. Additional features implemented in CBDC	Programmable				
	Non programmable (non- conditional, non- limited)				
7. Anonymity level	Anonymous				
	Non anonymous				
8. Degree of CBDC involvement with stable coins	Synthetic CBDC				
	Traditional (non synthetic ) CBDC				

Source: Prepared by the author, using different sources (BIS, 2018, March, p.7-9.; Auer, R., Cornelli, G. & Frost, J., 2020, August, p. 18-20.; Bank of Japan, 2020, October, p.6-8.; Fiedler, S. et al., 2019, December, p.7.; Bofinger, P., Haas, T. 2021, February.)

The wholesale use of CBDC, addressed only to very big mainly financial companies, can improve the efficiency of settlement of securities and derivatives transactions between commercial banks and other large financial institutions. CBDC retail (general purpose) are those that are publicly available to all potential users- individuals and legal entities of any possible type and field of activity. The ambition is retail CBDC to be always available, easy to use, quick and independent, to be secure.

Both wholesale CBDC and retail CBDC can exist either through bank accounts open in the central bank (directly or through intermediaries) or through tokens. CBDCs accounts based are very similar to non-cash payments used now and depend mainly on the ability to verify the identity of the account holder. Therefore, a high degree of anonymity is not to be achieved by this form. But unlike current commercial bank accounts, the full amount of the money are guaranteed as the account is open in the central bank, hence this form of CBDC is advantageous for large money holders. CBDC based on tokens can be considered as digitization of banknotes. The tokens in this case are digital software code on a small material carrier (including smartphones or independent small hardware), denoting a certain amount of money. The critical point is to control whether the token is real or fake and whether it has already been used up.

As per the use of Internet in real time CBDC could online and off line. As CBDCs only exist in electronic form, it is essential the system of electronic devices on the network to work smoothly and continuously, in order to use the online form of CBDC. Offline CBDC exists only as a token and can be used without the CBDC carrier (token) being connected to Internet at the time of use. Offline CBDC is particularly important, as a basic requirement especially for retail CBDC is to be always usable, anywhere, in the immediate exchange of money, including between individuals, in all circumstances, regardless of natural or social disasters, to have universal access and sustainability. No bank account is required. The big challenges in offline transactions are security, the fight against fraud, and the integration of anti-money laundering processes. As a restrictive condition, a legislative and technological upper limit can be imposed on such offline transactions- as an amount, or as a number of operations, or on persons and territories that can use it. The offline token might be the most anonymous form of CBDC. It is considered offline CBDC would be useful in extreme circumstances or in regions without affordable banking. A hybrid version of CBDC with tokens is a one in which at certain periods of time an online connection is established between the offline devices used and a banking institution to confirm the legality of the tokens and the transactions with them.

The organizational design of CBDC has four main subtypes, which refer to retail CBDC (general purpose) and only one to wholesale CBDC- direct CBDC. Direct CBDC is a direct receivable from the central bank. The central bank maintains a register of all transactions and makes retail payments. This CBDC might put central banks in direct competitions with commercial banks and narrow their activity. Hybrid CBDC is a direct receivable from the central bank, but intermediaries (commercial banks and non-bank financial institutions) handle retail payments. The central bank maintains a register of all transactions and manages a backup technical infrastructure that allows restarting the payment system if intermediaries fail. Intermediated CBDC is a direct receivable from the central bank, where intermediaries (commercial banks and non-bank financial institutions) handle retail payments and the central bank maintains only a wholesale register, not keeping record of all retail transactions of CBDC. Indirect CBDC is not a direct receivable from the central bank, but from intermediaries (commercial banks and non-bank financial institutions). Intermediaries make all retail payments and must fully cover all liabilities to retail customers by creating deposits in the central

bank. This type of CBDC strongly resembles the existing electronic money issued by commercial banks and other financial institutions other than the central bank. The main difference is that with indirect CBDC intermediaries have to provide 100% coverage in the central bank, and with the current electronic money- only a small part is covered by reserves in the central bank. Obviously it is favourable for large deposit money holders.

CBDCs can be programmable or non-programmable. Non-programmable is CBDC close to now existing cash, which have no additional features other than the general features of money. Programmable are CBDCs that have additional software features introduced, for example: to earn interest, depending on their use; to give an advantage in their use by consumers (price discounts or accumulation of bonus points); to have a negative interest rate if they are not spent by a certain date or for certain goods and services or in a certain region; to suspend the operation if it is directed to accounts related to illegal activities. Various forms of quantitative restrictions or restrictions on the use or possession of CBDC are often mentioned as a way to control potentially undesirable effects or as a way to direct use in a certain direction, to speed up money circulation. But it might be treated as a great limitation of freedom in money usage and direct interference of state policy in microeconomic operations.

Depending on the degree of anonymity CBDCs are anonymous or non-anonymous. Anonymous are those CBDCs for which no software owner and direction of operations can be established. Non-anonymous are those that contain a software capability (or obligation) to establish and verify identity before, during, or after use of CBDC. The identification of the possession and use of CBDC may be open or coded, but in any case it exists, especially in CBDC based on accounts. CBDCs that are wholesale are unlikely to be anonymous. Anonymity is an issue that excites a huge proportion of potential users and is one of the deterrents to the faster adoption of CBDC.

Synthetic are those CBDCs in which central banks provide private issuers of stable coins with access to central bank reserves. Traditional are those CBDCs that are not tied to private initiatives and are entirely the prerogative of the state.

The summary of the ECB survey concluded for the desired leading features of a digital euro: “privacy (43%), followed by security (18%), the ability to pay across the euro area (11%), no additional costs (9%) and offline usability (8%)” (ECB, 2021). Two third of the respondents expect digital euro to be integrated within the existing banking system and about a quarter would like the digital euro to make the cross- border payments faster and cheaper.

It is assumed that distributed networks are more attractive in jurisdictions where public power is perceived as inefficient. On the other hand, countries that explore or test distributed CBDC networks with pilot projects are more dependent on internal remittance flows than countries that explore conventional centralized networks. It is found that in countries that choose tokens, there is a greater public interest in the CBDC, but also lower inflows of remittances (Auer, R. et al., 2020, p.20). Countries are still not able to be firm in their choice for the various characteristics of CBDC. It should be explicitly emphasized that future CBDC practices may be different from those already tested in the pilot projects. Different types of CBDC might contradict in their goals and usage and it is possible to combine more than one type of CNBDC in national economies.

The connection between micro and macroeconomic environment is tangible through the introduction of CBDC. But as correctly stated by Bofinger, P. and Haas, T. (2021) macroeconomic research is much more advanced than microeconomic ones on the topic. Argumentation is far from being exhaustive for the failure of the existing monetary system and the ability of CBDC to solve potential problems of allocative efficiency in payment systems. Attractiveness of CBDC for users is questionable as well and depends on the types of CBDC to be introduced, payment systems and proper information.

#### **4. When to introduce CBDC**

The shortest answer to the dilemma when to introduce CBDC is- when the society is ready.

Political framework is the first step on realization of CBDC. Each of the policy makers has its own set of arguments and approaches regarding CBDC. Notably the political discourse is uniquely pro CBDC worldwide. It is expected the first official CBDC to be the digital Yuan in 2022 for the Beijing Winter Olympics. The probable year for the issuance of the digital euro is 2025, if the project started in July 2021 is successful. But there are issues that are the prerogative of the countries themselves, within the framework of the European Community's possible use of CBDC. In June 2021 EU published a report on the risk of not introducing digital euro, thus influencing a possible positive decision of national banks from the Eurozone on acceptance of digital euro.

Legal framework and technical framework are the next fundamental requirements in the realization of CBDC project. They could be build one after the other or in a speedy parallel way. Problems and hardships might be anticipating in both, as CBDC is a new asset to develop.

Social framework, often neglected, is important for the success of CBDC. It is necessary to apply users friendly approach in CBDC creation, to disseminate information in society, to educate general public and professionals, to increase the technical competency and acceptance in final users, creating the image of novelty and advantageous asset (of course based on real pros of concrete CBDC). Yet there are two major features important in CBDC as defined by future users: freedom of usage and security of operations. The changing balance between freedom and security is a deep philosophic question, political choice and an everyday reality, reaching pragmatic topics. It is rarely discussed as a win – win combination, but obviously this is the ideal: more freedom and more security. If CBDC is successful in providing freedom and security in a personal, company and state level, it is more likely to be introduced and accepted readily by society. Profound micro and macro research together with information campaign and policy activity is highly recommended to ensure the smooth transition.

#### **5. Conclusion**

There is a trend towards a cashless economy, supported by government institutions around the world. The main reasoning behind is that digital payments in fiat currency provide information and control, help governments curb tax fraud, money laundering, and cash flows related to terrorism. CBDC as a new type of digital fiat money is expected to be part of our everyday reality in the coming decade. It is theoretically possible in one and the same national economy different CBDC types to be used, as per aims to be reached. Highly developed economies are likely to have different choices than the lower developed ones; the macroeconomic reasoning, might lead to decision on CBDC different than the micro economic ones. The final decision compromise is up to the prevailing economic philosophy of policy makers. Although CBDC as any fiat money form is a state matter, it

could not survive without the support of the population. It is the time to start the CBDC discussion in front of a broader audience, as the right and informed choices to be made. The final choice belongs to money users- companies, people, non- for-profit organizations, state structures and it should be based on reliable information. The preliminary research and discussion might save financial resources, political anxiety and individual confusion.

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## Did the Covid-19 Pandemic Affect the Flows of Foreign Direct Investment?

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**Abstract:** Current pandemic situation affect the economy of each country. Countries struggle with the decline in the production, decrease of the GDP, growth of unemployment and arising social, as well as political tension. After the Covid-19 pandemic, the inflow of the foreign investment fall sharply. The international flows of capital is reduced. Many investment, respectively many companies owned by foreign investors left the host countries and disinvestment are more common than in previous years. On the other hand, pandemic situation might be considered as the opportunity to enlarge or allocate investment in a host countries. There is no lack of labour, labour and the production become cheaper and is easier to find skilled labour. Also, prices in other sectors, e.g. construction important for greenfield investments are lower and investments might be more profitable. Also, due to the economic problems of many companies, their owners are more willing to agree with takeovers, mergers of acquisitions and entrance to the new market using this method is easier. The paper deals with the current situation of the flow of the foreign direct investment with the focus on the V4 countries. Goal of the paper is to assess the readiness of a host countries to keep or enlarge investments of foreign companies and to avoid the disinvestment.

**Keywords:** pandemic, foreign direct investment, disinvestment

**JEL classification:** O32, E22

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### 1. Introduction

The COVID-19 pandemic changes the regular or accustomed ways of our lives, functioning of the economy, international trade as well as the movement of the capital. More of the any economic activity is doing online. As the behaviour of consumer has changed, business has changed as well. There is boom in some services as delivery but also deep fall in tourism, hotel and restaurant business. Further on, we might see the overall decline in economic activity as the overall demand for goods and services (not individual demands) stagnates or even declines. The same might be valid for the development of the flows of foreign direct investment. As the economy is struggling with the recession and is trying to change the direction to the increasing trajectory, companies might consider this time as uncertain and are not willing to invest in host countries. On the other side, current situation might be considered as the time for strategic investments as there might be a capacity of unused workforce, unused capital and countries would be able to support foreign direct investment by an investment incentives in order to improve the performance of the economy or create new jobs. Due to the limitation of data only until 2020, we will use those data provided by the OECD statistics. Only some perspectives for 2021 are given by authors or international organizations. For instance United Nations

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Conference on Trade and Development (UNCTAD) that has available data only until 2019, thus one less than the OECD statistics database. Focusing on the Central Europe, we will closer look at the Visegrad group (V4) countries and the current situation of the FDI inflow in these countries.

## **2. Literature review**

As the pandemic situation and lockdowns started in 2019, there is not many analysis of the FDI inflow in the current situation due to the short time period. However, several reports describing present development of the FDI inflow are available. Not surprisingly, the COVID-19 crisis will cause a dramatic fall in FDI (UNCTAD, 2021a) with the assumption of the rapid drop up to 40 % in 2020. The decrease will also continue in 2021. UNCTAD (UNCTAD, 2021a) assumes that the recovery and starting point of increasing trajectory would be year 2022. In comparison to previous worldwide fall in the FDI flows caused by the global financial crisis and rapid decrease of world FDI inflow in 2009, the decrease in 2020 is much higher and represent 60% decline since 2015 (UNCTAD, 2021a). To be more exact, the global FDI flows in the first half of the year 2020 falls by 49% (UNCTAD, 2021b) and by 42% for the entire year 2020 (UNCTAD, 2021c) or similarly reported by the OECD focusing not at overall FDI flows but on inflows, which fall in 2020 in comparison to 2019 by 38% (OECD, 2021). The decline of FDI flows in 2020 was adjusted in the World Investment Report 2021 (UNCTAD, 2021d) to the fall by 35% in comparison to 2019. To emphasize how the COVID-19 pandemic influenced the FDI flows, these were lower by 20% in comparison to their last lowest value in 2009. UNCTAD report (UNCTAD 2021a) shows the 5 main impacts on the FDI caused be the COVID-19 pandemic. These are: (i) slowdown of implementation of projects and slowdowns in cross-borders M&A projects; (ii) automatic effect on reinvested earnings; (iii) reduction in cross-border M&As; (iv) shelving project, drop in new investment decisions; and (v) divestment, reshoring, diversion (UNCTAD, 2021a). Relating to the effects of the COVID-19 pandemic, an overview of potential impacts and effects on the economy is given in analysis by OECD (OECD, 2020). One of the results of the analysis assumes that the impact on the developing countries will be higher and these countries will drop FDI inflow in larger scale as developed countries. This is due to the structure of the industry in developing countries with primacy of primary sector and manufacturing. FDI role is significant also in time of the pandemic. FDI could play an important role is supporting economies during the after the crisis through financial support to their affiliates, assisting governments and addressing the pandemic, and through linkages with local firms (OECD, 2020). As mentioned, the FDI plays important role not only in times of economic growth and support the development of the economy, but also are important in time of recovery or in time of recession. As the FDI might represent a considerable part of overall investments in the country, its decline would worsen even the negative trend in host economy development and worsen the crisis or fall in the economy performance. Some of the already published reports focus on the specific area analysing the current trend in FDI development as the United Nations ECLAC report (Economic Commission for Latin America and the Caribbean, 2021) for the Latin America and Caribbean or short analysis for other areas. e.g. Australia (Tang, 2021), United States (Bureau of Economic Analysis (BEA), U.S. Department of Commerce, 2021) or Taiwan (Investment Commission, Ministry of Economic Affairs, 2021).

## **3. Development of the FDI inflow in COVID-19 pandemic period**

As mentioned in reports from different organizations or government bodies dealing with the issue of the FDI, the drop in FDI flows, as well as in FDI inflow in particular is quite extensive. The COVID-19 pandemic cause the investors to be more alert or more accurate when assessing investment opportunities. To compare the development of the FDI inflow, we provide the development of the FDI

since 2005 until 2010 as we have data available for this period in aggregate level for OECD countries, EU28 and overall FDI in the world. To see the development during the pandemic, we provide the development of these variables quarterly, starting in first quarter of 2018 and ending with fourth quarter of 2020. As we are most interested in FDI inflow in the region of Central Europe, we will provide the same graphical analysis for the V4 countries. Subsequently, we look closer to the development of the components of the FDI inflow, which are equity, debt and reinvestment of earnings.

### 3.1. Development of the FDI inflow in OECD countries and EU28

To start with the assessment of the development of the FDI inflows, the overview of the inflows to EU28 and OECD countries is provided. Also, Figure 1 shows the development of the FDI inflow in world range for as the sum of all inflows. It is obvious that FDI inflow decreased sharply in 2019 and 2020. Even the trend seems to be similar and copies each other, the most affected were developed economies, while developing countries were no so affected due to the investment in Asia (UNCTAD, 2021d). Comparing the group of countries, the fall in FDI inflow in 2020 in comparison to 2019 was 58% in developed economies, 8% in developing economies and 58% in transition economies. Regarding to geographical aspect, the decline in the FDI inflow was the most significant in Europe with fall of 80%, following by Latin America and the Caribbean with fall of 45%, North America with 42% and Africa with decline of 16%. On the other hand, FDI in Asia has increased by 4% (UNCTAD, 2021d). The FDI inflow fall in the European Union was about 73 %. In comparison, the decrease in United States was only about 40%. Within the European economies, the largest fall has been in France (47%) and in Germany (34%). If considering United Kingdom, this country has struggled with the highest fall among all EU countries with descent of 57% (UNCTAD, 2021d).

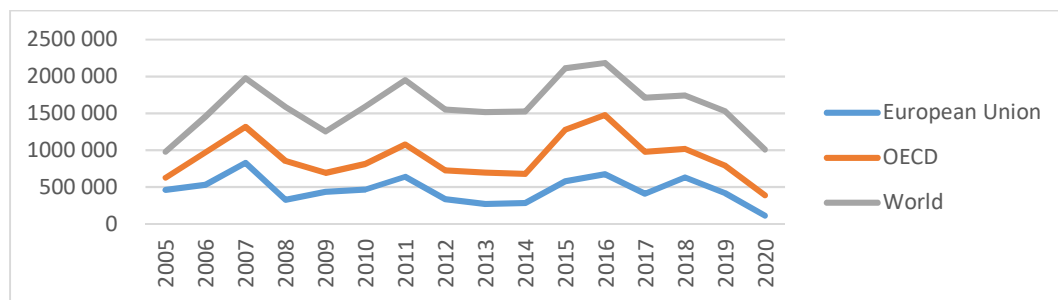
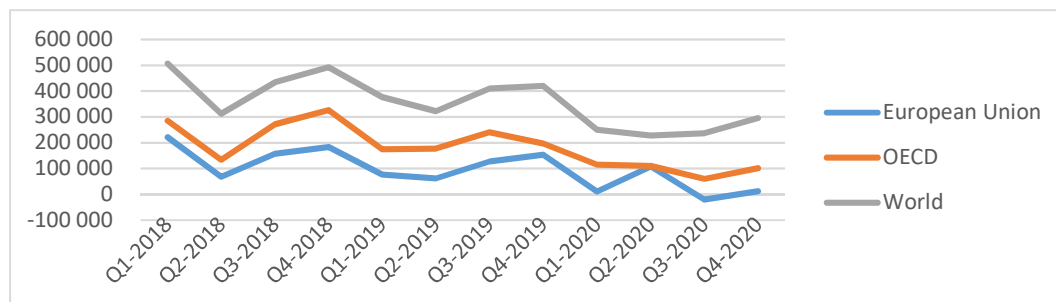


Figure 1: FDI inflow 2005-2020 – EU, OECD, world (mil. USD, current prices, OECD.Stat)

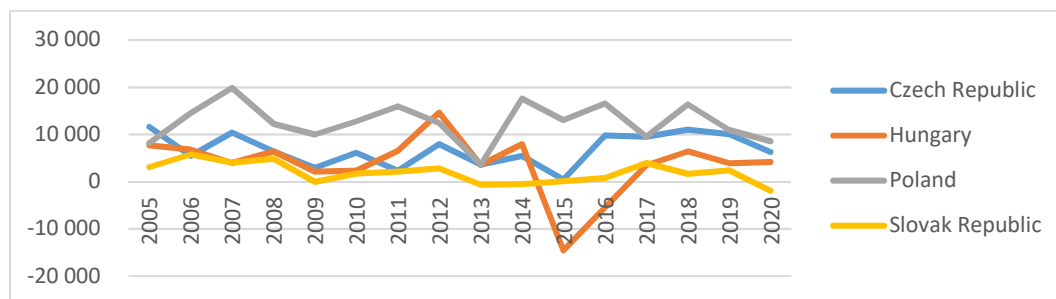
Continue with the EU28 and OECD countries, Figure 2 demonstrates the development of the FDI inflows quarterly since 2018Q1 until 2020Q4. As seen, the world, EU28 and the OECD countries trend is decreasing, surely with some quarterly deviations. A very sharp decline is seen for EU28 countries and the world in 2020Q1. After the moderation of anti-epidemiological measures and decline in infected during the summer of 2019, the infected persons and more strict measures has been adopted in autumn of 2019 and beginning of 2020. This situation cause the decline in the first quarter of 2020. Hopefully, situation began to improve after 2020Q3 with modest increase in the last quarter of 2020.



**Figure 2: FDI inflow 2018Q1-2020Q4 – EU, OECD, world (mil. USD, current prices, OECD.Stat)**

### 3.2. Development of the FDI inflow in V4 countries

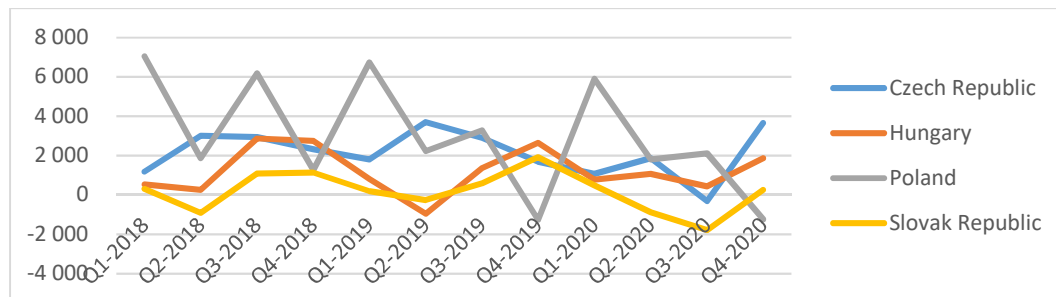
The FDI inflow and its impacts have considerable role in the development of the V4 countries and helped in transformation process from the central planned economies to the market economies. The role of the foreign investors was mainly seen in privatization processes (e.g. banks or insurance companies) as well as in establishing foreign affiliates – greenfield investments, e.g. in automotive industry or electronic industry. As seen on the following graph, FDI inflow to V4 countries copies the world respectively Europe development of FDI. Since 2019, the fall in the FDI inflow is evident in Czech Republic and Poland. However, the FDI inflow, after the fall in 2019 was relatively stable in Hungary. We have to note that the enormous decrease in the FDI inflow to Hungary in 2015 was caused by the worsening of the business environment, decrease of the reinvestment of earnings and overall fall in attractiveness of the Hungary for foreign investors. Situation in Slovak Republic slightly differs as the FDI inflow has moderately increased in 2019 and the fall starts only in 2020.



**Figure 3: FDI inflow 2005-2020 – V4 countries (mil. USD, current prices, OECD.Stat)**

A closer look to the FDI inflow for 2018Q1 - 2020Q4 for the V4 countries is illustrated in Figure 4. During this last period, the FDI inflows had quarterly relatively high fluctuations that might be seen mainly for the largest V4 economies as Poland and Hungary. To the contrary, the fluctuations were the modest in Czech Republic, which had also achieve relatively highs volumes of the FDI inflow during this period. Only considerable fall in the FDI inflow might be seen in third quarter of 2020. It is not surprising as Czech Republic has the peak of the new COVID-19 cases in months September to November of 2020, most likely influencing the FDI inflow through the slowing down overall economic activities. Going back to Poland, an extreme decrease in the FDI inflow going even to divestments was in the last quarter of 2020. As in the case of the Czech Republic, October 2020 was the peak of the new cases in Poland with high daily new cases recorded also in December. The reason for FDI to decrease has the same roots as it has in Czech case. Slovakia struggled with the same wave of the COVID-19 pandemic as other V4

countries. The highest number of new daily cases were detected in November and December of 2020. The FDI inflow again copies this pandemic situation with the deep shrinking on third quarter of 2020. In case of Slovak Republic, we have to mention that this country has recorded the highest volume of divestments despite being the smallest of the V4 countries. On the other side, Czech Republic has only relatively low volume of disinvestment in third quarter of 2020 and only Czech Republic and Hungary had divestment just in one observations during the analysed quarters. Poland had divestment twice and the worst situation was in Slovak Republic with three observations of divestments.

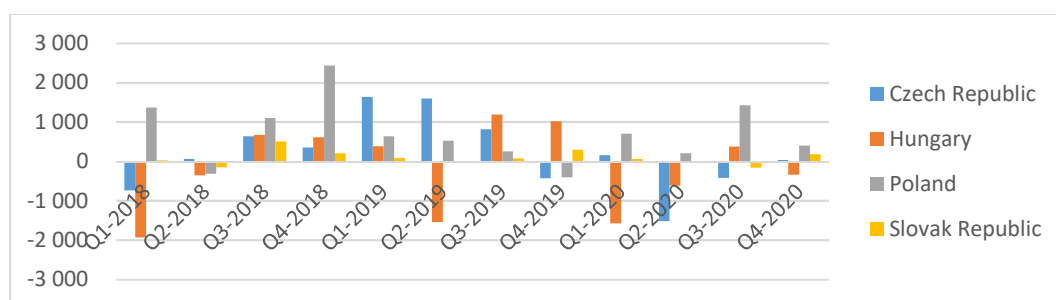


**Figure 4: FDI inflow 2018Q1-2020Q4 – V4 countries (mil. USD, current prices, OECD.Stat)**

### 3.3. Development of the FDI inflow components in V4 countries

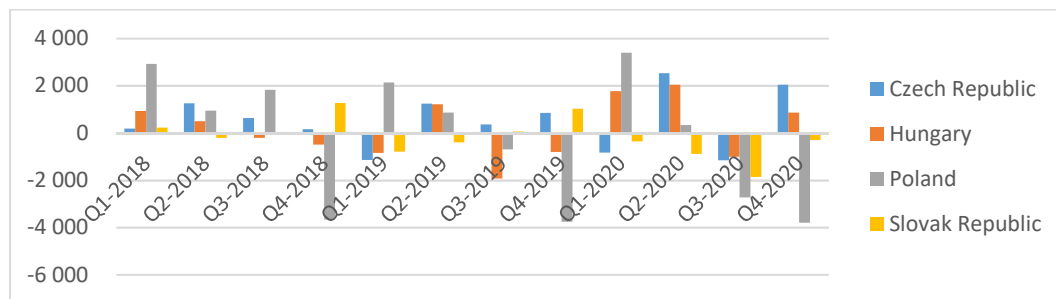
Along with the overall FDI inflow development, interesting is to study the development of the components of the FDI inflow that are (i) equity, (ii) debt, and (iii) reinvestment of earnings. The following part will discuss the development of those components in the V4 countries by the quarterly data for 2018Q1 - 2020Q4, thus the same period as we have studied in previous chapter. In this sense, it is important to note that we used aggregate data in volumes. For this reason the differences do not capture differences in the size of the economy. This difference would be able to settle by using the per capita calculated data, however, the extent of the paper does not allow to deal with this analysis.

Starting with the equity, the most “negative” numbers related to the decrease of the equity of the foreign investments were in Hungary. Starting with 2018, this decrease is, as we know, not associated with the pandemic, but with the business environment and other legislative changes in Hungary resulted in disconcert of foreign investors - those looking for the allocation of the new investment and even those already allocated in Hungary. We assume that further equity “looses” are still associated with this issue as the waves of COVID-19 pandemic were almost synchronized, striking all V4 economies almost in the same time period or within one or maximum two months. As seen on the graph, the equity volumes decreased mainly since third of fourth quarter of 2019 continuing at the low level until end of the analysed period. Only exception is the rise of the equity in Poland in third quarter of 2020.



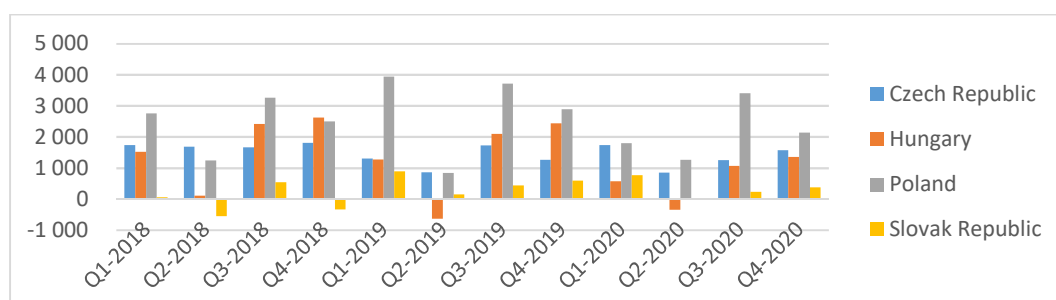
**Figure 5: FDI inflow to V4 countries – equity (mil. USD, current prices, OECD.Stat)**

Continuing with debt, we might consider the debt as the loans of the foreign affiliates. Thus, the minus sign means that overall FDI inflow to a country has decreased and the plus value means that country has achieved more FDI inflow. As seen, there are just four observations of negative volumes before the fourth quarter of 2018. However, since first quarter of 2019 (start of the pandemic situation), negative volumes are more common. The highest volumes (in negative term) were recorded in Poland. If considering time period within our sample, third quarter of 2020 seems to be the most affected. Not surprisingly, we have mention this period also in overall FDI inflow analysis and in equity component.



**Figure 6: FDI inflow to V4 countries – debt (mil. USD, current prices, OECD.Stat)**

The last component is reinvestment of earnings. We might see this component had, except for fourth observations, positive values and we consider this FDI inflow component as the key contribution to the FDI inflow during the analysed period and the COVID-19 pandemic period. Even if the equity or loan from the home company is not flowing into the company (and thus also to the host country), the earnings from the selling of production or any other earnings of the foreign affiliates might be remained or kept in a host country, statistically increasing the FDI inflow. Considerable is second quarter of 2019 and second quarter of 2020 with the decrease in reinvestment of earnings in all countries, even with negative values for Hungary. These quarters might be again connected with the period of increasing new COVID-19 infected or with restrictions associates in effort to moderate or stop spreading of the Covid outbreak.



**Figure 7: FDI inflow to V4 countries – reinvestment of earnings (mil. USD, current prices, OECD.Stat)**

#### 4. Conclusion

The COVID-19 pandemic has affected the world economies, among them also economies of the V4 countries. As the pandemic situation, lockdowns and many measures taken in order to moderate or

stop spreading the Covid outbreak have caused economies to fall into stagnations or recessions, the situation with foreign direct investment has just copied the changes in economies performance. The FDI inflows has fallen dramatically mostly affected the developed countries, e.g. European countries, but has not such affected developing countries. Moreover, some territories, for instance Asia, were not affected by the pandemic and FDI inflow has even slightly increased. With regard to V4 countries, these were affected negatively with drop of the FDI inflow. These countries were affected by several waves of the pandemic, which were associated with taken measures – often slowing down the economy performance. The pandemic has affected V4 countries almost synchronically within one or maximum two months difference. When analysing the FDI inflow components, most of the FDI inflow was made of reinvestment of earnings. On the other hand, equity is the components that repeatedly decreased achieving negative values resulting in disinvestments. Slovakia is the country, which has the most observations and has struggled with disinvestments. Further, Poland was the country with very fluctuate development, while the development in the Czech Republic was the most stable.

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## Impact of pandemics on key figures in occupational safety and health management

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**Abstract:** The goal of this research is to demonstrate how pandemics impact OSH management and KPIs. The characteristics of OSHM are determined within the scope of this empirical investigation with previous literature research, the most relevant KPIs are clearly defined and given to the company's OSHM experts. For this study, eight specialists from a German business with 18 worldwide manufacturing locations are interviewed. The subject of this study is explored using a qualitative content analysis based on the Mayring method. MAXQDA, an analytic software, is utilized to evaluate the expert interviews. The study's findings indicate that there are KPIs in OSHM that may be used to assess the effect of pandemics, both directly and indirectly. On the other hand, it is discovered that, although OSHM systems offer adequate key figures, their relevance and application in practice must be investigated. These findings suggest that OSHM performance process assessment approaches and indicators may and should be improved. The epidemic offers an opportunity to put these reforms into action.

**Keywords:** Occupational Safety and Health Management, Pandemic, Key Performance Indicator, Productivity, Performance Measurement.

**JEL classification:** D240, M120, M540

### 1. Introduction

The globe is fully in the grasp of the Corona pandemic in 2020: people are getting ill or dying because of the Corona pandemic. It has an obvious social impact (WHO, 2021). In a situation comparable to the global economic crisis of 2008/2009, businesses stop production, employees work from home or part-time, individuals lose jobs, and whole lives are affected (Statistisches Bundesamt, 2020). Politicians and business executives are increasingly being urged to make choices and take measures that minimize the economic and human impact of pandemics. Presently, occupational safety and health management (OSHM) is in high demand, due in part to its expertise and services. Its goal is to protect safety and health at work (BMAS, 2021). OSH regulations keep businesses responsible. Therefore, OSHM must include legislative regulations and standards established in response to the Corona pandemic. Because of the intensity and unpredictability of the pandemic, businesses must take immediate action to protect their employees from infection while also protecting company from negative consequences. Senior executives and OSH management must make important choices in these circumstances. KPIs that are clear and relevant assist managers in making critical choices. Given the virus's wide impact on a business, the issue arises: Are there key figures OSH that managers should keep an eye on, particularly during pandemics? The purpose of this article is to demonstrate the effect of pandemics on OSHM, as well as the key figures involved. It is determined following a thorough study of the literature to describe the components of an OSHM system, as well as practical pandemic management methods and tools. These occurrences are thoroughly examined to learn more about the

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effect of pandemics on OSHM. the course of the investigation, from the literature review to the results, is summarized in the next chapters.

## **2. Theoretical Background**

### **2.1. Occupational Safety and Health Management (OSHM)**

Implementing OSHM Systems may help achieve objectives including enhancing safety and health at work and decreasing work-related injuries and illnesses (LASI, 2013, p. 5). Governments, companies, and employees already realize the benefits of such a system: reduced risks and improved productivity (ILO, 2009, p. 1). Top management and all company operations will now emphasize occupational safety and health (Ritter, 2000, p.1). How management can best run this system is a major challenge. Important OSH data and KPIs help management increase awareness and guarantee their employees are committed to safety at work (Costin, 2019, p. 3). Methods of OSHM have evolved throughout time because of social, political, technical, and economic developments (Mambwe, 2021, p. 2). According to studies, OSHM has a crucial role in creating a safe workplace, reducing workplace injury, and establishing a safe work environment (Podgòrski, 2015, p. 144). Training, employee engagement, proactive safety measures, corporate injury and near-miss reporting, risk management, and business culture for continuous development are all variables that have an influence on safety at work (Mwanaumo & Mambwe 2019, p. 27). ILO-OSH 2001 emphasizes that strategy, organization, planning and implementation, control and evaluation, and action for improvement are important components of the OSHM system (ILO, 2009, p. 6). The modern OSH model takes a holistic approach to OSH: It emphasizes corporate responsibility and encourages managers to participate in health and safety at work. It requires regular evaluation to discover trends and enhance the process (BAUA, 2002, p. 33).

### **2.2. Epidemic and Pandemic**

An epidemic is an increase in the number of infected or ill people (RKI, 2020). A pandemic, on the other hand, transcends national and continental boundaries. But there are still isolated places that are untouched (DKKV, 2020). Uncontrolled mutation happens when an animal virus becomes a subtype that is subsequently transferred from human to human. Inheritance and lack of community immunity allow for rapid transmission and tenfold increase in hospitalization (Bundesärztekammer, 2020). The temporal and spatial components are the only terms which don't show illness severity or risk. The WHO classifies diseases as epidemics or pandemics (DKKV, 2020). Government or safety regulations mandate certain measures to protect employees against pandemic. Among others, the SARS-CoV-2 OSH regulation is notable in Germany (BMAS, 2021), the Robert Koch Institute's two-part pandemic plan (RKI, 2016 and 2017), and the recently adopted Corona protection law.

### **2.3. Key Figures and KPIs of OSHM**

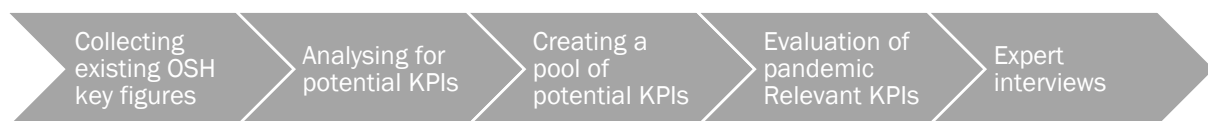
Decision-making frequently uses different types of key figures. Metrics that measure abstract concepts and evaluate research (Yang, 2020, p. 5). Absolute key figures are single numbers, discrepancies, or mean values (Ziegenbein, 2007, p. 165). Ratios are constantly correlated and link major actors (Joos-Sachse, 2014, p. 65). These data sources may be classified as early indicator/performance driver vs. late indicator/diagnostic key figure (Eschenbach, Siller, 2011, p. 104). The Balanced Scorecard is a well-known practice model that emphasizes the company's strengths and shortcomings at any level: internal, industry-wide, or across time (Vollmuth & Zwettler, 2013, p. 16). Prioritization of key figures according to the business goal is important. Not every data is a KPI: KPI is a metric that measures and assesses business performance (Parmenter, 2015, p. 7). A KPI must meet specific requirements: non-

financial key figure, easy to measure and control, TOP management focus, easy to understand, assignable to a team, influence on critical success factors, and “limited dark sides” (Parmenter, 2015, p. 11 f.). In addition to providing a clear picture of a company’s measurement and control capabilities, they act as a regulation throughout the business and help as a beginning point for discussion, such as the budget for safety measures, since they compare before and after data (VDSI, 2011, p. 10). Measuring using indicators in OSH risk management seems to be required (Kaassis, 2018, p. 3). Even if the legislation remains unchanged, responsibility in OSH arises because of standards that limit corrective action. Safety management methods are increasingly required, and significant advances have been made in this field (Pons, 2019, p. 4).

### 3. Methodology

The purpose of this article is to understand the effect of pandemics on OSH management, as well as the key figures involved. Within the framework of this investigation, the following theses (T) were examined: The potential KPIs for OSH cover all pillars of the OSH management system, according to ILO Guideline ILO-OSH 2001 (T1), Among the potential KPIs in OSHM, there are some on which the impact of the COVID-19 pandemic can be seen (T2), The KPIs influenced by SARS-CoV-2 consider all the management areas mentioned in T1 (T3).

Figure 1 illustrates this qualitative research method. First, current OSH key figures are gathered and analysed using Parmenter’s seven criteria. Expert discussions extracted potential KPIs in this approach. In the third step, a pool of KPIs was chosen from all existing Key figures.



**Figure 1: Research Design**

The potential KPIs were compared to health and SARS-CoV-2. With these criteria, it was possible to eliminate OSH KPIs that were irrelevant to this section and its study goals. The remaining KPIs were evaluated in the last step using expert interviews. This data comes from 150 sources of literature. A combination of ILO, OSHA, LASI, and BAUA procedures and reports were used to gather data. Internal papers (processes, instructions, committee minutes) from a German company with 18 manufacturing locations worldwide were also utilized. The risk assessment, operating instructions, and staff training are among the research’s workstation-relevant activities. To keep things consistent with management systems, the term management review is used in this study rather than action for improvement since the countermeasures would need to be addressed in management reviews prior to implementation. Because behaviour-based safety is a complex subject that requires individual attention, cultural factors were explicitly excluded. In addition, industries, business sizes, and company structures were not included to make the conclusion as broad as feasible. Existing information was analysed as secondary data for this research, resulting in a pool of key figures that covered all usual OSHM indicators. In this instance, there are no explanatory theories or models, therefore an empirical exploratory approach is appropriate. Eight OSH experts (of a German group in the automobile sector) with practical expertise in the design and operation of an OSHM system who cover a wide range of presently implemented OSHM approaches were recruited as workshop/ interview participants. The interview guide is used to

conduct the interview (non-standardized guided interview) and is assessed using Mayring's content analysis methods. MAXQDA was used to analyse data and create the initial coding scheme.

#### 4. Results

A collection of key figures is generated and categorized into the characteristic criteria of a KPI. Through a review of the literature, this was accomplished with an emphasis on occupational safety and ergonomics in the international context. The identified key figures are grouped into five clusters in the next step. These five clusters are the outcome of the OSHMS categorization according to ILO-OSH 2001. 74 possible KPIs were found from 300 gathered key figures. As a result, the first thesis (T1) was examined and verified. Table 1 illustrates the KPIs that remained as pandemic relevant after filtering the 29-pandemic relevant KPIs and were included in the expert interview. As a result, the T2 and T3 were also confirmed. The main category viewpoints, evaluated via MAXQDA, support the pandemic effect assumption. It takes a lot of effort to collect and distribute information on the current Corona pandemic. One expert said that involvement in working committees was growing, citing the "Corona Competence Team" created especially for the COVID 19 pandemic. Employee and manager training activities have increased. One respondent added that this indicator was a "success driver" in the group. Another expert mentioned a minimum increase in workplace injuries. Workers on the assembly line who were missing due to Corona had to be replaced by newer workers. Work on unknown steps frequently resulted in injury.

**Table 1: Determined pandemic relevant PKIs in each OSHM cluster**

Cluster	Potential KPI
Strategy	Extent of participation in expert committees
	Number of suggestions from employees on improving OSH
Organization	Participation in OSH training measures by employees
	Proportion of high-quality OSH training courses
Planning & implementation	Health rate
	Risk assessment
Control & Evaluation	Illness-related absence rate
	Detected weak points (near misses)
Management review	Managers Participation in OSH training measures

Overall, OSH received more emphasis. A shift in illness rates since the pandemic was also mentioned. Two experts said this KPI was decreasing, since many worked from home. There are further key figures than KPIs where the impacts are seen immediately like all expenses associated with planning and implementing different initiatives or buying masks and disinfectants. The number of employees working from home rose as well. According to the interviews, risk assessment has indirect impacts on pandemic KPIs in occupational safety. One example was the legal obligation to evaluate and update the risk assessment. However, it is essential to differentiate whether businesses conducted a separate evaluation or incorporated the Corona issue into their current procedure when assessing the effect of this indicator. During this time, it was frequently suggested to add "pandemics" as a potential threat to respond proactively. The risk assessment is the foundation for all subsequent actions and influences the other areas. Besides from KPIs with clear effect, experts reported on KPIs with no apparent

influence. The meetings being entirely digital has had no direct impact on the outcomes, since they believe that enhanced digitization helps the process of dealing with pandemics.

## 5. Discussion

Expert opinions and research findings indicate that OSHM key figures that may be used as KPIs already exist. To avoid misunderstanding, it was sometimes necessary to clarify the Parmenter's KPI definition to the interviewees as a foundation of this study which shows an information gap regarding the KPI definition. Based on participant feedback, existing potential KPIs cover all OSHM pillars according to ILO OSH-2001. The epidemic is serious and impacts both the workplace and society. Changes are expected to affect OSH KPIs. Experts' views confirm the findings of the literature review. It also shows the importance of OSH. The issue is gaining steam, and new committees are being formed. OSH indications are now directly visible. Most indirect effects appear gradually. Experts claim these issues must be addressed immediately; As shown in risk assessment. Changes in its numerical characteristic value affect other KPIs. So long as all potential risks are handled, and data is gathered. Thus, if the risk assessment changes due to a pandemic, several indicators will change. According to the findings, the OSHM KPI allocation pattern is identical with or without the virus impact. The statements in both subcategories address the same issue: managers' attitudes and behaviors during pandemics. The topicality of the issue enables the interviewees to express realistic and current opinions. The question is whether the views remain the same or change after the epidemic. Experts say that in a pandemic, more KPIs or combinations of KPIs would be required to cover all bases. Also, they are of the opinion that the current data, like as risk assessment data, may also be used during a pandemic. Again, the necessity of risk assessment is emphasized. Overall, the investigated theses have been completely verified by existing findings. One of the study's limitations is that it concentrates on workstation-related components and processes such as risk assessment, operating instructions, and staff training. Furthermore, the cultural aspects were purposefully excluded since the topic of behavior-based safety is very complicated and should be handled individually. Moreover, industries, company sizes, and company structures were not considered to make the result as general and applicable to all types of companies as possible. The result is unaffected since the risk assessment process is the same in all companies, regardless of industry or size, but only a structured approach is utilized.

## 6. Conclusion

According to the study's finding, the impacts of a pandemic may be assessed using key figures and KPIs of occupational safety and health management. In addition to direct effects like greater staff participation on expert committees, injuries, and training, indirect effects include risk assessment KPIs. Other key figures like the number of home office employees are also affected. Occupational safety and health management systems provide adequate important data, but their relevance and application in practice must be examined. The risk assessment must be the starting point for any information or KPI identification. It is also found that there is asymmetry in indicator type and allocation. For example, there are much more retrospective indicators than prospective indicators. Management review has a few gaps that show that managers' responsibilities may be more focused. These results indicate that performance assessment methods for occupational safety and health management can be improved. The pandemic presents a chance to optimize. So that the KPIs may be utilized effectively in critical decision-making scenarios. The urgent need to enhance key performance indicator systems, the present uncertain environment, and its effect on businesses and occupational safety and health highlight the necessity for ongoing scientific study.

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## Recruiting Generation Z: Potential of social media in personnel marketing

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**Abstract:** Social media are a necessary part of marketing strategies nowadays. Nevertheless, the question arises, what is the potential of social media in personnel marketing. It is widely known that social media is a natural communication channel for Generation Z, so it seems to be a promising tool for recruiters. The aim of this paper is to describe the current situation in labour market with a focus on Generation Z and to put this data in the context of social media usage. To achieve this goal, a literature review and publicly available data are used. Based on the results, the paper proposes managerial implications and suggestions for further research.

**Keywords:** Generation Z, social media, personnel marketing, labour market

**JEL classification:** M3, M5

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### 1. Introduction

Generation Z differs in many aspects from previous generations (Dabija et al., 2017; Lazányi & Bilan, 2017; Lissitsa & Kol, 2019). This is natural, as these young people have grown up in circumstances in which older generations did not (Omca Çobanoğlu et al., 2018). One of the significant characteristics often cited is a huge importance of technology in the lives of Generation Z, as they have never experienced a world without access to the Internet and other conveniences of modern society (Nichols & Wright, 2018). Generation Z deals with similar problems as older generations of the same age, but thanks to technologies they tend to have a different approach and their behaviour may seem incomprehensible to older generations (Törőcsik et al., 2014). Thanks to their natural use of technologies, they are called digital natives (Prensky, 2001). It is common for them to use smartphones when searching for information and when approaching social media (Korombel & Ławińska, 2019; Sriptom et al., 2019), which is a preferred communication channel for them (Chandhok & Nithya, 2019).

If HR managers do not consider the specifics of Generation Z, they can expect an undesirable human capital vacuum in the workplace (Goh & Okumus, 2020). This paper focuses on only one part of Generation Z's needs – using social media to communicate. The purpose of this paper is to highlight the potential of social media in personnel marketing for recruiting generation Z and to describe managerial implications of this trend.

### 2. Generation Z in the context of the labour market in the Czech Republic

Despite concerns about the economic consequences of the COVID-19 pandemic, there is still an unprecedented low unemployment rate in the Czech Republic, it was only 2,9 % in June 2021 ("Nejnovější ekonomické údaje", 2021). As Figure 1 shows, in recent years there have been more vacancies than job applicants and this trend continues ("Uchazeči a volná místa", 2021). This situation

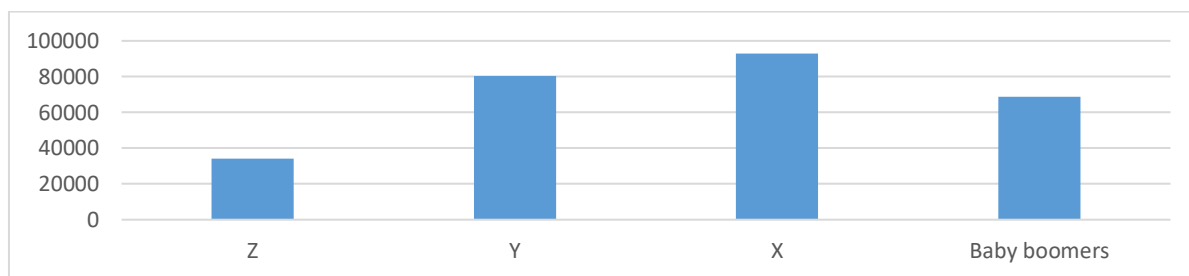
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puts employers in the position where they must compete for quality human resources, and they have to work on their employer brand and use tools of personnel marketing properly.

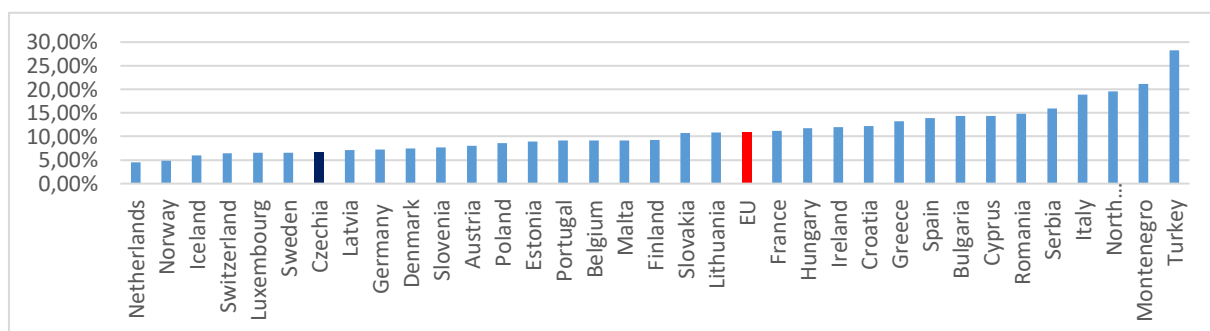


**Figure 1 Development of the ratio of job applicants to vacancies in the Czech Republic ("Uchazeči a volná místa", 2021)**

Moreover, if we talk about Generation Z, as Figure 2 shows, they are the least numerous group of job applicants on the labour market ("Měsíční statistika struktury uchazečů a volných pracovních míst", 2021). However, a significant part of Generation Z still attends high schools or universities, it is obvious that there is a shortage of young job applicants suitable for e.g., junior positions. This is supported by the fact that compared to the European Union, Czech Republic has a lower than average percentage of young people who are neither attending school nor working compared to European Union. A detailed view is shown in Figure 3.



**Figure 2 Number of job applicants by generation in the Czech Republic in June 2021**



**Figure 3 Young people aged 15–24 who are neither in employment nor in education and training ("Young people neither in employment nor in education and training (NEET), by sex and age - annual data", 2021)**

This does not mean that young graduates do not have to worry about their future careers. The truth is that there are industries that suffer from a lack of qualified job applicants, but there are also industries



in which it is complicated to get a job in the Czech Republic ("Analýza poptávky po pracovní síle a nabídky pracovní síly", 2021). However, as mentioned above, employers need to gain a competitive advantage if they want to hire good quality Generation Z employees. One of the promising ways is to improve the employer brand and use social media for personnel marketing.

### **3. Generation Z and the use of social media**

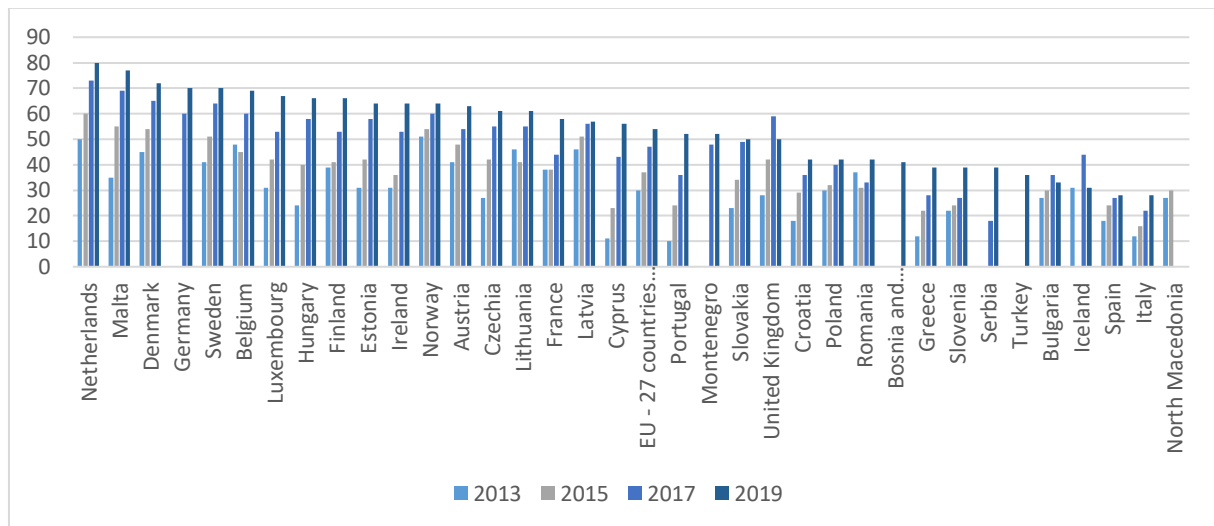
User-generated content is more credible to generation Z than official content (Herrando et al., 2019). Marketers need to adapt to this preference if they want to appeal to Generation Z, and social media seems to be a suitable tool for this, as it has the potential to build communities (Ławińska & Korombel, 2019). As Generation Z is less brand loyal compared to previous generations (Thangavel et al., n.d.), social media can be a solution on how to improve their loyalty, as because marketers can use social media interaction to make their company part of Generation Z's personal brand (Ek Styvén & Foster, 2018). One of the important factors when Generation Z decides their future career is their friends and the opportunity to work together (Goh & Lee, 2018) and Generation Z carefully develops their personal brand through social media (Vitelar, 2013). These factors could help improve the organization employer brand if it succeeds in becoming part of the current employees' personal brand it can better attract high-quality Generation Z job applicants.

Social media can also help organizations gain the trust of Generation Z through organizational listening, which upgrades social media communication from just sharing content specifically to answering questions and leading discussions. Young people expect organizations to listen to their voices and social media can help with this issue (Reinikainen et al., 2020). Social media marketing has a positive impact on customer engagement and e-satisfaction among Generation Z (Simbolon & Yanti, 2021). Since Generation Z spends a lot of time on social media, it is worth creating a strategy on how to engage Generation Z through this communication channel (Törőcsik et al., 2014). Social media use was the most common activity online among European people aged 16 – 24 in 2017 ("Living online", 2018). This communication channel is more natural for them than other ways of communication (Dabija et al., 2017; Chandhok & Nithya, 2019). Generation Z mostly accesses social media with a smartphone and uses it for quick communication, finding and following friends and sharing information with them or getting information about products or services (Korombel & Ławińska, 2019).

### **4. The potential of social media in personnel marketing**

The knowledge and use of digital platforms, which are an inseparable part of our daily lives, is fundamental. Building a social media community is an essential part of e-recruiting (Rodríguez-Sánchez et al., 2019). Sharing relevant information about daily life at a company improves an employer's attractiveness to candidates, especially when this content is delivered in a personable manner (Carpentier et al., 2019). Social media is a new communication channel between an employer and job applicants that can create a basic form of meaningful hiring communication (Aggerholm & Andersen, 2018). But on the other hand, social media should not be the only communication channel because then an employer runs the risk of excluding too many job applicants (Davison et al., 2011). Companies that follow global trends combine career websites and social media to showcase their organizational culture in order to attract better job applicants (Mičík & Mičudová, 2018). Even more, a job applicant's social media profile should not be the determining factor in whether or not they are hired (Madera, 2012).

Businesses have already explored the value of social media. In 2017, 49 % of businesses with internet access used at least one type of social media. They mostly used this communication channel to develop their company's image or do marketing of their products (84 %), but they also used social media for recruitment (49 %) ("Living online", 2018). And the popularity of social media for recruitment is on the rise, with 54 % of businesses using social media in 2019 ("Social media use by purpose", 2021). Czech employers are following this trend, they are slightly above average compared to other European countries, a closer look is shown in Figure 4.



**Figure 4 Percentage of businesses with internet access in the EU using social media for recruitment ("Social media use by purpose", 2021)**

## 5. Managerial implications

Based on the previous findings, three main managerial implications can be identified:

### 5.1. Shortage of Generation Z applicants

Demographic trends are leading to a shortage of junior job applicants and this trend will continue. If companies want to avoid a generational vacuum in the workplace, they must gain a competitive advantage over other employers and not underestimate this situation. The solution is to understand Generation Z and embrace their needs, such as communicating and sharing information about job openings and organizational culture via social media.

### 5.2. Generation Z uses social media

When promoting a product, marketers are used to researching the habits and communication channels of the target group of customers. They should do the same if they want to reach the right Generation Z candidates. HR Managers and personnel marketers should learn what kind of content is interesting to Generation Z, build a community of followers and become part of the current employees' personnel brand.

### 5.3. The trend of using social media in personnel marketing

More than half of businesses with internet access use social media for recruitment. This is a great competitive advantage in the labour market. Organizations that are not using social media to develop their employer brand should rethink their recruitment strategy if they want to be successful in hiring Generation Z. On the other hand, employers should not forget about other communication channels

so that they do not exclude other groups of candidates. As more and more recruiters use social media, the content shared on social media should be original and reflect the unique characteristics of the organizational culture to attract young followers.

## 6. Conclusion

The paper uses a literature review and publicly available data to describe the situation on the Czech labour market. It was found that despite the COVID-19 situation, there is still a very low unemployment rate and a shortage of Generation Z job applicants. This is a very competitive environment for employers and if they want to attract young people, they need to adapt their communication habits and accept social media as an inseparable part of the recruitment campaign.

There are certain limitations of this paper. First of all, it is complicated to generalize characteristics about the whole population in a certain span of age. There might be also similarities with older generations and preferences which they have in common. Exploring these similarities should help the employers to target a bigger group of job applicants with one recruitment campaign. Further research will follow to moderate these limitations.

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# Human capital as the foundation for a modern knowledge-based economy

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**Abstract:** Economic development is a long-term process of positive changes of a quantitative, qualitative, and structural nature occurring in the economy. One of the main changes occurring in the modern economy is its gradual transformation from the economy based on the economies of scale to the economy based on knowledge and modern technologies. In the knowledge-based economy, innovation is treated as a priority, digitalisation in the society is of utmost significance, however, its foundation is human capital. It is man who is the original source of knowledge which constitutes and plays a decisive role in stimulating economic and social development. In the economic terms, knowledge is determined as information that is collected, processed, and used to undertake decisions as well as a specific “resource” required to achieve economic success and competitive advantage. The process of creating and using knowledge in organisations is triggered by managers who enable making knowledge productive and useful in the processes of creating and implementing innovations. The strength of a modern knowledge-based economy are employees with high professional qualifications, ready for the continuous development of their competences, and motivated to undertake creative and efficient activities. The openness to new methods of solving problems as well as persistence in the pursuance of goals and “curiosity about the world” are the best determinants of success in a knowledge-based economy.

**Keywords:** human capital, knowledge, knowledge-based economy

**JEL classification:** D83, J24, O15

## 1. Introduction

Rapid technological progress has made innovation the basic factor determining a company's competitive advantage. In the twenty-first century, innovation in companies should also predestine the approach to human capital management as it is the foundation for designing and building business competitiveness in each organisation. Modern and efficient management methods, based on professionally trained employees, using mainly knowledge, taking advantage of modern, integrated IT systems in their work, are indispensable to pursue the organisation's developmental goals. In today's world of rapid changes, organisations focused on development, first of all, look for employees and managers striving for knowledge and understanding, focused on searching for new solutions to already identified problems. Nevertheless, the point is not to be interested in everything at the same time, but to be open to new, creative ways of performing tasks, thinking about work or business and, in particular, about interpersonal relationships in the teamwork terms. Having such skills significantly facilitates the development and achievement of interdisciplinarity, understood as supplementing your main specialisation with knowledge from related or complementary fields (Wąsowski, 2021). Combining knowledge from various fields, experience and individual way of processing information enables a broader prospective of the world and understanding the mechanisms governing the dynamically changing economic reality.

## 2. Literature Review

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In the 21<sup>st</sup> century, companies focused on development should be distinguished by a comprehensive approach to management, including human resources management. It is manifested by the perception of the organisation as a system – an entity composed of interrelated subsystems. A change occurring in the functioning of one of the areas may result in positive or negative outcomes in the functioning of the entire organisation. Similarly, a holistic (in Greek “holos” means “a whole”) perception of an employee in the organisation consists in seeing a person as an indivisible entity with physical, mental, social, and spiritual spheres. There is a strict relationship among the above spheres - what affects one of them affects all the others at the same time.

## **2.1 Knowledge, wisdom, or information?**

There are numerous definitions of the KNOWLEDGE term, depending on the area of interests that tries to explain it. In the most general terms, knowledge is a result of all the potential acts of cognition; in more detailed terms – it is a general set of reliable information about reality along with the ability to apply it. The main problems of the philosophical theory of knowledge include both the formulation of a definition and the criterion of knowledge. The fundamental intuition regarding the concept of knowledge is the assumption that knowledge should be verifiable (according to a specific criterion) and communicable (the possibility of communication between individuals is approved). Aristotle was the first one to distinguish between theoretical and practical knowledge. The theoretical knowledge (or accepted information) acquired and possessed is not enough to indicate that we are able to apply it in practice. In order to learn this, i.e., to gain practical knowledge, we have to pass a more or less arduous practical lesson ourselves. As Paulo Coelho used to say: “Anything you have learned so far will lose its meaning if you cannot find an application for your knowledge.”

The concept of knowledge in psychology means “all the contents recorded in the human mind as a result of the accumulation of experience and learning. (...) In a narrower sense, knowledge is a personal state of cognition of an individual as a result of the impact of objective reality on them” (Pondel, 2003). Therefore, in a general sense, knowledge is information that individuals acquire through the sense organs that they create on their own. Knowledge functions in the mind in the form of cognitive structures that are modified in various ways by cognitive processes. Knowledge in the strict sense, on the other hand, is a definition of a certain category of cognitive structures that are permanently and systematically contained in the mind in the long-term memory system (Nęcka, Orzechowski & Szymura, 2006). The source of the recipient’s knowledge in information science is information, the reception of which is impacted by the situational context and the recipient’s experience. So “knowledge is what transforms information into new information or new knowledge, or new preferences, and preferences are what indicates which knowledge to use” (Gadomski, 1999). For many years, the company’s knowledge has become more and more significant, mainly due to its connection with innovation. These issues have been analysed separately so far, treating knowledge and knowledge and innovation management as independent processes, indicating a clear impact on the development of each enterprise. However, there is a gap between knowledge and innovation that we can try to fill by means of the ability to create a vision of the company development. Knowledge can be treated as “a need, an ability that distinguishes us from others, allows us to build and interpret the environment, restrict the uncertainty that accompanies life” (Baruk, 2011).

Knowledge is believed to be exogenous, which means that it comes from external sources such as literature, lectures, or films. On the other hand, endogenous nature and origin from internal sources

understood as one's own introspective thinking, analysis and judgment are rather attributed to wisdom. Wisdom and knowledge are correlated - knowledge reinforces wisdom and the ability to effectively absorb knowledge. Oftentimes, the application of knowledge focuses on getting to know the right facts provided by the information system. In opposition to this statement, it should be made clear that wisdom often requires something more than facts to perceive and choose "effective" or to avoid "ineffective" actions. Such additional factors may include speculation, feelings, and moral or ethical values. Therefore, in a general sense it can be concluded that applying knowledge is a much simpler process. However, in organisations operating today in the excess of information, it is worth remembering the words of Thomas Stearns Eliot: "Where is the wisdom lost for knowledge? Where is the knowledge lost among the information?".

## **2.2 A "new" in the team - potential and responsibility**

In learning organisations, employees are focused on continuous development and acquiring new competences that enable questioning and undermining the status quo so that, as a result of creative thinking and action, innovations are created. As Tadeusz Kotarbiński used to say, "You have to question anything that can be questioned because only in this way can you detect what cannot be questioned." However, not only competencies build the trust required for the best teams to achieve exceptional results. The ability to do extraordinary things by a group of cooperating people depends on their ability to act together as a team in favourable conditions. Creating a strong culture in organisations, based on clearly defined humanistic values and beliefs, offering employees trust and empathy, gives them a sense of belonging. Reduction of the level of threat felt within the organisation means that people do not have to be afraid of one another, there is general trust, and a willingness to cooperate and participate in a team increases. Favourable conditions for the free exchange of information and effective communication occur. Employees have more time and energy for innovations, preparing to defend against external threats, and seizing opportunities for the development of the organisation. In large enterprises, the attitude of leaders is extremely important as they should have the skills to maintain the sense of safety and belonging in the teams they lead. Otherwise, the flow of information slows down, cooperation and safety are replaced with anxiety, development is hindered, and the entire organisation becomes more vulnerable to external threats. You cannot make people cooperate, develop great ideas, or trust one another. It is always a result of the fact that they feel safe among colleagues and trust them. Then, they naturally begin to share knowledge, ideas, intelligence, but also the burden of stress. On the other hand, from the level of the entire organisation, there is a reinforcement of strengths in building a competitive advantage and higher resistance to external threats and pressures. Therefore, the most important task of a leader is to take care of each team member, starting from the beginning of the employment process. In order to emphasise the importance of leaders' responsibility in this area, Simon Sinek compared the adoption of a new employee to an organisation to adopting a child and welcoming them to the new home (Sinek, 2013).

However, before a new person on the team takes on the responsibility for their role in the organisation and for the rest of the group, they have to be introduced into their scope of responsibilities. The sooner an employee starts performing tasks in an atmosphere of trust, appreciation by colleagues and care from superiors, the sooner deep motivation and creativity will occur. The choice of an approach to transferring information to new team members, "teaching" them the company system is of great importance. In the twentieth century, the behavioural approach based on the following scheme: define the goal - define the starting point - strengthen the desired actions was dominant. It was also called



the theory of behaviour or the stimulus-response theory, behaviourism indicates the possibility of exerting impact on human behaviour by means of strong external motivation, comparison, and reinforcement. Through a system of penalties and rewards known as the “carrot and stick” method, it introduces rewards for performing certain activities. A method focused on rewarding only the achievement of a specific goal, not a process, does more harm than good when it comes to performing creative tasks which are indispensable for the innovation to occur. Therefore, in the twenty-first century, the cognitivist approach has become more common in learning organisations. This theory, derived from psychology, applies to neurobiology, philosophy, linguistics, and artificial intelligence, as well. According to this theory, people not only react to stimuli, but also process the collected information and draw conclusions on their own. In cognitivism, learning is an internal process of acquiring and processing information and drawing conclusions independently, determined by the type of intelligence and individual experience. Each of them, as a separate personality, considering the senses, brain, and mind, can draw completely different conclusions. While in the behavioural approach, learning is carried out in a hierarchy-based system through conditioning, imitation, and instruction, in cognitivism, team members are taught how to learn in order to achieve results, using knowledge of different types of intelligence and the role and needs of short-term, long-term or semantic memory (Jankowski, 2017). However, constructivism seems to be the most pro-creative method of acquiring knowledge. In this approach, learning is mainly based on experience gained while working on the problem, in the conditions of freedom, exchange of ideas, assistance and the right to choose techniques and tools. Leaders in such teams mainly play the facilitator’s role - they supervise the process, provide feedback, and gradually give more and more freedom to their subordinates. Leaders attach great importance to mutual trust, reflection, creative questions, and creativity. Each person has different knowledge because they have different experiences and process information in different ways. Therefore, constructivism emphasises the creative synergy effect resulting from group work and problem-solving work. As Georg S. Patton used to say, “Never tell people how to do something. Tell them what to do and they will surprise you with their ingenuity.”

### **2.3 Neurobiology – an ally or an enemy?**

Obviously, stress and insecurity at the beginning of employment are natural but in teams where there is a constant lack of trust, fear of making mistakes or offending someone, there is no place for creative thinking. Psychologists and researchers of the human brain have proven that the feeling of anxiety blocks and hinders the ability to learn. This “phenomenon” is explained by neurobiology, indicating the links between the amygdala (emotions), the sympathetic nervous system (cortisol - the stress hormone) and the prefrontal cortex (rational thinking). In terms of neurophysiology, anxiety is a state of special excitation of the limbic system and the reticular formation extending along the brain stem. This state is characterised by researchers as an increased electrophysiological discharge correlating with an increased concentration of relevant neurotransmitters. A person’s specific behaviour in a specific situation in the social space and, therefore, also in the place of employment, was presented by Paul MacLean in a remarkably interesting way. In 1990, MacLean proposed a division of the structure of the brain into three brain systems, namely, three brains which are interrelated to one another. He described each of these structures and created a so-called theory of the triune (tripartite) brain. It is where the processes owing to which a person analyses reality and undertakes everyday decisions take place. According to this theory, we distinguish between the reptilian, paleomammalian and neomammalian brain. The reptilian brain is referred to as instinctive because it is responsible for survival. It is the oldest part of the brain in evolution which activates huge amounts of strength,

endurance and pain resistance when activated in a life-threatening situation. Unfortunately, it takes place at the cost of rational thinking, planning and the system of values. The paleomammalian brain, otherwise known as the emotional brain, is considered to be the centre of emotions that it generates in our nervous system. It is “younger” than the reptile brain. It appeared with the first mammals and is responsible for social survival - it takes over control when the status of a person in a group is threatened. Usually, it works subconsciously and seems to be rational. Most human conflicts arise at the paleomammalian brain level when the emotions start to prevail. The neomammalian brain, referred to as rational, is responsible for rational thinking and solving specific problems in a strategic way. It combines intelligence, experience, and wisdom but, unfortunately, it is subject to two older structures. Therefore, it is so important to get to know your own paleomammalian brain in order to avoid many uneasy situations in social relations so that in a specific situation it does not supersede the logically thinking neomammalian brain (MacLean, 1990).

## **2.4 Downsizing - a threat to innovation**

In the current reality, marked by the effects of the COVID-19 pandemic, many companies have been forced to reduce employment in order to survive. In the context of human resource management, downsizing affects not only the dismissed but also the “rescued” team members. An inadequately prepared downsizing process may result in a significant drop in the effectiveness, performance, and morale of the remaining employees. The psychosocial effects of such a process are called “the dirty dozen” or “downsizing survival disease.” (Robbins, 2003). They are manifested by the loss of employment safety, lost trust to the management, loss of motivation, increase in conflicts, disruptions in communication and teamwork and, finally, loss of innovation. In order to minimise the negative outcomes of downsizing and restore the effective functioning of the organisation as soon as possible, it is necessary to “guide” employees through the process, ensuring honest and open communication and enabling the showing of feelings and emotions related to such a difficult situation. Immediately after downsizing, people who remain in the company feel the relief of avoiding the layoff. However, when this positive feeling fades away, the opposite feeling of fear of overburden, loss of motivation and commitment necessary for the development and success of the organisation materialise. The attitude of the leaders is extremely important in such a difficult situation for every company. Strong, open communication up and down the management chain and open discussion about the need to downsize also motivate the subordinates to adapt faster to changing circumstances. A personal example of a leader – with consistent words and deeds - combined with the certainty of actions, inspires and gives power. Consistency builds the trust and sense of safety required for innovation. People need to be certain that the information provided to them is true, whether it is good or bad. The leader’s main task is to take care of the team because it is the team that will carry out the tasks and goals of the company, taking advantage of their knowledge, intelligence, experience, and the provided information.

## **3. Data and Methods**

The purpose of the paper is to prove that in the knowledge-based economy, the primary source of which is the man, the application of a holistic concept of human resources management is the most efficient way to boost the innovation and the development of the organisation. The goal has been achieved by means of the research method and the critical analysis of literature. The subject of the research were publications and scientific articles devoted to management, psychology, and education. Furthermore, one of the most frequent research methods applied in social sciences, i.e., the

observational method was used. In this method, an important role is played by observation, which, unlike in the experimental method, does not entail changes in the local environment. To the contrary, it is a deliberate search for facts and a deliberate cognition with the help of the senses. At the same time, in the conducted research, the method of deduction was used in order to proceed from the general issues (economic reality) to details (foundations), allowing for the explanation of the causes and effects of changes occurring in general phenomena. This method is also called the disintegration method because it is characterised by the following research focus: from general to specific phenomena, from results to factors, and from outcomes to causes.

#### **4. Results and Discussion**

The results of the conducted research indicate that organisations that would like to achieve a competitive advantage by means of innovation, operating in the knowledge-based economy, should implement a holistic approach to human resources management. Along with the growing dynamics of changes occurring in the business environment and the excessive information provided by the economic reality, the application of such an approach allows for the best use the potential of employees whose knowledge, wisdom and experience can become a leverage in the business development. In the economic terms, knowledge is treated as information and as assets (resources) of the company. In the first approach, knowledge treated as information indicates the possibility of processing and using it to undertake rational economic decisions. In the second approach, it is an economic commodity that can be private property and can be an object of market trade as a commodity (Łobesko, 2004). The company know-how is gaining more and more importance, mainly due to the inextricable relationship with innovation. Based on the analysis, it can be concluded that the area of human resources management has undergone many changes and resulted in numerous concepts, however, the current challenges faced by the economy of the 21<sup>st</sup> century mean that it is still a subject of discussion at all the levels of organisational management as well as among scientists from many areas of interest. A holistic view of each employee as an indivisible entity with physical, mental, social, and spiritual spheres among which there are strict relationships, should determine the choice of the human capital management style in the organisation. The application of such an approach requires leaders to have, or to develop, specific interpersonal competences. Organisations focused on development, functioning in the conditions of a modern knowledge-based economy, should choose a human resources management style based on the knowledge of human nature, and not only on the system of punishments and rewards resulting from the still popular behavioural approach. Owing to the application of a holistic approach, it is possible to create working conditions in which there is an increase in the efficiency and effectiveness of activities leading to the emergence of innovation and the development of the organisation. It is worth quoting the words of a researcher, Martin Seligman, a professor of positive psychology: “Only when we feel confident and secure, are we able to receive criticism in a creative way, without adopting a defensive attitude.” (Seligman, 2011).

#### **5. Conclusions**

We live in a VUCA world characterised by Volatility, Uncertainty, Complexity and Ambiguity. In a knowledge-based economy, work is organised in a completely different way than it used to be only a few years ago. Individual and repetitive activities based on standard procedures have been replaced by diverse, interdisciplinary, more and more often international teams working together on comprehensive problems. The occurrence of innovation or technological progress is usually the effect of synergy resulting from the combination of knowledge, intelligence or experience of people who

work together. Such an approach forces changes in human capital management, in which the leader is expected not only to have professional or business knowledge, but also to understand human nature. In my opinion, understanding oneself (self-awareness) and understanding others (behavioural awareness) constitute the foundations for efficient communication in a team. As Richard Branson, an entrepreneur and billionaire said, "Communication is the most important skill any leader can have." The leader's communicative skills affect the quality of interpersonal relations in teams from the moment of hiring an employee until the end of cooperation. Thus, it can be a significant factor which decides whether the conditions triggering the development of an organisation and the emergence of innovation occur. The prevalence of human capital over other engines of development in the knowledge-based economy is obvious as it is the man who is the primary source of knowledge but also the central point of this development.

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## A behavioural approach to prevent dog fouling

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**Abstract:** The paper focuses on the experiment conducted in Slovakia. The aim of the experiment is to nudge dog walkers to change their behaviour in the city park and to reduce dog fouling. Two interventions will be implemented: a pink paint and yellow footprints. We believe that the interventions we use could lead to a long-term behavioural change and the experiment can be replicated in multiple municipalities across the world.

**Keywords:** behavioural economics, dog fouling, dog walkers, interventions, municipality

**JEL classification:** D90, D91

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### 1. Introduction

The article focuses on the ongoing research in the partner municipality in Slovakia. Through using behavioural approach we try to offer useful and inexpensive solutions that have the potential to increase the effectiveness of local government. The behavioural approach uses knowledge from psychology in order to understand the behaviour of individuals related to their decision-making process. Behavioural economics points out that people do not always have to act rationally and it leads to incapability of making good decisions. During the introductory project meeting with town representatives in autumn 2019 we identified the problem of dog fouling in public places. The ensuing discussion showed that the problem is long-term and widespread in several locations, but mainly in the parks. The town also registers a number of complaints from residents.

After a literature review we decided to use principles of social marketing to prevent dog fouling. It means that we combine marketing techniques with traditional approaches to social change in order to convince dog walkers that a new behaviour has more value than a current behaviour. The consultation with town representatives led to choosing a suitable location for the interventions in the city park. The research team does not have information that any behavioural intervention focused on dog fouling has ever been implemented in Slovakia. On the other side, we can use the experience from abroad.

To our best knowledge there are no functional measures currently being taken in Slovakia to prevent dog fouling. In the city of Bratislava, the capital city of Slovakia, only two fines were issued for dog fouling in 2019 and nobody was fined for dog fouling in 2018 (Bratislava, 2020).

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The aim of the paper is to provide insight on the ongoing experiment in the Slovak town.

## **2. The problem and why it is important to tackle it**

Dog fouling is a serious problem and there are many reasons why it is important to try to tackle it. We can identify at least three main reasons why it makes sense to solve the issue – health risks, public complaints, and reducing cleaning costs (Lowe et al. 2014). The minority of dog owners fail to pick up dog waste and leave it in public places. The potential serious health consequences are associated with the parasitic disease called toxocariasis and other serious diseases (Chen et al., 2018). Naturally, the most vulnerable group is children who move freely in public areas. In this case, personal hygiene is extremely important, but it can be problematic for children (Macpherson, 2013). Between 2014 and 2015, municipalities in England and Wales received 73,824 official complaints from disgruntled citizens who communicated their outrage at the dog excrement they found in public places (BBC, 2015). The Keep Wales Tidy study (2016a) considers a number of complaints to be one of the main reasons why it is important to address the problem of dog excrement in public areas. The Waste Improvement Network report (Atenstaed and Jones, 2011) estimates that municipalities in England and Wales spend a total of around £22 million per year on clean-up activities – dog waste collection, disposal, and other related activities.

The research team considers the above-mentioned consequences of polluting the public areas with dog excrement to be significant. Therefore, it is important to make efforts to try to alleviate the problem of dog fouling.

## **3. What is our objective and examples of empirical evidence**

The main goal of the experiment is to change the behaviour of dog walkers in the city park through interventions. We expect that the number of dog faeces left in the park will decrease by 25%. The expected reduction is based on past experiments (table 1). The experiment is scheduled for three weeks. However, we assume that the implementation of the experiment can lead to a long-term change in behaviour of dog walkers in a given location. However, the experiment is scheduled for three weeks only due to the COVID-19 pandemic and the unexpected restrictions that are impossible to predict. Therefore, we are not able to measure the long-term effect of our interventions.

As indicated above, there are experiences from abroad. We can use these experiences to create our own solution to reach the main goal. And we do so. In England, an experiment was carried out using green footprints by Keep Britain Tidy (2015), which has long focused on implementing various projects and experiments to change littering behaviour. The use of green footprints helps to reduce the amount of litter on the ground by an average of 15.9%. It was tested in eight locations and in six of them there was a decrease in litter found on the ground. However, in one location, the researchers observed a reduction of 46.1%. The authors of the study recommend using more permanent footprints that are visible after dark. We agree with their recommendation and will comply with it – we use the footprints made of permanent materials, such as those used for pedestrian traffic markings (size UK 11.5). The experiment with the green footprints on the street that direct people to bins was carried out for the first time in 2011 in Copenhagen, Denmark (Hansen, 2014). It led to a 46% decrease in litter found on street. Basically, in our experiment we install pairs of yellow footprints on the ground to highlight and direct dog walkers towards the nearest bin. Our intention is to nudge dog walkers to alter their behaviour in a more responsible way. Instead of the green footprints we choose the yellow footprints

to increase the salience of the footprints regarding the recommendation of the Keep Britain Tidy (2015) study.

In West Dunbartonshire (Scotland), the municipality decided to use pink spray to highlight dog faeces. It should embarrass dog walkers when they return to the incriminated place. As part of the intervention, a chalk-based paint was used, which wash away naturally within a few weeks, depending on the weather. As a result, the total amount of dog excrement in the city park has been reduced (BBC, 2012a). The pink spray intervention was also carried out in Blaenau Gwent (Wales) and resulted in a 50% reduction in dog excrement found on the ground (Keep Wales Tidy, 2016b). Further examples of the use of pink spray to highlight dog faeces found in public places can also be found in the English towns of Brixton, 2019 (MyLondon, 2019), Bath, 2021 (Somerset Live, 2021) and Falmouth, 2021 (Newsweek, 2021).

Another examples of interventions – the watching eyes posters, the flags with humorous and caustic messages, and the example of the town of Brunete (Spain) where some of its inhabitants received the dog faeces in the mail – can be seen in table 1. Table 1 summarizes the examples of interventions and includes their effectiveness if available.

It is clear that even in the current pandemic period, we can find examples of using pink spray to solve problems with dog excrement. Obviously, this is a long-term, recurring and extremely widespread problem.

**Table 1: Examples of interventions. Source: Own processing.**

Author	Location (Country)	Problem	Intervention	Effectiveness
Hansen (2014)	Copenhagen (Denmark)	Littering in public places	Footprints	46%
Keep Britain Tidy (2015)	England	Littering in public places	Footprints	15.9% (46.1%)
Keep Britain Tidy (2014)	England	Dog fouling in public places	Watching eyes posters	49%
BBC (2013a)	Boston (England)	Dog fouling in public places	Flags with humorous and caustic messages	n/a
BBC (2012a)	West Dunbartonshire (Scotland)	Dog fouling in public places	Pink spray	n/a
Keep Wales Tidy (2016b)	Blaenau Gwent (Wales)	Dog fouling in public places	Pink spray	50%

MyLondon (2019)	Brixton (England)	Dog fouling in public places	Pink spray	n/a
Somerset Live (2021)	Bath (England)	Dog fouling in public places	Pink spray	n/a
Newsweek (2021)	Falmouth (England)	Dog fouling in public places	Pink spray	n/a
Huffington Post (2013); BBC (2013b)	Brunete (Spain)	Dog fouling in public places	Town mails dog faeces back to the pet owners	70%

#### 4. Choosing the appropriate solution and testing

After the introductory project meeting with town representatives in autumn 2019 we focused on the problem of dog fouling in public places. The selection of a suitable solution had several steps:

1. To create a database of interventions that have already been implemented by other researchers.
2. To create an overview of interventions that could be applied in the partner municipality.
3. Presentation of the potential interventions for the representatives of the town in October 2020.
4. Final agreement with the representatives of the town in October 2020 (form of the interventions, location, timetable).

The original timetable to carry out the experiment during March and April 2021 was approved in October 2020. Unfortunately, for reasons caused by the COVID-19 pandemic we had to reschedule it for June and July 2021. The agreed form of experiment will be implemented through two interventions. We chose the pink spray for the first intervention and the yellow footprints regarding the effectiveness (as seen in table 1) and the recommendations from above mentioned studies. Basically, our intention was very clear – to find a cheap, easy to implement, effective, and measurable solution that could be used worldwide. We assume that if the interventions we use worked well before in different countries (Denmark, England, Scotland, and Wales – table 1) they should work well in Slovakia. The only difference is that we combine them in phase 3 of our experiment (table 2) to get better results.

Intervention 1 involves the application of coloured spray on dog faeces. Based on the experiences and recommendations of different researchers (Keep Britain Tidy, 2015; BBC, 2012a; BBC, 2012b; BBC, 2013a; BBC, 2013b; Keep Wales Tidy, 2016a; Keep Wales Tidy, 2016b) we decided to use the pink spray for its visibility. The spray we use is based on chalk and can be easily removed with water. How long it stays depends on the weather and other external influences.

In order to change the behaviour of dog walkers, intervention 1 uses the effect of salience. The effect of salience is based on the used pink colour, which will create a strong contrast with the surroundings. The dog faeces will be visible from a greater distance. In addition to the effect of salience, the



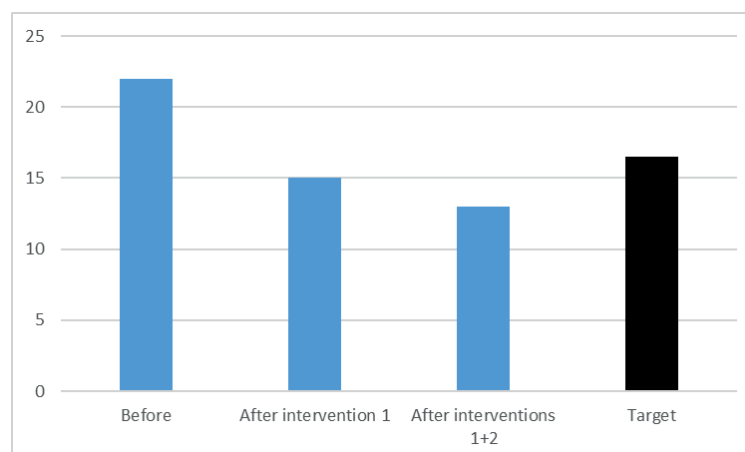
intervention 1 is also based on the principle of social approval. We assume that clear visibility of excrement will cause embarrassment, shock, or outrage in people (BBC, 2012a; BBC, 2012b; BBC, 2013a; BBC, 2013b; Keep Wales Tidy, 2016a; Keep Wales Tidy, 2016b). As a result, the people will try to change either their behaviour and/or the behaviour of others.

Intervention 2 uses yellow footprints. The aim is to increase dog walkers' awareness of the availability of waste bins in the area. We also use the effect of salience (similar to the intervention 1). The yellow footprints are self-adhesive, non-slip and their colour is reflective. The distinctive yellow colour is very important especially in poor visual conditions.

**Table 2: Phases of the experiment. Source: Own processing.**

Phase	Activity
1	Baseline monitoring
2	Intervention 1 + data collection
3	Intervention 1 and 2 + data collection
4	Analysis

In this experiment it is extremely important to take into account the potential impact of the weather. The weather conditions vary between the four seasons. It can significantly affect the baseline monitoring, implementation of the interventions, and data collection. As a result, it may be necessary to interrupt the experiment, move it to another period, and start it all over again. Considering all known factors we firstly excluded the winter and autumn months. Then, we preferred the spring months, but it ended up with summer months because of the COVID-19 pandemic. The Keep Britain Tidy study (2015) also states that the spring and summer months are better for this kind of experiment. Table 2 shows four phases of the experiment that are planned for June and July 2021.



**Figure 1: Effects of interventions – number of new dog fouling instances. Source: Own processing.**

Based on past experiments, we expected that the number of dog faeces left in the park would decrease by 25%. The intervention 1 – spraying led to a 31.8% reduction and the combination of two interventions – spraying and yellow footprints led to a 40.9% reduction in dog fouling (figure 1). In phase 3 (table 2) we decided to use the yellow footprints in a specific location where we found a sharp increase in the number of dog faeces during the data collection after phase 2.

## 5. Conclusion

Our research shows that dog fouling, the serious and widespread problem, has to be addressed for different reasons. Our intention is to show that through easy interventions we can significantly make a difference and help people to live in the cleaner environment. We can conclude that there are many interventions focused on preventing dog fouling, but to our best knowledge, no intervention focused on dog fouling has ever been implemented in Slovakia. Some of them are more successful, some of them are less successful, their effectiveness may reach 50%, in some specific cases even more. Our expectation was that the number of dog faeces left in the park would decrease by 25%. We prepared two interventions which seemed to be suitable for chosen location and effective. Our results show that the implementation of the interventions led to a significant 40.9% reduction in dog faeces left on the ground. Our recommendation is that the faeces should be highlighted continuously to substantially decrease the total amount of dog excrement in the city park. We proved that using the low-cost and easy to implement interventions which could be replicated in any municipality worldwide can bring very good results. Future research should focus more on long-term interventions, but we do not think it is possible now due to the current situation with COVID-19.

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# Consumer behaviour towards private labels at the time of Covid-19 pandemic

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**Abstract:** The marketing efforts aim to create a strong brand to which the consumers will be loyal. The paper aims to find whether the period of the Covid-19 pandemic may have affected consumer decision making when buying selected categories of private-label food products. To examine the behaviour of consumers towards private labels, quantitative data were obtained from 687 respondents using a questionnaire survey. The availability of grocery purchases in supermarkets at the time of pandemic restrictions has demonstrated further opportunities in the expansion and development of private labels of food commodities.

**Keywords:** consumer behaviour, private label food product, consumer decision making

**JEL classification:** D16, M30, M31

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## 1. Introduction

The novel coronavirus (COVID-19) pandemic, which primarily started as a health crisis, can be defined much broadly as it has significantly affected the entire global society and thus the economy. The outbreak of the COVID-19 pandemic has unpredictably changed the way people work, communicate and shop. According to the study conducted by Nielsen IQ (2020), the spread of the COVID-19 pandemic has led to a global change in consumers spending. Specifically, there has been observed a growing trend in sale of equipment, supplies and implements: the consumers have directed their priorities on the most basic needs, including food, hygiene and cleaning products. It is reported that in US markets, sales of, for example, powdered milk has increased by 84.4%, canned meat by 31.8%, and rice by 25.3% as the consumers' response to the pandemic (Nielsen IQ, 2020). Despin (2020) points out that after the pandemic, the affected manufacturing, service and tourism sectors together with other sectors will face severe consequences. As the coronavirus pandemic continues, consumer behaviour and shopping pattern are still changing. When shopping, the consumers have shifted their attention to the online space. However, in the case of food commodities, the majority of consumers are buying in supermarkets which are expanding their range of private labels. This study aims to find which product groups of food commodities offered under private labels the consumers prefer.

## 2. Theoretical background

### 2.1. Consumer behaviour

Consumer purchasing decisions are described by the Schiffman & Wisenblit (2014) model of consumer purchasing behaviour. The model is based on the principle that decision making is an individual's action that directly involves acquiring and using the offered product. The model of buying process consists of sequences where the consumer needs to identify the problem, seek information, evaluate alternatives and finally make the purchase decision. Finally, the purchase itself is followed by the consumer's

evaluation of the purchase. The purposeful purchase is also influenced by the factors arising from unforeseen situations. The consumer purchases according to the purpose based on factors such as family income, price and the expected benefit of the product. This sequence implicitly includes the assumption that by purchasing the product, the consumer will experience a certain level of satisfaction and dissatisfaction and will also engage in post-purchase product use actions. Di Crosta et al. (2021) conducted a study suggesting that the COVID-19 pandemic has had a significant impact on consumer behaviour. In their sample, this impact resulted in increased levels of spending, accompanied by an increase in the psychological need to purchase products that were both necessary and unnecessary. Bentall et al. (2021) created a large-scale questionnaire to study the changes in consumer behaviour. The questionnaire contained specific questions to receive a comprehensive view of people's economic attitudes and behaviours during an emergency, such as COVID-19. Savage (2019) presented a paper explaining that if the goal is to better understand how individuals and groups adapt to a disaster environment, we need to shift to a comprehensive model of adaptive systems behaviour. To achieve this goal, we need to bridge broader social sciences and the needs of behavioural economics, to incorporate the discipline-specific insights needed to make the transition to complexity. Further, Savage (2019) points that it is important to acknowledge the fact that the human behaviour observed during crises is far from being evidence of a panicky disruption of the social order and is often adaptive. Begley & McQuathttps (2020) found that during the pandemic, consumers were quite willing to change their purchasing behaviour. In their surveys, they showed that since the beginning of the COVID-19 epidemic almost 40% of American consumers had tried new products or new brands. Much of the change in their consumer behaviour was due to the unavailability of popular brand-name products; some brand-name products were out of stock for weeks as manufacturers of fast-moving consumer goods, which sell quickly and at relatively low prices, tried to meet sudden spikes in demand.

## **2.2. Consumer-private labels relationship**

Due to its highly competitive nature, branding can be particularly important in the retail industry to influence customer perceptions and promote choice and store loyalty (Ailawadi & Keller, 2004). As Keller (2012) reasons, unlike the manufacturer brands (created and owned by manufacturers), private brands/labels are created and developed by retailers, distributors or wholesalers. Yusuf (2020) states that with changing economic and social-environmental conditions and diverse consumer attitudes, there is an increase in the national and international competition among retailers. Keller (2012) explains that a retailer does not promote only one single brand and may have on the shelves the products of different brands. In the case of fast-moving consumer goods, retailers work very closely with consumers and therefore have a better notion of the consumers' demand. As a very small budget portion is allocated to advertising, private labels can have higher profit margins. As reported by FMI (2021), in the COVID-19 crisis, due to panic buying and household food stockpiling many private labels of fast-moving consumer goods soon disappeared from store shelves. Some shoppers who did not find their favourite brands bought other private-label goods and continued to do so. As the consumers exhibit higher price sensitivity this shopping behaviour was also motivated by the fact that private brands are often cheaper than national brands. Given the advantage of high availability, and the advantage of low price, during the COVID-19 pandemic, the private label products were much more attractive for the consumers. According to FMI (2021), besides the price, it is also the accessibility to the store location, as well as the desire to support local businesses that are most often cited as major drivers in consumer decision-making. Biscotti (2020) states that private labels provide retailers with greater trading opportunities as they often offer detailed product information on packaging and their

websites. The Nielsen Company (2020) reports that about two-thirds of the consumers consider the private labels as good as the original manufacturers' brands, and more than one-third of them consider some private labels to be better than the original manufacturers' brands. The retailers benefit from the consumer shift towards private labels too, as private labels typically bring them more money. According to Yusuf (2020), private labels have started to follow the structural dynamics to adapt to the evolving conditions. Yusuf (2020) also adds that private labels are often cited as the mechanism to achieve market differentiation and to help retailers strengthen consumer loyalty. Research conducted by Martos-Partal & González-Benito (2011) has shown that the relationship between the consumer loyalty to private labels and loyalty to a specific store shows considerable fluctuations; they suggest that this relationship may be related to the competitive positioning of store brands, particularly their positioning in terms of price-quality ratio. The more quality-oriented the private brand positioning is, the more favourable is the effect of consumer loyalty to the brand and store.

### **2.3. Private labels in the food industry**

Private labels are a huge segment of the food and beverage sector. Most private label food products are sold under private labels of the stores but are manufactured by their supply chain companies. Calvo-Porrall & Levy-Mangin (2016) revealed a substantially large effect of private brand familiarity on purchase intention and consumer loyalty. Calvo-Porrall & Levy-Mangin (2016) conclude that consumer trust and loyalty is strongly associated with private label food brands. Vroegrijk et. al (2016) comment on the losses and gains of retailers offering cheap private labels in comparison to the retailers running massive discount promotions; they point out that while the inclusion of a cheap private label increases sales among traditional chain loyalists, it alienates other customers. The COVID-19 pandemic highlighted the fragility of the food world and its supply chain. The report on the position of private brands (FMI, 2021) describes new opportunities for private brands arising from consumer testing during the COVID-19 pandemic. These opportunities include accelerating private brand performance in e-commerce and rethinking assortment and supply strategies. According to the report (FMI, 2021), 91% of surveyed retailers and food manufacturers plan to significantly or slightly increase their private label investments over the next two years because, during the pandemics, more consumers tried private labels which has led to higher recognition of the customers (Biscotti, 2020). Lempert (2021) states that meeting the needs of customers, as an effort to balance good eating habits with meeting the emotional needs of their families, forces the supermarkets to the adoption of new business models

## **3. Methodology**

The study aims to find out which groups of food commodity products offered to consumers under private labels do the customers prefer. We have collected the primary data using the questionnaires, which were distributed in paper form, by e-mail and via Google Docs in April and May 2021, when the anti-Covid measures restricted physical purchase in stores. We have obtained feedback from 697 respondents, of which 429 were females (61.5%) and 268 were males (38.5%), see Table 1. We divided the respondents into five age categories, see Table 2. Further, Table 3 shows the division of the sample based on the attained education and Table 4 shows the predominant field of education. The characteristics of the sample of respondents are reported in absolute numbers and relative frequencies. We assess the purchases of private label categories of food (sausage products, oil and fats, non-alcoholic beverages, milk and dairy, meat, chocolate confectionery, cheese, canned foods, bakery products) according to the purchase choice order assigned to them by respondents (Figure 1) and the reasons for choosing a supermarket (as the location) for grocery shopping (Table 5). We use

a 5-point scale: strongly agree - agree - disagree - strongly disagree - neutral opinion (see Figure 2) to assess how the consumers in the sample perceive private label food and using the relative frequencies, we are comparing how the consumers perceive the information on food composition, country of origin, private label price, suitable packaging of the private label, price-quality comparison and the satisfaction with the purchase of private labels food.

#### 4. Results and discussion

In the sample of 697 consumers, the women were represented by 61.5% of the respondents, while men accounted for 38.5% (see Table 1). The consumers (33.8%) in the age group 40-54 years were the most represented (see Table 2); in the terms of education level, the consumers with high school education were the most represented (42.1%), while the consumers with elementary education (5.1%) were the least represented (see Table 3). For the entire sample, the technical domain (34.4%) was the predominant educational domain and conversely, the consumers with a science-oriented domain of education (9.2%) were the least represented (see Table 4).

**Table 1: Gender characteristics of the sample**

Gender	Frequency	Relative frequency (%)	Cumulative (%)
Female	429	61.5	61.5
Male	268	38.5	100.0
Total	697	100.0	

**Table 2: Age characteristics of the sample**

Age category	Frequency	Relative frequency (%)	Cumulative (%)
18 – 25 years	134	19.2	19.2
26 – 39 years	204	29.2	48.4
40 – 54 years	236	33.8	82.2
55 – 64 years	95	13.6	95.8
65 years and above	28	4.2	100.0
Total	697	100.0	

**Table 3: Education level**

Education level	Frequency	Relative frequency (%)	Cumulative (%)
Basic education	36	5.1	5.1
Vocational school	145	20.8	25.9
High school	294	42.1	68.0
University	222	32.0	100.0
Total	697	100.0	

When evaluating the shopping reasons (see Table 5), the respondents gave low price as the first choice, good product quality as the second choice and discounts on goods as their third choice in the order of reasons for shopping in the supermarket; Surprisingly, advertising as a reason for shopping at a supermarket was mentioned only as of the sixth choice; also the recommendations from friends and acquaintances do not influence respondents. Even at the time of the Covid-19 pandemic, the majority of consumers were buying food in supermarkets.

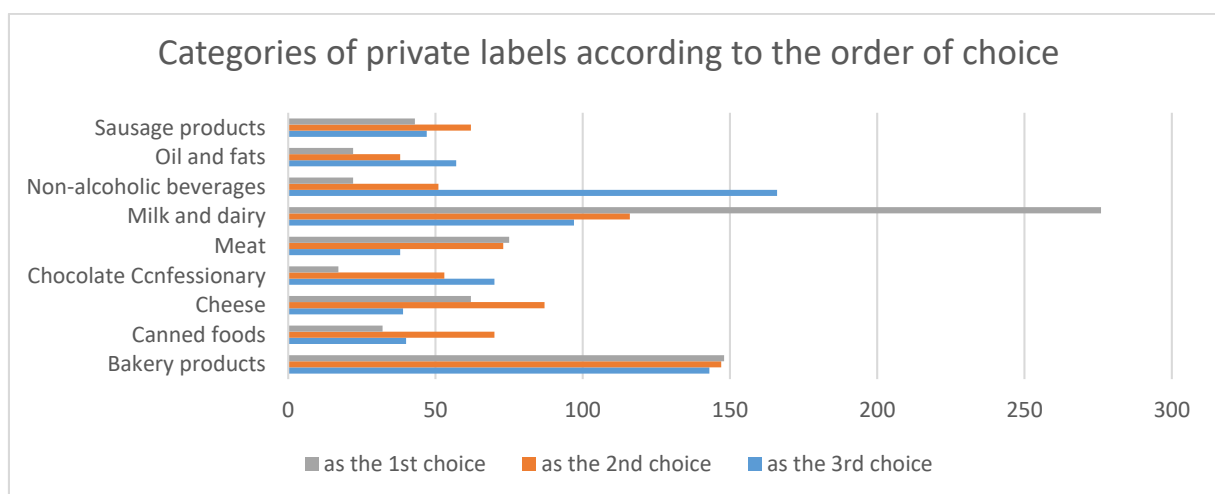
**Table 4: Predominant education domains**

Predominant direction of education	Frequency	Relative frequency (%)	Cumulative (%)
Economic	179	25.7	25.7
Humanity	100	14.3	40.0
Science	64	9.2	49.2
Technical	240	34.4	83.6
Other	114	16.4	100.0
Total	697	100.0	

**Table 5: Supermarket shopping motivation factors**

Shopping reason	Order of items	Frequency	Relative frequency (%)	Cumulative (%)
Advertising	6.	13	1.9	1.9
Easy access to the supermarket	5.	33	4.9	6.8
Customer experience and practise	4.	63	9.3	16,1
Goods discounts	3.	65	9.5	25.6
Low prices	1.	310	44.7	70.3
Goods quality	2.	192	27.7	98.0
Recommendation of an acquaintance	7.	7	1.2	99.2
Other reasons	8.	4	0.8	100.0
Total		697	100.0	

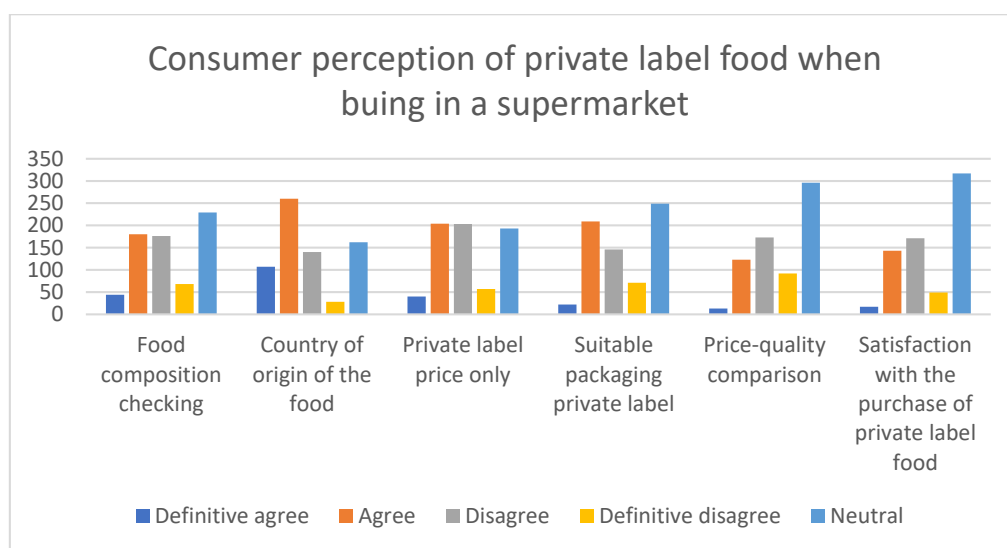
In the categories of private labels according to the order of consumers' choice (see Figure 1), the dairy products became the distinct first choice, followed by bakery products as the second choice and meat as the third choice in order. For bakery products, however, the order of first, second and third choice is rather balanced. This can be explained by consumers' perception of these products under private labels rather as a general commodity. The respondents reported private label as their third choice for the categories of oils and fats, chocolate snacks and, by a wide margin, soft drinks.



**Figure 1: Categories of private labels according to the order of consumers' choice**



The assessment of the consumer food private labels perception during the shopping in supermarkets (see Figure 2) points out the perception of the country of origin (strongly agreed 15.3%; agreed 37.3%), i.e. 52.6% of consumers reflected this indicator which means that it is the most perceived aspect when buying food. According to the Nielsen Company (2020), consumers rate private labels as being of the same quality as original manufacturer brands. Food composition is perceived neutrally by 32.9% of respondents, and satisfaction with the purchase of private label food is also the most neutral perception (45.6%). The price-quality ratio (42.5%) may correspond with the claims of Martos-Partal & González-Benita (2011), who state that the more quality-oriented a store's private label is, the customers are more loyal to the store. For the perception of private label price only, the respondents visibly disagreed as well as strongly disagreed, but were fairly evenly split between agreeing (29.3%), disagreeing (29.1%) and neutral opinion (27.6). It is possible to agree with the findings of Calvo-Porrá & Levy-Mangina (2016) who concluded that consumer trust and loyalty are strongly associated with private label food brands.



**Figure 2: Consumer perception of private label food when buying in a supermarket**

## 5. Conclusion

The purpose of the study was to find out which food product groups offered to the consumers under private labels do the consumers prefer. During the imposed Covid-19 restrictions, we have witnessed the transition of the consumer to the online environment. However, in the case of food products, the majority of the consumers did their shopping in supermarkets. Our questionnaire survey was conducted in April and May 2021. In these months there were imposed restrictions on physical purchase in shops. As the priority reasons for shopping in the supermarket, the consumers provided low prices, product quality and offered discounts; when buying private label products, the consumers prioritized dairy products. When buying the food products, the consumers were most sensitive to the country of origin. The availability of food products during the pandemic restrictions also showed that there are further opportunities in extending and developing of food products private labels.

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## External Barriers to the Activities of Social Enterprises – a Literary Review.

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**Abstract:** Social enterprises, as well as conventional enterprises, are connected with their external environment. Sometimes, the external environment not only creates favorable conditions for the development of social enterprises, but it also hinders their activities. The aim of this paper is to reveal what types of external barriers hinder activities of social enterprises and to suggest possible directions for further research. For this purpose, a review of scientific articles and mapping studies was performed. Based on the review, we provide the categorization of barriers to the activities of social enterprises and discuss the differences in their perception in individual European countries.

**Keywords:** social enterprise, external barriers, external environment, institutional barriers

**JEL classification:** M21

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### 1. Introduction

All enterprises are to some extent connected with their external environment. Its political, legal, economic, social, cultural, economic, technological and environmental features influence the development of enterprises not only in a positive sense, but they also create barriers that hinder their growth and stability. Social enterprises, which differ in many aspects from their traditional counterparts, are no exception. In their case, the external environment creates specific barriers that shape the character of social enterprises. The aim of this paper is to reveal what types of external barriers hinder activities of social enterprises and to suggest possible directions for further research. For this purpose, a review of scientific articles and mapping studies was performed. The paper is structured as follows. First, the role of external environment and its barriers to entrepreneurship are introduced. Then, social enterprises are put into the context of their external environmental. After that, categorization of barriers in terms of activities of social enterprises and their differences across European countries are presented. Finally, possibilities for further research are discussed.

### 2. External Environment and Its Barriers to Entrepreneurship

The environment is an important initial factor influencing the strategy, structure, and processes in any enterprise (Luthans, Stajkovic & Ibrayeva, 2000). According to Stakeholder Theory, the external environment consists of stakeholders such as suppliers, customers, governments, competitors, civil society organizations, or the local community (Neubaum, Dibrell & Craig, 2012). The external environment affects both entrepreneurial intentions (e.g. Dioneo-Adetayo, 2006; Patti, Mudambi, Navarra & Baglieri, 2016) and the development of an existing enterprise (e.g. Gómez-Haro, Aragón-Correa & Córdón-Pozo, 2011; Cuervo, 2005; Lerner & Haber, 2001). Sometimes, environmental

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influences are not only positive, but also take the form of barriers (e.g. Karimi, Biemans, Mahdei, Lans, Chizari & Mulder, 2015).

External barriers are often examined from the perspective of Institutional Economic Theory (Abdulghaffar & Akkad, 2021). According to Aparicio, Urbano and Audretsch (2016) who refer to North (1990), *institutions can be either formal, such as regulations, contracts, procedures, etc., or informal, such as the culture, values or social norms of a particular society*. Then, as defined by Chang and Wu (2013), *institutional barriers are the hindrance in the institutional environment and they can result from inadequate institutional infrastructure, such as poorly specified property rights and contract laws, institutional voids, such as underdeveloped labor and capital markets or institutional susceptibility (or institutional obstacles), such as excessive regulatory requirements and requests for bribery*.

Furthermore, from a number of external we can mention market barriers (e.g. Kebaili, Al-Subyae, Al-Qahtani & Belkhamza, 2015) or knowledge barriers (e.g. Haldar, 2020).

### **3. Social Enterprises and Their External Environment**

According to Kruse, Wach and Wegge (2020) who refer to Tracey and Phillips (2007) the unique feature of social enterprises is the double-bottom-line which means combination of economic and social mission. Looking at the meaning of the term *social mission* in more detail, we can use the definition of EMES that states:

*One of the principal aims of social enterprises is to serve the community or a specific group of people. In the same perspective, a feature of social enterprises is their desire to promote a sense of social responsibility at the local level.*

This definition points to the close connection between social enterprises and their external environment. For example, by integrating disadvantaged groups of people in the labor market, social enterprises contribute to reducing unemployment. Also, social enterprises are often important actors in local community development. However, there are situations when, on the one hand, social enterprises support their external environment by fulfilling their social mission, but the external environment places barriers to the activities of social enterprises. These barriers are addressed in the next section of this article.

## **4. External Barriers to Social Enterprises Development and Growth**

### **4.1 Categorization of Barriers**

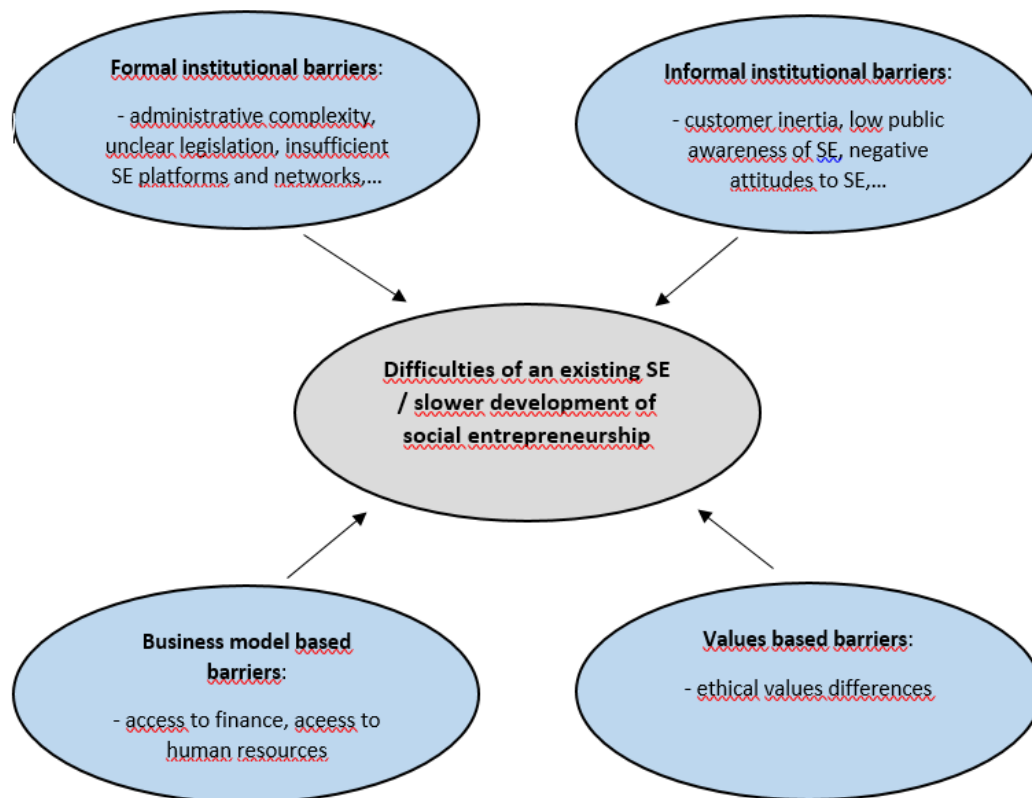
We have identified several scientific articles that deal with barriers to social entrepreneurship. In these articles, barriers are discussed in the context of the development of social entrepreneurship (Pelucha, Kourilova & Kveton, 2017; Naderi et al., 2020; Blanda & Urbancikova; 2020) or growth of social enterprises (Davies, Haugh & Chambers, 2019).

The most precise categorization of barriers was performed by Davies, Haugh and Chambers (2019). The authors identified and divided the barriers to growth of social enterprises into three basic groups: institutional barriers, business model based barriers and values based barriers. Because we focus on external barriers in our paper, not all values based barriers are relevant for us and we will mention only one: according to the authors, sometimes there may be situations where the values of social entrepreneurs and their stakeholders are not in line (for example, values and principles of suppliers

and distributors are in conflict with social enterprise's values) which may disrupt their cooperation and slow down the growth of a social enterprise. In this case, we talk about ethical values differences. Business model based barriers include access to finance and access to human resources. In the case of access to finance, barriers are caused by situations where the business models of social enterprises are not attractive to investors. This type of barrier is discussed also by Abramson and Billings (2019). In terms of access to human resources, as stated by Davies, Haugh and Chambers (2019) *social enterprise growth is constrained in terms of both recruitment and employee retention due to limited pools of human capital and low rewards for achievement*.

In most cases, we can consider external barriers as institutional. These barriers are, for example, absence of clear approach to social enterprise definition (Pelucha, Kourilova & Kveton, 2017; Blanda & Urbancikova, 2020), consumer behaviour (Davies, Haugh & Chambers, 2019), administrative complexity (Blanda & Urbancikova, 2020) or insufficient social enterprises' platforms and networks (Pelucha, Kourilova & Kveton, 2017; Abramson & Billings, 2019).

A possible categorization of external barriers is shown in Figure 1.



**Figure 1: Categories of external barriers to activities of social enterprises**

Source: Own processing, based on: Davies, Haugh and Chambers (2019), Pelucha, Kourilova and Kveton (2017), Naderi et al., (2020), Abramson and Billings (2019), Blanda and Urbancikova (2020)

## 4.2 Barriers to Social Enterprises' Activities – Differences between European Countries

European Commission reports mapping the state of social entrepreneurship in selected European countries show that perceived barriers to the development of social entrepreneurship vary from country to country. A large number of barriers are related to the countries of Central and Eastern Europe. These barriers are mainly of an institutional nature. Examples of barriers and their relevance to selected countries are given in the table 1.

**Table 1: Barriers to the Development of Social Entrepreneurship in Selected Countries of Central and Eastern Europe**

Barrier	Countries
Little public recognition and awareness of SE	Austria, the Czech Republic, Bulgaria, Romania
Insufficient support from public authorities	Bulgaria, Romania, Austria, the Czech Republic, Slovenia
Insufficient SE skills and education	The Czech Republic, Slovenia
Complicated / poor administration	The Czech Republic, Romania, Hungary,
Legal and fiscal uncertainties	Austria, Hungary,
Poor networking	Slovenia, Romania

Source: European Commission (2019) – country reports on social entrepreneurship

Similar barriers to those in Central and Eastern Europe exist in some countries of Southern Europe. For example, limited awareness and insufficient legal recognition are seen as the main barriers in Malta. In Croatia, insufficient governmental support and fragmented legislation hinder the development of social enterprises.

According to European Commission reports, in contrast to the countries of Central and Eastern Europe, only few barriers are perceived in the countries of Western Europe. For example, in the case of France, *the institutional and economic environment is rather favourable for the development of social enterprises*. In the United Kingdom, France and the Netherlands, poor access to finance is considered a major barrier to the development of social entrepreneurship. On the contrary, compared to the countries of Central and Eastern Europe, where low awareness of social entrepreneurship is identified as one of the main barriers, in the United Kingdom awareness of social entrepreneurship is growing, particularly amongst the younger population.

## 5. Discussion and Conclusion

The aim of this paper was to reveal what types of external barriers hinder activities of social enterprises and to suggest possible directions for further research. As the literature review of scientific articles has shown, especially institutional (both formal and informal) barriers, but also business model based barriers and values based barriers are the main obstacles in the context of activities of social enterprises. The significance of individual barriers differs across European countries. While, for example, the countries of Central and Eastern Europe face a number of institutional barriers, in the countries of Western Europe the environment for the development of social entrepreneurship is rather favorable.

The current literature focuses on the description of individual barriers. We suggest that the current state of knowledge should be complemented by research on how the external environment (both barriers and supporting factors) shapes the mission of social enterprises and influences its achievement. Social enterprises are hybrid organizations that pursue the dual mission of achieving

both financial sustainability and social purpose (Doherty, Haugh & Lyon, 2014). According to Davies, Haugh and Chambers (2019), the pursuit of dual mission is central to social enterprise identity. However, as many authors point out, the mission of social enterprises can be changed under different circumstances. For these situations, the term „*mission drift*“ as *the change of social mission from that originally stated* is used (e. g. Kwong, Tasavori & Cheung, 2017). One of the causes of mission drift may be external institutional factors (Cornforth, 2014). These are possible questions for further research: What are the possible mission drift scenarios in social enterprises? In what other ways can the external environment shape the mission of social enterprises and influence its achievement?

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# Cultural differences in tendencies towards engagement in sustainable social entrepreneurship

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**Abstract:** The aim of the paper is to find out whether it can be assumed that there are cultural differences in tendencies towards engagement in sustainable social entrepreneurship. The concept of sustainable social entrepreneurship is commonly seen as a highly potential way to tackle many current social challenges and has been receiving general support. Nevertheless, based on data from the GLOBE research program, in this paper it is concluded that different cultures can differ in their tendencies toward engagement in this concept and this has to be taken into consideration in supporting its global development.

**Keywords:** sustainable social entrepreneurship, cultural dimensions, cultural values, cultural differences

**JEL classification:** L260

**Grant affiliation:** IGA\_FF\_2021\_001 Barriers to the expansion of sustainable consumption

## 1. Introduction

Social entrepreneurship is a way of doing business via recognizing social problems and achieving a social change by employing entrepreneurial principles, processes and operations. Social enterprises comprise a wide range of entities with diverse structures and purposes seeking to leverage private resources for public good (United Nations, 2020). The shared core element defining social entrepreneurship is the intentionality of social change or social value creation rather than wealth creation (Dees, 1998).

The origins of the concept of social entrepreneurship can be traced back to the 1970s (Spreckley, 1981). With a growing global interest in social entrepreneurship for its potential to tackle serious societal challenges, it has been linked with the concept of sustainability (Zhang & Swanson, 2014). Sustainable enterprise is an organization that can anticipate and meet the needs of present and future generations of customers and stakeholders through creating and innovating new business strategies and activities that accelerate positive social change, protect and preserve environmental integrity, while enhancing business performance. Sustainable enterprise incorporates principles of sustainability into each of its business decisions and makes an enduring commitment to environmental principles in its business operations (Zu, 2013). Sustainable social entrepreneurship is a way of doing business with the intention of a positive social change and with the incorporation of the principles of social, environmental, and economic sustainability into decision making. Considering the positive role sustainable social enterprises can play in society, there is quite strong common consent that their

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development is a positive trend (Lubberink, 2019) and for example The United Nations has taken steps to support young social entrepreneurs (UN, 2020).

Nevertheless, entrepreneurship is affected by the environment in which it takes place. Some scholars refer in this sense to entrepreneurship ecosystems. Entrepreneurship ecosystems are the “sets of actors, institutions, social networks, and cultural values that produce and sustain entrepreneurial activity” (Roundy et al., 2018, p. 1) and can be said to represent “the combination of conditions that shape the context in which entrepreneurial activities take place” (Kelley et al., 2016, p. 30).

In this paper attention is drawn to the possible impact of cultural values on the engagement in the concept of sustainable social entrepreneurship. The research question to be answered is as follows: Can we assume that there are cultural differences in tendencies towards engagement in sustainable social entrepreneurship?

Cultural values are shared, abstract ideas about what a social collectivity views as good, right and desirable (Williams, 1970). Consequently, cultural values play a crucial role in the way social institutions, including the economy and thus also entrepreneurship, function. Hofstede (2001) argues that cultural values are specific for nations and to a greater or smaller content across countries. Nevertheless, so far little attention has been paid to the role of culture and cultural values in relation to social entrepreneurship support and development (Kedmenec & Strašek, 2017) and the research in a culture - sustainability relation has been in its early stages (Soini & Dessein, 2016).

## **2. Method and data processing**

The answer to the research question is based on data from the GLOBE (GLOBE 2020, n.d.) research program. These data are publicly available at the website of the project (GLOBE 2020, n.d.). Across 62 countries, the GLOBE project investigated how cultural values are related to organizational practices, conceptions of leadership, the economic competitiveness of societies, and the human condition of its members (House et al., 2004).

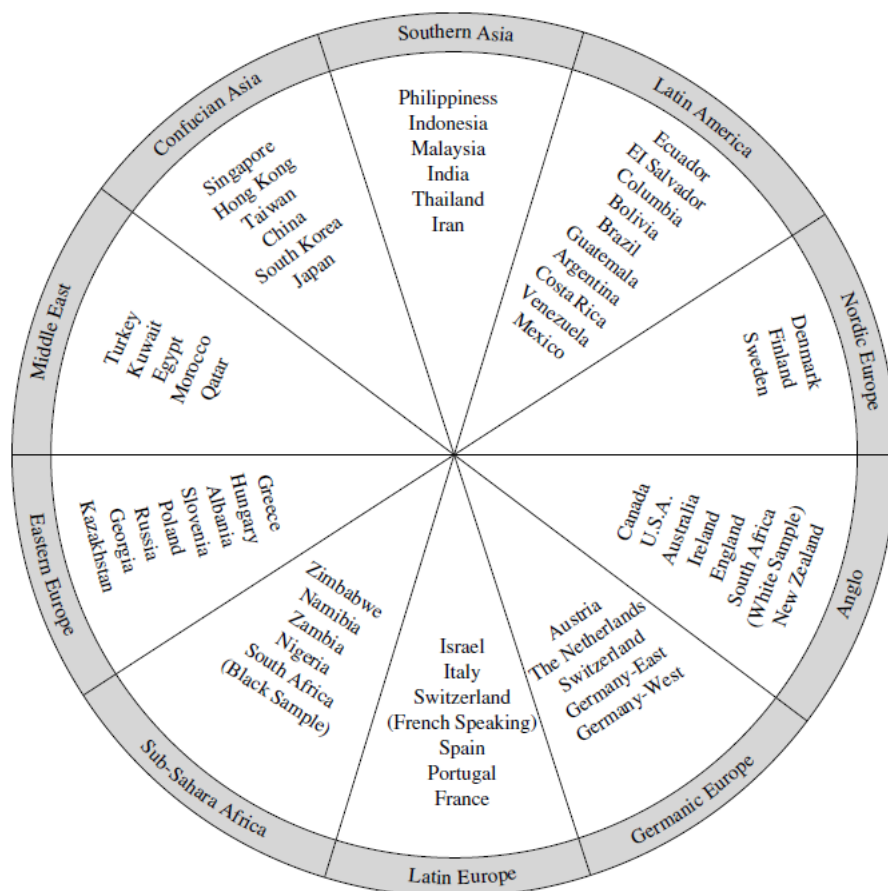
GLOBE research has identified nine cultural dimensions that summarize the extent to which nations are found empirically to differ from one another in terms of attributes such as values, beliefs, and behaviors. These dimensions are as follows: Performance Orientation, Institutional Collectivism, Gender Egalitarianism, Uncertainty Avoidance, In-group Collectivism, Future Orientation, Human Orientation, Assertiveness, and Power Distance. Concerning the aim of this research the dimensions of Humane Orientation and Future Orientation are of particular importance.

The GLOBE definition of Future Orientation is the extent to which members of a society or an organization believe that their current actions will influence their future, focus on investment in their future, believe that they will have a future that matters, believe in planning for developing their future, and look far into the future for assessing the effects of their current actions (House et al., 2004, p. 285). This definition has a lot in common with the classical definition of sustainable development by the United Nations. According to this definition (United Nations, 1987, p. 37) sustainable development is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” Particularly the awareness of the impact of the current action on the future and the necessity to assess them is present in both these definitions.

The GLOBE definition of Humane Orientation is the degree to which a society or an organization encourages and rewards individuals for being fair, altruistic, friendly, generous, caring, and kind to others (House et al., 2004, p. 569). Bargsted et al. (2013) have shown that social entrepreneurs have some specific characteristics such as social motivation of altruism and collectivism, career orientation of service, empathetic orientation to others, and predominance of values like kindness and benevolence. These characteristics are in accordance with the values that define Humane Orientation. Thus we suggest that the position of a culture in the dimensions of Future and Human Orientation can predict its tendency to engage in sustainable social entrepreneurship.

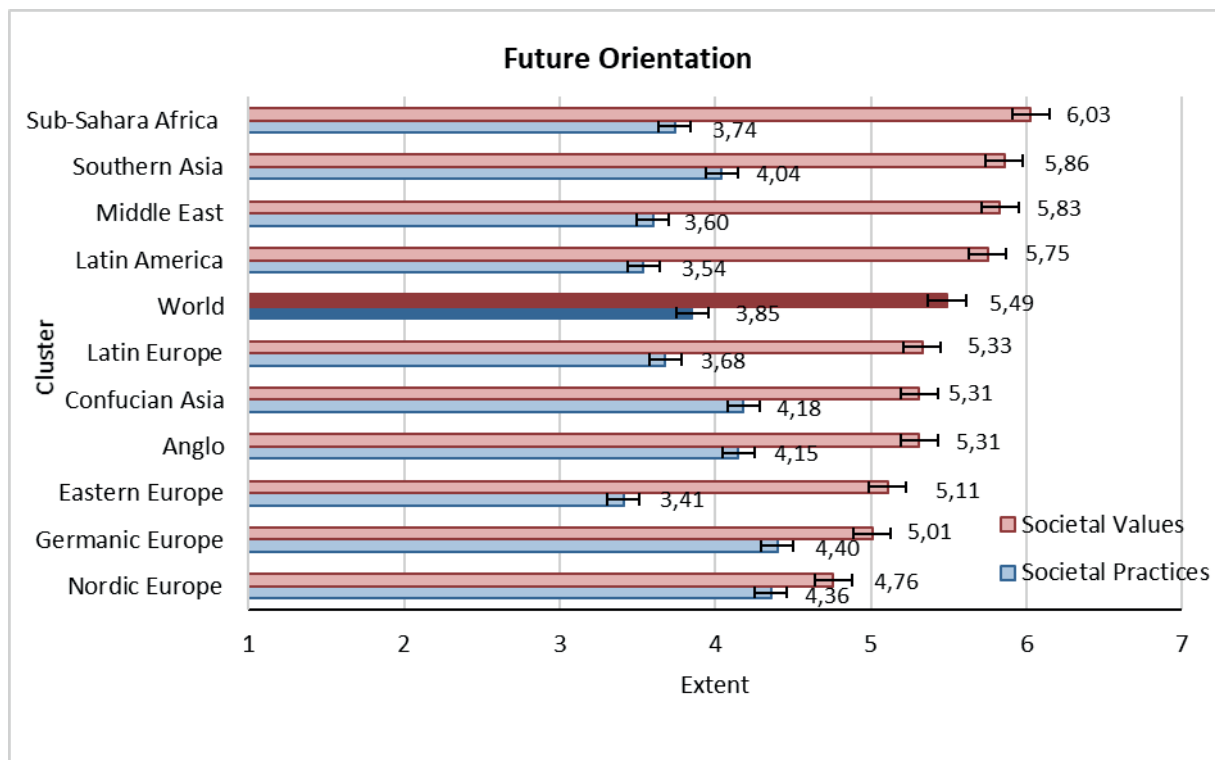
The degree or extent, which represents the position of the culture in the dimension, was measured on a scale ranging from 1 to 7. Score 1 means a low or weak manifestation of the dimension in the culture, whereas 7 means a high or strong manifestation of the dimension in the culture. Moreover, the manifestations were measured twice – once as so-called societal practices, i.e. what the current reality looks like, and once as so-called societal values, i.e. what an ideal situation should look like.

To provide a convenient way to summarize cultural information for a larger number of countries the countries included in the GLOBE research were categorized in clusters of countries with similar cultural characteristics. (House et al., 2004, p. 178 – 218). Ten clusters were identified in the GLOBE study. The clusters are presented in figure 1.

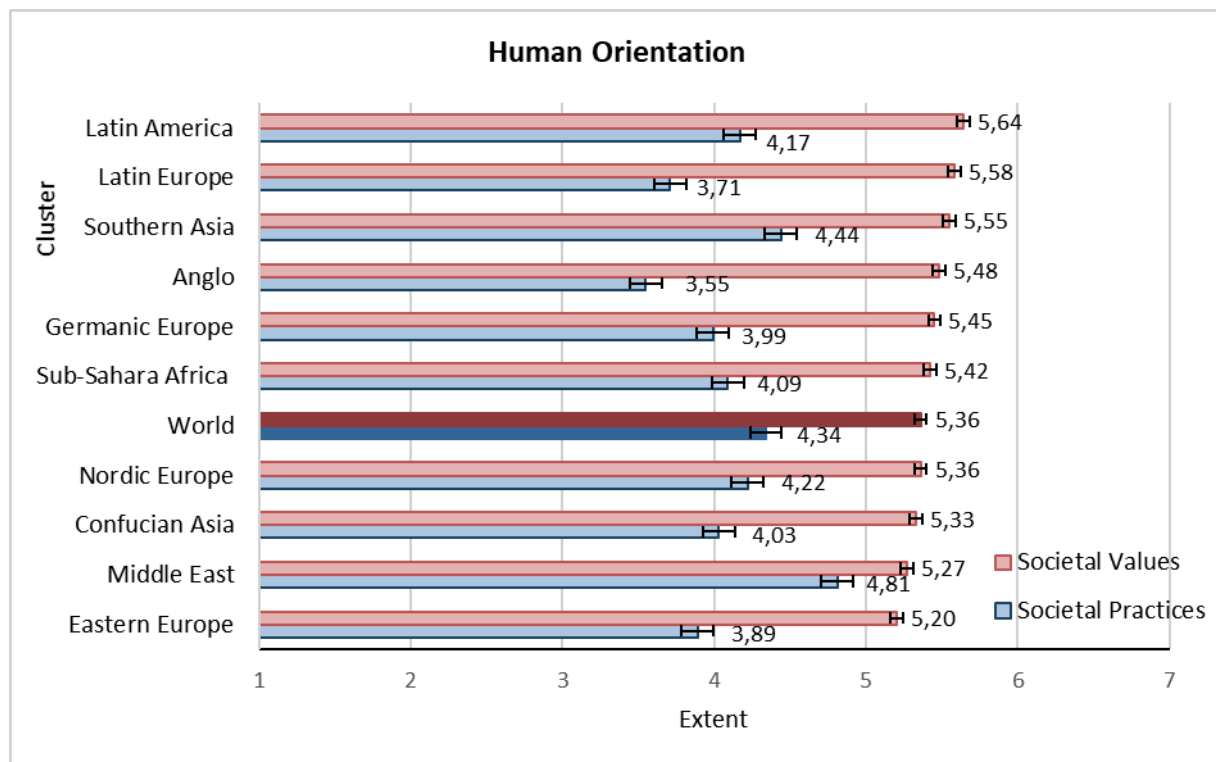


**Figure 1: Culture clusters according to the GLOBE Study** (House et al., 2004, p. 190)

The position of each cultural cluster in both dimensions, i.e. Future Orientation and Human Orientation, and for both situations, i.e. current (Societal Practices) and ideal (Societal Values) was determined as an arithmetic mean of the positions of the cluster countries on the 1 to 7 scale. Moreover, the standard deviations were calculated for each cluster as a characteristic that enables to assess the representativeness of the arithmetic mean. The results are depicted in figure 2 and figure 3, standard deviations only in the form of line segments at the end of the bars that represent the position of the cluster on the scale. The numbers at the ends of the bars are the arithmetic means, i.e. the positions of the cultural clusters on the scales. The higher the number is the stronger is the manifestation of the related values in the cluster countries. The smaller the standard deviation is the more homogenous the manifestation is across the countries. For comparison also the values of all countries which were included in the GLOBE research were processed and are presented as World in figures 2 and 3.



**Figure 2: Future Orientation of cultural clusters.** Own elaboration of the GLOBE research data.



**Figure 3: Humane Orientation of cultural clusters.** Own elaboration of the GLOBE research data.

### 3. Discussion

The outcomes of data processing can be considered from many points of view. Further, the results suggesting the answer to the research question best are discussed. At the first sight it is apparent that there is a difference between Societal Practices and Societal Values in favor of Societal Values and that applies for both studied dimensions. It means that people around the world wish the societies were more future- and human-oriented than they are.

The world relatively consented regarding Human Orientation Societal Practices as well as Societal Values. Around the world, except in the Middle East, Human Orientation Societal Practices were assessed as 4 (rounded) and 5 in the Middle East. The ideal situation (Societal Values) was identified in the range of 5,20 to 5,64, nevertheless, the range of differences between the values for the current and ideal situation in the clusters was from 0,46 to 1,93, which represents relatively lower homogeneity compared to the absolute Societal Values.

Lower consent among the cultures was identified regarding Future Orientation, particularly Societal Values. Future Orientation Societal practices were assessed as 4 (rounded), only in Eastern Europe it was 3. Relatively big differences occurred regarding Future Orientation Societal Values, where the values ranged from 4,36 to 6,03 and the differences between the current situation and ideal situation ranged from 0,40 to 2,23 in favor of the ideal situation.

The value 4 represents the median value on the scale from 1 to 7, where 1 meant a strong disagreement and 7 a strong agreement. Thus if we want to assess whether a culture is/wishes it were future-oriented or human-oriented we have to refer to this median value. For both Future Orientation

and Human Orientation the World value of Societal Practices is close to this median value. And regarding the standard deviations this median value can be considered a good representative of Societal Practices. The World value of Societal Values is about 5,5 for both Future Orientation and Human orientation which means people around the world wish for moderate strengthening of these orientations.

#### 4. Conclusion

It could be concluded that, in sum, the cultures are quite neutral about their current future and human orientation and they think they have to be slightly more future - and human-orientated. But as figures 2 and 3 show there are differences among the clusters. Based on these differences it is necessary to be careful with general statements regarding the development of sustainable social entrepreneurship. Thus the answer to the research question is positive. We can assume that there are cultural differences in tendencies towards engagement in sustainable social entrepreneurship. These differences have to be considered in many areas such as international support of sustainable social entrepreneurship or education and training of new social entrepreneurs.

There are limitations of the scientific validity of the conclusions. First, if people think or believe something should be changed it does not imply the willingness to actively participate in the realization of these changes. Second, The GLOBE research was inspired by Hofstede's dimensional theory of culture (Hofstede, 1980) that enables to elaborate the complex phenomenon of culture in simple and measurable terms. This paradigm has been still very popular, however has also received methodological critique (McSweeney, 2002). Moreover, as Fang (2012) points out, Hofstede's vision of culture is static, while in fact culture is a holistic and dynamic entity. Thus from Hofstede's methodological perspective it is not a problem that the research data are from the beginning of this millennia, whereas from Fang's perspective this can be seen as a big limitation. More research is necessary in the field of sustainable social entrepreneurship and its cultural differences. On the other hand, the findings of the paper support the growing body of literature (Hegarty, 2020) showing that even in the current globalized world in no respect can we underestimate cultural differences.

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# Family social capital and family firm performance: A multiple mediation model and preliminary evidence

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**Abstract:** Family social capital (FSC) is assumed to be one of the major sources of competitive advantage for family firms. In the study, we present theoretical arguments for a conceptual multiple mediation model in which the strength of FSC indirectly affects family firm performance through three channels. We assume that FSC reduces dysfunctional conflict among family members and increases the monitoring of employees, both of which have positive performance effects. Second, FSC is expected to reduce the degree of professionalization. Professionalization would improve firm performance, so the indirect effect of FSC through professionalization is assumed to be negative. To find support for the propositions, using Amazon MTurk, we conducted a survey among 35 family business managers in the United States. Based on the survey, we present and discuss the preliminary evidence, which provides partial support for our propositions.

**Keywords:** family social capital, firm performance, professionalization, family business

**JEL classification:** M10, L22

**Grant affiliation:** We appreciate the funding support received from the Czech Science Foundation for the project “Intrafamily Conflicts in Family Firms: Antecedents, Effects and Moderators” (registration no.: GA20-04262S).

## 1. Introduction

The intertwinement of family and business in family firms presents a unique attribute of family firms that is associated with both potential advantages (such as common vision and trust) and disadvantages (such as dysfunctional conflicts that harm the firm). One of the dominant paradigms of family business research, “familiness” (Pearson et al., 2008), draws on the resource-based view to present arguments for the existence of family social capital (FSC) that is a unique resource available to family businesses. This resource is based on the existence of strong and dense social ties within the family social group, shared vision and meanings, and the existence of a mutual trust. On the other hand, family firms are often considered to be “plagued by conflicts” (Levinson et al., 1971), and dysfunctional conflicts such as marital disagreements or destructive competition between siblings can lead to the failure of the family firm.

This paper aims to bridge several theoretical views (family social capital, intragroup conflict, and intergroup interest-based conflict) and present a conceptual model of how family social capital affects family firm performance. We argue that the strength of FSC affects family firm performance through at least three channels: family conflict, monitoring of employees, and professionalization. Broadly, FSC is assumed to reduce dysfunctional conflicts among family members, to increase monitoring of employees, and to reduce the propensity to professionalize (i.e. adopt formalized HR practices and employ nonfamily managers). The resulting effects on performance are discussed. Subsequently, we

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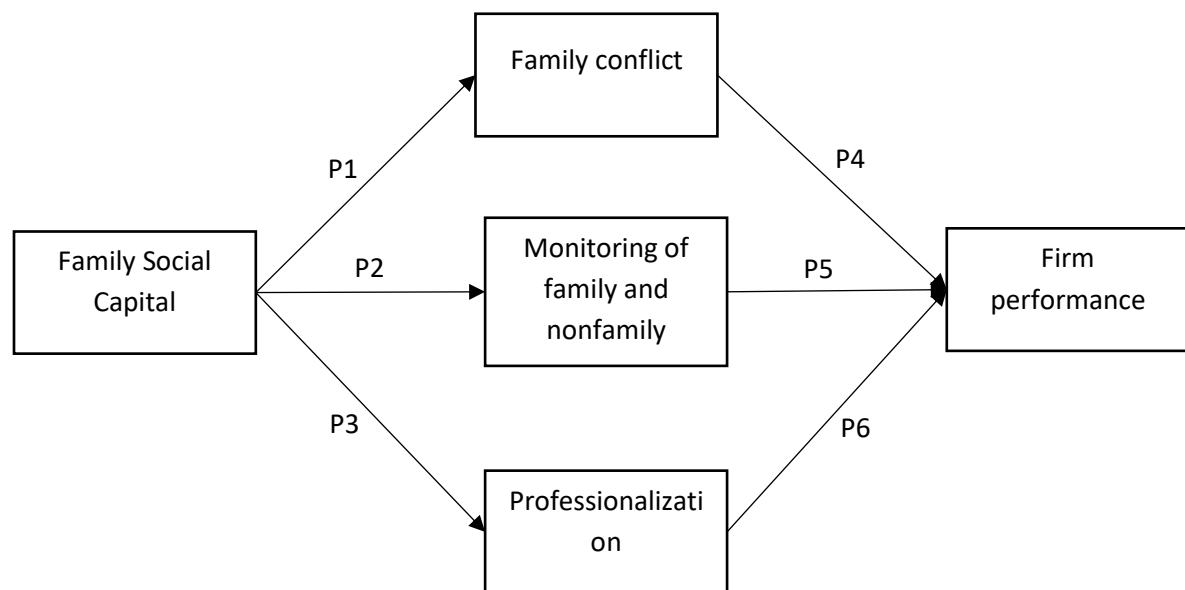


present the results of a small-scale exploratory survey among US family business managers and discuss the implications. Finally, we provide a discussion and concluding remarks.

## 2. Model development

According to the social capital literature, social capital can be defined as the actual and potential benefits which arise from networks and institutionalized relationships (Bourdieu, 1986). Family social capital, as a unique attribute of family firms, was theoretically developed by Pearson et al. (2008) and operationalized to a measurable construct by Carr et al. (2011). Carr et al. (2011) introduced the ISC-FB scale, which refers to internal social capital among family business. In line with the social capital theory, the ISC-FB scale consists of three dimensions: the structural, cognitive and relational dimensions (Nahapiet & Ghoshal, 1998). The structural dimension of FSC represents the strength, density and configuration of ties between family members. The cognitive dimension of FSC refers to the shared values, meanings, and goals. The relational dimension of FSC refers to the features of interpersonal relationships (e.g. trust, norms, and obligations) shared among family members.

The full multiple mediation model is graphically displayed in Figure 1. The subsequent text presents the arguments for the individual propositions.



**Figure 1: The conceptual model**

Following the arguments of social capital theory, we argue that a strong family social capital is characterized by high levels of trust, solidarity and feelings of belonging (relational dimension of FSC). These factors are likely to reduce interpersonal clashes and emotionally charged conflicts among family members. What is more, shared goals and vision (cognitive dimension of FSC) are likely to reduce task- and process-related disagreements. While such “cognitive” conflicts can sometimes be beneficial, they are generally harmful when escalated to a hostile level (Kubíček & Machek, 2020). Consequently, it can be expected that family firms with a strong FSC will experience fewer dysfunctional conflicts.

*Proposition 1: Family social capital is negatively related to family conflict.*

In family firms, family employees are perceived as “stewards” while nonfamily employees are often regarded as “agents”. This results in an asymmetric treatment of family and nonfamily employees, which is referred to as “bifurcation bias” (e.g. Madison et al., 2018). Although family employees are expected to act in the best interests of the company, Chrisman et al. (2007) point out that family employees can play the role of agents and follow selfish interests, too. To reduce agency costs and align the interests of stewards and agents, then, family firms have to adopt appropriate governance measures, one of which is the monitoring of employees. It can be expected that family firms with strong family social capital and high closure of social networks (structural dimension of FSC) will be those firms that emphasize the family-centered goals, such as transgenerational succession, maintaining family reputation or securing family wealth. Such family firms will put emphasis on the alignment of goals and mutual interests (cognitive dimension of FSC) to prevent the failure to meet the goals of the controlling family. As a result, we expect that firms with strong FSC will carry out monitoring of employees to a greater extent.

*Proposition 2: Family social capital is positively related to monitoring of family and nonfamily members.*

With the growing family and business complexity, it often becomes inevitable for family firms to adopt formalized procedures. It is broadly known that family firms prefer hiring family members (which is also a result of the “bifurcation bias”, familial altruism and nepotism), but the family circle is finite, and so are the competencies and skills of family members. To internationalize or increase the innovation potential of the family firm, the appointment of nonfamily directors can become necessary. This transition from an informal entrepreneurial family firm to a larger, formalized institution is referred to as “professionalization”. In line with the familiness theory, we expect that family firms with a high degree of family social capital tend to preserve control over a firm in the hands of the controlling family. Such family firms also tend to prevent the emergence of conflict of interest, which may harm the fulfilment of family goals and cause inconsistencies in the future direction of the firm, thus having a lower propensity to hire nonfamily managers (Chua et al., 2003). As a result, we expect that family firms with strong FSC are less likely to professionalize.

*Proposition 3: Family social capital is negatively related to professionalization.*

Generally, a family business represents a fertile field for various conflicts (Levinson, 1971). The family business literature has long emphasized that dysfunctional conflict (also known as relationship conflict or interpersonal conflict) is associated with negative emotions, such as anger, fear or envy (Eddleston & Kellermanns, 2007) and the reduction of the efforts to accomplish collective goals (Kubíček & Machek, 2020). When conflicts between family members arise, each individual may pursue their own interests rather than pay attention to the business needs. It can be assumed that the misalignment of interests and distraction from collective goals is generally detrimental to firm performance.

*Proposition 4: Family conflict is negatively related to firm performance.*

The misalignment of stewards’ and agents’ interests results in agency costs. To avoid agency costs, family firms need to employ various governance mechanisms. One of the traditional tools to reduce agency costs is monitoring. In family firms, it is desirable to monitor not only nonfamily members (who do not always follow family goals) but also family members, to avoid free-riding and asymmetric altruism. It seems that monitoring of family members is positively related to firm performance

(Chrisman et al., 2007), and recent literature shows that family firm performance is enhanced when monitoring of family and nonfamily members is applied equally (Madison et al., 2018).

*Proposition 5: Monitoring of family and nonfamily members is positively related to firm performance.*

To achieve growth, family firms must often look beyond the family circle. The process of transition from an entrepreneurial family firm to a professionalized firm involves the employment of nonfamily managers and the adoption of formal governance and HR management mechanisms. Professionalization can reduce familial altruism and nepotism (which includes the appointment of noncompetent family members to management positions). Previous research revealed that professionalization brings performance benefits when using the right degree of decentralization of authority (Dekker et al., 2015) and when avoiding “bifurcated” (unfair) HR practices, i.e. asymmetric treatment of family and nonfamily members (Masidon et al., 2018).

*Proposition 6: Professionalization is positively related to firm performance.*

### **3. Data and methods**

We conducted a small-scale study to find support for the proposed relationships. Since online panel data have been found to reasonably converge with conventional data (Walter et al., 2018), we employed Amazon MTurk to collect answers from 35 family business managers from the United States for the period January-February 2021. MTurk is widely used in organizational research (Keith et al., 2017). We only addressed respondents who would describe their firm as a family business, whose occupation was “manager”, and who identified themselves as members of the family which controls the business. To ensure the quality of responses, the respondents must have had more than a 98% rate of approval by MTurk “requesters” and must have successfully passed three attention checks in the survey. Moreover, we took measures against using virtual private servers (VPS), including an explicit warning and an automated protocol to screen out VPS to make sure that the respondents live and work in the US.

Family social capital was measured by Carr et al.’s (2011) ISC-FB scale, consisting of twelve items. Family conflict was measured by the four-item relationship conflict scale (Paskewitz & Beck, 2017). Monitoring was measured by asking the respondents how often they employed four possible methods to obtain information on the activities and performance of family and nonfamily employees (Madison et al., 2018). Professionalization was measured by the sum of the following three dummy variables: whether or not the firm has nonfamily managers, whether or not it has a compensation incentive plan, and whether or not it has a performance appraisal system (Madison et al., 2018). Finally, firm performance is measured by three items related to the respondents’ satisfaction with net profit growth, market share, and firm sales (Cooper & Artz, 1995).

### **4. Preliminary findings: A survey among family business managers**

To analyze the structural model, we employed the *lavaan* library in R. Because the sample size is small, the model as such is rejected ( $\chi^2 = 1059.13$ , CMIN = 15.58, CFI = 0.47, GFI = 0.49, RMSEA = 0.19). However, in this exploratory study, we are more interested in the direction and significance of the path coefficients. Table 1 summarizes the standardized path coefficients and their statistical significance. Surprisingly, several path coefficients are statistically significant and support propositions P1 and P2. The other path coefficients are not statistically significant. In terms of the coefficient sign, P3 is partially

supported (a negative but insignificant relationship between family social capital and the degree of professionalization), and P4, P5 and P6 are not empirically supported.

**Table 1: Structural equation model analysis**

Path (proposition no.)	Standardized coefficient	p-value
FSC → Family conflict (P1)	−0.640	< 0.001
FSC → Monitoring of family members (P2)	0.535	0.008
FSC → Monitoring of nonfamily members (P2)	0.329	0.086
FSC → Professionalization (P3)	−0.023	0.890
Family conflict → Firm performance (P4)	0.155	0.387
Monitoring of family members → Firm performance (P5)	0.619	0.021
Monitoring of nonfamily members → Firm performance (P5)	−0.152	0.505
Professionalization → Firm performance (P6)	−0.185	0.326

## 5. Discussion and conclusion

This conceptual paper theoretically develops the possible ways how one of the unique attributes of family firms, family social capital, affects firm performance. Our pivotal results empirically support the idea that family social reduces family conflict, thus reducing its adverse effects on firm performance. We also find support for the proposition that family social capital increases monitoring of both family and nonfamily employees in the family firm. On the other hand, only partial support is found for the positive effect of monitoring on performance. Specifically, only monitoring of family members seems to have positive and significant performance effects. Family social capital and professionalization are negatively correlated, which is consistent with our third proposition, but the effect is not statistically significant. Moreover, we did not find enough evidence that professionalization positively affects firm performance; the correlation was even negative, albeit statistically insignificant.

From the practical viewpoint, we would like to underscore that family social capital, i.e. the unique resources embedded in relationships among family members, is a source of competitive advantage. While family firms are known to be plagued by conflicts (Levinson, 1971), which is one of the main reasons for their fragility, FSC seems to offset this weakness of family firms. Also, FSC seems to inherently increase monitoring mechanisms, which are likely to reduce agency costs and offset another weakness of family firms. We also suggest that FSC reduces the degree of professionalization. In this context, we believe family firm owners should carefully consider whether or not to employ nonfamily managers, introduce formal compensation incentive plans or performance appraisal systems. While the pivotal results do not suggest that professionalization positively affects performance, it is likely to reduce perceived injustice and overt risk aversion, which may present impediments for firm growth. And conversely, greater entrepreneurial orientation, which can be achieved by a greater extent of professionalization, can be expected to improve the firm's growth and innovation potential.

For sure, the main limitation of this paper is that the sample size is too small to make general conclusions. For this reason, we use the term “propositions” instead of “hypotheses”. On the other hand, being a conceptual paper, we would like to emphasize the theoretical underpinnings while using the small-scale survey as an illustrative tool. Another limitation of the paper is that the constructs can

be related to each other in different ways. For instance, family conflict could increase the efforts to monitor family members or to employ nonfamily managers (i.e. increase the degree of professionalization). For sure, in the real world, many constructs overlap and are related to each other; in our choice of model variables, we will hardly find two perfectly uncorrelated constructs. Following the good practice in structural equation modelling, we did our best to provide a theoretically justified model, which is, at the same time, parsimonious enough.

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## Slovak consumer behaviour in the smartphone market

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**Abstract:** The aim of the article is to study and analyse the consumer behaviour in the smartphone market. First, we present the consumer behaviour, its types, and influencing factors. Then, we conducted a questionnaire survey to obtain quantitative primary data. We made two assumptions. The first assumption states that in today's world, for most buyers, price has a greater impact than the brand. The second assumption states that the demand for Apple products was higher than for Samsung products. Our assumptions were examined based on the responses of 200 correctly completed questionnaires.

**Keywords:** consumer behaviour, smartphone market, marketing, consumers, Apple

**JEL classification:** D12, M30, M31

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### 1. Introduction

The technological economy has now become more popular in our world, and it is hard to imagine our world without mobile phones. Many years have passed since the beginning of the production of mobile phones. The demand for smartphones has grown rapidly during that time. Year by year more and more products are being launched by mobile phone manufacturers. Nowadays, mobile phones are used not only as a communication device but the users can also use the Internet on their devices as well. In this case, the companies offering the products put a price on the smartphones by developing different pricing strategies. (Bak, Pásztor, 2020)

There are many factors affecting the consumers' decision to purchase mobile phones, such as price, brand, consumer knowledge, colour, experience, or recommendations from relatives and friends. It is not easy for companies to meet the consumer needs as we all belong to different groups of different ages and consumer needs. The practical part of this paper is based on a questionnaire survey. We can learn a lot of interesting things from the results, especially about people's shopping habits, their mobile phone uses and some information about how the consumers choose their product.

### 2. Theoretical background

According to Majdúchová and Rybárová (2019), a consumer is a natural person who is acting for purposes outside his or her independent trade and business activity. We understand consumer behaviour in an extremely broad concept. Foxall (2017) believes that consumer behaviour is the buying

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behaviour of final consumers in the pre-purchase stage that affects people at the time of purchase and after purchase, and they are formed and able to change under the influence of various external and internal factors. (Svec, Olsovska, Mura, 2015, Graa, Abdelhak, 2020)

Consumer demand is defined as a purchasing power. In other words, a consumer is willing to pay for a product. So it is a demand that the economic operators have not made for themselves and do not want to fulfil for themselves. Consumer demand appears in the market as a demand for a product or service. Consumers are not planning to buy a product or service, but they want to fulfil their needs and expectations by that product. Companies should not focus on the products they offer. Gilady believes (2019) that consumers can be grouped into two categories: based on the size of the potential benefit and based on the procurement costs. The value of a product quantifies how well a product meets the customers' needs. Consumer value exists in changing space and time dimension and it requires continuous monitoring. It greatly influences the current and future marketing situation and the demand for a product. According to Kotler and Keller (2016) consumer value, defined as product value judgment, means how a product meets the consumers' needs and expectations. (Svec, Olsovska, Mura, 2015; Gosik, 2020)

Consumer behaviour is influenced by external and internal factors. External factors include culture and value, social structure and lifestyle, group and reference group, and the concept of family household. Internal factors include the role of perception, learning, motivation and personality, as well as attitudes. The group of social factors is the largest group of external influencing factors. The following influencing factors play important role in this group: culture, learned habits, values, beliefs and persuasion that guide customers in a given situation and in society. The culture has several definitions in the literature. Instinct is not part of culture, people are born with it. The culture promotes a sense of belonging and it can also play a rewarding role. The most popular cultural framework is Hofstede's cultural dimensions theory that consists of the following dimensions: power distance index, individualism – collectivism, masculinity - femininity, that refers to the traditional role of men and women, uncertainty avoidance index, and finally the short-term – long-term orientation. (Blahó, Czakó, Poór, 2015)

The term value has provoked heated debates in several countries, especially among economists and philosophers. Values help to focus on the basic needs of consumers, their aim is to make cognitive satisfaction, thus, they control the consciousness itself. Values serve as a benchmark for consumer behaviour, they have criteria that provide information for the evaluation of other people and for self-evaluation. All cultures have core values. Core values can help people understand the role of the consumer in society. Social stratification is based on wealth, power and prestige inequality. Social class can be characterized as follows. The classes are arranged hierarchically relative to each other. Members of the upper class are the wealthiest members of class society compared to members of the lower class. It is a developing, not a closed class system nor it is rigid. It provides an opportunity for development. Multidimensional has no concrete definition, it is classified according to occupation, income, education or residence. (Hoffmeister-Tóth, 2018)

Lifestyle is the way people live. Currently, there is no uniformly accepted definition. Several research works and studies, although with different outcomes, have dealt with this problem. (Svec, Olsovska, Mura, 2015)



A group consists of two or more people. Generally, a group is an assemblage of people. A reference group is a concept referring to the social impact of the groups to which an individual belongs. These can be membership groups, associative (positive) reference groups, dissociative (negative) reference groups. Membership groups are defined as groups to which an individual currently belongs. These groups can be either informal or formal, and the membership can be automatic. Both positive and negative features can be developed. An associative reference group is a group that individuals want to be associated with. Everyone has a different idea of the formation of the group. A dissociative reference group is a group which an individual does not want to be identified with and wants to distance himself or herself from this group. Family is a legal category, and its composition is the result of demographic processes. Family refers to a group of relatives and their dependants forming one household. It is a small group of individuals that pool their income and wealth and that consume certain types of goods collectively. Members of the household also manage the expenses together. Society would become unviable without families. The functions of households are: household management and organization, consumption, division of labour, income and wealth management, purchase decision making, and inventory management.

The psychological factors are the most influential internal factors. The following factors are the most influential internal factors. Perception is a complex process consisting of the process of perception and cognition, during which the selection and direction of stimuli happens. Perception refers to the direct connection between the external world and the personality. Both processes happen at the same time.

Learning is a psychological process of acquiring knowledge and it is a process that leads to change. Consumer behaviour is a learned behaviour. There are different learning styles such as physical (kinaesthetic) learning style, sensory learning styles and verbal (linguistic) learning style. Factors that influence learning are motivation, association, reinforcement.

Reinforcement depends upon motivation. It is an internal state that guides people to attain their goals. People are most often motivated to fulfil basic needs. It means the activation of the dispositional factors that are stimulated by certain behaviours and actions. (Hoffmeister-Tóth, 2018)

We distinguish between primary motives and learned motives. There are several theories explaining the concept of motivation, the best known is Maslow's Hierarchy of Needs. There are several factors that can affect motivation such as market conditions, product characteristics, sales process, corporate management, personality traits. Key elements needed to rethink the needs are: lack of need, seeking opportunities, behaviour, performance, reward, punishment and reassessment of needs.

In the literature, McClelland's Human Motivation Theory and Murray's Theory of Motivation can also be found. The Maslow's Hierarchy of Needs is one of the best-known theories that includes physiological needs, security needs, belonging needs, recognition needs and the need for self-actualisation. An attitude is a state of readiness organised through experience. It exerts directive and dynamic influence upon the individuals' response. It can be defined as a positive and negative emotional state or affinity to different objects, groups of people. Different attitudes have similar correlations, for example those that are related to a person or object that are the part of the environment. Attitudes are learned, relatively stable, can change, but not too quickly. (Hoffmeister-Tóth, 2018)

A customer is satisfied when the value of the product or service is satisfying and meets the customer's expectations. This is one of the most significant correlations between quality and behaviour. In the literature, the term non-compliance is commonly used. The term non-compliance usually refers to the comparison by the consumer between the finished product and the consumers' expectations. The consumer satisfaction is viewed as the gap between the consumer's expectations and the actual performance of the product or service. A model can be used to measure this gap. Consumers are more informed now than ever before. Customer satisfaction is measured by using the performance of the product with the expectations of the customer. If the product's performance matches the expectations the buyer is satisfied. When the product's performance is unsatisfactory, the buyer is dissatisfied. Different methods are used to determine customer satisfaction. Customer-centric examination means that the customers are directly asked about their customer satisfaction. Subjective examination focuses on the customers' need and from the given data conclusions are drawn. Explicit and implicit methods are applied in measurement methods that prioritise the features of the product. The explicit method is based on a paradigm that is inquiry-based. The implicit method is based on your own query. (Kotler, Keller, 2016; Hoffmeister-Tóth, 2018; Yildiz, Cigdem, Aslan, 2020)

### **3. Methodology and data**

This paper examines the consumer behaviour in the smartphone market. The study tool was a questionnaire containing 35 questions to evaluate the consumer behaviour in the smartphone market. This survey questionnaire was used to collect quantitative primary data. The participants completed the questionnaire completely anonymously. The primary data for this study were collected via online survey software (Survio). The main benefit of the online survey is that we could share our questionnaire's link without being limited by time and we could reach out to more respondents more easily. We found this questionnaire method effective and logical as it was an easy and efficient way of collecting data in the current epidemiological situation caused by COVID-19.

We formed understandable questions in our questionnaire and we created them in a way so respondents would not lose interest in the topic. The questionnaire consists of closed-ended and open-ended questions that allows the respondents to answer the question in their own words. When creating the questionnaire, we also formed questions that include several possible answers. We also included semi-closed questions laid out with possible answers. The evaluation of the questionnaire was followed by the examination of the assumptions. The results of the assumptions are the following:

*Assumption 1: For most buyers, price has a greater impact than the brand.*

*Assumption 2: The demand for Apple products was higher than for Samsung products.*

Microsoft Excel software was used to analyse the data obtained from the 200 completed questionnaires. We made diagrams and conclusions based on the results.

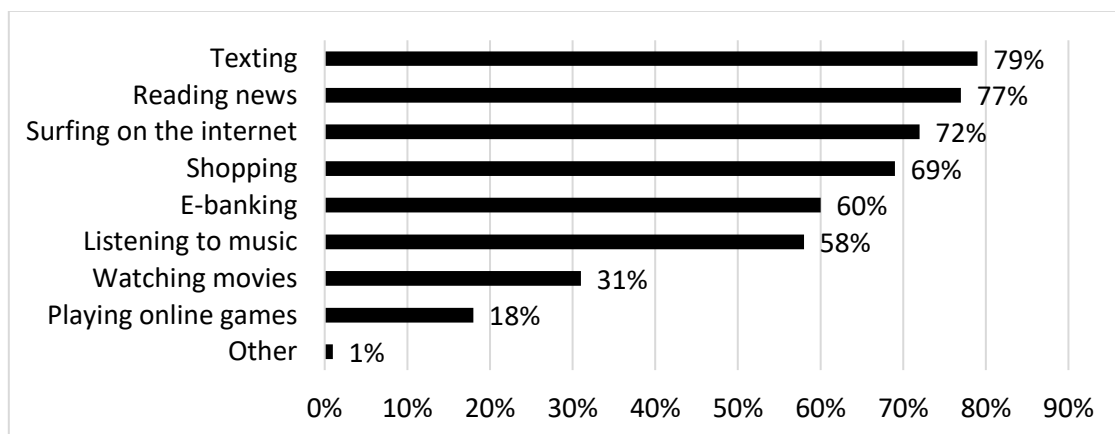
### **4. Results**

This study focuses on people who own mobile devices. This survey reflects on the buying habits of people and their analysis and evaluation. The analysis is based on the first - correctly completed - 200 obtained responses. Demographic data are presented in the form of table (Table 1).

**Table 1: Demographics**

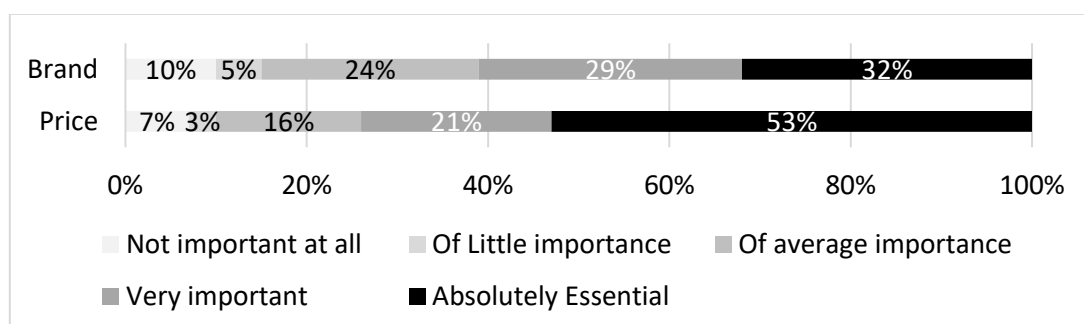
Gender		Residence	
Male	31%	Village	66%
Female	69%	Town	34%
Age group		Education	
18 or under	6%	Primary	3%
19-29	70%	Vocational	12%
30-39	12%	High or grammar school	46%
40-49	8%	College, University	39%
50 and more	4%		

In this survey, we also collected information on how often do consumers use their devices. There were three options to choose from. According to the first option less than 2 hours per day - 13% of the respondents chose this option. According to the second option 2-5 hours per day – 52% of the respondents selected this option (the most commonly chosen option). According to the third option, 5 hours per day – 34% of the respondents chose this option. The results have shown that most of the respondents have kept their devices for 1 and 3 years (47%). We also investigated what do respondents typically use their smartphones for. The results of the survey are shown in Figure 1:



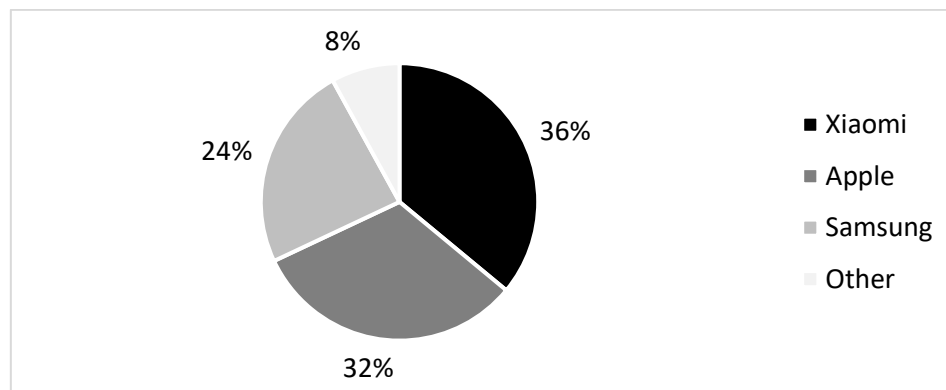
**Figure 1: What do you use your smartphone for?**

In a Likert scale, respondents were asked to assess the influence of the brand and price on the purchase. Measured scale data are not considered metric. Based on the results (Figure 2), it can be seen that the responders are impacted greater by the price than the brand. So the first assumption is true.



**Figure 2: Is the price or the brand that influences you the most?**

We also asked the respondents what is the brand name of their mobile phone and which brand they prefer. The alternatives were the three most popular brands Apple, Samsung and Xiaomi. In addition, we added the option 'other', where the consumers could type in the type of the device they own. However, due to the low number of responses, we do not specify all the given brand names. HTC, Sony, LG, Huawei and Nokia brands were listed in the 'other' option. The results are illustrated in the following figure (Figure 3).



**Figure 3: Distribution of brand preferences**

Based on the results, the second assumption is true, as Apple products are more popular than Samsung products among consumers. However, it can be seen that Xiaomi has become more popular than Apple and Samsung. In our opinion, the reason is the lower price. This is confirmed by our first statement, which indicated that the price is more important to respondents than the brand. Furthermore, the ousting of the popular Huawei also contributed greatly to the rise of this brand.

## 5. Conclusion

In our article, the consumer behaviour in the smartphone market was analysed. For our research, we conducted a survey based on a questionnaire of 35 questions using the Survio platform, so it was conducted completely anonymously. Based on the first correctly completed - 200 responses, we made our analysis. The questionnaire is a great tool for data collection, especially in the current epidemiological situation caused by COVID-19.

The results have shown that the majority of the respondents (47%) have kept their devices for 1 and 3 years (47%). Based on the results, we learned that slightly more than half (52%) of respondents spend 2-5 hours a day actively on their mobile device. This is a relatively large number when you consider that an average person has many duties and responsibilities each day. It was also found that a lot of people use their devices to chat (79%), to read news (77%) and to surf on the Internet (72%). Our first assumption is true, the price has a greater impact than the brand. Our second assumption is also true, Apple products are more popular than Samsung products among consumers - although Xiaomi products are the most popular. The reason might be that Xiaomi provides their mobile devices at a lower price than Apple. Although Samsung offers cheaper products, they lag far behind other similarly priced Xiaomi products in performance. While the price of the Samsung devices, that have the same knowledge as the two other brands, is much higher.

In the future, we would like to do a further analysis of the survey questions and to expand the number of responses. We are open to do an international research, if appropriate conditions are provided. One of the limitations of our research was the impact of Covid-19. The number of received responses were

not affected by the pandemic, but the content was. Due to the pandemic many people were negatively affected by the crisis, so they could not afford to buy a new mobile device. The reason behind the small number of purchases may be the price increase of some components due to downtime caused by the pandemic.

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## The Utilization of the Potential of Employees in Specific Jobs as an Instrument of Company Competitiveness Increase

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**Abstract:** This paper's aim is to analyze the potential of the workforce in the context of how to determine its work effectiveness to increase the competitiveness of corporate organizations. The tools for effective job securing, i.e., job analysis (personnel audit) or eventually profesiography, are not sufficiently exploited. Within the theory, there is no clearly defined boundary between the job analysis and the job function audit. The analysis will first focus on the key theoretical bases and the comparison of the current empirical approaches to the matter. It is necessary to specify the key terminological attributes of the subject in order to proceed with the solution in a specific environment. The discussion will address the question of what methodological approach to choose in the problem analysis, what the specific examples are, and their evaluation in the context of the established terminological dilemmas.

**Keywords:** potential, job analysis, personnel management, personality, competitiveness

**JEL classification:** M50; M12; P41

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### 1. Introduction

The workforce in a company, despite the growing tendency of robotics and automation in the context of the advancing concept of Industry 4.0, remains the key capital that requires the organization's management due attention. Investments in the human resources have become an integral part of the corporate strategies that must be clearly based on the local labor offers (labor market structures).

Although the social science research has drawn for decades parallels between the human labour and machine labour, the human personality remains the most changeable variable in the production process. This means that its performance is highly variable depending on external and internal determinants (e.g., individual motivation, physical and mental health, aspiration level, measures to coordinate work and family life, working climate, remuneration system, political situation, etc.).

Armstrong (2017) emphasized the importance of employees, pointing out that their skills, abilities, and experience, which they use in their work, are a significant source of a competitive advantage. The human capital is a valuable asset if used in the most efficient way. The potential of employees' knowledge and experience is a source of the future values and innovations, thanks to which the

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companies win over the competitors. Dvořáková (2012) defines the concept of the intellectual capital, which is owned by the man. However, this raises the issue of how to measure, report, and manage this capital. And there is still the issue of whether the employee in a given job is using his/her full potential, and whether there is a danger that he/she might use it even better in the future work for a competitor. Also Jiang, Lepak, Hu & Baer (2012, p. 1266) show that if a human capital is valuable and unique to an organization, then it is difficult to replace it without significant costs, and is not easily replicated by the competitors. "With high-quality human capital funds, organizations are more likely to achieve their goals, such as high productivity and quality of products and services and innovation. However, the full value of employees cannot be realized if they are unwilling to use their abilities."

The methods and methodological approaches examining certain professions and analyzing them psychologically are called profesigraphy. Profesigraphic analysis of a profession includes, e.g., a qualified psychological assessment of an applicant's suitability for a specific job, a qualified assessment and a mutual comparison of various jobs intensity (e.g., as a basis for remuneration, etc.). When selecting an employee, the essence is to compare his/her abilities and skills with the demands and specifications of the job. For this valid and reliable information on the requirements for the employee, resulting from the job nature, are needed (Pauknerová, 2012).

A job analysis is the basis for creating a job and defining its requirements. To this end, Armstrong (2007) uses the term role analysis, which is defined as "the process of identifying what people are expected to achieve in the course of their work and what abilities and skills they need to meet those expectations" (Armstrong, 2007, p. 171). The result of the analysis is the "job profile" that sets out the specific outputs and results expected of the employee, as well as his/her abilities and skills to achieve the maximum performance.

## **2. Theoretical Background**

Sanchez and Levine (2012, p. 417) point out that, unlike flowers and stones, the work is not separate from the individuals who perform it. This should be kept in mind, especially by job analysts. They should lead employees to reflect on how they approach their job responsibilities, and thus improve the way their work is done. In such a case, the analysis of the work turns into a psychological effort, the aim of which is to clearly understand the psychological requirements for the given job. The analysis is usually a part of a personnel audit the task of which is to broaden the control of the effectiveness and results of the personnel management. It has a positive effect on the engagement of employees as well as on their motivation. It helps streamline internal processes and consequently eliminate excessive company expenses. An effective human resource management therefore leads to profitability and to gaining competitive advantage (Negi & Chaubey, 2015).

The competitiveness of a company is related to its performance which can be formulated with the human capital. To improve the performance, it is necessary not only to attract and invest in the human capital, but also to retain experienced managers and employees, and to develop their potential. The key is not to focus only on a certain type of management but on all employees comprehensively (Crook, Todd, Combs, Woehr & Ketchen, 2011). Albrecht, Bakker, Gruman, Macey & Saks (2015, p.26) emphasize that in the human resource management it is crucial to help and support employees to achieve and maintain a high level of involvement and performance, and thus gain competitive advantage. Employee training and development should focus on "optimizing employees'

personal expectations, involving them in terms of willingness to share their ideas, suggestions, and concerns that will lead to improvement and change."

Labor analysis data are one of the most important information for the human resource management system development. It forms the basis for other personnel activities such as employee selection, training, performance management, and the remuneration system. Job analysis combines two areas of information: job-oriented and employee-oriented. The former area includes work tasks and procedures, and the latter focuses on the requirements for employees: their knowledge, skills, abilities, and other characteristics. However, the disadvantage of job analysis is the fact that the job analysis information is affected by self-presentation process. In their study, Morgeson, Delaney-Klinger, Mayfield, Ferrara & Campion (2004) found out that employees approved their skills rather than tasks as a part of their work. Employees also made more of false statements about abilities than about tasks. In a given job, the tasks are more clearly identified than the skills. Jobseekers were also prone to overrate the self assessment of their skills.

In connection with the jobs analysis, or with the data collected through it, Aguinis, Mazurkiewicz, & Hieggstad (2009) point out another issue resulting from the fact that the evaluation of personality traits necessary for a given job is derived from the personal traits of the people being evaluated. This issue carries a risk that an organization will make a decision based on a distorted assessment. In such a case, a 360-degree feedback assessment could lead to a recommendation that employees behave like the current employees. As a consequence, the workforce would be increasingly homogeneous in terms of employees' personalities, but there would be no improvement in the work performance.

### **3. Methodology**

The intricacy of the subject can be defined by a complex of interactions between the employee (or his/her potential) and the work environment, bearing in mind that the interactions are affected both internally and externally. The result of the reflections is a complex model of the subject.

The correct definition of the model can be based not only on the primary theoretically defined key concepts but also on two case studies of selected companies that try with their business activities to promote the optimal models in practice. Two different approach paths are presented further on. In order to maintain the anonymity the firms used in the study are referred to as "The Consultancy Company A" (further on Company A) and "The Consultancy Company B" (further on Company B). The main difference between the two is that the Company A is a large consulting firm while the Company B consists solely of the owner who only occasionally hires an external personnel. More details on the companies and their problem-solving philosophies are provided in the following paragraphs.

#### **3.1. Company A**

The Company A primarily provides online consultations. The Company A's output is psychometric, and the methods the Company A applies to solve the clients' problems are derived from it. The company's service portfolio comprises the following: HR technology, employees pre-selection, recruitment, employee adaptation, employee development, reaching out to and attracting talent.

The problem boundaries frame the management of the activities (in particular those of adaptation, i.e. adaptation plans, training, diagnostics) and the employee development



This includes 360-degree feedback, diagnostics and staff development, development centres, coaching, mentoring, therapy and hypnotherapy, training, team building, outdoor and training, and educational programs. The exact psychometric path is therefore also reflected in the approach to identify and verify the employee potential - the Company A combines specific forms of tests and questionnaires. With regard to all activities, the Company A's approach can be called psychometrically systemic with the following attributes: 360-degree feedback; diagnostics; work with the employee's strengths and weaknesses; subsequent development and support activities (mentoring, training, coaching, etc.).

### **3.2. Company B**

The Company B is based on the ideas and approach of the company's owner. In his concept, he presents personnel consulting as a psycho-philosophical path focused on improving human resources processes in organizations. A great emphasis is placed on an individual approach to a better employee performance and on the focus on the hidden employee potential. It is based on the experience of a consultant who has a proved track of building several human resource management consulting companies.

The Company B's presentation is formed on mentoring, lectures, and cognitive approach to understanding the problem. The Company B is narrowly defined and its key activity is the audit of the personnel. As part of the promotion of its activities it also creates an informative and educational blog. The personnel audit is carried out according to the basic parameters of the audited human resources activity and the results basically depend on the auditor's personality. In the Company B's concept the greatest emphasis is placed on the auditor who represents the key determinant in the success of the changes in the client firm and in the growth of its employees potential.

The Company B's approach can be briefly defined as follows: 1. selection of the right auditor; 2. objectivity and credibility of the audit; 3. detailed analysis of the audited firm and its processes, thorough mapping of the personnel situation; 4. additional areas of audit according to the client firm's needs: current state of the firm's culture and motivation, analysis of the firm's internal environment, working tools and working time usage, etc.

This concept is based on methods such as assessment of the current job description, control of the working conditions, process maps, facilitated meetings between the management and employees, time frame of the employee's day, observation of employees at their workplace, shading, or "mystery shopping". The primary pros and cons of both approach paths are presented in the table below where the individualistic and metric (exact) routes are evident. The table diametrically distinguishes the two companies in terms of the analysis method and of the final evaluation of employees in a firm.

The above demonstrated differences between the methodological opinions on how to examine the reality of the work potential represent only a fraction of how the business organizational practice work. The above-mentioned primary theoretical considerations already show how multilayered the problem is.

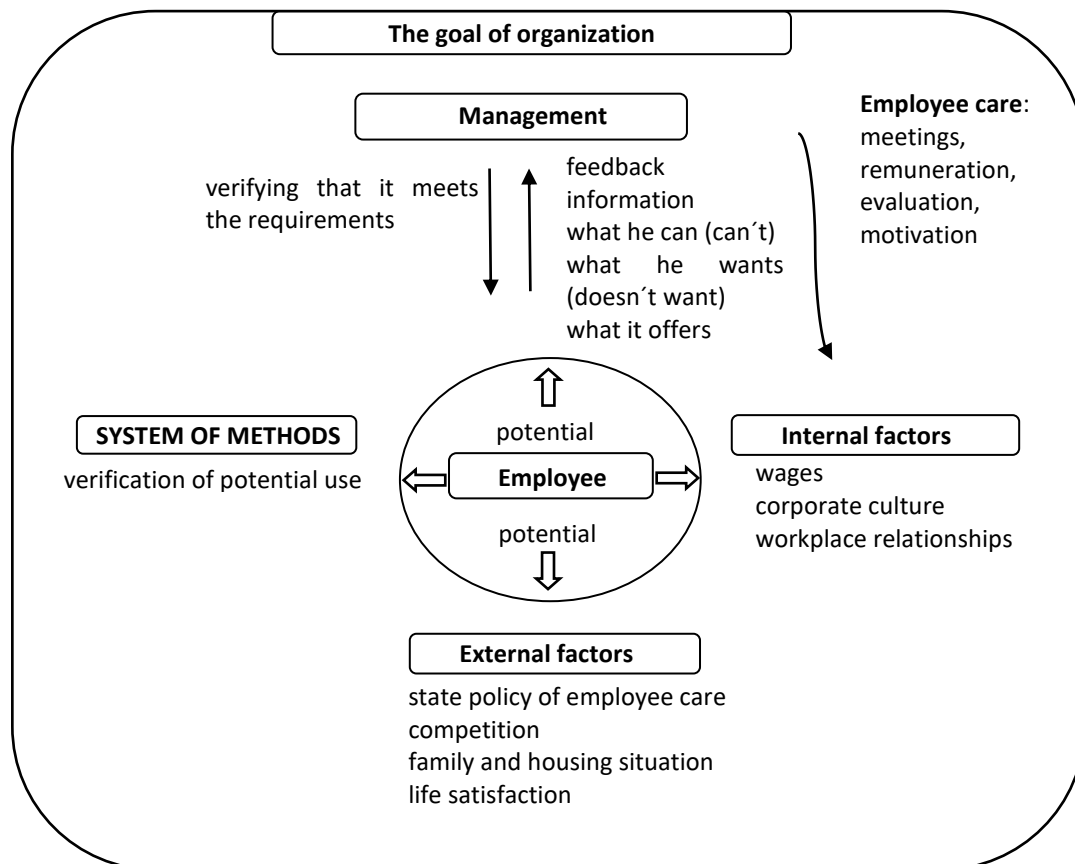
**Table 1: The Company A's and the Company B's approach comparison**

<b>Company A</b>	<b>Strengths of the Approach</b>	<b>Weaknesses of the Approach</b>
	Using a globally respected methods Exact measurement methods Partnership with external institutions Technological sophistication	Excessive emphasis on psychometry General data collection on employees Complex system for customer understanding The approach may encounter stereotypes of the Czech mentality
<b>Company B</b>	<b>Strengths of the Approach</b>	<b>Weaknesses of the Approach</b>
	Highly individual approach Proven service model based on the general practice Maximum flexibility of the consultant Large portfolio of experience not only with business companies, but also with public and non-profit organizations	Emphasis on a sole responsible consultant Pedagogical approach based on dogmatic personnel theory Limited ability to respond to personal disharmony between the organization and the consultant Unclear added value of the approach excluding individual approach

#### 4. Discussion

In the frame of the theoretical discussions and business practice examples, a reasoning model of the whole work potential usage system was generated. These are initial theses that have the potential for a further validation.

We must first realize that each person (his mental and physical side) belongs to a number of social microsystems (e.g., family, interest group, working group, etc.), which are located not only outside the organization where he works, but also inside. A man is part of a network of many interactions, which are the key to understanding the man and then using it to improve his potential.



**Figure 1: Work potential utilization model**

If we simplify the deliberation on a man within a company, we need to define two key variables. They are the employee and the organization's objective. This reflects the role of the management as a facilitator of all events, which aims to connect the abilities and skills of employees (adequately use their potential) with the intentions of the organization in order to achieve the meaning of its existence. The external and internal factors shown in the model are only an indication. There are many more of them in the real life of a man and of a company.

To be able to define the whole system allowing to increase the employees potential and consequently the company competitiveness, we must answer the following questions:

1. What does the management specifically do so that an employee contributes to reaching the goals of the company while making the most the most of his/her individual potential?
2. What factors need to be eliminated (i.e. not addressed empirically) in the consideration of the support of the potential, as their impact on companies or individuals cannot be eliminated (e.g., political or economic situation)?
3. What factors in the internal and external environment can be influenced by the management (e.g., family and work life coordination, working place climate)?
4. What methods does the management in fact use to motivate and support employees, and how does it measure how employees work (including the potential)? In this point, we can search the key to an exact measuring of the organization's success in personnel policy. In other words, whether there is a system of methods in the company at all.

These questions may provide the basis for the future empirical research in the field of employees potential, as well as in the field of the profesigraphy and work analysis theoretical dilemmas. Investing in the human potential is an issue that will be increasingly discussed. On a theoretical level, it is constantly talked about, but in practical (measurable) one, we don't know much about it. Available data measuring is missing.

## **5. Conclusion**

There is a number of contradictions in the theory within the theoretical foundation of measuring the work potential of workers. Methods such as profesigraphy or job analysis are intertwined and are also inconsistently interpreted within the human resources activities. Primarily, specific measuring in companies can help optimize the management processes.

It is necessary to examine the specific procedures of how the management verifies whether its human resources activities bring the desired effects. Furthermore, it is necessary to determine what external and internal factors impacting the employees potential must be eliminated for they are utterly out of the management's control. At the same time, it is necessary to examine the system of methods used by the company in order to verify that an employee performs the work for which he/she has an individual potential.

The whole journey means recognizing the the work procedures, methods, guidelines, and specific examples of practice in selected companies. Then, based on this analysis, conducting a survey among employees. And finally comparing the findings of the two against each other. Both, a qualitative and a quantitative approach to problem analysis are indispensable.

Competitiveness is the primary attribute of the companies or organizations success in the environment where they exist. Competitiveness can be increased by investing not only in technology, marketing, but primarily in employees. The introduced model constitutes an initial reflection for a further empirical research. A search for answers to the asked questions can indicate the course of further empirical reflections on these human resources issues.

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## Viability of Slovak Start-ups in the Era of Complexity and Turbulence

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**Abstract:** The COVID-19 pandemic has affected all businesses, regardless of their size, legal form of business or the sector in which they operate. The tangle of turbulence and complexities in the business environment greatly affects their viability, which is dependent on a well-chosen business strategy that has competitive advantage at its core. Developing an approach based on diverse assumptions leads to finding the right way to exploit and develop new opportunities in order to maximise viability while eliminating risk. The start-up era has changed the economic environment. Start-up entrepreneurs are designing innovative business models, effective business strategies that must progressively respond to the triad of viability, complexity and uncertainty whereby a business idea becomes a product.

**Keywords:** Start-up, business viability, competitive advantage, business strategy.

**JEL classification:** M10, M13, M21

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### 1. Introduction

To be viable and ensure success in the marketplace, businesses must clearly define their uniqueness and competitive advantage (CA). The latter is at the core of business strategy (BS). The trend is towards small and starting businesses that can adapt to the market at record speed. Current studies identify the sustainability of CA as a major option for the growth and viability of businesses. For small and starting businesses that can reach the elite at this speed and build a strong CA, their advantage is precisely the disruptive innovative breakthroughs and technological advances in the sector.

### 2. The concept of viability according to renowned authors

The key issue is to define a threshold, or an imaginary threshold, at which a company ceases to be a start-up (Hoffman, 2013) and reaches the status of a small enterprise. Even a temporarily created organisation, a cluster, used to find a repeatable and scalable business model (BM) (Bryan, 2015) is evidence of this. The search for key success factors (Saura, Palos-Sanchez & Grilo, 2019; Ceașu et al. 2017) is a prerequisite for viability (Ghezzi, 2020; Shepherd & Gruber, 2021; Bortolini et al., 2021; Schwaninger & Scheef, 2016). To be successful and viable, businesses need to have a good BM and an appropriately chosen BS. A business can compete with new products without significant innovation; its success is largely determined by how its strategic decisions are informed by the environment (Gans, Scott & Stern, 2018). However, there are many ways in which an appropriate BS can be used in combination with a BM canvas (Umar, Sasongko & Aguzman, 2018). Experts in the field argue that many new ventures do not have articulated strategies; others emphasize that the entrepreneurial

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orientation of the founder ensures that the venture focuses on a viable opportunity (Lumpkin and Dess, 1996; Wilkund, 1998; Lebrasseur, Zanibbi & Zinger, 2003). These businesses develop their internal capabilities, penetrate new markets quickly, and form strategic alliances (Goldberg, Cohen & Fiegenbaum, 2003). They can also benefit from three modern BS: the free BS (Bryce, Dyer, Hatch, 2011) which is essentially a new form of competition, and which introduces a new kind of BS, the freemium model (offering a product/service to a consumer free of charge). Another is the pooling model BS (Werbach, 2000) and the judo BS (Yoffie, Cusumano, 1999). These BSs are suitable not only for small businesses, but also for businesses that do business on the Internet (a typical BS even in the COVID-19 pandemic). The first recommendation of the pooling BS is to change roles in the enterprise, the second is to sell core competencies. The essence of the Judo BS is to find parallels between the Internet fighting style and the Judo fighting style, where speed, flexibility and leverage are the three basic elements of BS. They can also use selected Porter's generic BSs. They are based on CA based on differentiation and low cost combined with market segmentation. It follows from the above that the firm's continuous learning and the presence of BS in relation to customers also point to its CAs, which contribute in some way to the elimination of strategic uncertainty and may be its key success factor. The cooperative-competitive BS is another workable and exploitable strategy. Mutual cooperation between competitors appears to be important. A new strategic framework is beneficial. The customer perspective points to the way in which customer value is created (Brandenburger, Nalebuff, 1996). On the positive side, it leads companies to sustain the CA (Dagnino, Padula, 2002). Another useful BS is the blue ocean BS (Kim, Mauborgne, 2005) based on the concept of creating new market spaces and creating new customer segments. Typically, unknown market spaces that are untouched by competition are the basis for value innovation, creating added value for both, the business and the end customer. The mismatch is visible in Porter's generic BSs. In this way, we do not consider the content of the strategy, such as low cost, differentiation, or niche (Von Gelderen, Frese & Thurik, 2000). Instead, we focus on the ways in which one deals with situations. The use of the Blue Ocean BS is to find innovative values that seem to combine low cost and differentiation. Starting from Hill's statement (Hill, 1988), we can conclude that it is the combination of the aforementioned attributes that leads companies to create sustainable CAs and the prerequisites for their viability. Individuals can also use information from business failures to reassess their existing knowledge and manage their own businesses more effectively. We note that entrepreneurs can learn from failures and change their strategies (Lin, Yamakawa & Li, 2018). In the literature, there is also a term for contingency strategies, which are characterized by trial-and-error adaptation of market demand. They are more appropriate for small business resource centres in the early stages of development than prescriptive strategies that assume environmental certainty (Broadhurst, Paterson, & Ledgerwood, 2001). We conclude that entrepreneurs design innovative BMs that must respond sequentially to the triad of viability, a complex and uncertain process in which an idea becomes a product (Morente & Ferràs, 2018). These strategic aspects are essential for the viability and longevity of businesses (Rolleri, Nadim & Lussier, 2016). By finding a viable business model coupled with an appropriate BS, we highlight the prerequisites for increasing the viability of Slovak small and starting businesses in a turbulent entrepreneurial environment and for their competitiveness.

### **3. Aim, methods and research sample**

The main objective of the paper is to find a viable business model that is closely aligned with business strategy. At its core is competitive advantage. We propose the most effective assumptions related to increasing the viability of Slovak enterprises.

The sample of 147 startups was obtained through questionnaire research and guided interviews with startup entrepreneur in Slovak companies in 2020. Subsequently, the questionnaires were processed and evaluated through mathematical and statistical methods. Making assumptions and also identifying the factors acting on the viability of the surveyed enterprises, for the most appropriate and effective approach for their survival and growth are beneficial for practice.

#### **4. Research results and discussion**

Almost one third point to continuous development and research or innovative solutions in the given business area as the main trend of development in the surveyed startups (34%). Highly publicized startups are offered cooperation with these companies despite strong competition, which accounts for 24.5%. These startups use a cooperative-competitive strategy. Strong competitive pressure is the driving force in such business activities (36/24.5%), a form of cooperation with other enterprises is not excluded. The development trends also capture the inter-industry form of cooperation, which accounts for 8.8% of the number of enterprises surveyed. We also point out the positives related to the protection and creation of the environment, human health and healthy lifestyles, which currently record the main trend of development in the company (31/21.1%). The growth prospects of the sector are captured by the fact of expansion of enterprises into foreign markets (11/7.5%). 6 startups did not comment on the area, which represents 4.08% of the total number surveyed. Technology startups are developing at a much faster pace, bringing innovative products to the market faster than startups with other types of business.

Startups often face high uncertainty and for this reason a frequent decision is also a relatively high financial investment in the implementation of a business idea. Knowing whether the investment is worthwhile is a big risk for them, as they do not know the expected return in advance. Up to 94 (63.9%) startups use their own savings (financial resources) to implement the business idea, which come from the founders, owners and managing directors of the founding company. 14 (9.5%) startups use a combination of their own and other people's resources, as their own investment in the initial business is insufficient. The same number of 14 (9.5%) startups out of the total used the opportunity of angel investors and 12 (8.2%) startups used foreign sources (grants, start-up capital, use of bank credit both short-term and long-term, or crowdfunding. 11 (7.5%) startups did not report financial information for the implementation of their business idea and did not want to share financial information. 2 (1.4%) startups used investments obtained from foreign investors. From the research conducted, it is clear that startups that did not have any investors will try to seek them out. In the next years of their business, they will look for ways to get new investors as their own investments are insufficient. However, the fact is that there is currently concern about the lack of appropriate ways to assess the viability of startups. Some innovative ideas will prove commercially viable in business. The added value may negatively influence prospective investors to raise finance.

Examining the key partners in the sample of 147 startups, we conclude that they are an important block in the business model. Many startups depend on them and would not be able to implement their business without their help. Only a tiny fraction did not need any supplier. 41/27.9% of the startups used a supplier of intangible resources through technological know-how, 23/15.6% depended on a supplier of tangible resources for the supply of materials and components, 22/15% of the startups obtained advice and business contacts through suppliers of business know-how, 13/8.8% needed suppliers of external processes (trader, dealer, distributor, 11/7.5% consider external promotion and

PR suppliers (advertising agencies) as key partners, some also identified suppliers of financial resources (investors) as key partners, and an equal number also identified suppliers of internal processes (7/4.8%), which include implementation, production or operational technology (7/4.8%). There are also startups that do not rely on any suppliers and do not have any key partners (19/12.9%). They operate without partners and are able to carry out all activities on their own.

It was also confirmed that just under a third of startups 46/31.3% acquire information resources from partners. Valuable advice, expertise and experience, effective communication, data e.g. for data analysis, data e.g. on competitors are necessary for the successful running of a startup. Material resources acquired from partners, without which the business would not be possible, are also important for 38/25.9% of startups. These mainly relate to the provision of input raw materials and materials that were intended for the initial processes. Without them it would not have been possible to carry out these processes. Financial resources (32/21.8 %) are represented at approximately the same level. Finances and the search for investors have become a rather important link for the fulfilment of the mission. Human resources were recorded in 14/9.5% of the startups and operational resources through renting/leasing space in only 2/1.4% of the startups. No resources were used by 7/4.8% and 8/5.4% of the startups in their business during the study period, which we do not rate positively. In spite of the above, we find that the key resources acquired from partners are diverse ranging from information, material, financial and human resources, some also acquire operational resources. Only a very low percentage of the surveyed startups do not need any resources.

Another interesting fact in the 147 startups was the key activities carried out by key partners. Most 38/25.9% of the startups consider promotion or presentation of the product/service, marketing, advertising, marketing communication, branding, consulting, networking or product testing as key activities. Among the successful implementation of a business idea, quality marketing and then procurement of inputs are required. The supply of primary raw materials that are used in the further processing and execution of the business is an important aspect for 31/21.1% of startups. Control in product development and research, or support for development and research (in places also funding) was found for 30/20.4% of the startups. 14/9.5% of the surveyed startups reported that partners sell their product or provide a service. Distribution (logistics) although admittedly in a lower proportion of startups in the total number also appears to be an important link in the business (10/6.8%). The same number of startups (10/6.8%) did not want to comment on the activities carried out by partners. In 8/5.4% of the startups, partners do not carry out any activities and are not dependent on partners. Only a small proportion of startups 6/4.1% stated that they also consider key activities received from partners to be, for example, the provision of rent/lease of space, storage space, provision of cloud storage. Without their existence, they would not be able to carry out their business activities. When assessing the key activities that are carried out by the partners, activities related to marketing were predominantly represented. These were mainly the promotion (and branding) of the product or service itself and its presentation, coupled with effective advertising. In this context, many of the surveyed startups mentioned that marketing communication, consulting or product testing is very important in business. It is also necessary to point out networking, which was related to making new contacts or maintaining relationships, getting valuable advice and support. This has had a positive impact on the growth of the startup and its success. Another key activity was the supply of raw materials for further processing, which were then used to develop prototypes. Following the prototype, many startups pointed out the importance of follow-up or support in the subsequent development and research of the product, which cannot do without financial support. Startups highlighted the need for partners in



selling the product/service as it is through sales that they make profits. A minority of startups highlight the need for rentals/leases, which are important links for their business. Some are not dependent on partners and point out the independent business without help, they are self-reliant.

Based on the examination of the product/market fit, which is verified with the needs of the market, we found in the examined set of 147 startups that the most companies 35/23.8% of the product/market fit was recorded in the feedback from customers and monitoring their satisfaction through feedback. Such a match was mentioned by enterprises offering highly sophisticated products. Satisfaction of customer needs is a response to customer satisfaction. It was found that by coming into direct contact with customers, it offers the opportunity to understand them better. Advance surveys carried out by enterprises before they entered the market through various market analyses were recorded by 32/21.8 % of enterprises. As in recent years people have become aware of their responsibility for the environment and the planet, the match between the product and the market needs is verified through market analyses. The same number of enterprises, 29/19.7%, commented on product fit verified by market needs, which capture assumptions, considerations, experiences and the so-called product/market fit, which is the feedback from customers obtained by questionnaire through enquiry. Some took the opportunity and believed that their product would sell in the market. In this area when researched, 22/15% of the startups out of the total 147 startups surveyed recorded other non-professional responses. In addition to the above, product/market fit is often validated by surveys conducted at an earlier time interval than the startups entered the market with their product or service. It is clear that some have not even done market analyses or surveys beforehand and have entered the market with a risk of whether the product will fit in the market. With the deployment of risk, some startups started, but there were also some where the success rate was not great. Through the questionnaire method of asking, customer feedback was also gathered. In conclusion, verifying that the product fits the needs of the market is an important aspect for the functioning of a startup and for its continued success.

## **5. Conclusion**

In the current period, which is marked by the corona crisis, many startups are worried about their viability due to the lack of investment that is needed in the coming years of business. For this reason, they are looking for ways to find and attract investors. Another finding is that startups are using diverse key partners. From suppliers of various financial, tangible and intangible resources, internal processes related to implementation, production or operational technology, or the supplier of the finished product. Many also use suppliers of external processes, external promotion and PR, or business know-how. Some startups are not dependent on suppliers and are self-sufficient in all activities. Key resources acquired from partners are an important link to a successful startup. In the researched ventures, without their acquisition, their future would be uncertain. The most requested key activity from partners is the activity selected from the marketing area, the second most used is the supply of primary materials for further processing. R&D control, R&D support, and, in part, product financing were confirmed to be important. The peripheral activities appear to be product/service sales and distribution (logistics). The product match validated with the market needs, the so called product/market fit, was the identification to create a viable venture in which the startup met its first users. From them, it obtained feedback on satisfaction and ascertained the extent to which the market was interested in the product offered. With the deployment of risk, some startups have started in the market.

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## Supporting Knowledge Communities – Two Examples from Practice

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**Abstract:** Knowledge communities are groups of people who share and create knowledge on some common interest. As knowledge of the individual is limited, knowledge communities are an essential tool that connects knowledge separated by the division of cognitive labour. From this point of view, knowledge communities are crucial for the innovativeness and competitiveness of organisations. The paper explains what knowledge communities are and why they are important and provides two examples of how organisations may support the creation and work of knowledge communities.

**Keywords:** knowledge, knowledge community, cognition

**JEL classification:** M0

### 1. Introduction

Knowledge communities are groups of people who extensively interact, share and create knowledge. They are connected by common interests, practices, or passions (Harvey et al., 2015). "They develop deep knowledge in particular domains and in this way fuel front end of innovations" (Harvey et al., 2015, p. 47), and as such, they are important factor of corporate flexibility and innovativeness and help organisations to meet challenges of our globalised environment especially "fast information flow and unpredictable technological development, growth in knowledge work and viewing the work and organisation as places for personal meaning" (Lee & Edmondson, 2017, p.37).

The concept of knowledge communities covers various types of communities and groups, from cooperative communities, occupational communities, learning communities, innovative communities, internal knowledge networks to communities of practice or question and answers communities, discussion boards and online forums or user innovation communities. Even though these communities may be founded on different principles and for different concrete objectives, the primary reason for their existence is knowledge sharing and creation (Boland & Tenkasi, 1995). In all types of knowledge communities, participants seek knowledge from one another on a reciprocity basis, but there are ideas that different types of communities may represent different levels of development. For example, by Cabitza et al. (2014), knowledge community develops via knowing community (a social identity that preserves itself) and community of interest (which gathers around a project). Community of practice is a final step of this evolution.

Researches in both physical and online environment show that knowledge communities became an important part of corporate life and as Harvey et al. (2015, p. 446) get it "firms would do well to understand the knowing (knowledge) communities with which they are linked, the activities in which those communities engage, and the avenues through which they may be nurtured." Adler (2015, p.

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446) stresses that “many of new management models support community work within and beyond firm” (Alder, 2015, p.446).

The objective of this paper is to explain what knowledge communities are and why they are important. We demonstrate on two examples how organisations develop specific social systems that help to connect their employees so that they created knowledge communities and how they provide these knowledge communities with a sufficient supportive environment in which they can develop and work.

## **2. Knowledge communities**

In the literature, the term knowledge (knowing) community is used in a very unsystematic way. In this paper, knowledge communities are understood as Harvey et al. (2015, p. 47) specify them as “entities that rely on repeated and continuous interactions between individuals sharing a common interest or objective. Knowledge is at the core of both the activities and the outcomes of these communities, whose members actively exchange and accumulate knowledge. Through this regular exchange, group members come to share common mental schemas, social norms, and even a language, all of which can help to guide creative activities and accelerate innovation”.

Knowledge communities are silos of knowledge sharing and creation. As Cabitza et al. (2014, p.391) write, “everyone can bring in the community her own view or perspective, as well as interpretations and values”. Compared to traditional communities, knowledge communities are more professional, and users can exchange knowledge related to specialised topics such as health, academics and software development (Zhou, 2018).

Knowledge communities and their development can be explained on common identity, common bond and organisational commitment theories. Common identity theory provides an explanation of why and how people get attached to the group as such, why they identify with it. The process of creation of common identity happens via social categorisation, interdependence, and intergroup comparisons (Ren et al., 2007; Turner, 1985; Turner et al., 1987). Common identity tends to develop around domains of knowledge communities and can be identified in all types of knowledge communities.

The common bond theory explains why and how people build strong personal relationships (Sassenberg, 2002). Common bonds between people are built through social interactions, interpersonal attraction and personal knowledge of other people (Ren et al., 2007). Common bonds mechanisms may not participate in knowledge community creation and work (they are missed in some types of online knowledge communities but are essential for communities of practice), but when present, they support trust, openness towards others; the act of loving other (Derrida, 2005). Common identity and common bonds cooperate in knowledge communities. “Further, despite their conceptual distinction, an identity-based attachment may evolve into bond-based attachment and vice versa” (Ren et al., 2007, p. 401).

Organisational commitment theory (Meyer & Allen, 1991) explains community member's commitment from the different angle. By Bateman et al. (2011), community commitment has three dimensions: continuance community commitment, affective community commitment, and normative community commitment. Continuance community commitment has been defined as “a bond between a member and a particular community that is based on the member's belief that his or her involvement provides net benefits that are not easily available elsewhere” (Bateman et al., 2011, p. 843), e.g. “the community commitment indicates the degree to which a member believes the cost-benefit ratio

associated with a particular community is superior to that of other communities” (Liu et al., 2016, p. 694). “Affective community commitment has been defined as “a bond between a member and a particular community that is based on the member’s strong emotional attachment to that community” (Bateman et al., 2011, p. 843). Affective community commitment is composed of positive feelings of identification with and involvement in a community (Liu et al., 2016, p. 694). “Individuals with a strong emotional attachment to a community identify with, and generally like, that community” (Liu et al., 2016, p. 695). Normative community commitment has been defined as “a bond between a member and a particular community that is based on the member’s sense of obligation toward that community,” and the focus is on an obligation to contribute to the community (Bateman et al., 2011, p. 844). When a member has obtained benefits from a community, he or she is likely to feel obliged to repay these benefits and to believe that it is his/her duty to support this community (Liu et al., 2016, p. 695).

Identity and common bond theory mechanisms and all three types of commitment are important for trust development. Trust is crucial for knowledge sharing. People share their knowledge only when they trust others. In case that they do not trust, their knowledge becomes a competitive advantage. “What binds the members of a community is trust. This is partly a matter of the reliance, just mentioned, on assumptions about what our fellows already know, and it is partly a matter of faith in the reliability of our fellows as purveyors of knowledge. But this trust is, I suggest, sustained and reinforced by a feeling of dependence on others” (Welbourne, 1981, p. 304).

### **3. Why are knowledge communities important**

The idea that the knowledge of an individual has limited importance for an organisation is not new. As already von Hayek knew, knowledge is not, and cannot, be concentrated in a single mind, and no single mind can specify in advance what kind of practical knowledge is going to be relevant, when and where (von Hayek, 1945). We actually live in a world based on “the division of cognitive labour” (Sloman et al., 2018, p. 12). “Cognition in organisations is a distributed phenomenon, in which individual members of an organisation reflect upon their experience, make plans, or take action. In distributed cognition, by contrast, the group is a set of autonomous agents who act independently yet recognise that they have interdependence” (Boland et al., 1994, p.456).

“Sharing skills and knowledge is more sophisticated than it sounds. Human beings don’t merely make individual contributions to a project, like machines operating in an assembly line. Rather, we are able to work together, aware of others and what they are trying to accomplish. We pay attention together, and we share goals. In the language of cognitive science, we share intentionality. This is a form of collaboration that you don’t see in other animals. We actually enjoy sharing our mind space with others” (Sloman et al., 2018, p. 13).

Formulating it differently, the results of an organisation depend on its ability to connect together knowledge separated in its employees and environment. Later works in cognitive sciences (Hutchins, 1995; Clark, 1997) indicate that cognition happens in a complex system and humans are only part of this system. Von Hayek (1945) and many after him expected markets to be the tool that has the potential to coordinate human activity (Hamel, 2012). But it turns out that it is knowledge communities that create an open system where interaction and cooperation lead to knowledge sharing and creation of new knowledge and values (Barnes, 1983; Hesse, 1974; Star, 1993; Boland & Tenkasi, 1995).

#### 4. Supporting knowledge communities

In this chapter, we give two examples of how companies support the development and work of knowledge communities, Morning Star and Whole Foods Market. As van den Hooff and Huysman (2009) write, managers and their interventions are very important in creating a stimulating environment for knowledge creation, sharing and use processes. “Unfortunately, firm-based knowledge creation efforts are typically constrained by the number of employees that a firm can hire, the quality of the extant employee pool, knowledge hoarding, and incentives that reduce motivation share across units” (Lee & Cole, 2003, p. 643).

Morning Star is the California based tomato producer and supplier of tomato products. The organisation employs around 600 people and additional 4000 temporary workers in times of the harvest. Morning Star is self-managed by employees. All activities are based on two principles. “First, people should not use force against others; all interactions should be voluntary. And second, people should honour the commitments they make to others. Self-management without these principles is doomed to fail” (de Moree, 2018, Condition 1). Morning Star see employees as “self-managing professionals, initiating communications and the coordination of their activities with fellow colleagues, customers, suppliers, and fellow industry participants, absent directives from others.” (Hamel, 2011, p.7). Every employee has clearly articulated personal mission based on corporate mission and is “responsible for the accomplishment of this mission and for acquiring the training, resources, and cooperation that is to fulfil it” (Hamel, 2011, p. 7). Depending on the situation, the goals and responsibilities may quickly evolve. The core management tool is the so-called colleague letter of understanding (CLOU). It is the short document on the company's intranet that gives details of employee personal mission and commitments he/she has with colleagues who are affected by his/her work. CLOU cover major activity areas and performance measures. CLOU's are negotiated annually with about ten colleagues. Each CLOU specifies basic commitment between 2 employees, deliverables, goals and performance metrics. Performance metrics are checked every three months.

Morning Star has a specific conflict solving procedure. Employees are supposed to solve any problems and conflicts themselves. If needed, they can use an ombudsman or get a third party involved. The third-party only gives opinion or advice. If this fails, the consulting panel of different people is asked for advice. The final instance is the founder. Morning Star put great stress on the availability of information. CLOU and financial information are available to all employees. Employees are evaluated based on self-evaluation and peer review, and everyone gets feedback from CLOW colleagues. The elected compensation committee validate assessments and ensures that pay aligns with value-added (Hamel, 2011). The founder also serves as a supportive leader and is highly trusted by employees. New colleagues are carefully chosen and get time to learn the rules. All these measures create a knowledge community friendly environment where an employee is a part of determining what to do and how to do it (de Moree, 2018) and ensure that all employees are equal and no one has more rights than the other, and everyone is accountable to everyone. These principles make employees dependable on each other and promote cooperation, knowledge sharing and creation and a friendly atmosphere in the company.

Second is the example of US retailer Whole Foods Market (before acquired by Amazon in 2017 when some of the managerial approaches changed). Whole Foods Market coped with the problem of distributed knowledge with decentralised teamwork. Their stores became autonomous profit centres built on about ten self-managed teams. Each team named the leader, leaders of teams in a store

became a team; store leaders also created a team; finally, regional presidents were a team. Great emphasis was put on trust. Trust was supported by sharing all information, including sensitive one with all employees and precise performance measurement and an open salary policy. All work was done as teamwork. Teams were supposed to set ambitious targets (no targets were set from the top) and be accountable for them. Teams competed against other teams but also against their own objectives. The pressure for performance came from other teams, not from the hierarchy.

Performance measurement was complemented with planned and surprise peer-inspections and reviews, and self-examination. Only teams could approve hiring a new employee. New candidates had to work 30 days with the team before becoming the full employee, and many people failed to satisfy their potential co-workers with performance and involvement. "Ensuring that a candidate is a good fit with Whole Foods is just as important as ensuring that Whole Foods is a good fit for the candidate." (Ransford, 2017, Culture fit). The company supported lateral learning from colleagues and best-practice transfer through the teams and shops. Rowland (2017, Focus on team) writes, "Employee morale and perception is important to the company. One of Whole Foods Market's core values is "Supporting team member happiness and excellence." The company did so called morale surveys annually to monitor potential problems, motivation aspects, loyalty, moods and morals of employees (Fishman, 1996). Fishman (1999, Democracy & Discipline) sums it up: "The Whole Foods strategy combines democracy with discipline. The Whole Foods culture braids a strong sense of community with a fierce commitment to productivity. It is a virtuous circle: rank-and-file participation reinforces individual attention to performance and profits; solid financial results give people more freedom to innovate."

## 5. Conclusion

Researches show that we are personally more ignorant and more dependent on the knowledge of other people than we think (Sloman et al., 2018). Alternatively, as (Welbourne, 1981, p.304) writes, "Much of the knowledge which each of us possesses has been obtained from others. We are linked with one another by a complex web of epistemic dependence-relations, and we must all, at least dimly, a sense that we are not separately self-sufficient in knowledge." People create knowledge communities to overcome individual knowledge insufficiency everywhere, including organisations. Therefore, it is important for organisations to accept this fact and search for ways how to support the creation and work of knowledge communities.

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# Existential Philosophy of Management as a Tool for Analysis and Interpretation of Organizational Success and Failure: The Case of Hewlett-Packard

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**Abstract:** From the 1960s, in contrast to the positivist picture of the philosophy of management, an existential perspective began to take shape, pointing to the situational limits of management theory and the impossibility of unifying approaches within a single management theory. In the context of the current dynamic changes threatening the existence of companies, this perspective is gaining new supporters from the ranks of management theorists and business practitioners. Based on a literature review of existential motives in articles analysing the success and failure of Hewlett-Packard, this article demonstrates that the existential philosophy of management is a suitable complementary tool for qualitative analysis and interpretation of the dynamic development of organizations in a complex environment. The article focuses on three main existential topics concerning Hewlett-Packard, namely corporate existentialism relating to the reasons for the company's being, the ethical framework for the dignified coexistence of company members, and the existential situationality of Hewlett-Packard's executives.

**Keywords:** Existential philosophy of management, existential situation, existential ethics, Hewlett-Packard

**JEL classification:** M114, M210

**Grant affiliation:** IGA\_FF\_2021\_001 Barriers to expanding sustainable consumption

## 1. Introduction

As mentioned by Mir et al. (2016, p. 1), when discussing the philosophical underpinnings of management and organizational research, we encounter two distinct communities of scholars who hold opposing positions regarding the merits of these discussions. While one camp prioritizes “application” and seeks to build consensus and a certain paradigmatic unity to advance the discipline, rejecting philosophical abstractions, the other camp considers the field of management worthy of philosophical inquiry and highlights important topics that directly touch on the subject of interest of philosophical disciplines such as ontology, epistemology, philosophy of science, or ethics, or draws attention to possible applications of specific philosophical movements.

The emphasis on the contribution of philosophy in organization and management theory in the 1950s was influenced by the dominance of economics as the backbone discipline of management, and hence philosophical issues mainly touched on topics based on philosophical aspects of economic theory (Mir et al., 2016, p. 2). However, the authors were aware of the importance of philosophy, and we encounter statements that philosophy of management is probably the most practical self-development project a manager can undertake (Davis, 1958, p. 1).

However, in the 1960s, approaches that are critical of the positivist tendencies of management philosophy also come to the fore. In 1960, John Rice publishes an article “Existentialism for

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Businessman” in the *Harvard Business Review*, where he points out that every businessman is in some sense a philosopher, and it is philosophy that provides the framework for interpreting our experience (Rice, 1960, p. 135, also Cunliffe, 2009, p. 89 for a commentary on the contemporary situation). Six years later, George S. Odiorne (1966), who became particularly famous for his work on the concept of “Management by Objectives”, came up with the article “The Management Theory Jungle and the Existential Manager” printed in another prestigious journal, *The Academy of Management Journal*. It was these texts that became the primary inspiration for a new way of looking at management and the role of the manager.

This article will briefly introduce the current trends in existential philosophy of management and use the example of HP to show how the perspectives of existential management philosophy can be useful for analysing the success and failure of companies. In terms of success, it is primarily concerned with managing the meaningfulness of the organization and the ethical framework for a dignified existence. In terms of failure, the existential perspective helps to point out the situational limits of management theory and to understand the causes of crisis and potential failure in terms of an unbiased concern for the dilemmas managers face.

## **2. Methods**

Based on a review of articles and other publications dealing with HP, existential-oriented commentaries were collected on the reasons for the success and failure of HP. The study by Müller and Kubátová (2021) was used as a basic criterion to determine the existentially oriented motives used in management. Based on a qualitative analysis of the texts, three significant intersecting existential themes were identified in the case of HP, namely 1) Corporate existentialism and reasons for being, 2) Individual existence and human dignity, and 3) Existential situationality of managers.

## **3. Existential philosophy of management**

Existential philosophy of management can be characterized as an approach that emphasizes the value of the individual in society. It is a perspective that provides a framework for examining organizational behaviour as well as ethical issues. An important dimension of the existential approach is the attempt to grasp the meaningfulness of work (see MacMillan et al. 2012). However, it should also be emphasized that existential management is closely related to how the value of interpersonal relationships is perceived and it puts stress on the fact that other people are important for the constitution of the self (Müller & Jedličková, 2020).

As Müller and Kubátová (2021) show, the synthesis of different existentially oriented approaches and their applications in management is not possible in the sense of creating a single model or framework, but rather in the sense of collecting and linking different existential approaches, tools and their applications in practice. As is evident from the very dynamics of an existential approach, which always touches lived practice, the aim is not to create a new unambiguous rule of the game. In this respect, the existential approach is aptly commented on by Segal and Jankelson (2016). According to them, the philosophical approach – and the existential approach in particular – is an activity in which we question the rules of the game, and this questioning concerns not only lived principles of action, but also the foundations of our own identity, which is related to the meaning we ascribe to our world.

## **4. Existential Analysis and Interpretation of HP**

Existential philosophy of management is a perspective that provides a theoretical framework for research practice. In the field of management, this includes, for example, the application of the existential perspective in qualitative methods such as interpretive phenomenological analysis or existential hermeneutic phenomenology (Müller & Jedličková, 2020; Müller et al., 2021, Rolfe et al. 2016) or, for example, the combination of Weick's sensemaking perspective and existential phenomenology (Kročil et al., 2021). This article shows that an existential approach can be used to analyse and interpret case studies commenting on significant moments in the history of successful companies. In this section, we focus on three significant existential themes at HP.

### **4.1. Corporate existentialism and reasons for being**

Collins and Porras (2011) mention that those who worked with Packard perceived his management style as corporate existentialism, an approach that considers the philosophical, non-economic reasons for a company's existence. Fundamentally, Packard believed that profit was not the goal of management, but a means to enable all the right ends.

Thus, we see that in the case of HP, it was directly about the existence of the corporation, its meaningfulness, from which only other activities could be derived. As Kelly and Kelly (1998, p.) show, for organizations to be successful, it was necessary for them to develop new managerial priorities and techniques. Shared goals, values and meanings – value-based systems – play an essential role. In this respect, the mission of the enterprise should also be articulated in ways that appeal to all with their dramatic vigour and emphasise its meaningfulness in a way that is understandable.

The overall direction of the company within corporate existentialism is also reflected in the strategy. Kelly and Kelly describe how successful American firms have experienced an existential revision of how corporate chief strategists set goals. The existential style of strategic leadership lay in opposition to the bureaucratic style. The changes were spurred by the situation of the 1980s, when firms found themselves threatened by global competition. Lewis Platt was also an existential strategist. The basic existential idea in the context of the competitive situation of the time, was “co-evolution, the notion that if they're working with direct competitors, customers, and suppliers, companies like IBM and Apple can create new opportunities” (Kelly & Kelly, 1998, p. 216). The individual visions of the companies are thus transformed into a shared vision of the global future. Kelly and Kelly mention Gary Hamel's and Prahalad's (1994) important idea in this regard:

According to Gary Hamel, companies have to focus on their “core competencies” or “key corporate skills” to create strategic intent. What Hamel says is that strategy has to be subversive or if it's not challenging internal company rules, it's not strategy. What is being argued is that companies have to democratize the strategy/creation process. (Kelly & Kelly, 1998, p. 217).

It is the questioning of assumptions that is an important existential insight that is necessary for the possibility of company growth, but also for the self-development of managers (Segal, 2014, Müller & Kubátová, 2021). The idea of co-evolution is very close to the existential motive of co-existence – one relates to the world and oneself through relationships with other people. Consequently, an organisation cannot be excluded from these relationships (see Müller & Jedličková, 2020; Müller &

Kubátová, 2021,). Large visionary companies like HP have understood to take a completely new approach to competition.

The existential dimension of management is also reflected in community-based corporate knowledge sharing and organizational learning. Kohlbacher and Mukai (2007, p. 17) describe an effective community in Hewlett Packard (HP) Consulting and Integration in Japan, mentioning that the theory of organizational knowledge creation was built, among other things, on the concept of context and place, which can be denoted by the word *ba*. In this regard, the authors mention the definition by Nonaka and Toyama (2003, p. 7) that *ba* is “an existential place where participants share their contexts and create new meanings through interactions”. We see that meaning making in HP permeates all levels of the organisation, from the overall global strategy to knowledge sharing and learning at the local level. By embracing the principle of democratisation in strategic management, even the lower levels of the organisation can be important and inspiring in shaping future strategy.

#### **4.2. The existence of individuals – framework for dignity**

From the beginning, David Packard emphasized accountability to employees and tried to advocate to management that the dignity of employees as human beings should be recognized and that employees should share in the success of their work. However, this responsibility was not only for the employees of the company but also for the society as a whole (Collins & Porras, 2011, p. 136). In cases where HP’s ethical principles were violated, even in cases where the purpose was to increase short-term profits for the departments, those employees who were in misconduct were fired without exception. HP management prioritised long-term success over possible short-term gain. Bill Hewlett and David Packard placed great emphasis on ethical behaviour. They believed that a supervisor could not do his job well unless he was tolerant of the people he managed. In this regard, understanding even the little things that affect people is very important. A sense of fairness is also related to an awareness of what is reasonable to expect from people (Packard, 2006, p. xxvii).

As Collins and Porras (2011, p. 328) point out, it was important for Bill Hewlett and David Packard to understand HP as a company that advocates progressive HR policies and builds an innovative corporate culture. Unlike other companies, however, HP did not just stick to platitudes, but applied each principle in practice. Respect for employees was demonstrated through action, for example through a production bonus (profit-sharing plan), health insurance for all employees, and the introduction of an employee stock plan. When the company’s turnover declined, instead of layoffs, employees were asked to take every other Friday off and their pay was reduced. Packard was clear that people worked at the company to make money, but he also recognized that people created something of value when they felt they were accomplishing something meaningful together. Management’s goal was to enable people to do meaningful work; it was one of the company’s commitments. This entailed several specific activities for management – encouraging employees and creating conditions in which they would have the opportunity to work on something of value (Packard, 2006, pp. xxii, xxvi).

Packard and Hewlett realized that corporate culture was HP’s competitive advantage. However, even as he was shaping it, Packard encountered a lack of understanding from other business leaders. When he stated in 1949 that the company had a greater responsibility than generating money for its shareholders and that it was a responsibility to make their employees recognize their dignity as human beings, he was shocked that no one agreed with him (Collins, 2003). At this point, there is a significant expansion of business responsibility from that encountered in Milton Friedman’s (1970, p. 126) most

frequently quoted statement in the context of business ethics: “There is one and only one social responsibility of business—to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception fraud.” In the example of HP, we see the realization that the Friedman’s rules of the game can be defined very broadly and may not be sufficient to ensure decent conditions. The enterprise itself can make its own rules and deepen accountability.

This HP philosophy has taken on an increasingly defined form. Significantly, in 1957, a meeting of HP’s top management at the Sonoma Mission Inn set out the company’s basic goals, giving managers the opportunity to participate in shaping and further modifying them. The combination of corporate goals, principles and philosophy led to the formulation of an approach referred to as the “HP Way”. “The HP Way” is also associated with principles such as trust and respect for individuals, a focus on high levels of achievement and contribution, business based on uncompromising integrity, achieving goals through teamwork, and promoting flexibility and innovation (HP Alumni, 2020). Looking at the company’s objectives, it is evident that profit is always linked to the necessary condition of achieving contribution to society and developing quality. It must always be in line with other objectives that are oriented towards ensuring decent conditions for employees. The “HP Way” and the company’s individual values have become very important in other companies as well. Collins (2003) even talks about them representing the DNA of Silicon Valley and that HP’s founders may have done more for these companies than their own CEOs. HP has thus created a norm for doing business in Silicon Valley (Lacy & Mullins, 2002). HP itself is then linked through its employees to the creation of other well-known companies. These include Tandem Computers, founded in 1973, which is associated with former HP executive James Treybig, and Silicon Graphics, founded in 1984 by Edward McCracken and later Richard Belluzo, both of whom had previously worked at HP (Jacobson, 1998). We can also look for connections with Apple, as for example Steve Wozniak, who was one of the co-founders, worked at HP. Steve Jobs was also a part-time employee at HP. These intersections were what made the “HP Way” a concept that transcended HP (Gröger, 1996; Jacobson, 1998).

#### **4.3. Existential situationality of CEOs**

Odiorne (1966), in commenting on the fundamental limitations of management theory, mentions an important existential motive, which is situationality, which refers to the fact that the manager is trapped in an endless cycle of alternating situations from which he cannot extricate himself. Odiorne says that the manager always finds himself in more and more dynamic case studies that require new and often original solutions. This is a kind of Sisyphus motif emphasizing that the place in the limelight is an illusion, that the manager is always confronted with a difficult critical situation (Müller, 2021).

Burgelman et al. (2017) note a very important fact regarding the situationality of HPs’ CEOs. Indeed, after Bill and David each of HP’s CEOs did not start with a clean slate. This was because it was necessary to resolve the difficult strategic challenges left to them by their predecessors. Their strategic leadership was severely constrained by this situationality. In the context of this critical challenge, there was no option but to transform company, which from an existential perspective required challenging entrenched assumptions. In this regard, Burgelman et al. (2017, p. 281) cite Apotheker’s statement that highlights the importance of the existential crisis in providing the courage to take such a serious step.

As Burgelman et al. (2017, p. 364) mention, to “be effective in sustaining the company’s process of becoming, successive CEOs had to be able to act as the agents that link the company’s close-ended past and its open-ended future”. It is existential management that shows that some destruction of experienced ways of thinking is needed and that it is necessary to use the current crisis as an opportunity for development. The existential manager must be aware of the past. As Kelly and Kelly (1998, p. 148) show, existential leadership is linked to the leader’s ability to have a very good insight into history and understand his or her own destiny in the organization.

## 5. Conclusion

HP’s history and the existential insight of its founders and other prominent executives show that in order to overcome critical periods associated with company growth, global competition, strategy formation, or ethical dilemmas, it is essential to emphasize the reasons for being related to a value orientation that transcends a profit-only focus, the formation of a shared meaningfulness of work, the recognition of the conditions for human dignity, and the ability to challenge entrenched assumptions of strategic thinking that creates opportunity for overcoming obstacles and creating new possibilities. Existential philosophy of management represents a perspective that will become increasingly important in the face of dynamic social change and large-scale global challenges such as the COVID-19 pandemic. It provides an original tool for qualitative understanding of business practice.

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## Forest Assets as the Basis for Reverse Financing

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**Abstract:** Reverse financing is a financial apparatus that releases capital tied to an asset according to a pre-agreed schedule with pre-agreed terms. The most common type of reverse financing is a reverse-mortgage and the typical underlying asset is real estate. This research focuses on using forest assets as the underlying asset for reverse financing. The paper presents the concept of reverse financing, discusses forest assets as an asset class, and studies the suitability of forest assets as an underlying asset for reverse financing. The results show that forest assets have potential as underlying for reverse financing if asset-specific risks are correctly accounted for. The use of reverse financing in the context of forest assets has not attracted academic interest and this work is among the very few that study the topic. The results are relevant for both the owners of forest assets, investors, and the financial sector providing asset-related intermediation services.

**Keywords:** Reverse financing, forest assets, timber, maturity matching

**JEL classification:** G21, G23, L73

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### 1. Introduction

Reverse finance instruments are financial agreements that enable tied capital of the borrower to be released according to a pre-agreed schedule and other terms (Huan & Mahoney 2002). The most common example of reference financing is a reverse mortgage agreement, typically used by senior citizens with limited income who reside in debt-free lodgings in urban areas. In such cases, the lender (financial institution) offers single, or periodic withdrawals, to the borrower (the asset owner) in exchange for interest and future reimbursement of the capital, based on the expected sale value of the asset (apartment/house). A reverse financing arrangement addresses the well-known problem of cash-flow mismatch, where the customer (asset owner) is in a need of liquidity, while the majority of the asset owner's wealth is tied in an illiquid long-term asset.

The purpose of this paper is to explore the suitability of applying the principles of reverse mortgage instruments to forest assets. The growth of economic value of forests is based on the growth of trees, which is time-consuming and the value extraction from forests is cyclical. Typically forest owners must settle for discrete and relatively large cash-flows from their assets that are realized through harvesting or by asset sale (Caulfield 1998). Only holders of large forest asset portfolios that include forests of varying maturity can collect cash-flow regularly. Typically, a maturity mismatch situation between the cash-flows from a forest asset and the forest owners' cash-flow needs can be partly resolved by harvesting earlier, but this is sub-optimal and as such not advisable, e.g., Huuskonen et al. (2018) note

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that up to two-thirds of the value forest investments is created during the years of growth, when the timber grows from pulpwood grade to the much more valuable log-grade, usable in the construction industry. Value is destroyed if harvesting is made before this high-value growth period. Forest assets are typically equity-financed, as general lending institutions are typically not in favor of providing loans to finance the purchase of forest assets for individual customers.

The geographical focus of this paper is on countries, where private individual ownership of forest assets is common, and Finland is used in this paper as a specific example. In Finland, there are ca. 344,000 forest properties larger than 20,000 m<sup>2</sup> and private individuals own approximately 60% of the total forest land area (Natural Resources Institute Finland, 2021). According to Hänninen et al. (2020, 36), many of the Finnish forest owners are reluctant to divest their holdings, as the forest ownership can go back for generations and bears an emotional load on top of the value aspect. In addition, the divestment of forest assets may be time-consuming and costly. These characteristics make Finland an interesting target market for forest asset reverse financing. This research is exploratory, as the topic itself is new and to the best of our knowledge no established reverse financing instruments based on forest assets are available to the public.

This paper continues with a presentation of the mechanics of reverse mortgage instruments. Then characteristics of forest assets are presented and the suitability of forest assets (forest-equity) as an underlying for reverse financing is analyzed also comparatively with real estate. In closing, conclusions are drawn, and some future research directions are suggested.

## **2. Forest assets as Underlying for Reverse Financing**

The first reverse financing instruments were reverse mortgage instruments that were developed in the 1950's to solve the financial problems of retirees in the USA, who had a majority of their wealth concentrated in their homes (Redstone 2010, 41; Mayer & Simons 1994). In the 1980s these instruments got increasing attention in the U.S., but the boom was cut off by a drop in housing prices that nearly collapsed the reverse mortgage market caused by borrower bankruptcies and providers discontinuing providing new loans (Shao 2014). There are various ways to construct the reverse mortgage instruments and some varieties include insurance against sharp asset value drops also the regulation governing the issuance of reverse mortgages varies from country to country and in the U.S. from state to state. All in all, the bulk of reverse financing is connected to real estate assets. Here we focus on forest assets as the underlying for reverse financing

Forest-equity is a real asset that comprises land ownership of an individual plot often coupled with a share of common areas and benefits connected to the owned land (such as fishery rights) and private specific benefits belonging to the real estate. In this research, we add to this definition the requirement that on the land there is a forest estate that grows industrially utilizable type of forest. According to Gregersen et al. (1995) forest estates yield three types of value direct-, indirect-, and passive value. Direct value is created through biological growth in terms of timber, plants, berries, mushrooms, and other forest-specific biological assets. Indirect value is created when the forest is used as a means of service or as a source of recreation (e.g., hiking, hunting, cycling). Passive value includes "existence value" and value tied to optional uses (option value). From a reverse financing point of view, the most relevant of these is the direct value, which is the value predominantly considered in this research. Table 1 lists selected characteristics of real estate and forest assets in a comparative fashion.

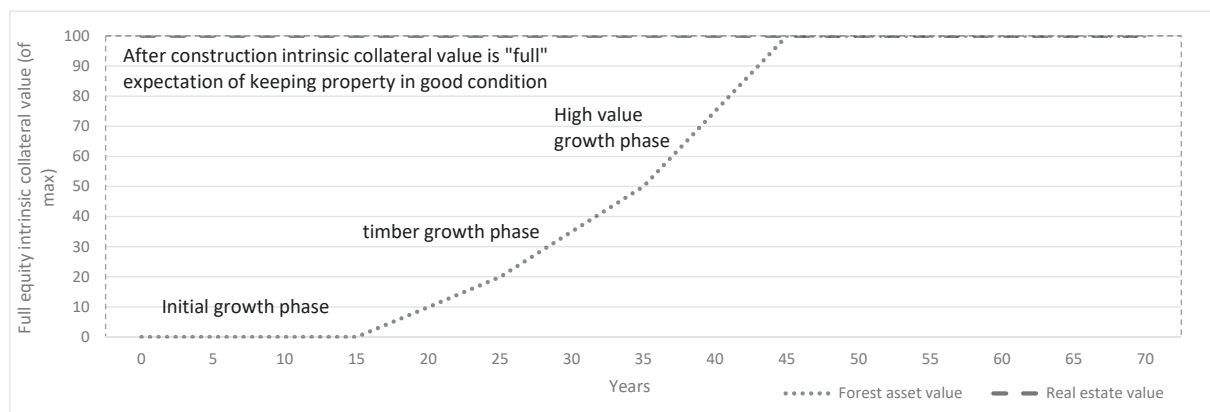
**Table 1.** Selected characteristics of real estate and forest assets compared

Characteristic	Forest asset	Real estate
Main source of monetary value	Timber, growth	Flat value, possible rent
Cash-flow schedule from asset	Discrete payments at harvesting times	Single payment from sale, possibly continuous rent
Underlying asset value development before close	Expected to be non-negative during growth, market driven	Expected to retain value; market driven
Asset value volatility (risk)	Typically low (not very risky)	Typically low (not very risky)
Transaction costs in buying/selling asset	Up to several % of asset value, 1000s of €	Up to ~5% of asset value, 1000s of €
Divisible	Yes	No (usually)
Typical investment horizon	Long to very long, years; not dependent on owner residence	Long to very long, years; depend on owner residence
Value (risk) driver	Global economy, industry	Local economy, demographics
Market type on buyer side	Concentrated, few large and small players	Distributed, many small and large buyers

Real estate and forest assets characteristics have a lot in common, the main differences are that while the sale of real estate in a reverse mortgage contract is connected to the asset holder residing in the property, the forest asset owner seldom resides on the forest asset. The contractual risks connected to the ability to liquidate the asset, therefore, are lower with forest equity. Forest assets are typically divisible, a trait that allows partially exiting by the sale of a divided part of the asset, however, if the forest asset is small there may not be an opportunity to further divide the asset – real estate assets are seldom divisible and do not provide such a partial-exit option. The value of forest assets is mainly driven by global industrial (construction, pulp, timber) demand, while the value of a real estate is driven by local factors and local/regional demographics – this means that for the lender the risk profile is different and portfolio construction in terms of risk management must be different. While the value of forest assets is driven by global industrial consumption the markets into which forest assets are sold are oligopolistic and characterized by only a few buyers. Real estate markets consist of multiple (large number of) potential single buyers that may provide a more reliable base for asset sale and asset liquidation value.

The biological growth that takes place within a forest estate is tied to the physical land and its physical characteristics, the geographical location; soil composition, the water economy, and the tree types that are grown on the estate. These characteristics create the natural limits to the growth, both in terms of the growth rate per unit of time and the maximum growth (maximum timber reserves) (Mielikäinen 2018). Forestry research has generated models usable in the evaluation of forest estate value accumulation (see, e.g., Natural Resources Institute Finland 2015). The value is generated during a long period and the value creation is not uniform. A stylized and simplified “profile” of forest value growth might read as follows: first fifteen to twenty years after planting the forest is worth almost nothing (Finnish context), the next twenty to thirty years the value grows slowly until trees start to reach what can be described as timber size, after which value starts to accumulate faster, see (Mielikäinen 2018). In other words, the most important value creation takes place when the trees grow to such a size that they can be used as high-value timber. After a certain size, the value creation speed of an individual tree slows down. Optimal harvesting strategies can be created that maximize the harvesting value of a forest asset. The harvesting strategy used has also bearing on the value of the

forest asset that can be used in determining the maximum loan value of a reverse financing agreement. Figure 1 presents a stylized forest and real estate asset value accumulation in terms of equity-funded assets functioning as underlying for a reverse financing contract.



**Figure 1.** Stylized profile of full equity real estate and forest asset intrinsic collateral value

Reverse financing, which is, in essence, extracting liquidity from a fixed asset, can only take place when the asset has some intrinsic value – in the context of forest assets, this means that the forest must have some considerable growth already in place for any value to be extracted (beyond land value). This means that forest assets can be said to function as a basis for reverse financing after they have grown for thirty to forty years into a state, where they provide substantial collateral for the loan. After that, the growth of the forest asset is typically stable, if no unexpected “catastrophic events” take place (insects, storms) and as such the asset provides a desirable collateral (Caulfield, 1998). Based on this growth and harvesting cycle one can say that as collateral, a forest asset is cyclical. The reimbursement of the forest asset-backed reverse financing vehicle will depend on the way the forest is harvested until the terminal harvesting time. Various harvesting strategies have somewhat different profiles in terms of the size and the overall value of cash-flow they bring. After the final harvest the forest asset, substantially reduced into a land asset could hardly function as collateral, which means that rolling over the loan, based on the same asset, becomes impossible and a new asset must be used as collateral or the vehicle must be retired (paid back completely). Determination of what is the exact amount of collateral a forest asset holds and what is the maximum loan size that can be extended based on the collateral is a process that depends on the terms of the contract, but as a rule of thumb the collateral value is below the market value of the forest asset and strictly speaking typically the expected sales value of the timber acts as a maximum cap. The loan to value ratios would most likely resemble the loan to value ratios of reverse mortgages. It is typically expected that the land remains in the hands of the borrower after the financing transaction is completed.

The terms of a reverse financing product determine the value and risk profiles of such a product. The terms used should reflect the specific case for which the contract is drawn – this makes contracting of reverse financing products non-standard, however standard classes can most likely be created. Selected reverse financing contract parameters are listed in Table 2.

Maturity-related terms, especially including flexible maturity in a contract create risks for the lender that may relate to refinancing the extended capital beyond expected maturity dates. On the other hand, the callability of the contract may, if not properly formulated, created risks related to profit

shortfall. From a borrower's point-of-view callability is positive as it allows malleability of one's financial position over time.

**Table 2.** Selected reverse financing contract parameters (terms)

Parameter	Configuration	Explanation (if needed)
Maturity	fixed vs. flexible	repayment date set, or not set
Maturity	callability vs. non-callability	the borrower can refinance or pay off the loan
Interest	fixed vs. variable interest	-
Interest	capitalization vs. non-capitalization of interest	interest is added to the loan principal or not
Withdrawal and payback	withdrawal method	phase and amount in which the net initial principal is withdrawn by the borrower
Withdrawal and payback	reimbursement method	the phase and amount of payback of the principal and the cumulated interest
Withdrawal and payback	liquidation of asset dependent on owner / independent of the owner	liquidation (sale, harvesting) tied / not tied to owner residence / preference
Asset value development	resource vs. non-resource of the loan	the borrower (resource) or lender (non-resource) bears the asset price risk
Asset value development	shared appreciation vs. non-shared appreciation	part of the value growth of the collateral is given to the lender (shared appreciation) with the expense of interest payments

Terms related to the withdrawal and payback of the loan, especially, whether accumulated interests are capitalized, cause the profiles of differently termed loans to be potentially very different. As these must correspond to asset value development and to who bears the risks concerning them, different combinations of terms may provide very different types of risk profiles.

Environmental risks, in the form of natural hazards, can and should by prudent lenders, be mitigated by enforcing a covenant of mandatory forest insurance, which may or may not fully cover the value decrease suffered by the estate in catastrophic loss cases. In cases where the land carries value, such as water-front properties, a timber-value-based collateral determination is supplemented with a positive buffer, from the point of view of the lender.

### 3. Conclusions

This is an exploratory study on using forest assets as the underlying for reverse finance products. Historically reverse financing has been based on real estate. The characteristics of real estate and forest assets resemblance each other quite a lot and there seems to be a case to be made for basing reverse financing instruments on forest assets. As the lending market is not exactly in favor of providing “normal” loans against forest equity, there is an “institutional” niche that creates an opportunity for a specialized forest asset-based reverse financing operator offering such instruments to the forest-equity owning public.

Forrest assets are ripe to be used as collateral only after their growth has reached a stable point and the timber formation on the assets is in full swing. This is a different from real estate. Another

difference is that forest assets typically do not entail residence by the borrower at any time, and thus maturity-related risks may be lower than with residence-based reverse mortgages.

Terms of the reverse financing contract and the determination of collateral value (loan to value) of forest assets determine the risk profile of a contract. Forest insurance is a covenant that lenders should require from borrowers to secure a bottom line for collateral value under all circumstances. Asset value maximization through smart harvesting strategies, perhaps required by the lender, may create extra value for the asset (divisible between the lender and the borrower). This research has been done in the Finnish context and growth times may differ elsewhere.

This exploratory research has uncovered many interesting future research directions such as creating and using simulation models that take forest asset characteristics as inputs and simulate value accrual paths to determine final and total values for the asset usable in the determination of loan to value ratios and collateral caps. Also studying optimal value extraction profiles from forest assets is an interesting direction for future research.

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## A general framework for dynamic population estimation with mobile phone data

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**Abstract:** Mobile phone data are widely recognized as an important source for multiple domains like tourism, transport, or population statistics. While there are several applications of this data source in different areas, they are mostly one-off studies. We propose a new general framework to produce population statistics starting from raw mobile phone data and going to the final population estimates. The framework is structured in a series of independent modules that allows them to evolve over the time: a geolocation module to compute the location probabilities for mobile devices based on Hidden Markov Models, a deduplication module to compute a person's probability of carrying multiple devices, a statistical filtering module to identify the target population, an aggregation module to compute the number of individuals detected by the network in territorial units, and an inference module that combines estimations received from previous modules with other information at disposal to produce the target population. All these modules were implemented in separate R packages, freely available.

**Keywords:** mobile phone data, geolocation, population statistics, R software system, big data

**JEL classification:** C02, C55, C63

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### 1. Introduction

Mobile network data are a new and powerful source of information that can be used to produce statistics in different areas. These data are generated by the interaction between a mobile device and a base transceiver station and there are already several examples of applications using them (see for example González et al, 2008, Ahas et al., 2010, Phithakkitnukoon et al., 2012 and Calabrese et al. 2013).

Two types of data sets are produced by a mobile network: Call Detail Records (CDRs) and signalling data. CDRs are produced by calls/SMS between two users of the mobile network, and they are normally registered by mobile operators for billing purposes. The second type of data, signalling data, are produced with a high frequency by each mobile device as handover events or location updates (network events, in general terms). While both types of mobile network data are useful for statistical purposes, we developed our framework using the network events because they can produce more accurate statistics. There are several one-off applications using mobile network data, but we were mainly interested to produce a standardized methodological framework for dynamic population estimations that can be used for the production of official statistics in National or International

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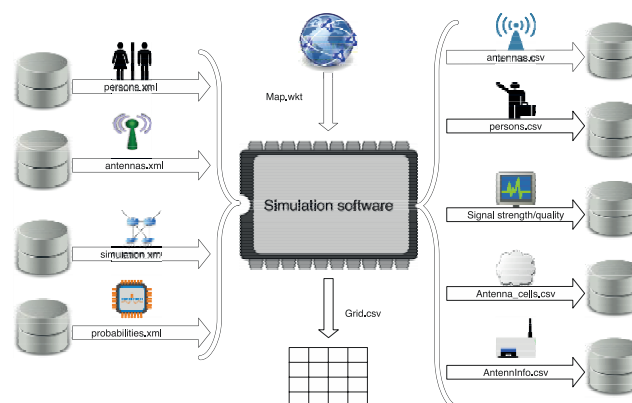
Statistical Agencies. Although there are examples of case studies of using mobile network data for official statistics, there is no standardized production framework developed until now. Designing an industrialized production process to incorporate this data source into the production of official statistics raises a series of challenges that have to be addressed: the data access, a new methodological and quality framework, an efficient software implementation, and a carefully designed statistical disclosure control method.

In this paper we present a new methodological framework together with its software implementation to produce estimates for dynamic population counts over a given geographical territory and the origin-destination matrices. We designed this framework in a modular way addressing thus the independence from the technological layer problem, especially that mobile networks are rapidly evolving, and new technologies are implemented in this area. We keep in mind that besides point estimates we should also produce accuracy indicators. We tested our proposed statistical process with synthetic generated data produced by a simulation software developed for this purpose.

The rest of the paper is organized as follows. In section 2 we give a short description of the synthetic data generator, in section 3 we provide a description of the methodological framework and its components, in section 4 we present some details of the software implementation, and we close the paper with some conclusions and future developments.

## 2. The network event data simulator

The synthetic data generation software implements agent-based simulation scenarios that can be configured by the user. It is a software written in C++ and it is freely available at <https://github.com/bogdanoancea/simulator>. The elements that can be configured by the users are a map of the geographical territory under consideration, a telecommunication network configuration, a population with individuals carrying 0, 1 or 2 mobile devices, the mobility pattern of individuals and a reference grid overlapped on the geographical territory.



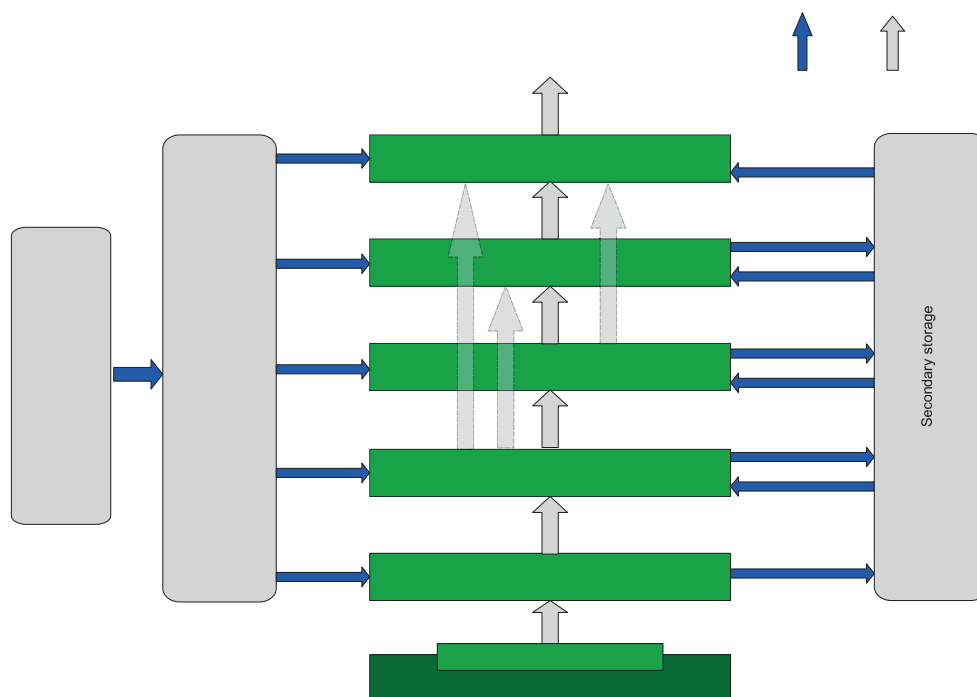
**Figure 1: Data flow for the network event data simulator**

The data flow of the simulation software is presented in figure 1. Mainly, it reads a set of xml files as inputs and produces a set of csv files as outputs. These output files contains the network events

generated by the interaction between mobile devices and the network and the true positions of each individual, at each time instant. Having the true positions of individuals, the so called “ground truth”, we can assess the accuracy/uncertainty of the statistical estimates. The connection mechanism is a simplification of the real one and it produces records that contains the timestamp of the event, the cell ID, the mobile device ID, an event code as well as the timing advance values. A full description of the simulation software can be found in (Oancea et al., 2019).

### 3. The methodological framework

Our methodological proposal is described in detail in Salgado et al. (2020) and Salgado et al. (2021) and represents an end-to-end statistical production process, starting from raw telecommunication data and producing the final population estimates. One of the central elements that we envisaged when we designed this framework was the functional modularity, thus, our methodological approach is structured based on the modularity and abstraction principles. We separated the production process into several modules/layers designed to interact through interfaces, hiding the internal implementation of each module. The modular structure of the statistical process is represented in figure 2.



**Figure 2: The structure of the statistical process and software tools**

In the following we give a short description of each module. The hierarchy starts with data acquisition and pre-processing layer which captures the network events and transforms them in a form suitable for statistical processing. This is a highly technological dependent layer and it should be implemented by the mobile network operator. Since we did not have access to real data, we replaced this layer with the synthetic data generator. The second layer in the hierarchy is the geolocation layer. It exploits the network events and produces a location probability for each mobile device across the reference grid used for statistical analysis. Using a radiowave propagation model we firstly compute the so-called

event location probabilities  $P(E_{dt} = e_j | T_{dt} = i)$ , which means the probability that device  $d$  produces event  $e_j$  being located in tile  $i$  of the reference grid at time instant  $t$ . Then, we compute the posterior location probability, i.e.  $\gamma_{dti} = P(T_{dt} = i | E_d)$  for each time instant  $t$  and device  $d$ . Notice that we make use of all the available information (past and future) for the estimation at time  $t$ . We also compute the posterior joint location probabilities  $\gamma_{dtij} = P(T_{dt} = i, T_{dt-1} = j | E_d)$ . While there are simple implementations to compute these probabilities using the Bayes theorem (Tennekes et al., 2020) we considered the dynamic behaviour of individuals by defining a transition model across the grid which are, together with the event location probabilities, the inputs of a hidden Markov Model (HMM). We estimate the parameters of the model and then compute the posterior location probabilities. An interested reader can find all mathematical details of this implementation in (Salgado et al., 2021).

To avoid the overcoverage problem, i.e. counting devices carried by the same individual, we designed a so-called deduplication module. The goal of this module is to classify a mobile device  $d$  as corresponding to an individual with one device (1:1) or to an individual with two devices (2:1). A generalization to  $n$  devices is straightforward. We followed again a probabilistic approach and using a Bayesian reasoning we computed the probabilities  $p_d^{(2)}$ , i.e. the probability that device  $d$  belongs to an individual carrying two devices. The mathematical details of the computations can be found in (Salgado et al., 2021).

Then, a statistical filtering layer has to select the target population under consideration. This depends on the concrete application and, for the time being, we skipped this module from our proposal.

The next step is to aggregate the information coming from the previous modules at the level of different geographical units and produce the number of individuals detected by the network. We again used the probability theory to compute the distribution of the number of individuals starting from the posterior location probabilities and the device duplicity probabilities. Using our simplifying hypothesis that an individual can carry at most 2 mobile devices, we first defined vectors  $e_i^{(1)} = e_i$  and  $e_i^{(2)} = \frac{1}{2}e_i$  where  $e_i$  is the canonical vector in  $\mathbb{R}^T$  where  $T$  is total number of tiles in the grid. Then, we defined the random variable  $T_{dt} \in \{e_i^{(1)}, e_i^{(2)}\}$ ,  $i = 1 \dots T$  with the pmf given by

$$P(T_{dt} = e_i^{(1)} | E_{1:D}) = \gamma_{dti} * (1 - p_d^{(2)}) \quad (1)$$

$$P(T_{dt} = e_i^{(2)} | E_{1:D}) = \gamma_{dti} * p_d^{(2)} \quad (2)$$

Here  $d$  is the device index,  $D$  is the total number of devices,  $t$  is the time instant and  $p_d^{(2)}$  is the device duplicity probability computed by the previous module. We can define now the multivariate random variable  $N_t^{net} = (N_{t1}^{net}, \dots, N_{tT}^{net})$  which represents the number of individuals detected by the network at time instant  $t$  in tile  $i=1, \dots, T$  by summing over the number of devices like this:

$$N_t^{net} = \sum_{d=1}^D T_{dt} \quad (3)$$

This is a Poisson multinomial random variable, and we used a Monte Carlo simulation method by convolution to generate random variates since the properties of this distribution and its software implementation are not trivial. All these computations form the aggregation module.

The last module in the hierarchy is the inference layer. This module estimates the number of individuals  $N_{rt}$  of the target population in geographical region  $r$  at time instant  $t$ . This population includes also the individuals not detected by the network, i.e. individuals without a subscription to the mobile network operator under consideration. For this purpose, we make use of additional information, namely the population taken from a population register for each geographical region and the penetration rates of the mobile network operator for each region. We start from the assumption that at the initial time instant both the register population and the network detected population have the same physical location, and at successive time instants, individuals move over the territory independently of the network operator where they subscribed. We proposed to use hierarchical models to integrate all data sources and produce probability distributions of the number of individuals. Denoting by  $N_r^{net}$  the number of individuals detected by the network and by  $N_r$  the number of individuals in the target population we have:

$$N_r^{net} \cong \text{Bin}(N_r, p_r) \quad (4)$$

We assume that the probability of detection  $p_r$  is the same for all geographical regions and it can be assimilated in a first approximation to the penetration rate of the mobile network operator in region  $r$ . Considering  $p_r$  as a fixed external parameter, we can compute the posterior probability distribution for  $N_r$  as:

$$P(N_r | N_r^{net}, p_r) = \begin{cases} 0 & \text{if } N_r < N_r^{net} \\ \text{negbin}(N_r - N_r^{net}; 1 - p_r, N_r^{net} + 1) & \text{if } N_r \geq N_r^{net} \end{cases} \quad (5)$$

Here  $\text{negbin}(k; p, r)$  is the pmf of the negative binomial random variable  $k$  with parameters  $p$  and  $r$ . Having this distribution of the number of individuals in the target population we can provide point estimates as well as posterior variance, credible intervals etc. We also developed two more complex approaches to compute the probability distribution of the number of individuals but because of space limitations we direct the interested readers to (Salgado et al., 2020, Salgado et al., 2021).

Having probability distributions as outputs for each module, not only do we have a natural way of integrating data through priors and posteriors, but also we can use the total probability theorem to make the connection between the input data (raw telecommunication data in our case) with the final output data, the population estimates:

$$P(z_{out} | z_{in}) = \int dz_1 \int dz_2 \dots \int dz_N P(z_{out} | z_N) \dots P(z_2 | z_1) P(z_1 | z_{in}) \quad (6)$$

#### 4. The software implementation

We translated the modular methodological approach in a set of software tools (Oancea et al, 2021). We chose the R system to implement these software tools due to several advantages: there are around 16500 R packages on CRAN with an impressive number of them developed for official statistics, R has a good support for parallel and distributed computing, and it can be easily interfaced with other high-performance languages like C++. From a user perspective, our R packages provide a set of high-level functions which allows an easy access to the functionality of each package and a set of low-level functions fundamental to execute the core methods. All packages of the software stack are decoupled: one layer receives input data from the layer(s) below it and provides data to the upper layer(s). The data sets that flow from one layer to another are standardized, described with metadata files, using XML and XSD languages.

The set of the R packages (Oancea et al, 2021) implementing our methodological proposal are briefly described in the following.

#### 4.1. **destim**

**destim** R package (Sanguiao et al., 2020) takes the network event data sets as input and computes the location probability for each device and each geographical unit using a hidden Markov Model (HMM). The estimation of the location probabilities requires first model construction and then model fitting. The inputs of this R package are the network events file, the signal strength for each tile needed to compute the emission probabilities for HMM and some general parameters such as the grid/tile size. It provides two types of outputs: location probabilities for each device, each tile and time instant, and joint location probabilities for each device, each tile and consecutive time instants.

#### 4.2. **deduplication**

**deduplication** R package (Oancea et al., 2020a) computes the device multiplicity probability  $p_d^{(n)}$  for each mobile device  $d$ . Currently we compute only the duplicity probabilities, i.e. the probability that a device is carried by a person carrying 2 mobile devices. This package implements two approaches to compute the duplicity probabilities: a Bayesian approach based on network events and a *trajectory* similarity approach. The inputs of the **deduplication** package are the outputs of the **destim** package, i.e. the location probabilities and joint location probabilities for each device. It also needs a set of files coming from the data acquisition and pre-processing layer: the network events file and the antenna coverage file. It produces a single output file that contains the duplicity probability for each device.

#### 4.3. **aggregation**

**aggregation** R package (Oancea et al. 2020b) has two main outputs: the number of detected individuals and the origin - destination matrix. It provides a single function to generate random variates according to the Poisson multinomial distribution, hiding all the details about intermediate computations from users.

#### 4.4. **inference**

The purpose of the **inference** R package (Oancea et al. 2020c) is to compute the probability distribution of the number of individuals in the target population conditioned on the number of individuals detected by the network. It also uses auxiliary information: the penetration rates of the mobile network operator and the register-based population for each geographical region  $r$ . It provides as output the population at the initial time  $t_0$ , population at successive time instant  $t > t_0$  and the origin-destination matrices.

### 5. **Conclusions and future work**

Mobile network data have been recognized as an important data source for both business applications and official statistics. In this paper we presented a proposal for a methodological framework developed to integrate the mobile phone data into the production of official statistics. We also described its implementation in a set of R packages which are freely available to be used by any statistician. In the future we intend to further improve the computation of the location probabilities of the devices introducing a more complex definition of state for the HMM and to explore particle-filter approaches. We also intend to extend the inference module to support open populations and to include spatial autocorrelations.

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## New funding models for regional public schools

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**Abstract:** The topic of present study is the funding of secondary education. It presents the results of research undertaken at secondary grammar schools in the region of Zlín in the Czech republic. It firstly provides basic facts of school funding in the Czech Republic, consequently explains both former and current central funding formulas used to allocate funding for teaching costs to be able to present a comprehensive analysis of the data concerning both methods. Finally, the results are compared and evaluated.

**Keywords:** funding, budgets, educational policy, salary, school

**JEL classification:** I22, I23, I25

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### 1. Introduction

Public school systems have limited resources with which they try to achieve their objectives. The overall budget level of school funding to provide a high quality education for everyone matters, but the proper allocation strategies are likely to be more important. The mechanisms through which school funding is governed, distributed and monitored play a key role in ensuring that resources are evenly directed to where they can make the most difference.

As per International Student Assessment research: „Among the countries with higher overall levels of school funding, there is no observed relationship between cumulative spending per student and student’s performance”. What matters more is not the aggregate level of expenditure, but rather the design of educational policies and the mechanisms through which funds are allocated (OECD, 2017b). Whereas even in countries where the overall level of funding for schools is comparatively high, there may be underinvestment in certain parts of the school system, which can result in serious educational inequalities. Thus when talking about school funding it would be a mistake to focus merely on either budget increase or cost savings. The thing is to implement the strategies to achieve greater efficiency in a school funding system that would go in line with a focus on improving quality and equity. Various educational funding policies aim at reshaping the organisational structures and changing institutional habits in school systems. In general, it takes time to accept the changes and consequently to develop and implement carefully.

Since January 2020, the new mechanism used for the distribution of the assigned funds for funding Czech public schools from the state budget has been introduced. The newly introduced so called school funding reform focuses on the setting of the main part of the assigned funds intended for educational work that include mostly salaries of teachers. It derives from the amount of financial means for tariff salaries in the given school and additional per capita amounts per teachers. The Ministry of Education, Youth and Sports (MEYS) states that the new method allows taking into account the real needs of the schools better than the previous formula funding per pupil. It is applied in nursery, basic and upper secondary schools and conservatoires. The resources for individual schools are directly set by the MEYS, the regional authorities have only a limited power. MEYS sets the new calculation formula based

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on a combination of cost and performance financing and declares the funds provided to each school to be more predictable (MEYS, 2019). The reform is connected with an increase in the total amount of resources for public education sector from the state budget. The budget of current expenses for schools and school facilities established by municipalities and regions for 2020 is of about 12,1 % higher than that approved for 2019. The first year running on new funding rules is over and it provides space for evaluating the recent impacts and comparing the effects. The present paper is supposed to be the first applied research that gives a comprehensive analysis and comparison of both funding methods on the homogeneous group of selected secondary schools in the determined region in the Czech Republic. It presents the real and actual data and own calculations necessary for further evaluation.

The studies on formula funding of schools (Bischoff, 2009, Levacic, 2008, Levacic and Downes, 2004, Ross and Levacic, 2000) provide a straightforward categorisation of the different variables (e.g. pupil number, socio-economic background of pupils) and coefficients (i.e. the cash amounts which multiply the variables to determine funding allocation). Policy measures and goals regarding the school funding, allocation models that are aligned to a school system's governance structures, linking budget planning procedures at different levels are described in the OECD Review (OECD, 2017). Education and Training Monitor 2019 published by European commission (EU, 2019) includes twenty-eight individual country reports, main education and training indicators that discuss measures to modernise education provided the principles of effectivity and equity.

## **2. Purpose of the research and methodological framework**

This report compares the funding models and compares the funds received by chosen group of secondary schools based on the former and the newly established school funding policy in the Czech Republic. It provides a comprehensive explanation and comparison of the changes in funding the secondary schools that have taken place. The key assumption is based on the idea of the equity of salaries for educational staff at the similar types of school. Fair and equal salaries stand for the equity and stability to provide education on the regional level taking into account different size and location of the school units. A particular attention will be paid to funding for teaching costs as this item serve the research for carrying out the crucial analysis. The outcomes will be compared and analysed consequently. The analysis based on the comparison resulting from the own calculation will allow to pursue the main objective of the presented study: to make recommendation on the appropriate flexible budgeting process of the secondary schools. To what extent can the new calculation method change the allocation of funds? Do these elements cover the initial assumptions for the flexible budgeting process? These starting points and questions refer to the construction of hypothesis set for the present research: (1) The real effects of establishing Phmax calculation formula demonstrates in higher financial flows in case of smaller schools. (2) The calculation method cannot assure the flexible budgeting.

A complex of theoretical methods has been used as the basis of the research. The methods for presented study were chosen as follows: At the beginning it was a standard internet search on the official web site of the MEYS and educational department of the Zlín Regional office in order to gain all necessary information on the changes in school funding mainly on the calculation formulas. The following empirical method of interviewing the staff of regional department has been used as well. For comparative study the data were observed, obtained and downloaded from the official annual reports of the concerned schools. The references for theoretical framework were outsourced in the key publications by Levacic (1998), Levacic and Downes (2004) with a view to build up own concept of flexible budgeting. Collaterally, the analysis of the financial flows followed. The use of comparative methods was realised on the own calculations executed through the use of described formulas.

The selection of school units whose financial flows were analysed was executed on the following limits: among seven tens of regional secondary schools (of which 16 gymnasia) 8 of them were chosen to form an appropriate group suitable for presented research - a representative group of schools,



homogenous from the functional point of view, located in different areas of the Zlín region and of a different size as far as the number of students is concerned.

The budgeting analysis can be executed from different points of view. For that reason, the funds intended for salaries of pedagogical staff seem to be the most relevant items to be analysed and compared. In the presented research a special attention will be paid to the construction of the former and current school budget formulas that determine the redeployment of the funds that are intended to cover salaries of educational staff at secondary schools in the Czech Republic.

### **3. Funding process in the Czech Republic**

Education funding in the Czech Republic is decentralised. The central government budget is the main source of funding for public education in the Czech Republic including both central (state) budget and local funding. Local governments are responsible for various levels of education. Municipalities manage and finance basic schools, while regions manage and finance secondary schools, both general academic and vocational. Local governments play an important role in case of secondary schools both in assuring the funding and influencing the distribution and use of school resources. Common rules of funding secondary education in the Czech Republic have undergone particular changes over last 5 years. In this period of time, there are two major points to emphasize as far as the cash flows are concerned. These changes include in the first place the total raise of volumes and secondly structural changes. The new school funding reform was enacted in 2019 and introduced in 2020, setting up new formula funding scheme model of financing schools. In order to compare the two mechanisms, it is necessary to understand the expenditures of schools.

All non-investment education expenditures of schools and education institutions in the Czech Republic are divided into two categories: the direct costs and the operational costs. Direct costs come from the central budget, and operational costs are covered from the local budgets. Costs regulated by the state are direct costs and include primarily salaries for teachers and non-teaching staff, textbooks, teaching aids, further professional development of teachers and other expenditures resulting from labour laws. In this way the state takes responsibility for the financing of those educational functions, which are centrally regulated.

### **4. Strategies of school budgeting**

By a flexible budgeting process, we mean a process of establishing budgets of all secondary schools managed by the region. Through the budget formulas the authorities try to satisfy the different needs of schools within the context of limited available budget funds. Funding schools by formula is quite commonly used method to determine school budgets. Previously the budgeting was based on a very simple formula assuming that the amount receive by schools is based on the previous year and adjusted by a small percentage typically upwards (cf. Jones, 1996). In Europe, in the early 2000s 13 countries employed formula based school funding regimes along with significant financial delegation to schools (see Levacic, 2008b). Since that time the formula funding regimes have changed substantially by being extended and in many cases becoming more complicated. Nevertheless, there are some clear trends in how formulas are constructed: countries are moving away from simple, pupil number-based formulas towards taking into account differences in learning needs of students, varying curriculum goals of education programmes, and different cost of schools sites (cf. Levacic and Ross, 2000).

Levacic states that formula funding for schools is a mathematical formula which *“contains a number of variables (items such as number of pupils in each grade, area of school, poverty [...]), each of which has attached to it a cash amount”* Levacic (2008b, p. 206). Caldwell gives another formulation of formula funding as: *“an agreed set of criteria for allocating resources to schools which are impartially applied to each school”* (Caldwell et al., 1999, p. 9). In compliance with the first formulation of the

definition, formula funding can be applied to more centralised education systems as well; the key is the mechanism of allocation rather than how the money is spent. It excludes formula funding schemes between different levels of government. The impact of formulas on incentives and school finances can be clearly distinguished from other allocation mechanisms whereas this is not the case when redistribution by formula takes place between different levels of government. It also excludes the question of how the total education budget is determined and focuses on the distribution of available public money (Fazekas, 2012).

There are four main groups of variables used in school funding formula in OECD countries (Levacic and Downes, 2004):

- (1) Basic, student number and grade level-based: Most formulas allocate funds to schools mainly on a student number basis (equivalent number of enrolled pupils at each grade level or number of courses thought which is adjusted according to grade or age level to correct).
- (2) Needs-based variables are included in school funding formulas in order to take into account the additional resource needs of teaching pupils with learning disabilities or who come from disadvantaged socio-economic backgrounds. The additional resources are meant to provide further help for such pupils by offering them, for example, additional teaching time, specialised learning material, and smaller classes.
- (3) Curriculum or education programme-based variables acknowledge the different resource implications of enhanced and specific education programmes such as music, languages or sports education. Higher costs can arise from additional courses, more expensive teaching materials, higher salaries for specialist teachers.
- (4) School characteristics-based variables reflect the cost differentials arising from the size of the school, the relative isolation of the school's community, physical aspects of the school premises, and local price levels. School size substantively changes the per pupil costs of education: small schools are typically costlier per student than larger ones. Isolated and rural communities tend to incur higher

After fixing the variables and used indicators the formulas count on with the coefficients attached to each indicator. The use of school funding formulas surely depends on the characteristics of the wider policy environment, the autonomy of schools to manage the allocated funds. Even after fixing the variables and indicators for the calculation the difficult question remains: what monetary values or coefficients to attach to each indicator. costs due to extra autonomy of travelling expenses.

## **5. Comparison of student basket formula funding method and flexible budgeting method**

Each school managed by the region received the allocation based on the number of education programmes offered in the school and on the number of students in each programme. This was the case of gymnasia that were allocated by the student basket only through the formula given as a fixed amount in each budget year. Other decisions made by the schools were not affected directly by any single component of the formula or method of calculation. The key component and essential determinant of the system was the number of students officially attending the school. At this point it is necessary to underline that using a large number of different normative amounts made the regional allocation process rather difficult.

Teaching costs were funded from the central government budget in the form of a specific formula grant, namely the "student basket" scheme. based on the so called normative per unit of effort. This scheme was elaborated and introduced as the core of the education finance for each school by the

The key elements of this calculation are the number of students taught in the school unit, salary regulation and the coefficient that can be interpreted as the major determinant of funding is the number of students in the school.

On the contrary, calculation method of Phmax enables to cover and adjust different components of the salary - compulsory components of extra – pay salary for management, educational advisory services. By the 2020 reform the MEYS aims at fulfilling one of the strategic goals which is to make the education on primary and secondary level more efficient, to eliminate the discrepancies and disparities of each individual school unit as far as the evaluation of the teachers is concerned. By establishing a new calculation formula, the MEYS sets the rules for making the funding more flexible going beyond the pure number of students and considering other relevant factors in the allocation process by increasing the number of parameters that would reflect different factors to add some more flexibility in funding scheme as the allocation formulas should always reflect the education priorities and education policies of the governance level which adopts them. Unlike the student basket former calculation, the Phmax formula allows to take into account the groups and grades of particular educational establishments, specialisation bonus for educational advisory services or methodologists for forecasting and preventing major educational and formative problems. Other surcharges and bonuses are individual and depend on headmaster's choice. Unlike the student basket former calculation, the Phmax formula allows to take into account the groups and grades of particular educational establishments. Specialisation bonus for educational advisory services or methodologists for forecasting and preventing major educational and formative problems. Other surcharges and bonuses are individual and depend on headmaster's choice.

## **6. Results of the research**

The functional dependence on number of students' vs received funds is evident. The unfavourable situation was in practice compensated by extra pay ups that were allocated evenly, unpredictably and not systematic and took into account especially the number of students. Consequently, this could negatively affect the standards required by the school in order to gain as much students as possible respectively as much money as possible. The effects for the income of the school were destructive. Besides an overall annual increase in 2020 in comparison with year 2019 for each school unit in the examined group there are similarities to be observed: in case of smaller schools in terms of number of students there is a higher increase in salary funding of 30-34 % in 2020 for schools with less than 400 students and at the opposite end the bigger school units with twice more students registered the increase only of 18 – 20 %. The representatives of the school and regional authorities confirmed that the above average increase is caused by the organisational changes in the education process and resize of the classes and is connected with recruitment of additional pedagogical staff.

On the one hand the above mentioned facts reflect the effects of the systemic changes caused by Phmax allocation formula. The student basket formula didn't take at all into consideration the additional needs that are though indispensable for meeting the needs of pedagogical practice: for in-service training, need for additional positions of pedagogues or psychologists as described before. The allocated costs consider and express the maximum of teaching lessons per school. Some of these salary costs were financed from extra funds and in practice the bigger schools were able to spread these costs among more students. The allocation didn't consider the fact that even if the number of students varies from year to year and drop the number of teaching hours remain the same in order to provide the curriculum. Loss of students presented always a slump in the income of schools even if the teaching time didn't change. These inconveniences are supposed to be solved by the Phmax calculation. This effect demonstrates in the higher increase of funds allocated to smaller schools. As for 2021 the increase in funding the salaries are evenly distributed: 10-11 % for each school unit.

## 7. Conclusion

Follow-up the comparison and analysis the summary of the results will focus on the hypothesis set for the present research.

The analysis and comparison based on the own calculation and data provided by MEYS and Regional Education Department show the redistribution in favour of smaller schools that previously suffered from unfavourable demographic development. These changes demonstrated mainly in case of the schools that suffered from the decline of their students due to unfavourable demographic development. We have seen that the previous student basket formula attributed to these schools only the increase of by 1-4 % even though they were supposed to maintain the number of classes and teaching hours. After the implementation of school funding reform, the smaller schools were compensated. Their income increased by 29 to 34 % in comparison with bigger school units with more students, their increase in funding the salaries was around 18 %. The scale of variable components included in the Phmax formula enables to cover and adjust different components of the salary - both compulsory and extra pay salary for management, educational advisory services and supplementary pedagogical services. The salary grades are considered as well, which could be quite an important aspect as the lowest and highest grade differs by about one third, considering the rising age of teachers. New coming teachers need mentor support and supervision of their more experienced colleagues which is as well considered in Phmax formula. Last but not least the Phmax involves the specific needs of the curriculum in the variable of teaching lessons per one class and the school as a whole. It is important to remind that the research focused mainly on the first year going on new founding principles. The second year (2021) demonstrated equal rise in salary and does not reflect any differences between the schools. This can mean that for coming years the changes will follow the data from previous year. Anyhow the flexible budgeting principles are not limited by the facts mentioned above. The method of the Phmax calculation is able to ensure that the funding cannot be cut below a sufficient level on average. From this point of view, the structural changes comprising the demographic development as well as the long term school programme and field structure planning must be executed on the regional levels taking into account the clear objectives coming from the central level. They should be in accordance with the overall policy strategies of the country but above all, it is highly important to reflect the local particularities of the region. That's why the regional authorities should work on the long term strategies of the educational policy in the region taking into account the demographic prospective. Setting the right goals requires comprehensive information and communication on all levels of the process: school units – regional authorities – central authority. Data relevant for effective long term school planning are split across levels of governance and different institutions. At this time the construction of Phmax formula serves to guarantee the level of financial resources for each school unit as described above taking into account students' and teachers' specific variables as well as previous financial flows. The Phmax formula does neither deal with the long-term setup of the schools nor the strategic planning. These areas of interest require a set of governance arrangements and split responsibilities based on the existing data on different aspects. From these points of view both hypothesis set at the beginning are confirmed.

The real effects of establishing Phmax calculation formula demonstrates in higher financial flows in case of smaller schools. The impact of the changes in budgeting formula is significant as far as the effects of the reform are concerned. Thanks to the scale of variable components of Phmax formula, it enables to cover and adjust different components of the salary - both compulsory and extra pay salary for management, educational advisory services and supplementary pedagogical services. Another feature important to achieve more precise salary cost is the consideration of real salary groups of pedagogical staff at each school. Last but not least the Phmax involves the specific needs of the curriculum in the variable of teaching lessons per one class.

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# Reimagining Work and Collaboration in Post-Covid-19 Coworking Environments

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**Abstract:** While the recent pandemic has reshaped how knowledge work is being conducted and how individuals tend to socialize, the post-pandemic world may see remote work becoming normalized, with digital and psychical infrastructure being adapted and hybridized to cater to changing needs and expectations. The following discussion paper builds upon ongoing research exploring the switch and subsequent transition of independent and previously remote-working knowledge workers from a physical workspace to a digital work environment during the Covid-19 crisis, focusing on the transformation of coworking spaces. In line with that analysis, this brief commentary aims to initiate a debate over the ways in which digitalised coworking environments can replicate both production-related and human-centred processes, to the extent that a physical workplace would no longer be needed.

**Keywords:** coworking, collaboration, digitalization, Covid-19, virtual coworking.

**JEL classification:** A3, J0, J4, O0, O3,

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## 1. Introduction

At the beginning of 2020, the world came to a sudden and somewhat abrupt halt. With the WHO first being informed about novel coronavirus at the very end of the previous year, the disease spread around the globe swiftly. Governments have enforced restrictive policies for individuals, their families, and communities to stay within their homes and contain the virus's further spread. National lockdowns forced people to abruptly change their lifestyles with respect to how they socialize and conduct their work. Businesses across all sectors sought to adapt to the “new normal,” with firms shutting down their offices and urging their employees to work from home. While telework practices have been around since the 1980s with fully or partially remotely working employees representing a proportion of several progressive firms' workforces (Gallardo & Whitacre, 2018), many companies struggled to adapt to the abrupt change and the need to standardize collaborative practices with the help of digitalizing their team processes (Carnevale & Hatek, 2020). The sudden shift to teleworking practices, often with inefficient managerial procedures to ease the transition, by and large resulted in emotionally exhausted employees (Chong et al., 2020). Workers struggled to maintain a work-life balance (Miglioretti et al., 2021), lost their sense of adequate organizational support, and wrestled with the expected level of productivity (Galanti et al., 2021). While there were identifiable advantages of employees being able to carry their workload to their homes, a handful of studies pointed towards a phenomenon of stress and perceived social isolation (Gao & Sai, 2020).

With individual employees being stranded in their home offices while being physically separated from their teams and unable to return to their shut offices, some started to turn to alternative solutions in their localities.

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Already popular amongst self-employed, solo-entrepreneurs, and seasoned remote knowledge workers, flexible offices such as coworking spaces largely remained open during the pandemic and offered a way to use a shared space on a variable basis. However, like other businesses with physical spaces catering to people with various services, coworking spaces experienced severe difficulties during the first wave of the Covid-19 pandemic. Nevertheless, there is evidence that a high proportion of these collaborative work environments briskly adapted and sought alternative solutions to keep their users interconnected by using a vast array of health-protective measurements and “digital twinning,” or virtual representations of their spaces and processes within.

Therefore, the following conference paper seeks to open a dialogue around how coworking environments can replicate both production-related and human-centred processes to the extent that a physical workplace might no longer be needed. It does so by taking the form of a commentary and subsequently discussing the arguments and the relevant evidence on the case for coworking environments and their pandemic-driven tendencies to digitalize their workspaces and collaborative processes from within.

## **2. The Pre-Pandemic Workplace for 'Working Alone Together'**

Coworking spaces are shared and collaboration-orientated workplaces, generally frequented by highly skilled knowledge workers or teams. First formally established and being identified as coworking environments back in the mid-2000s, coworking spaces had seen a steady pre-pandemic popularisation, with their numbers almost doubling on an annual basis (Ayodele et al., 2021). The swift popularisation of the coworking model could be attributed to their habitual capacity to efficiently knit relationships between users, promote collaborative organizational culture between users who are not necessarily working together (Castilho & Quandt, 2017), tackling work-family conflicts, and overcoming the social isolation that commonly results when individuals are working from their homes (Bouncken et al., 2018). In other words, since their emergence, coworking spaces have been redefining the traditional use of the office (Leclercq-Vandelannoitte & Isaac, 2016) by enabling users to 'work alone together' (Spinuzzi, 2012), connecting them in communities of work (Rus & Orel, 2015), and employing mechanisms for social support (Gerdenitsch et al., 2016) that positively affect both the individuals' well-being (Brown, 2017) as well as their level of productivity (Bueno et al., 2018). Coworking spaces had first been frequented by self-employed individuals, solo-entrepreneurs, and others who commonly worked by themselves. However, the positive attributes of coworking environments also made the model popular with corporate teams and a vast array of dissimilar users.

The said capacity for accelerating the development of collaborative processes between the users and ensuring the users' general well-being directly results from two mechanisms. First, coworking spaces are commonly open-office work environments, enabling individuals to share the available facilities and related resources (Spreitzer et al., 2015). Second, coworking spaces habitually employ professional facilitators such as community managers who proactively interact with individual workers or teams, identify their collaborative capacities and skills, and dynamically facilitate relations between them (Gregg & Lodato, 2018). Due to their organizational culture based on collaboration and sharing available resources such as knowledge or skillsets, coworking environments regularly attract various types of highly skilled individuals and teams of knowledge workers (Ross & Ressia, 2015). Subsequently, some have a set of facilitation mechanisms that can leverage their user's talent (Orel et al., 2021) and purposely form different types of homogenous or heterogeneous networks. As a result,

recent years have seen the branching of the primordial coworking model and the emergence of diverse types of coworking environments.

In line with that, Orel & Bennis (2021) have proposed a taxonomy of contemporary coworking spaces by classifying them into four categories. First, individual-purposed coworking environments are aimed at individuals rather than teams of individual workers. They offer a strong presence of efficient facilitation mechanisms that support the development of the onsite collaborative community. Second, creation-purposed coworking spaces emphasize community and individuals while ensuring that the type of work conducted within the workspace is profiled to cater to individuals or groups who share the same interest or professional aim. Third, group-purposed coworking spaces are aimed at larger, commonly corporate groups with separate teams having wall-bounded offices rather than sharing a common, open-plan workspace. Lastly, startup-purposed coworking spaces have a primary role in hosting startup companies in various stages of their development. Mariotti et al. (2021) agree that coworking spaces are mainly an urban phenomenon. A recent study by Kotciuba et al. (2021) concluded that a presence of coworking environments in a selected metropolitan area correlates with lowered labour management costs for companies that tend to track and cater to their employees' personal and work-related needs. Still, the evidence by Mariotti et al. (2021) suggests that coworking environments in rural and peripheral areas have steadily grown, mainly as the share of teleworkers outside of metropolitan areas primarily increased. Hölzel & de Vries (2021) confirmed the trend of rural coworking popularisation and outlined that using a selected coworking space contributes to teleworkers avoiding social isolation, separating private and professional life, and reducing personal and professional life commute. From a perspective of a local environment, rural areas can benefit from a coworking space by making the selected location more attractive for other teleworkers who are homebound in urban areas.

### **3. The Pandemic-Driven Disruption**

The recent Covid-19 pandemic has seemingly shaken and stirred these trends, with coworking environments of all types becoming directly impacted. The need for social distancing primarily affected open-plan coworking spaces that were less pliable to a sudden change. Popa et al. (2021) determined that while independent coworking environments might be more resilient to unforeseen changes than larger spaces, they still required the introduction of active mechanisms and alternative solutions to overcome the difficulties of social distancing and the inability to share the workspace collaboratively. Gruenwald (2021) noted that a prerequisite for coworking spaces to succeed and retain their user-base during the first waves of the pandemic has been to ensure safety by following health-related measures and having a convenient position in the selected locality. Moreover, these spaces required an active presence of the managerial staff to facilitate relations between users and coordinate the usage of open work environments by overseeing sufficient social distancing.

While the number of regular users might have decreased at the pandemic's beginning, the projections for future coworking growth trends seem less pessimistic. A recent Coworking Space Global Market Report (2021) has reported that the coworking market saw a decline in revenues during the pandemic-driven year 2020 but has since started to recover at full tilt. The report projects that the market will reach over \$13 billion in 2025 at a compound annual growth of 12%. While these numbers seem rather optimistic, early scholarly evidence somewhat supports the projected trends. Gruenwald (2021) investigated a selected sample of German-based coworking spaces during the pandemic and



concluded that coworking environments experienced a swift popularisation predominantly amongst highly skilled individuals who were confined to working from their home offices and were not able to return to their corporate offices. Gusain (2020) underlines that many employees as well as employers are looking at telework as a long-term practice, with flexible spaces being an obvious choice for a temporary workplace environment. Ayodele et al. (2021) suggest that the user bases of coworking spaces during the Covid-19 pandemic were characterized mainly by mobile individuals who either require or show a strong preference towards a flexible workstation away from their homes or traditional offices.

Mayerhoffer (2021) shares similar observations, and reports that coworking spaces and their membership base have been relatively unaffected in the long run by the pandemic. However, the collective evidence suggests that coworking environments also tend to explore and experiment with adapting their models to cope with increasingly popular online collaborative platforms, mainly due to local governments' fear of restrictions. Ceinar and Mariotti (2021), who examined the obtained data and observed pandemic-driven response patterns by coworking spaces in Europe, reached a similar set of conclusions. The majority of coworking spaces sought alternative business models and explored tools that would support their user base needs, mainly by strengthening their online efforts to foster collaborative activity and retain users in selected networks. With that in mind, it is essential to note that none of the above studies suggest what the said alternative models for digitalizing the collaborative processes that commonly occur within coworking environments are. Furthermore, it is not entirely clear which technological frameworks and related tools can facilitate collaborative networks between individuals who work from home or a remote office but still manage to co-construct the sense of presence and the cooperative community. It is important to debate these alternative models, as future lockdowns may follow with individuals having restricted access to their selected coworking sites.

#### **4. On Virtual Coworking**

It appears that perennial measures for ensuring the outreach of coworking environments beyond their physical spaces are working around recreating the spatial and collaborative processes and the general communal atmosphere. One of the prospective solutions to digitalize processes that habitually occur within a selected coworking space is to establish a parallel and fully or partially digitalized workspace by creating a digital twin. Orel (2021) examined the impact of the pandemic on Prague-based coworking environments and explored the mechanisms that can replicate the collaborative processes. Creating a digital twin of an existing coworking space and running parallel sessions remotely can generate a similar collaborative atmosphere, even if the users are not physically present within the same workplace. Hofeditz et al. (2021) reported that virtually extended coworking spaces could positively affect the sense of social proximity, motivation, and ample knowledge sharing.

When setting up virtual coworking sessions, users are commonly offered a possibility to collaboratively resolve one of the issues they experience when working from home or enrich their daily lives (e.g., achieving daily goals, obtaining knowledge, or learning new skills, etc.). Orel (2021) reports that one example of replicating collaborative processes is to have digital group work sessions at the same time where individuals present their daily work goals before punching the clock and working on their tasks for a proportion of the time. These sessions are habitually followed by informal sessions where individuals can reflect on their work processes, difficulties that they may have endured when trying to

complete them, and challenges that may lay ahead. Another example could be an informal gathering where individuals have chat sessions or do leisure activities. In order to make such virtual coworking sessions efficient, Hofeditz et al. (2021) list the main requirements for coworking leadership to follow. First, sensory requirements demand the deployment of an immersive digital environment that can provide a sufficient level of emotional support and generate a sense of presence. Second, coworking spaces need to fulfil relationship requirements, meaning that facilitation managers need to strongly emphasize knitting relationships within the virtual workspace. Third, individuals need to identify with the virtual workspace and its goals. Fourth, organizational requirements are based on persistent planning and having a structure.

These sessions can occur on Zoom-like video chat platforms or have a more detailed visual interface with individuals using their avatars to move around the virtual coworking space. Well executed interaction platforms can proactively influence workers' perceptions of places and have a crucial role in influencing remote workers' identity construction (Errichiello & Demarco, 2020). Besides organizing the said digital sessions, coworking space can enhance their external communication efforts and act as virtual talent hubs. As with their physical counterparts, they can identify the skills of their users and promote their services that their members can offer as a side gig on an individual or communal basis (Ceinar & Mariotti, 2021). With the Covid-19 pandemic impacting the production and consumption patterns of individual workers, communal activities with external target groups can further enhance the virtual mobility of coworking space users and contribute to strengthening the supportive community within (Gao & Sai, 2020; Orel, 2021).

## **5. Conclusions and Recommendations for Future Research**

As of the Q3 of 2021, it is unclear how the Covid-19 pandemic will evolve and how further health measures will affect coworking spaces' usage. Future lockdowns might popularise coworking spaces to a greater extent, while alternative models will become more complex and diverse. The importance and efficiency of the latter are still largely unresearched, and as such open up several areas for organizational scholars to investigate.

First, exploring partially or fully further digitalized coworking environments would be suggested, especially by observing and measuring the efficiency of traditional or experimental facilitation mechanisms. Can active mediation within a virtual coworking space result in a similar number of interactions and subsequently in the development of supportive networks? Moreover, does online facilitation produce an equivalent collaborative environment to that which these individuals would find in physical coworking spaces? Second, what are the forms of digital twinning or replicating physical coworking spaces in their digital counterparts? What is the level of immersion when it comes to the dissimilar execution of these parallel or virtual workspaces? Finally, what types of virtual coworking sessions positively contribute towards the well-being of an individual who is habitually working from a home office? Can these digital assemblies resemble the sessions that are happening within the physical coworking space? These research questions are just a handful of inquiries that would contribute to the growing bulk of knowledge on coworking spaces and their use by remote working individuals. Future research will contribute to the growing scholarly debate and might spark an interest in organizational structures on the part of industry leaders.

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## Impact of the COVID-19 Pandemic on Crime in the Czech Republic

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**Abstract:** The COVID-19 pandemic affected all areas of social life, including crime. All people, including criminals, had to adapt to the new situation. The pandemic brought a decline in traditional crime, but at the same time enabled the emergence of new branches of crime. Crime has moved from the street scene to the internet and social networking environment. The aim of the paper is to use data to describe and justify the changes that have occurred in the field of crime in the Czech Republic. The hypothesis that the pandemic leads to a decrease in crime is verified on Czech data. The pandemic also affected the economic area in individual countries, especially macroeconomic variables, and caused a global recession. Manifestations of the recession include rising inflation, rising unemployment and a decline in real gross domestic product. The article also examines the impact of these three main macroeconomic variables on crime. For this purpose, three hypotheses are formulated and then their validity is verified on monthly data from the period January 2015 – April 2021 using regression analysis.

**Keywords:** crime, COVID-19 pandemic, gross domestic product, rate of inflation, rate of unemployment

**JEL classification:** B15, H50, K14

### 1. Introduction

The pandemic affected all areas of social life, including crime. All people, including criminals, had to adapt to the new situation. The pandemic brought a decline in so-called traditional crime, but at the same time enabled the emergence of new branches of crime. Crime has moved from the street scene to the internet and social networking environment. The decline in crime is mainly due to restrictive coronavirus measures, which result in fewer people on the streets, so that police officers are more visible and cities are safer. Also, people stay often at home-office, so they pay more attention to what is happening around them - for example, there is less burglary in apartments. It should also be mentioned that the state of emergency has tightened penalties for petty crime. Due to various anti-coronavirus measures, the activity of pickpocket gangs from abroad decreased. Closing borders and restricting movement has not benefited drug trafficking, disrupting supply chains and supplies. There has been a reduction in the supply, but also in the quality of drugs. The drug trade has also been limited by curfews and cultural events (festivals) where there is a demand for ecstasy.

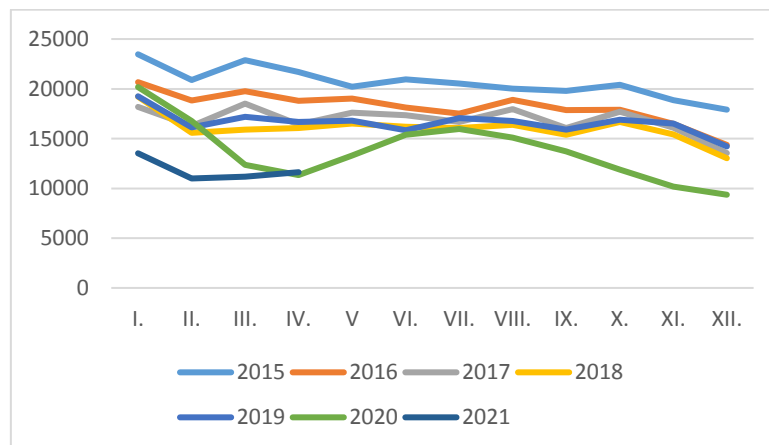
On the other hand, during the pandemic, cybercrime increased in some countries and new types of crime emerged, such as e-mails offering false medical care, theft of oxygen bombs in hospitals, the spread of fraudulent e-mails, attacks on medical facilities and other key institutions, the number of child abuses via the Internet increased, fraudulent offers of protective medical devices (disinfection, gloves, medicines, home test kits, vaccine, etc.) appeared, illegal shops with counterfeit medical products, counterfeiting of veils, etc.

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Police officers also had to adapt to the pandemic. They had to provide completely new tasks, such as compliance with anti-coronavirus government measures, tracing of people with Covid-19 and their risk contacts, investigating cases of the spread of the disease, border controls. Along with the police, police officers also moved through the streets of the cities, who, for example, were in charge of checking compliance with the regulations on covering their mouths and noses in public.

## 2. Crime during the COVID-19 pandemic

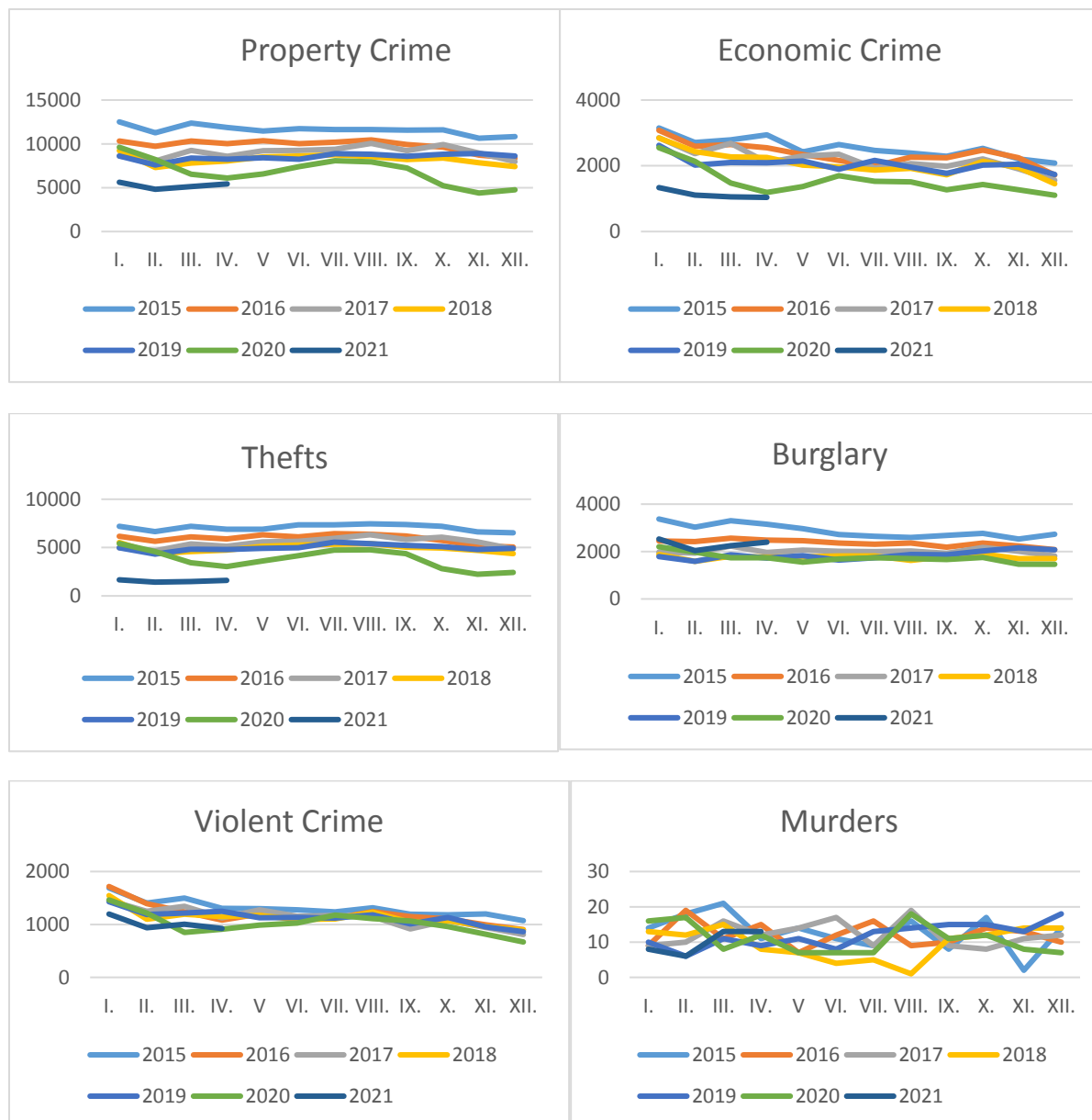
Overall crime in the Czech Republic has shown a declining trend since 2000, and its significant decline has also occurred as a result of a pandemic (see Figure 1). Compared to 2019, total crime in 2020 decreased by 16.9%. It has become the least crime in modern history. According L. Fiala the main reasons for the decline in crime can be seen in the restrictive measures that caused less mobility of people in the Czech Republic, in the restriction of entry of citizens of other countries to us and in the amendment of the Criminal Code, which changed the amount of damages CZK 10,000. (ČTK, 2021) In my opinion, the tightening of penalties for petty crime in times of emergency also contributed to the decrease in crime. This applies mainly to theft, where the offender could be imprisoned for up to eight years for shoplifting, while the standard sentence is set at two years.



**Figure 1: Total crime in the Czech Republic (2015 – 2021)**

In connection with the breakdown of crime according to the criteria of the Police of the Czech Republic in 2020, compared to 2019, all types of crime decreased (which is evident from Figure 2), economic crime by 24.6%, theft by 23.7% and property crime by 19.6%. On the contrary, the smallest decrease was recorded in burglary, namely by 6.8% and murders by 9.1%, when in some months of 2020 the number of murders was higher than in the same period in previous years. It is still true that a significant proportion of these acts are committed by people who know the victim or are even related.

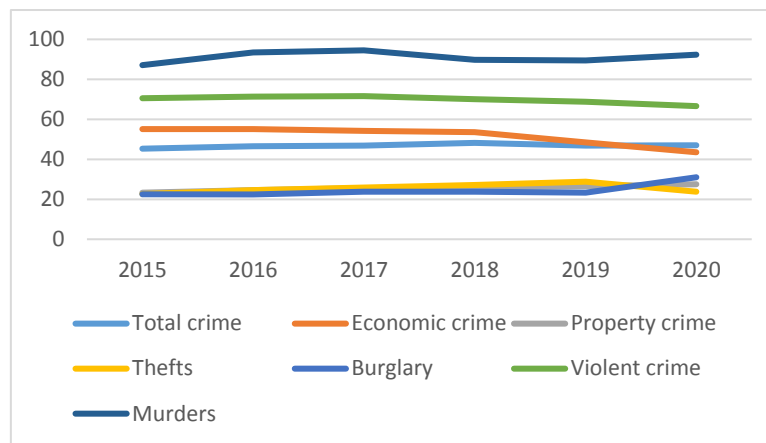
The most widespread offense in our country is simple theft, their number decreased from 60,000 in 2019 to 45,600 in 2020. Both pickpocketing and the number of stolen cars decreased. According E. Kropáčová, this is due to the fact that fewer people move around the city, police officers are more visible in the streets. At the same time, lower movement of people on the streets also means that ordinary people pay more attention to what others are doing, governments are at home and do not have as many common worries as usual. (Žita, 2020)



**Figure 2: Main types of crime in the Czech Republic (2015 – 2021)**

According to the police, the crime in 2020 caused damage of CZK 22.5 billion, which is 7.3% less than in the previous year. Police officers seized property worth CZK 6.2 billion, which is 10% more than in 2019. Economic crimes accounted for more than 70% of the total amount of damage. The average amount of damage in terms of one criminal offense was more than CZK 850,000 for economic offenses and less than CZK 53,000 for property offenses. (Moravčík, 2021)

The pandemic did not have much of an effect on the clarification (proportion of the number of clarified acts and the number of registered acts) of the offenses, as can be seen from the Figure 3. The clarity of total crime was 47% in 2020, the same as in 2019. The highest level of clarity was murder in 92.3% and violent crime in 66.6%, while the lowest is theft for theft 23.8% and property crime 27.5%. Murders have the greatest clarity due to the fact that a significant percentage of murders are committed by persons who are either in close favour or known to the murdered persons. During the pandemic, the



**Figure 3: Clarity in % in the Czech Republic (2015 – 2021)**

level of detection increased in robberies by 8%, while the decrease in clarity occurred in economic crime, namely by 5%, as well as theft. The clarity of violent crime also decreased by 2.2%.

### 3. Macroeconomic variables influencing crime during the COVID-19 pandemic

During a pandemic, crime is affected directly through government restrictions, especially in times of emergency, but also indirectly through macroeconomic variables, which are also affected by the pandemic. From the point of view of economic theory, a pandemic is a supply shock, manifested by a decline in short-term and long-term aggregate supply. This leads to rising inflation, rising unemployment and a decline in real GDP. So let's look at the impact that these three main macroeconomic variables have had on crime. In this context, three hypotheses were formulated and then their validity was verified on data from the Czech Republic using a regression analysis created in MS Excel - A-NOVA. The analysis worked with monthly data from the period January 2015 - April 2021. Data on GDP, inflation and unemployment were drawn from the Czech Statistical Office and data on crime from the statistics of the Police presidium of the Czech Republic.

#### 1. hypothesis – with rising inflation, crime increases

Inflation is considered one of the macroeconomic evils. The empirical evidence suggests that inflation and crime are integrated with a positive relationship. Moreover, the causal link is from inflation to crime. (Tang & Lean, 2007) Inflation means the decline in the purchasing power of money and the biggest impact is on low-income people who commit most of the crime. Inflation reduces the real income of people and they want to get more money by illegal activity. Inflation also reduces the alternative cost of crime and from the economics, it is known that when something is cheap, demand is great after that.

The regression analysis shows that the established hypothesis was not confirmed on the data of the Czech Republic. In the period under review, the inflation rate increased from 0.4% to 3.1%, while crime decreased from 247,628 offenses in 2015 to 165,525 offenses in 2020. The Figure 4 shows that crime decreased in the period under review, although inflation has risen. This can be explained by the fact that government measures against coronavirus outweighed the economic effects of inflation on crime.



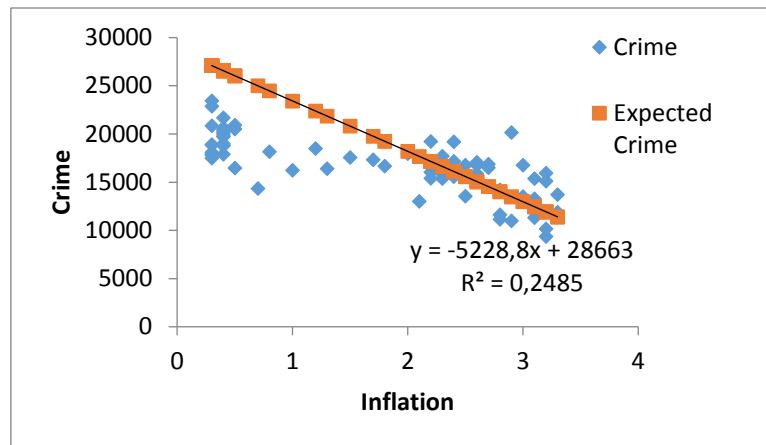


Figure 4: Regression line – crime and inflation

At the time of the pandemic, the government pursued an expansionary fiscal policy, so that it “pumped” money into the economy and especially from citizens, so that people did not have such a need to raise money illegally.

## 2. hypothesis – with rising unemployment, crime increases

Unemployment is the most frequently cited factor influencing crime but it is also the most controversial factor. Logical, positive relationship between crime and unemployment is supposed. People without employment do not have enough money and that is why they commit crime in order to resolve their bad financial situation. The typical criminal is a person without job and with low income. These people earn more money by crime. (Švecová, 2013) The findings of some research are completely the opposite. According to some research, the higher unemployment rate is the lower crime is. They explain this as follows: unemployed people usually stay at home (they do not go to work regularly) and they better protect property from thieves and it reduces a probability of crime. (Burek, 2005)

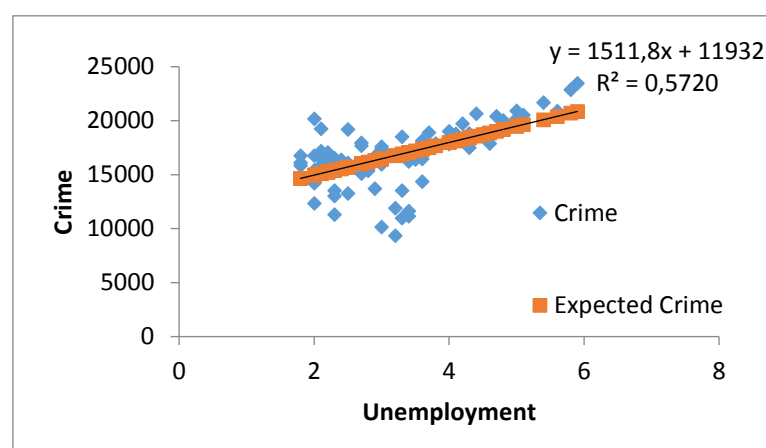


Figure 5: Regression line – crime and unemployment

The second hypothesis was confirmed on the example of the Czech Republic. The Figure 5 shows that with rising unemployment, crime also increases, the regression equation corresponds to data of about 60%. In the period under review, the unemployment rate fell from 5.1% in 2015 to 2.6% in 2020, and crime also fell, as mentioned above from 247,628 offenses in 2015 to 165,525 offenses in 2020. During the pandemic, the unemployment rate rose slightly, from 2% in March 2020 to 3.4% in April 2021. Unemployment affected mainly the services sector (hospitality, retail, hairdressing, cosmetics, etc.) during pandemic, although on the other hand there was increasing demand for courier and transportation services.

### 3. hypothesis – with rising GDP, crime decreases

Decreasing GDP is connected with drop in salaries, job cuts and increase in unemployment. This means economic recession. Recession can cause a feeling of insecurity in people and this situation can become a stimulus that leads to illegal activity. With rising GDP, people are richer and give more money to protect against crime (alarms, security locks, guards, counsel). „Some research show a positive relationship between crime and GDP per capita because areas with higher GDP per capita are more attractive to criminals (greater profits from thefts)”. (Klaer & Northrup, 2014)

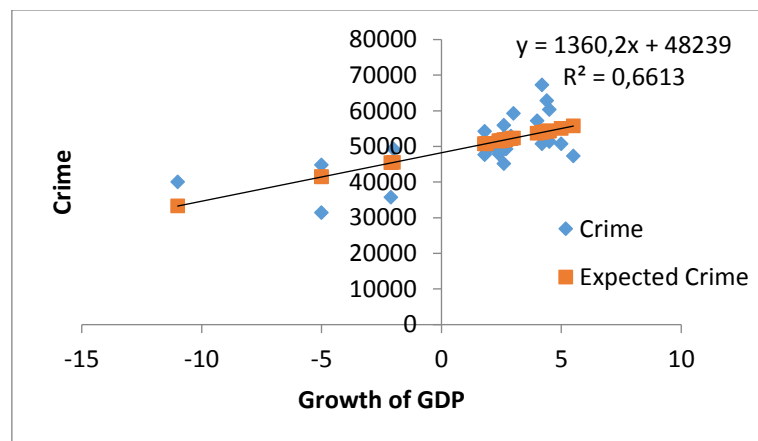


Figure 6: Regression line – crime and growth of GDP

Using the regression equation, the relationship between crime and GDP growth rate was examined on data from the Czech Republic in the period under review, while a positive relationship was found between these two variables, where crime also increases with increasing GDP growth rate (see Figure 6). The regression equation captures the original data from 66%. The third hypothesis was not confirmed; during the pandemic, both an economic decline and a decline in crime were recorded. In the observed period, economic growth decreased from 4.3% in 2015 to -5.8% in 2020 and crime decreased by 33.1% in the same period. However, this conclusion is in line with Klaer's statement and can be justified as follows: the economy is declining, real GDP is smaller, ie. fewer goods are produced, such as cars, which can potentially be stolen.

### 4. Conclusion

The pandemic brought with it perhaps the only positive side, and that was the decline in crime. In 2020, the Czech Republic had the fewest crimes in recent history. The main reasons for the decline in crime can be seen in the restrictive measures that caused less mobility of people in the Czech Republic,

in the restriction of entry of citizens of other countries to us, in the amendment of the Criminal Code, which changed the amount of damage in qualifying crime to CZK 10,000, in the tightening of penalties for petty crime in times of emergency, especially in the case of theft. Crime was affected directly through restrictive government intervention, but also indirectly through macroeconomic variables, which were also affected by the pandemic. The regression analysis used to verify the hypotheses revealed that the government's restrictive interventions had a greater impact on crime than macroeconomic variables such as inflation, unemployment or GDP. The government's measures were aimed at supporting the population themselves, so as not to lower their standard of living during the pandemic, in particular by reducing taxes due to the abolition of super-gross wages, or financial support for the self-employed or Integrated Rescue System staff. Proof of this is the growing savings of our population. A pandemic is a typical example of a supply shock that leads to falling GDP, rising inflation and rising unemployment. Despite all this, crime in our country fell during the pandemic due to strict government restrictions that denied the validity of economic laws.

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## Impacts of Covid-19 on Selected Hospital Facilities from the Perspective of Cyber Security

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**Abstract** The Covid-19 pandemic has brought many new health challenges. During the largest increase of new patients, hospital facilities had to respond not only to ensuring routine processes and protecting staff, but also to the cyber-attacks that hit some hospitals. The security of information systems in hospitals is also an important part of facility management. This paper discusses cyber threats and their possible security and economic impacts on selected hospital devices. As part of the research, an analysis of the use of instrumentation in a selected hospital concerning Covid-19 is performed. Based on this analysis, a comparison of selected devices with possible scenarios of cyber threats, which may most often endanger hospitals, is then applied. The next part of the research then expresses the security and economic impacts of selected cyber threats on identified hospital devices. The main results of the research can be used to improve the level of preparedness of the information environment in hospital facilities for cyber threats and their impacts during pandemics.

**Keywords:** hospital, cyber threat, pandemic, facility, impact

**JEL classification:** G20, I19

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### 1. Introduction

Many healthcare organizations are now increasingly exposed to sophisticated cyber-attacks and threats. The frequency of these threats also began to increase significantly during the Covid-19 pandemic. Healthcare facilities and their information environment are burdened with the reception and care of patients during emergencies such as the highly contagious pandemic (Blythe et al., 2019). As a result, some hospital equipment is used more than others. In the case of necessary medical assistance, these devices must be fully functional and meet certain safety requirements (Coventry, Branley, 2018; Chan et al., 2020). If the functionality and safety of these devices are impaired due to another adverse situation, this is a significant factor that increases the risk of malfunction or failure of these devices in cases where they are necessary to ensure the lives and health of patients (Alharam, Elmedany, 2017; Konttila et al. 2019).

For this purpose, various types of viruses or cryptoviruses are used, which primarily have the task of encrypting, deleting or modifying data. The motivation to the realization of these cyber-attacks is based on many factors. Among the most common we can include the obtaining of sensitive or personal data that

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may concern employees, patients, or other subjects that work with the healthcare sector (Pavlík et al., 2021). Other motivational aspects can be the need for attackers to harm a selected hospital. Thus, the goal of a cyber-attack is not to obtain finance, but to damage a specific medical facility (Cucciniello, Lapsley, Nasi, 2016). The impacts of such damages may affect, the reputation of the hospital or the interruption of base functions and the provision of standard operations and procedures (Kawale et al., 2020). These processes can take several weeks to months to resume. In some very serious cases, recovery of these processes may not be possible.

## 2. Methods

One of the aims of this paper is to identify the devices that are most commonly used in hospital facilities in connection with the hospitalization of patients with Covid-19. These hospital devices are a very important factor in providing hospital care and the health of patients with this disease. The identification of these medical devices was based on an analysis of the use of instrumentation within the EFAS Season One project (Brandys, 2019). The purpose of this project was to analyze the use of selected facilities in the hospital before the onset of the Covid-19 pandemic and in its later course in the Czech Republic. The name of the selected hospital will not be mentioned in this paper for security reasons. In the picture below we can see the frequency of use of the infusion pump.

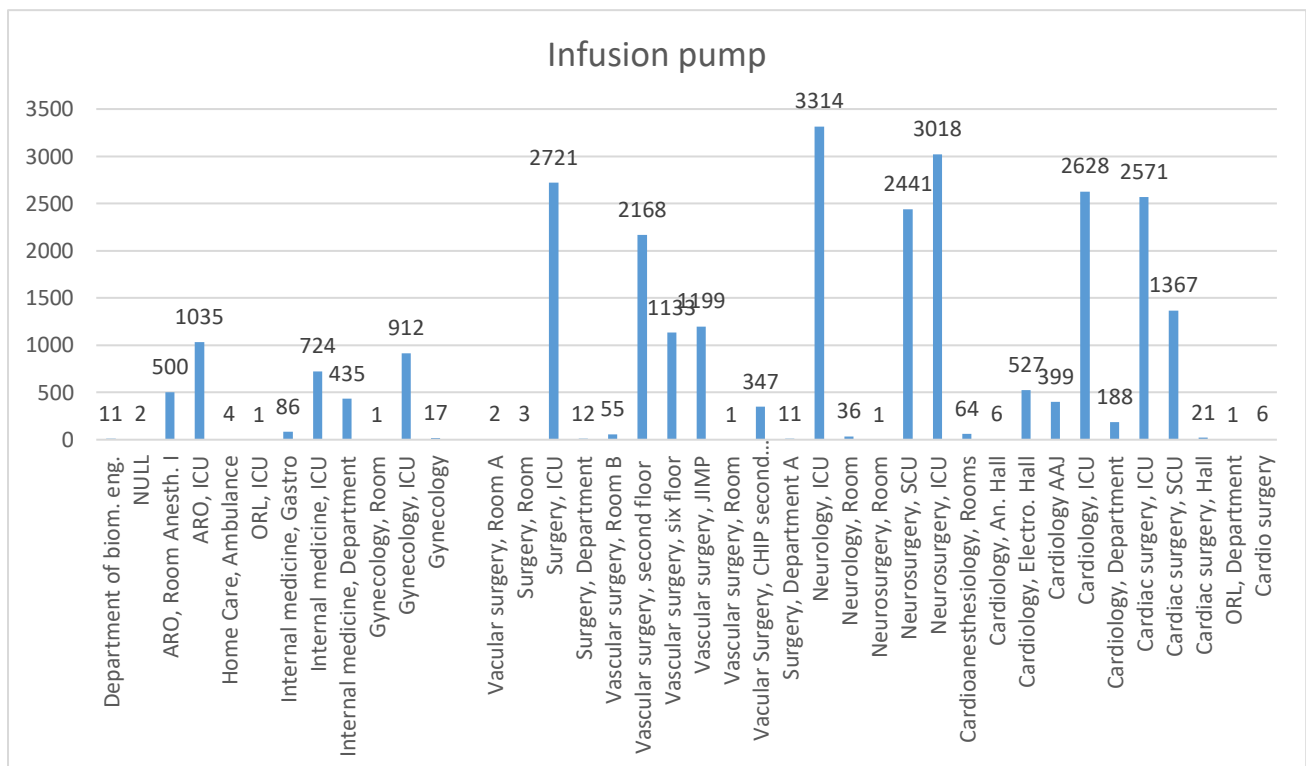
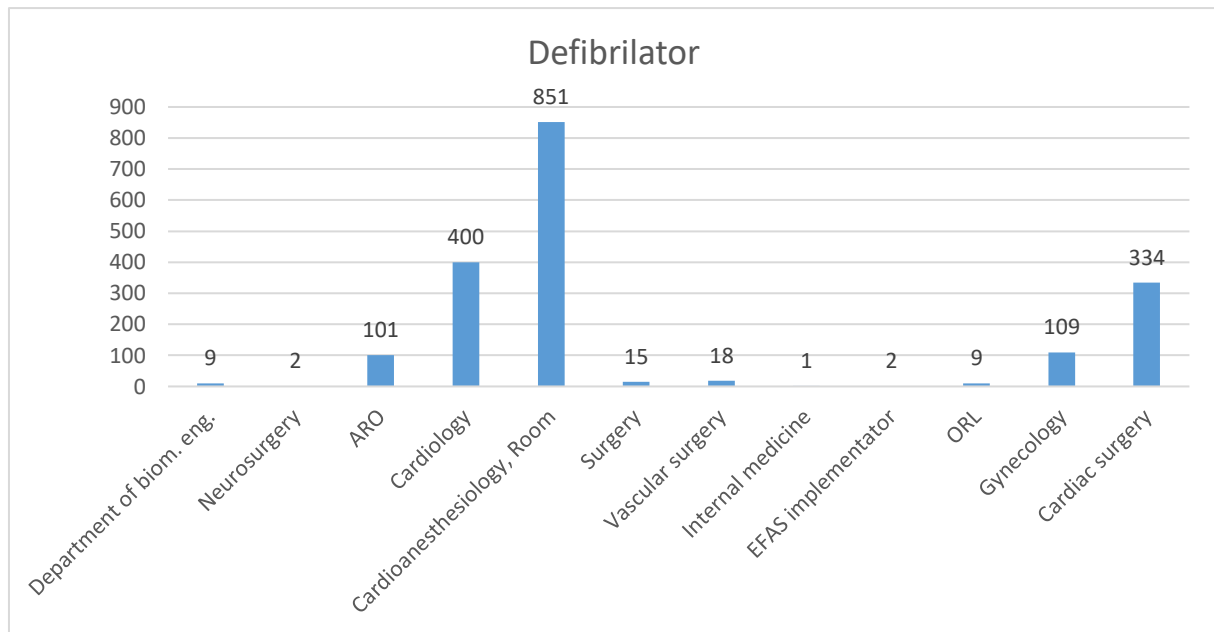


Figure 1: Frequency of infusion pump use, August 2018 – March 2021

As we can see in this graph, the frequency of use of the infusion pump is highest especially in the Cardiac surgery ICU, Cardiology ICU, Neurosurgery ICU, and Surgery Department.

The second graph shows the frequency of use of the defibrillator at a general level and then of a specific selected type. In the first graph, we can see the use of all types of defibrillators in a given hospital facility.



**Figure 2: Frequency of defibrillator use, August 2018 – March 2021**

From this graph, it can be determined that the defibrillator was most used in the Cardioanesthesiology department, Room; Cardiac surgery, Hall and Cardiology.

Based on the performed analysis of the use of specific devices in a selected hospital organization, it can be stated that the functionality and readiness of these devices is necessary for certain departments. Especially in connection with the pandemic and the course of the Covid-19 disease, the need for these hospital devices for these departments is highly important. As we can see, the frequency of use of the infusion pump or defibrillator varies considerably during a pandemic. This fact is caused by several factors. The first is that during the increase in the number of patients with Covid-19, it was necessary for hospital staff to move selected hospital equipment to other parts of the hospital. Therefore, in the graphs presented in this paper, we can see that the use of devices was the highest in departments that are not directly related to their standard use.

As part of the next step that followed in our research, possible types of cyber threats and their impacts on selected departments and devices used were compiled. For this purpose, cyber-threats were selected, which were mostly used to attack specific hospital facilities during the Covid-19 pandemic. These cyber threats were selected based on research conducted in two hospital facilities in the Czech

Republic. Based on the achieved results, three cyber threats were identified, which occur most frequently in hospitals during the pandemic. It is about:

- ransomware,
- malware,
- phishing.

In the next phase of our research, a comparison of these cyber-attacks with possible impacts on hospital wards and their equipment was performed. If a cyber-attack is successful, it is possible to disable the hospital facilities that are necessary to maintain the health and life of patients. In the following table, we can see a comparison of selected cyber threats to hospital devices in interaction with their use in individual departments. These departments were selected based on processing graphs on the use of instrumentation in this research part.

The level of probability between the cyber threat and the potential impact on individual departments in the hospital was determined based on a mathematical formula that is used to express the degree of risk. A scale of 1 to 5 was used to determine the significance of that are considered here. The value 1 represents the least meaningful modules and 5 the most important modules.

$$R = P * I$$

R.....risk

P.....probability

I.....impact

The probability of a threat occurring in a selected hospital facility was determined based on the following scale. In this rating scale, the number 1 means the rare occurrence of a cyber threat, number 2 occasionally, number 3 moderately common, number 4 very common, and the number 5 the most probable event of a cyber incident.

### 3. Results

The following table shows the interaction between selected cyber threats and their potential impacts on individual hospital departments. As we can see, this step also involves expressing the level of risk based on the interaction of selected hospital wards with identified cyber threats. This interaction is also performed on the basis of the rating scale in the previous paragraph. Based on the interaction between selected cyber threats and their possible impact on individual departments in the hospital, it is possible to determine the level of risk. The amount of risk is determined in the next step on the basis of a mathematical formula and by multiplying two elements, namely the probability of the threat and the possible impact on selected departments.

**Table 1: Risk rating scales**

Risk	Value range	Colour
Low risk	1 to 9	Yellow
Moderate risk	10 to 16	Green
High risk	20 to 25	Red

**Table 2: Interaction of cyber threats and hospital department**

Department	Significance of the Impact	Type of Cyber Threat		
		Probability		
		Ransomware	Malware	Phishing
		5	4	3
ARO	2	10	8	6
Cardiac surgery	3	15	12	9
Cardiac surgery, ICU	3	15	12	9
Cardioanesthesiology, Room	3	15	12	9
Cardiology	4	20	16	12
Cardiology, ICU	5	25	20	15
Gynecology	2	10	8	6
Neurology, ICU	4	20	16	12
Neurosurgery, ICU	4	20	16	12
Neurosurgery, SCU	3	15	12	9
Surgery, ICU	4	20	16	12
Vascular surgery, JIMP	2	10	8	6



Vascular surgery, second floor	3	15	12	9
Vascular surgery, six floor	3	15	12	9

Based on the performed analyzes, we can state that the most significant impacts of selected cyber threats can be mainly on the Department of Cardiology, ICU; Cardiology, neurology, ICU; Neurosurgery, ICU and Surgery, ICU. In the event of a cyber incident, the impact of these events could be limited or completely disrupted by the functioning of these departments. In particular, the ICU, Cardiology and ICU Surgery departments are very vulnerable. These wards usually house patients who are usually life-threatening or have insufficient vital functions. In the event of unavailability or malfunction of equipment, such as an infusion pump or defibrillator, the lives of these patients could be endangered.

#### 4. Conclusion

The aim of this paper was to analyze and evaluate the possible impacts of cyber threats on individual hospital departments and their facilities, based on data from the hospital environment. The data applied for our research were obtained during the solution of the EFAS Season One project at the Moravian Business College Olomouc in the years 2018 to 2021. These data provide an overview of the use of instrumentation in a selected hospital in the Czech Republic.

The frequency of cyber-attacks on hospital facilities during the Covid-19 pandemic began to increase significantly (Hoerlsberger, 2019). This fact is caused by a greater burden on hospital departments and instrumentation in connection with the hospitalization of a larger number of patients. Due to the overcrowding of hospitals, there is also less resilience to threats from the digital environment, and therefore the likelihood of such an attack is much higher (Geier, Smith, 2019).

The benefit of our research can be the presentation of the context of selected cyber threats in the context of individual hospital departments and their facilities. The output of this research is then to illustrate the interaction between individual cyber threats and hospital departments in order to express the level of risk of the potential impact of these threats. The achieved results can be further implemented into the safety management rules of other hospitals and thus can also help to improve the security level of their information environment.

Further research in this area should focus on taking into account other factors that may have a significant impact on the risk assessment of individual hospital departments and their facilities from a cyber security perspective. These factors may include, for example, the degree of wear or age of a particular facility or the consideration of the current state of security of the information environment of the selected hospital.

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## Vaccine tourism: A new type of tourism?

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**Abstract:** This paper deals with travelling for one's health reasons, especially its new type being called "*vaccine tourism*". In connection with COVID-19 pandemic, the development of this type of tourism is remarkable. After a short introduction to COVID-19 pandemic, the question of how to define "*vaccine tourism*" is posed focusing on deference between "*access to a vaccine*" and "*access to a vaccination*". To understand this difference is the main prerequisite for creation of its acceptable definition. Afterwards, the position of vaccine tourism in classification of types of tourism is discussed. Thanks to a comparison of typical features with medical tourism, some similarities and differences were discovered. At the end of this paper, several topics for future research are propounded.

**Keywords:** COVID-19, vaccine tourism, medical tourism, features, health

**JEL classification:** Z320

**Grant affiliation:** IGA\_FF\_2021\_001

### 1. Introduction

An unknown disease-causing pneumonia and other respiratory diseases appeared in Wuhan, China for the first time in 2019. The WHO Country office in China first published some information about the disease which had been named the COVID-19, a novel coronavirus (Huang et al., 2020). Despite the patient isolation, the COVID-19 started to spread beyond Wuhan's region. Three months after the first appearance of the virus in China, almost 146 countries were affected by this disease in mid-March 2020 thanks to global air transport which had already been carried to all continents (Gössling, Scott et Hall, 2021).

Incontrollable transmission of the disease forced the national governments to react. It has been the beginning of a long period of economic lockdowns, restrictions on the free movement of persons, restrictions on travel and restrictions on social and cultural life. It is necessary to assert that "*the crisis caused by COVID-19 pandemic affected majority of economic sectors*" (Pisklák, 2020). The previous statement could be confirmed by Zenker and Kock (2020) who admit the immense impact of COVID-19 pandemic on economic sectors, notably on tourism.

To restart tourism sector and minimise its suffering, some possible solutions have been found – monitoring of the local populations, adherence to behavioural guidelines and a development of a vaccine (Imhoff and Lamberty, 2020). The third attribute, a development of a vaccine, opened a door to the creation of a new term, which started to be used more frequently in connection with tourism sector – "*vaccine tourism*". In view of the previous fact, three research questions come

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on our mind: *How can the vaccine be defined? Can it be considered an independent type of tourism or only the subcategory of medical tourism?*

## 2. Vaccine tourism

The concept of travelling for one's health reasons appeared over 2000 years ago. In Ancient Greece, the people of privileged groups were travelling to Epidauria for ostensible health benefits of the god Asklepios (Connell, 2011). It was the case of Romans and Egyptians who continued the tradition established by Ancient Greece (Cormany 2017). Unlike the preceding concept "*vaccine tourism*" would be considered to be a new phenomenon which appears in connection with SARS-CoV-2 pandemic in 2020. The positive developments on its vaccines represents one of the main features of this new type of tourism.

In view of the above-mentioned facts, the conditions for development of vaccine tourism are not the same in each country. There are many countries facing up the insufficient amount of vaccine for their home population. It is especially the case of poor countries, for example in Africa (Washington Post, 2021).

On the other hand, a sufficient amount of vaccine doses and the lack of local demand enable some countries to open the local vaccine market to an international clientele. Owing to making accessible their local vaccine markets to foreigners, a fertile ground for vaccine tourism development has been prepared. In the United States of America, Florida can be considered to be a pioneer of vaccine tourism, because it was the first state of the federation where people, sometimes called "*vaccine tourists*", arrived to get earlier access to a vaccination (The Guardian, 2021).

So, let us think about business aspects of vaccine tourism. At the beginning, there is one question which we should ask ourselves: *What is the product of this new type of tourism?* The first thing which probably comes to our mind is that the product of vaccine tourism might be the vaccine. But the fact is that tour operators cannot sell clients the vaccine in its tangible form.

In case of the previous statement, the difference between "*access to a vaccine*" and "*access to a vaccination*" deserves to be mentioned. The issue is that these terms are semantically different. Unlike the access to a vaccine, which no tour operator can guarantee and assure formally, because it is the question of state politics, the access to a vaccination can be apprehended like a product of vaccine tourism. With respect to state politics and legislative measures, the access to a vaccination may be included in tour operators' services and may be found, in our opinion, to be the product of vaccine tourism. To illustrate the fact, let us focalise to the Indian travel website called ZenithHolidays.com "*which features a vaccine tourism section that offers several days stays with a vaccine for about \$2,000.*" (Boston 25 News, 2021).

## 3. Similarities and differences between medical and vaccine tourism

To be able to understand well the term of "*vaccine tourism*" and its main features, it is worth reminding and interpreting several attempts to define "*medical tourism*", with which it is deeply interconnected.

From the narrower point of view, the "*medical tourism*" describes the people who decides to travel abroad for the purpose of acquiring relevant medical treatment (Klímová, Kuča, 2020).

Subsequently, let us remind the concept of “*medical tourism*” being considered more complex and analysing it in an international approach, presented by Białk-Wolf (2010): “*Medical tourism involves purposeful travelling to a foreign country in order to undergo an intended medical treatment to save one’s health, to improve one’s quality of life, to improve one’s appearance, because of financial or qualitative reasons or because of the fact that such services are unavailable in one’s own country (which may result from the lack of personnel, knowledge, equipment, procedures, long waiting time or legal constraints); such travelling is often combined with the sightseeing of the visited place.*”

The definition mentioned above helps us to think about the similar features of “*vaccine and medical tourism.*” For better understanding, we attempt to sum up the similarities and differences in the table 1:

**Table 1: The features of medical and vaccine tourism**

Features	Medical tourism	Vaccine tourism
to travel to another country	YES	YES
to get a medical treatment	YES	NO
to travel for financial and qualitative reasons	YES	NO?
to travel for unavailability of vaccine in own country	YES	YES

Source: Author according to by Białk-Wolf (2010)

As it is evident from the table 1, medical and vaccine tourism share completely two features: travel to another country and travel for unavailability of vaccine in own country. From a semantic point of view, the use of the word “*treatment*” being defined like “*the use of drugs, exercises, etc. to cure a person of an illness or injury*” ( Cambridge dictionary, 2021) seems to be irrelevant in the context of vaccine tourism. We assume the use of the word “*prevention*” instead of treatment, because if somebody is infected by COVID-19 which spreads quickly and uncontrollably, it is logically impossible to travel by public means of transport. As we see it, a travelling for financial and qualitative reasons is not quintessential for vaccine tourism in connection with COVID-19 pandemic, but we cannot completely exclude this feature from the context of vaccine tourism in general.

#### 4. Conclusion and discussion

The travelling for one’s health reasons cannot be considered as a new phenomenon connected with SARS-CoV-2 pandemic in 2020 only. We can observe its beginning in antiquity (Cormany, 2017). On the other hand, a vaccine tourism closely joined with development of vaccines against a novel type of coronavirus represents a contemporary approach which deserves to be researched.

As we mentioned, the main feature of vaccine tourism is to have access to a vaccination which can be assured by tour operators unlike the access to a vaccine being in hands of national states politics only.

Subsequently, to determine the position of vaccine tourism in classification of tourism types seems to be complicated. The medical and vaccine tourism share the following features: to travel to another country and to travel for unavailability of vaccine in own country. Nevertheless, there are two more features whose interpretation in vaccine tourism is not clear and merits to be studied more.

Within this topic, it may be interesting to focus on vaccine tourism supply and demand in representative countries. In connection with it, we would be able to determine some limitations or opportunities beyond vaccine tourism. Albeit the position in classification of tourism types represents the biggest potential for future research, because there are many lacunae which should be removed.

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# The Burden on Public Budgets in Connection with the Incidence of Livestock Diseases in the Czech Republic since 2010

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**Abstract:** Not only animal health, but also welfare has a long historical basis in the Czech Republic and has recently become one of the main societal topics. Through public budgets, the state ensures the payment of compensation to livestock breeders on the basis of the Veterinary Care Act No. 166/199 coll. The Ministry of Agriculture of the Czech Republic ensures administration in accordance with implementing regulations and in cooperation with State Veterinary Administration. This article analyzes the costs of occurrence of individual livestock diseases since 2010. These costs are further divided according to the structure into costs for prevention, diagnosis, lost production, removal of animal carcasses and other related costs. For the period 2010 to 2020, the total burden on public budgets associated with the incidence of livestock diseases amounted to CZK 602 million.

**Key words:** Costs, herds, animal diseases, Ministry of Agriculture of the Czech Republic

**Jel classification:** Q14, H61

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## 1. Introduction

Not only animal health, but also animal welfare has a long historical basis in the Czech Republic and has recently become one of the main societal topics. Not only is it about ensuring the right requirements for livestock breeding, but over time and with the development of society, it has begun to be significantly addressed in the field of pet breeding, shelters for stray and abandoned animals, circuses, zoos and other animal facilities. The State Veterinary Administration within the supervision of animal welfare care is based primarily on Act No. 166/1999 Coll., On Veterinary Care and on Amendments to Certain Related Acts, as amended (Veterinary Act) and Act No. 246/1992 Coll., for the protection of animals against cruelty, as amended. This legislation sets out requirements for the proper behavior and care of animals and also sets out prohibited animal husbandry and handling practices. It should be emphasized that the defined standards are considered to be minimum and are requirements to ensure the basic biological, physiological and ethological needs of the animals. Some rules of current legislation concerning the care of animal welfare are laid down only in general terms. We must therefore never forget that the most important thing is the responsible approach of each person to animal husbandry and an understanding of ethical treatment (Liddo, 2016).

The Czech Republic is one of the countries that has managed to recover animal breeding from a number of diseases still occurring in other European countries or the world. With the help of breeders and the consistent supervision of the State Veterinary Administration, it is possible to maintain a good disease situation in the Czech Republic (Saksún, 2019). Country status is granted by the European Commission and the World Organization for Animal Health (OIE).

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The European Commission has granted the status of an officially free country to the following diseases: bovine tuberculosis, bovine brucellosis, ovine and caprine brucellosis, enzootic bovine leucosis, Aujeszky's disease in domestic pigs, infectious anemia of salmonid fish.

From the OIE, the Czech Republic obtained the status of a country free of foot-and-mouth disease, African horse sickness, small ruminant plague, rabies, classical swine fever, avian influenza, Newcastle disease, African swine fever and bovine spongiform encephalopathy (BSE), where the Czech Republic achieved the highest possible risk of negligence. The Czech Republic is also free of the following diseases: bovine lung infection, bovine nodular dermatitis (Lumpy skin disease), vesicular stomatitis, bluetongue (Nelson, 2019; Saksún, 2019).

Thanks to these statuses, breeders and traders of animals today have favorable conditions for their business activities in terms of diseases and thus lower financial costs (losses) in the fight against these diseases (Ballou, 1993; Gersovitz, 2004)). Here you can also find available information on the current occurrence of selected diseases (clear maps), which breeders can monitor and take into account when planning the import of animals, participation in international exhibitions and other animal movements (Brinkle, 2002; Leening et Turner, 2004)).

The main strategic goals of the State Veterinary Administration (SVA) in the field of animal health protection in 2020 included:

maintaining the status of the country free of bovine and small ruminant brucellosis, bovine tuberculosis, enzootic bovine leucosis, Aujeszky's swine disease in domestic pigs, classical swine fever, African swine fever, rabies, foot-and-mouth disease, small ruminant plague, African anemia salmonid fish, Newcastle disease as well as maintaining the status of a country with a negligible risk of bovine spongiform encephalopathy;

- recovery from dangerous diseases and reduction of the prevalence of dangerous disease agents: - completion and eradication of infectious bovine rhinotracheitis, - National program for the control of salmonella in poultry, - monitoring and eradication of transmissible spongiform encephalopathies in cattle, sheep and goats, - bluetongue monitoring - monitoring of avian influenza in poultry and wild birds, - monitoring of dangerous fish diseases,
- protection of the territory of the Czech Republic against the introduction of current diseases in European Union (EU) countries or in third countries such as foot-and-mouth disease, rabies, bovine tuberculosis or brucellosis, bovine nodular dermatitis, bluetongue, classical swine fever, African swine fever and others;
- preparation and implementation of contingency plans in case of suspicion or occurrence of dangerous diseases in the Czech Republic;
- providing training for official veterinarians, private veterinarians and the breeding public.

The still good disease situation is evidenced by the international status of the country, which is granted by the European Commission or OIE. In 2020, the Czech Republic managed to maintain all previously acquired disease statuses.

## **2. Material and Methods**

The chief method used in the first part was the evaluation of legal rules, i.e. legal acts, regulations and implementing provisions, and their application to the *BSE* occurrence in Czech herds. In addition, the

EU legislation concerning this issue was analysed and compared with the relevant legislation of the Czech Republic.

The method of economic evaluation was the analysis of statistical data related to the costs of infectious diseases eradication in the Czech republic; this information was provided by the Ministry of Agriculture of the Czech Republic (Saksún, 2019). Subsequently, the data was related to the individual cost compensation items, as specified by the Veterinary Act.

Total costs by the Veterinary Act included the cost of killing or slaughtering sick and suspect animals, the cost of killing or slaughtering the animal, the cost of cleaning, disinfecting, disinfecting and exterminating the farm and its facilities and equipment, the cost of mandated vaccination, protection zones, surveillance zones and other restricted zones, and compliance with the measures within a specified observation period before the end of the emergency veterinary measures and the reintroduction of animals on the holding (Espinoza, 2019).

### **3. Results**

The budget of Chapter 329 - Ministry of Agriculture for 2020 is part of the state budget of the Czech Republic, which was approved by the Chamber of Deputies of the Parliament of the Czech Republic on 4 December 2019 and published in the Collection of Laws as Act No. 355/2019 Coll. on the state budget of the Czech Republic for 2020. Compared to the approved budget for 2019, total revenues are lower by CZK 1 093 330 824, ie by 3.09%.

General characteristics of the budget of the Ministry of Agriculture chapter for 2020:

Total revenues 34 246 075 ths. CZK

Total expenditures 56 544 982 ths. CZK

The total expenditures of the agriculture chapter for 2020 are proposed in the amount of CZK 56 544 982 069, intended for the financing of support arising from the Common Agricultural Policy of the European Union, national support for agriculture, forestry and water management, research and development, activities of state departmental units and contributory organizations. Expenditures on the activities of the State Agricultural Intervention Fund are also included.

Agricultural subsidy programs for 2020 include programs aimed at combating the spread of dangerous livestock diseases (eg the Health Fund), programs whose result and profit cannot be directly quantified and yet their existence is necessary for individual commodities (eg maintaining and improving the genetic potential of the listed livestock support, beekeeping support), programs to support the healing of field and special crops (eg support for technical isolates and spatial isolates of propagating material) and programs emphasizing agri-environmental features (eg biological and physical protection as a substitute for chemical plant protection, support for the construction of drip irrigation in orchards, hop gardens, vineyards and nurseries, support for the restructuring of orchards).

Subsidy programs pursuant to Section 2, Paragraph 1 of Act No. 252/1997 Coll., As amended, are approved by the Chamber of Deputies of the Parliament at the same time as the Act on the State Budget for the relevant year.

The largest share of the proposed funds is directed to the subsidy program "Improvement of living conditions in livestock breeding" in the amount of CZK 1 052 000 000. Non-investment funds are proposed for property damage provided pursuant to Section 67 of Act No. 166/1999 Coll., On Veterinary Care, as amended, in the amount of CZK 60 000 000.

During the year, the State Veterinary Administration of the Czech Republic announces so-called Extraordinary Veterinary Measures with regard to the disease situation. Extraordinary veterinary measures are ordered for:

- a) in case of suspicion of the occurrence or confirmation of the occurrence of a dangerous infection or disease transmissible from animals to humans, or if there is a risk of its spread (protective and control measures),
- b) in the event of the detection of non-healthy animal products, water or feed, or other causes of a serious threat to animal or human health by animal products, (veterinary hygiene measures),
- c) if there is a risk of introduction or spread of animal pathogens and diseases communicable from animals to humans or unhealthy animal products and feeds from abroad (measures for veterinary protection of the state territory).

On the basis of extraordinary veterinary measures, breeders have the opportunity to claim compensation in accordance with the provisions of Title IX, § 67 et seq. Act No. 166/1999 Coll., on veterinary care:

(1) The breeder shall be reimbursed for costs and losses incurred as a result of the implementation of emergency veterinary measures ordered to control some of the dangerous diseases and illnesses transmissible from animals to humans, listed in Annex 2 to this Act, and to protect against their spread, or in the event of the presence of the disease or disease, provided that the measures taken immediately include at least the isolation of the animals on the holding and the prohibition of their movement from the time the disease is suspected and confirmed.

(2) The compensation under paragraph 1 shall include compensation for

- (a) the cost of killing or slaughtering sick and suspected animals of susceptible species and disposing of their carcasses; in justified cases, compensation shall also be provided for the disposal of their products,
- b) the animal killed or slaughtered,
- c) cleaning, disinfection, disinsectisation and deratization of the holding and its equipment (equipment),
- d) ordered vaccination,
- e) compliance with measures in protection zones, surveillance zones and other restricted zones,
- (f) compliance with the measures during the observation period laid down before the end of the emergency veterinary measures and the re-introduction of the animals into the holding.

(3) In the case of a disease or illness transmissible from animals to humans, which is listed in the regulations of the European Union governing expenditure in the veterinary field, compensation is also provided

(a) for the destruction of contaminated feedingstuffs and contaminated equipment on a holding which cannot be disinfected in accordance with paragraph 2 (a), c),

(b) for proven losses caused by a loss of production of the livestock during and in connection with the implementation of the ordered emergency veterinary measures.

Unless otherwise provided by European Union regulations, compensation is provided from the state budget, based on the application of the breeder, hunting user, person managing agricultural land or person referred to in § 69. This application may be submitted no earlier than the first day after slaughter or slaughter of animals and, if no slaughter or slaughter takes place, not earlier than the first day following the end of the prescribed protection and control measures, and no later than 6 weeks after the date of slaughter or slaughter of the animals, and no slaughter or slaughter no later than 6 weeks. weeks from the date of expiry of the ordered protection and control measures.

The following table shows the amount of compensation for costs and losses paid by the Ministry of Agriculture of the Czech Republic to breeders on the basis of Extraordinary Veterinary Measures applied in the event of the occurrence of certain diseases in 2010-2020.

**Table 1: Total compensations paid to farmers according to individual animal infectious diseases (CZK)**

Disease	Amount (CZK)
Bovine paratuberculosis	71 905 552
Salmonella in poultry	203 203 815
Spongiform encephalopathies	5 974 753
Viral hemorrhagic septicemia of fish	56 885 970
Swine tuberculosis	162 931
Brucellosis	264 000
Poultry tuberculosis	2 325 873
Avian influenza	26 681 848
African swine fever	29 553 239
Bluetongue	1 428 652
Horse metritis	1 687 410
Poultry cholera	15 402 513
Bee disease	161 448 667
Bovine leukosis	3 854 744
Another diseases	21 012 874
<b>All diseases total</b>	<b>601 792 841</b>

*Source: Mze CR; own processing*

The diseases that contributed the most to the payment of compensation were salmonella in poultry as well as bee diseases. These diseases appear in farms in the Czech Republic every year. During the monitored period of ten years between 2010 and 2020, a total of 15 different diseases appeared in our country, for which extraordinary veterinary measures were applied. Most of them were in 2010, namely 15 and the least in 2015, when there were only six.

In the following table, the total compensations paid are broken down according to the cost structure as referred to in the provisions of § 67 et seq. Act No. 166/1999 Coll. on veterinary care (see part Material and Methods).

**Table 2: The structure of the total costs (in thousand CZK) related to paid compensations to farmers with infectious diseases in their herds from 2010 – 2020**

Period	Value of animals	Killing	Safe carcass disposal	Exam. for the disease	Related costs	Emerg. veter. measures	Non material production	Total
2010 - 2020	476 366	5 012	39 885	15 321	18 173	3 622	43 414	<b>601 793</b>

Source: Mze CR; own processing

It is clear from the following table that a full 79% of the costs are compensation paid for the animals killed, followed by compensation paid for unrealized production (7.2%) and costs related to safe carcass disposal (6.6%).

#### 4. Conclusion

The health of livestock farming is a priority for the agro-industrial complex and for the health of the population. Therefore, through state expenditures, the state also provides compensation to breeders whose farms have been affected by an infectious disease, on the basis of the announcement of extraordinary veterinary measures and compensation pursuant to Act No. 166/1999 Coll., On veterinary care.

Between 2010 and 2020, over CZK 601 million was paid to breeders, with at least 6 and at most 15 infectious diseases. Of this amount, over 79% was paid for compensation for animals killed. In the state budget for 2021, an amount of CZK 60 million is reserved for these purposes, which may be increased as needed depending on the development of the disease situation in our country. This situation thus reflects the possibility of the occurrence of new infectious diseases in farms, or the introduction of the disease into domestic farms from abroad.

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## Emotional Intelligence: the future key skill in management and leadership

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**Abstract:** This research paper is focused on emotional intelligence as a key skill in management and leadership. We analysed structure of emotional intelligence within four elements (selfawareness, self-regulation, empathy and social skills) on the sample of 106 respondents who work in companies in Slovakia on different positions. The research key identifications were age and gender. We tested the hypothesis to find a connection between selected variables and standard descriptive statistics was used to describe general structure of emotional intelligence. Our results confirm large gap between current level of emotional intelligence in general and the maximum possible level of EI (based on the applied test). The tested hypotheses in area of differences in EI structure based on gender were not confirmed, only in the case of self-regulation.

**Keywords:** emotional intelligence, leadership, future skill, selfawareness, self-regulation

**JEL classification:** M12, M5

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### 1. Introduction

Emotional intelligence is a term that is currently a major trend and the subject of many articles and studies. The components of emotional intelligence have become a basic prerequisite for the successful functioning of a person in work and personal life. Many training programs, study programs and internal training opportunities for employees attract the development and improvement of emotional intelligence and its specific parts. Based on statistics, emotional intelligence is proving to be a permanently mentioned and became a key skill for the 21st century (World Economic Forum: study, LinkedIn: survey, 2020). Several authors (Goleman, 1998; Schulze & Roberts, 2007; Porvazník, 2013) point out the importance of emotional intelligence not only in private but also in working life. Emotional intelligence leads to a harmonious distribution of competencies within a working group so that its performance exceeds that of a group that shares only cognitive skills. Harmonic groups are able to benefit from the creativity of each member of the group, unlike groups where the dominance of one member is a source of negative and hostile feelings. Top-performing groups include those who support the development of the empathy, cooperation and social skills of all members of the group. Emotionally intelligent members of a working group also have a greater desire for cooperation (Schulze & Roberts, 2007).

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## 2. Theoretical background of emotional intelligence

Emotional intelligence (EI) includes the ability to engage in the sophisticated processing of information about one's own emotions and the emotions of others, and the ability to use that information as a guide for thinking and behaving. This means that individuals with high emotional intelligence pay attention to their emotions, use them, understand them and manage them to such a level that not only they but also others can benefit from it. (Salovey & Mayer & Caruso, 2008). According to Ovens (2015), "from a scientific point of view, emotional intelligence is understood as the ability to perceive one's own emotions as well as the emotions of others, to understand the signals that emotions evoke and at the same time to manage these emotions."

Despite the fact that emotional intelligence has been discussed in recent years as one of the main trends in the development of the personality of managers and leaders, the fact is that the authors began to address the essence of emotional intelligence in the early 70's. The need and importance of emotional intelligence today is rather proof of a person's awareness that his personality is much more complex and it is not only IQ, logic and the ability of analytical thinking that will guarantee work and life success.

It is possible to understand emotional intelligence through the different views of authors who deal with this issue. In their original study, the authors Salovey and Mayer (1990) presented the idea of emotional intelligence through the following abilities, which they consider part of emotional intelligence: understanding, managing, perceiving, using emotions. In practice, this means the following activities:

- Knowledge and understanding of one's emotions.
- Managing one's own emotions.
- Knowing and understanding the emotions of others.
- Relationship management - managing the emotions of others.

Goleman (1998) defined emotional intelligence through a group of five skills through which a leader and his followers can maximize their performance. The emotional intelligence skills that Goleman identified are the following: self-awareness, self-regulation, motivation, empathy, social skills.

The following Table 1 provides an overview of the individual components of emotional intelligence according to Goleman, based on key definition and characteristics of individual components.

**Table 1: Structure of emotional intelligence developed by D. Goleman**

Component EI	Definition	Characteristics
<b>Self-awareness</b>	The ability to know own emotions, strengths and weaknesses, values and goals, as well as their impact on others.	<ul style="list-style-type: none"> <li>• Self-confidence</li> <li>• Ability to critically evaluate oneself</li> <li>• Searching for constructive criticism</li> </ul>
<b>Self-regulation</b>	The ability to control and control your own emotions and inner impulses (think first, and then act). The ability to regulate your mood.	<ul style="list-style-type: none"> <li>• Consideration</li> <li>• Integrity</li> <li>• Openness to change</li> <li>• Ambiguity is not a problem</li> </ul>
<b>Motivation</b>	Inner interest, passion and settings that help fulfill the goal. Tendency to meet goals with energy and consistency.	<ul style="list-style-type: none"> <li>• Passion for work The desire to push boundaries and improve</li> <li>• Optimism, despite obstacles and failures</li> </ul>



<b>Empathy</b>	Understanding and considering the emotions of others, especially in terms of decision-making. Ability to understand others.	<ul style="list-style-type: none"> <li>• Ability to develop others</li> <li>• Ability to build a team and manage group dynamics</li> <li>• Sensitivity to intercultural differences</li> </ul>
<b>Social skills</b>	Managing the emotions of others and the ability to get along with people.	<ul style="list-style-type: none"> <li>• Effective teamwork and collaboration</li> <li>• Effective change management</li> <li>• Intensive networking</li> </ul>

Source: Goleman, D. 2004: What makes a leader? In Harvard Business Review.

Emotional intelligence is the output of communication and connection between the rational and emotional center of the brain. If emotional intelligence abilities are applied, this unique connection is strengthened. The level of emotional intelligence affects the daily spectrum of all interpersonal relationships not only work commitment. A survey conducted among Slovak managers confirmed that more than 54% of respondents consider emotional intelligence in their work to be very important. They agree with the opinion that it should be constantly developed and learned. (Procházková & Remeňová, 2018). Therefore, this research was focused on analysis of level and structure of EI in Slovak business environment.

### 3. Research sample, methods and data analysis

Data collection took place in the period from November 2019 to April 2020 through an online questionnaire. The sample consisted of 106 respondents, whose answers were processed in the subsequent statistical analysis. The questionnaire was distributed through created e-mail lists (contacts from managerial and business practice) and social networks. The internal reliability of the questionnaire was measured by using Cronbach's alpha. Respondents from the age category of 26 to 40 years had the largest representation within the research sample, almost 50 %. The least respondents were in category 51 years or older (just 4,7 %). Women made up more than two thirds of the research sample (70,8 %), almost 30% were men.

To measure the level of emotional intelligence was used standardized questionnaire (the Quick Emotional intelligence self-assessment questionnaire). This questionnaire is structured into 4 areas per 10 statements (with standardized scale from 0 – never to 4 – always to confirm statements by individual respondents about themselves). Each area representing one of the key components of EI (self-awareness, self-regulation, empathy and social skills). Descriptive statistic was applied to determine the overall level of emotional intelligence. Within the used questionnaire, the maximum limit was set at 160 points (40 points maximum for each component of EI), in the results of the work will be commented on the overall level and internal structure of EI found in the sample. In addition to descriptive statistics and basic analysis and data synthesis, the following two hypotheses were tested:  
*H1: We assume that women show stronger scores in EI components oriented towards others (empathy and social skills).*

*H2: We assume that men show stronger scores in self-oriented EI components (self-awareness and self-regulation).*

In the case of emotional intelligence, several studies confirm the influence of gender and culture on the level and structure of emotional intelligence. In H1 and H2, we will verify the relationships and dependencies between the components of emotional intelligence and individual categories of men and women. The frequent judgments we encounter in practice are based on the idea that women are more empathetic and more skilled in social relations and men are stronger in self-awareness and self-

regulation. Some of the studies have confirmed gender differences in emotional intelligence based on (Singh - Kamur, 2013, Yuksekbilgili, 2016). Vimal et al (2016), on the other hand, do not confirm a significant difference in emotional intelligence between men and women (Vimal, 2016). Thus formulated H1 and H2 will indicate the current state and the extent to which the components of emotional intelligence are determined by gender.

#### 4. Research results

The structure of emotional intelligence was analyzed by using a questionnaire, which contained four parts presenting individual key elements of emotional intelligence. The maximum possible value for each examined area was at the level of 40 points. The following Table 2 presents the results of final level of EI and structure of EI components is presented.

**Table 2: Level of emotional intelligence per sample (N = 106)**

Structure of emotional intelligence	Average	Max.
Selfawareness	26,84	40
Self-regulation	24,94	40
Empathy	30,28	40
Social skills	29,39	40
Total score per sample	<b>111,45</b>	<b>160</b>

Source: own research

For the whole sample (N = 106) the results are presented in Table 2. The highest average score was achieved by the area of empathy, the lowest score was achieved by self-regulation (less than 25 points out of 40). This component of emotional intelligence is the only one in the lowest interval of 0-25 points (the method of evaluation according to the original questionnaire was used). We consider it a weakness that requires attention and needs to be developed strategically, the other components were placed in the middle interval of 25 - 34 points, which means that they still can not be considered strong elements in the emotional intelligence and need to be constantly improved and strengthened. The best score was achieved by empathy, which as the only component exceeded the limit of 30 points (from the maximum possible 40-point score).

Subsequently were tested hypotheses H1 and H2 (table 3). Based on the theory of emotional intelligence, the individual components of EI can be structured into two categories: intrapersonal intelligence (self-awareness, self-regulation) and interpersonal intelligence: empathy, which manifests itself through awareness of others and social skills. (Gardner, 1983; Goleman, 2017). Based on the theory and published research we designed following hypothesis:

H1: We assume that women show stronger scores in EI components oriented towards others (empathy and social skills).

H2: We assume that men show stronger scores in self-oriented EI components (self-awareness and self-regulation).

**Table 3: Testing hypothesis H1 and H2**

Component_ EI	Gender	Mean	Std. Deviation	t	df	p-value
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EI_selfawareness	man	2,68	,56	-,04	47,26	0,516
	woman	2,69	,46			
EI_sefl-regulation	man	2,64	,42	2,17	62,36	0,017
	woman	2,44	,47			
EI_empathy	man	2,92	,63	-1,23	43,50	0,112
	woman	3,07	,45			
EI_soc_skills	man	2,93	,56	-,12	50,99	0,454
	woman	2,94	,50			

Source: own research

An independent mean t-test was applied to test H1 and H2. The significance level is 5% unilaterally in the sense of the hypothesis. Hypothesis 1 was not confirmed ( $p > 0.05$ ). Hypothesis 2 was confirmed for self-regulation ( $t = 2.17$   $p = 0.017$ ), not confirmed for self-awareness ( $p > 0.05$ ), t. j. there was a significant difference in the expected direction only in self-regulation. Within the analyzed EI components, it was confirmed that men show stronger scores than women in the area of self-regulation, but not in the area of self-awareness. Women did not show stronger scores than men in terms of empathy and social skills.

## 5. Discussion and conclusion

As a future skill, emotional intelligence appears comprehensively or partially, through its individual components, in several studies. Whether it is the prediction of the World Economic Forum 2025 (WEF study: 10 jobs skills of tomorrow), study in collaboration with Pearson, Nesta and Oxford Martin School (The future of skill, Employment in 2030), which presents a relatively comprehensive view of the skills of the future. Forbes magazine in 2019 published a ranking of top ten future skills, where emotional intelligence took second place. The development and improvement of all areas of emotional intelligence could be a key to effective leadership and management in the future.

Based on the research none of the analyzed areas that creates structure of emotional intelligence did not exceed the 35-point score (Table 2), which corresponds to a high score and represents the strength of EI. Comparable results were shown within the partial research carried out within the banking sector (Procházková, 2019). Several scientific studies and researches in the field of emotional intelligence have concluded that a high intelligence quotient is not enough to live a happy, satisfied and successful life, even though cognitive intelligence is the basis of an individual's functioning. In fact, it contributes only partially to the success; the overall intelligence of a person is a mixture of intellect and emotions. We are all different personalities; we have different needs, attitudes, feelings, the ways we feel and the emotions we show. The ability to orient oneself in one's own emotions as well as in the emotions of others requires key skills that develop throughout life. One of the basic components of living a satisfied, happy, balanced and successful life is just emotional intelligence. At the same time, emotional intelligence is a demanded skill in the professional world. A higher level of emotional intelligence, in addition to contributing to a greater sense of happiness and satisfaction of employees, also contributes to better performance at work, higher productivity and creativity in the workplace (Achor, 2012). It creates the basis for personal as well as team success. Emotional intelligence is essential in shaping, developing, maintaining and strengthening effective relationships in the workplace. The average level for the whole sample was reached in 111.45 points out of the total score

of 160 points, so there is still a gap that creates space for the development and improvement of EI. Both individuals and businesses should focus on the strategic development of emotional intelligence, as it is a key skill not only for work but also for private life.

The research also did not largely confirm hypotheses regarding differences in the structure of EI by gender, with the exception of self-regulation. Research conducted in the past (Northouse, 2016) on the effectiveness of men's and women's leadership has also not confirmed fundamental differences in outcome, only in the tools used by men and women. It seems that every individual should finally embark on the path of getting rid of prejudices used in management and leadership due to gender, as research confirms that men and women can be equally mature in almost all areas of emotional intelligence.

The research also has its limits. The first of them is the size of the research sample; with a larger research sample, it would be possible to ensure a better distribution of the sample through the individual analyzed categories within the data analysis. Another limit is self-evaluation, which may mean reduced objectivity of the results. In this case, at least the anonymity of the questionnaire collection could help create the necessary space for critical self-reflection.

These results can help companies create training and education programs for employees focus on development of emotional intelligence. At the same time, this output can be a great starting point for individuals who decide to develop own soft skills and improve level of emotional intelligence.

Globalization and the current pandemic are the driving force of changes in the work performance, daily management and team leadership. The leadership in the case of leading virtual teams, online collaboration, as well as leading multicultural teams with high level of intercultural competence will definitely lead to high level of self-recognition, getting rid of prejudices and stereotypes, openness and understanding others. These personal claims go back to the roots of emotional intelligence, especially self-awareness and empathetic behavior. Based on current events in the world, emotional intelligence appears to be a skill of the future that will be more needed and demanded in management and leadership.

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## The fundamental of the financial literacy - Evidence from some of the EU States

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**Abstract:** Education, in its dual role, both social and economic, has a key role to play in ensuring that the students acquire the key competencies, at least in entrepreneurial skills and financial literacy. The goal of the research is to investigate if there is a relationship between student's characteristics from the different EU countries and perception of the importance of financial knowledge in their education, in their business and in private life. In order to investigate research goals, the empirical survey has been conducted on the sample of 524 non-financial studies students from Croatia, Portugal, Spain and Poland. The overall conclusion of this research is that higher education should review their education programs and align them with entrepreneurship needs. Students of non-financial studies need to acquire basic knowledge of accounting, tax and controlling that will increase their financial literacy and help them to achieve their goals in private and business lives.

**Keywords:** Accounting, Controlling, Financial literacy, Taxes

**JEL classification:** A2 Economic Education and Teaching of Economics

### 1. Introduction

Today's students need to acquire basic key competencies, no matter which jobs they will work tomorrow, if they will be doctors, engineers, economists or lawyers. European Commission (2006) defined the Key Competencies "as a combination of knowledge, skills and attitudes", i.e., "one which all individuals need for personal and professional fulfilment and development".

High unemployment, particularly the employment inability of young educated staff, is a major problem in many countries. Successful entrepreneurship also requires good financial literacy. By the Organisation for Economic Co-operation and Development [OECD], definition (2014): "Financial literacy is knowledge and understanding of financial concepts and risks, and the skills, motivation and confidence to apply such knowledge and understanding in order to make effective decisions across a range of financial contexts, to improve the financial well-being of individuals and society, and to enable participation in economic life". The result in the International Survey (OECD, 2020) in 26 countries and economies, including 12 OECD countries shows significant room for improvement in financial literacy. The average score across all participating countries (OECD, 2020, p.15) is just "12.7 out of possible 21 (a combination of a maximum of 7 in knowledge, 9 in behaviour and 5 in attitudes)". The highest score was 14.8 by Hong Kong, China. Portugal (13.1) and Poland (13.1) are above the average result and Croatia has under the average result 12.3.

Basic knowledge to achieve and develop the key competencies needed for each person for a lifetime is acquired throughout education. Authors in their papers (Hotcenski et al., 2018, p. 24) think that "higher education should be employing entrepreneurial teachers who can and will provide their students with necessary efficacy beliefs, intellectual tools and intrinsic values". The OECD's

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Programme (Huston, 2010, p. 306) stresses that “financial literacy should be conceptualized as having two dimensions—understanding (personal finance knowledge) and use (personal finance application)”. A similar understanding gives in Hung et al. (2009, p. 12), who consolidate the various definitions they review and propose an overarching conceptualization specifying financial literacy as the “knowledge of basic economic and financial concepts, as well as the ability to use that knowledge and other financial skills to manage financial resources effectively for a lifetime of financial wellbeing”. The majority of contributions to the literature document a positive correlation between formal education and financial literacy (Lusardi & Mitchell, 2014; Christelis et.al, 2010; Lusardi 2019). Disney et. al. (2015) investigates the effect of financial literacy on the decision to seek credit counselling and argue that financial literacy may develop endogenously with the receipt of credit counselling. Bucher-Koenen and Lusardi (2011) hypothesize that individuals with higher levels of financial literacy might better recognize the need and the financial benefits of saving for retirement. Carnas & Hedin (1999) see that accounting literacy is essential to those who will succeed in business (according to Elson et al., 2013). Trombertta (2016), in his study, investigated the level of financial literacy (financing and financial report) in a sample of self-employed entrepreneurs in Spain. Results showed that the level of basic financial literacy is quite low. Anđelinović et al. (2016) examine the level of financial literacy of students at the University of Zagreb. They stressed that formal financial education significantly improves the level of student financial literacy. Balen (2017), in his research, advocates financial literacy and promotes financial education. In Portugal, paper Mesquita et al. (2016) of financial literacy is research how important each one of the financial competencies such as digital literacy and access to financial information; basic math; budget; savings; indebtedness; credit and loans and consumer rights. Every investor (Graham, 2006; Buffet in Hagstrom 2006; Kiyosaki, 2017) pointed out the knowledge of financial statement, or in other words pointed out the knowledge of accounting, controlling and taxes, like the basic knowledge required for faster learning of financial literacy.

## **2. Research methodology**

This paper starts from the assumption that basic financial knowledge: accounting, controlling and taxes can improve the knowledge and score in a future survey in financial literacy. Because of that, the main aim of the paper is to investigate the students’ opinion of perception of knowledge of accounting, taxes and controlling in their education and private and business life. In the research are involved 524 students with non-financial degrees from Croatia, Portugal, Spain and Poland, 131 students from each of the research countries. The statistical hypothesis for confirming the set aim is:

H1: Higher education students from non-financial degrees are aware of the usefulness of active knowledge of accounting, taxes and controlling in business and private life

H2: There are statistically significant differences between student characteristics (gender, employment, working experience, status, study, year of study and department) and perception of the relevance of accounting, taxes and controlling in their education, in private and business life

H3: There are statistically significant differences between researched EU countries and the importance of basic subjects of financial knowledge in their education or their private and business life.

The research was conducted based on a questionnaire, which divided into two main parts. In the first part of the questionnaire defines the essential characteristics of students by gender, employment

status, years of work, the status of full-time or undergraduate studies, undergraduate or graduate studies, and year of study, as shown in Table 1.

Table 1. The basic characteristic of students

		Croatia %	Portugal %	Spain %	Poland %	Total %
Gender	Female	59.5	58.8	57.3	49.6	56.3
	Male	40.5	41.2	42.7	50.4	43.7
Employment	Employed	42.7	38.2	45.8	44.3	40.1
	Unemployed	57.3	61.8	54.2	55.8	59.5
Years of Employed	< 1 Year	64.1	75.6	32.8	69.5	64.5
	1-5 Years	18.3	16.0	35.9	21.4	21.0
	6-10 Years	3.1	3.1	15.6	6.9	5.9
	> 10 Years	14.5	5.3	15.6	2.3	8.5
Academic Status Studies	Full-time students	50.4	95.4	74.0	71.0	72.7
	Part-time students	38.2	4.6	26.0	29.0	27.3
	Undergraduate	65.6	64.9	67.2	71.0	65.3
	Graduate	34.4	35.1	32.8	29.0	34.7
Year of Study	1	33.6	72.5	26.7	24.5	39.3
	2	29.0	19.1	24.4	40.5	28.2
	3	37.4	8.4	48.9	35.2	32.5

The second part of the questionnaire referred to questions related to accounting, taxes and controlling, i.e., students' perceptions of the importance and usefulness of these subjects in general, which are not related to their basic profession that they are studying, as well as to their private and business life. Student respondents answered the questions in the questionnaire using the Likert scale grades from 1 to 5, where 1 has the meaning "do not needed at all" up to 5 with the meaning "life-needed".

All statistical processing did through the SPSS statistical program. For statistical analysis, this paper uses descriptive analysis, T-test and F-test analysis together with Post Hoc Tests, or Tukey HSD for Multiple Comparisons.

### 3. Research results

By processing the survey questionnaires of 524 students from Croatia, Portugal, Spain and Poland, in table 2 show the mean values of the answers about the students' awareness of accounting, taxes and controlling in education and in active private and business life, obtained by country. Student awareness of the need for basic knowledge in the education of non-financial studies, show that the mean grades for all areas above grade 3: in accounting (mean grade 3.49), tax (mean grade 3.23) and controlling (mean grade 3.27). Student awareness of the application of basic knowledge in their personal lives, shown grades above grade 3: in accounting (mean grade 3.35), tax (mean grade 3.38) and controlling (mean grade 3.09). Student awareness of the application of basic knowledge in their business life, shown grades for all areas per all questions above grade 3: in accounting (mean grade 3.80), tax (mean grade 3.61), and controlling (mean grade 3.60). The first hypothesis is confirmed.



Table 2. The relationship between countries and student perceptions of the importance of basic financial literacy skills

	Country	Mean	Std. Dev.	F-test
Education				
Accounting	Croatia	3.50	1.153	F=1.224, df=3, p=.300 Mean =3.49
	Portugal	3.64	.713	
	Spain	3.43	1.403	
	Poland	3.40	1.121	
Taxes	Croatia	3.21	1.100	F=1.331, df=3, p=.264 Mean = 3.23
	Portugal	3.22	.807	
	Spain	3.11	1.332	
	Poland	3.37	1.077	
Controlling	Croatia	3.50	1.084	F=10.390, df=3, p=.000 Mean 3.27
	Portugal	3.59	.773	
	Spain	2.95	1.320	
	Poland	3.02	1.373	
Active knowledge in private life				
Accounting	Croatia	3.23	1.078	F=3.421, df=3, p=.017 Mean = 3.35
	Portugal	3.60	.883	
	Spain	3.27	1.234	
	Poland	3.27	1.060	
Taxes	Croatia	3.40	1.087	F=12.355, df=3, p=.000 Mean = 3.38
	Portugal	3.08	.851	
	Spain	3.19	1.216	
	Poland	3.82	1.078	
Controlling	Croatia	3.23	1.027	F=6.867, df=3, p= .000 Mean = 3.09
	Portugal	3.37	.758	
	Spain	2.93	1.248	
	Poland	2.82	1.339	
Active knowledge in business life				
Accounting	Croatia	3.97	1.052	F=14.508, df=3, p=.000 Mean = 3-80
	Portugal	4.11	.709	
	Spain	3.32	1.242	
	Poland	3.79	1.074	
Taxes	Croatia	3.89	1.062	F=12.781, df=3, p=.000 Mean = 3.61
	Portugal	3.79	.820	
	Spain	3.17	1.171	
	Poland	3.60	1.028	
Controlling	Croatia	3.92	1.016	F=21.621, df=3, p=.000 Mean = 3.60
	Portugal	3.99	.707	
	Spain	3.10	1.156	
	Poland	3.37	1.273	

A statistically significant difference exists only in the opinions of female students (M=3.71) and male students (M=3.91) as to whether they thought that accounting knowledge could help their business

life ( $t=-2.114$ ,  $df=514.980$ ,  $p=.035$ ). In all other areas of the female or male students' perception there is no statistically significant difference in the importance of these subjects for their business life. A statistically significant difference was found between full-time ( $M=3.41$ ) and part-time (undergraduate) students ( $M=3.71$ ) for the accounting area ( $t=-2.792$ ,  $df=520$ ,  $p=.005$ ). There is statistically significant difference between full-time students ( $M=3.20$ ) and part-time students ( $M=3.45$ ) for the controlling area ( $t=-2.139$ ,  $df=520$ ,  $p=.033$ ). There is no a statistically significant difference in other areas and for that reason the second hypothesis is partially confirmed.

The relationship between countries and student perceptions about the importance of introducing basic financial literacy skills and their usefulness for accounting, taxes, and controlling presented in Table 2. A statistically significant difference between the countries found in the area of controlling ( $F=10.390$ ,  $df=3$ ,  $p=.000$ ) where it determined the highest mean grade 3.59 in Portugal and the lowest in Spain 2.95. No statistically significant difference found in the area of accounting and taxes. A statistically significant difference determined between the countries surveyed in all areas regarding the possibility of applying basic financial knowledge to private life in all three areas: accounting ( $F=3.421$ ,  $df=3$ ,  $p=.017$ ); taxes ( $F=12.355$ ,  $df=3$ ,  $p=.000$ ) and controlling ( $F=6.867$ ,  $df=3$ ,  $p=.000$ ). Statistically significant difference was determined between the countries surveyed in all areas regarding the possibility of applying basic financial literacy skills in business life: accounting ( $F=14.508$ ,  $df=3$ ,  $p=.000$ ); taxes ( $F=12.781$ ,  $df=3$ ,  $p=.000$ ); controlling ( $F=21.621$ ,  $df=3$ ,  $p=.000$ ). The third hypothesis is confirmed.

The Post Hoc Test (Tukey HSD) made for multiple comparisons between Croatia, Portugal, Spain and Poland in all areas where determined a statistically significant difference between countries and it found a statistically significant difference determined at the level  $p < .01$  and  $p < .05$ . A statistically significant difference determined at the level  $p < .05$ : regarding active accounting knowledge in private life in the area accounting between Croatia and Portugal, Portugal and Poland, Spain and Poland; in the area of controlling between Portugal and Spain, Poland, and Poland and Croatia.

#### **4. Conclusion**

In all researched countries, students show their perceptions of the importance of accounting, tax and controlling on a 5-point Likert scale, with grad of 3.33 for introducing into the education, grade of 3.27 for active knowledge in private life and grade of 3.67 for active knowledge in business life. There is still a visible gap between education and the needs of entrepreneurship, as identified in the research of Ribeiro et al. (2018).

In the Rakow paper (2019), is describe how financial literacy education was successfully incorporated into the accounting classroom to provide tomorrow's professionals with a strong foundation in financial literacy. The importance of accounting, taxes and controlling like strong foundation in financial literacy proved in this research. In the research Škreblić Kirbiš et al. (2017) in Croatia shows that women have a lower level of financial literacy than men, but on the other hand, they have better competencies in personal financial planning and monitoring of the same. Ribeiro et al. (2018), in their research, concluded that higher education in Portugal and Croatia share many characteristics and challenges, which we can also extend to Spain and Poland in this research. This research confirms a statistically significant difference between countries and has proved that students start to become aware of the importance of accounting, taxation and controlling as the essential knowledge in their business and private life in all researched countries.

A limiting factor in drawing general conclusions from this research is that students are mostly from economics studies and that the research covers only 4 EU countries out of the current 27 EU countries. Further research should include students of STEM studies and examine how much they are aware of the need for basic financial knowledge that will enable them to have better entrepreneurial competences, as well as expand the research to more EU countries.

The fact is that higher financial literacy of citizens brings to system stability and social habits are created based on it and may influence many variables in the economy. The entrepreneurial skills and financial literacy need to be a priority in all higher education, because of their impact on the students' economic, personal and social life, regardless of whether the student can envision its future.

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## Czech Accounting Terminology in the Past: General Ledger (Case Study)

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**Abstract:** Proper understanding of accounting terms used in the past is crucial for current interpretation of historical facts and phenomena, that create a background for building our future. Using the example of term "general ledger" within the Czech historical accounting, the aim of this contribution is to describe structure and to explain role of general ledger in leading accounting systems used in parallel in the territory of the present Czech Republic before the second half of the 20th century. Moreover, the paper shows barriers that make orientation in historical accounting sources so complicated. While in cameral accounting the task of the general ledger was to monitor the implementation of the budget, in single-entry accounting it recorded debts and receivables and in double-entry accounting it worked as a basis for compiling a profit and loss statement at the end of the accounting period. Thanks to the significant features of the general ledger in particular accounting system, its structure can be a guide for identifying which accounting system it was.

**Keywords:** accounting, history, terminology, general ledger

**JEL classification:** M41, N90, K19

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### 1. Introduction

The origins of unification of accounting terminology date back to the 19<sup>th</sup> century, but even then the terms were not used uniformly in all sectors of the economy. Before the second half of the 20<sup>th</sup> century, the content of accounting terms depended among others on specific accounting techniques, and on the current represented by some of the leading figures of the then accounting theory, such as Antonín Skřivan, Josef Pazourek, Hugo Raulich etc. (Puchinger & Slavičková, 2014) Proper understanding of accounting terms used in that time is crucial for current interpretation of historical facts and phenomena, that create a background for building our future. Between others, sustainable accounting is recommended as a tool for enforcement of sustainable development. Nevertheless, before we change a future, we have to understand our past first. Using the example of term "general ledger" in the Czech historical accounting, the aim of this paper is to show barriers that make orientation in historical accounting sources so complicated, and to support efforts to compile an overview of the meaning of accounting terms in the past.

### 2. Current state of knowledge

Although several vocabularies of current accounting terms are available, among others Slovník základních pojmů z účetnictví by Vladimír Munzar and Jarmila Čuhlová (2006) or Slovník pojmů IFRS by Jiří Strouhal (2019), a study explaining the Czech historical accounting terms in detail and describing the development of accounting terminology in our territory before 1938 has not yet been created. Only few accounting terms were included in both versions of Slovníček archivní terminologie (Roubík

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at all., 1954; Černý, 1955), furthermore the description of these terms is limited and does not provide support with regards to their changes over time. The existing glossaries and databases of historical words such as Vokabulář webový or Lexikální databáze humanistické a barokní češtiny are not sufficient either due to their focus on very old (Middle Ages and Early Modern) periods or for unsatisfactory form of the interpretation of accounting terms.

At the same time, all the most important authors who published studies in the field of history of accounting within last few decades, such as Josef Blecha (e. g. 1956), Eduard Mikušek (1986) or Petr Cais (e.g. 2006) faced problems of unclear meaning of accounting terms. Most recently, Petr Cais pointed out this problem as a part of methodology for archivists how to process accounting records (Metodický pokyn č. 4/2019). Due to the absence of any research on the Czech historical accounting terminology, the author selected around 60 basic accounting words and phrases and described them on bases on their current meaning. (Metodický pokyn č. 4/2019, pp. 5-19) Only in few examples, where it was possible with regards to partial research of his own and authors mention above, he added a comparison with usually no more than one of the historical versions. It is a very good tool for understanding the meaning of accounting terms used in sources from the period after 1993, less reliable for materials after 1945, but rather unsuitable for materials from older periods.

### 3. General ledger in different accounting systems

As has been shown before (Slavičková, 2017), accounting in the past in our territory was inconsistent before the second half of the 20<sup>th</sup> century. In this period, accounting approach of the state to individual economic entities was liberal. In a system of dominantly market economy, it was at the discretion of the economic entities (buyers, entrepreneurs, companies) to choose the accounting system, decide on the methods and choose a data structure that would provide them with relevant information for the evaluation of activities and decision-making. (Slavičková, 2016, p. 968) This arrangement caused that different economic units used different accounting techniques in practice, a general ledger (in the original “hlavní kniha” in Czech or “Hauptbuch” in German) was part of all these accounting techniques. In addition, this general ledger book has usually played a crucial role in the system, which can be used, among other things, to distinguish the type of accounting techniques at present.

#### 3.1. Double-entry accounting

The structure and purpose of the general ledger in double-entry accounting is obvious and has not changed in the past. It was divided into accounts that had two sides (“debit” or “má dáti” in the original on the left and “credit” or “dal” in the original on the right) and on which the state of all assets and changes in assets and liabilities were recorded (Table 1).

**Table 1: General ledger by Josef Pazourek (1922)**

<i>Debit</i>		Cash account						<i>Credit</i>	
1903				K					
March	5.	to	goods	300					
		account							

Debit		Goods account						Credit	
						1903		K	
						March	5.	to cash	300
								account	

Source: Pazourek, J. (1922). Učebnice účetnictví podvojného pro obchodní akademie. Praha: Česká grafická unie, p. 18.

However, in comparison with e.g. western European countries (Yamey, 1978), double-entry accounting was not so common in the Czech territory before 1946. No even the leading figures in accounting at that time could agree on reasons. Pazourek (1920, p. 9) claimed that it is an accounting technique intended mainly for buyers, traders and large industrial enterprises, which corresponded to the Czech term "mercantile style" (in the original "merkantilní sloh") or "merchants' bookkeeping" (in the original "kupecké účetnictví"). Others pointed to many difficulties in the use of this accounting technique, also reflected in another term "complicated accounting" (in the original "složitě účetnictví"). (Skřivan, 1891; Panzner, 1910) Karel Petr Kheil tried to solve this problem and proposed a simplified version of double-entry bookkeeping, the so-called "Kheil's bookkeeping system". In his version, already journal served for double-entry records, whether it concerned a cash transaction or any other type of entry. (Raulich, 1932, p. 691) The general ledger in this Kheil's system contained all ledgers necessary for bookkeeping: from customer ledgers, to containers, diverse order-books and all financial accounts (capital, costs, interest etc.) (Table 2) (Slavičková, 2017a, p. 459)

**Table 2: Kheil's journal**

Date	Folio of balance sheet	January 1931	Cash		Debt	
			Debit	Credit	Debit	Credit

Source: Raulich, H. (1932). Kheilův účetní systém. In: Slovník obchodně-technický, účetní a daňový, Vol. 4. Praha: Tiskové podniky Ústředního svazu československých průmyslníků v Praze, p. 691.

According to Raulich (1932, p. 712) this system was used mainly by sugar mills, distilleries, breweries, and other food processing facilities, but it also found his place on estates and on agricultural companies. In practice, this means that while double-entry bookkeeping and the structure and purpose of its general ledger seems to be clear, this may not always be the case of historical sources.

### 3.2. Single-entry accounting

Instead of double-entry accounting, single-entry accounting was popular in practice during the 19<sup>th</sup> and the first half of the 20<sup>th</sup> century. (Janhuba, 2010, p. 18) It was also called also "simple bookkeeping" (in the original "účetnictví prosté") and dominated in the curriculum at all types of economic schools of then period. (Puchinger & Slavičková, 2014) The general ledger in the single-entry accounting belonged to the group of basic books called also as "ordinary" (in the original "řádne"), which existed beside the group of "extraordinary" books (in origin "mimořádne") and included mainly auxiliary accounting books. According to Janhuba (2010, p. 18), the general ledger in single-entry accounting supplemented the original journal within the process of development of this accounting techniques. The main goal of

the general ledger in single-entry accounting was to record debts and receivables of the economic units. (Table 3)

**Table 3: The general ledger in single-entry accounting by Antonín Skřivan (1890)**

<i>Debit</i>			<i>Name of the person and his address</i>								<i>Credit</i>		
189*		p. jour.		term		amount		189*		p. jour.		amount	
						zl.	kr.					zl.	kr.
Septem.	20	174	for one bag of coffee	20	Decem.	63	60						

Source: Skřivan, A. (1890). *Nauka o kupeckém účetnictví. Svazek první. Účetnictví jednoduché a knihy řádné a mimořádné*. Praha: E. Grégr, p. 184.

For this purposes the general ledger was divided into many personal accounts that had also two sides: “debit” (in the original “má dáti”) on the left and “credit” (in the original “dal”) on the right. For small, so-called random debtors or creditors, one united account was usually set up, sometimes also referred to as a "non-permanent account" (in the original "Conto pro Diverse"). An index for simple orientation could be added to the general ledger at the beginning of the book. Especially with a larger number of such operations, the general ledger could be modified in various ways, but the described principle remained the same. (Skřivan, 1890, p. 185)

### 3.3. Cameral accounting

Cameral accounting belongs to the most common accounting techniques in the Czech lands in past, besides single and double-entry accounting. Most likely it was created at the court of Maximilian I in Burgundy, nevertheless the crucial moment for its adoption in the Czech lands was the period of Maria Theresa rule. (Janout, 1995) As a part of reorganization of the state finance of Danube Monarchy, the president of the Court Accounting House Johann Mathias Puechberg designed a new cameral accounting system. (Dickson, 2007) It was intended for income and expenditure management of the state or for other budgetary organizations. (Slavíčková, 2022) However especially in the Czech lands during the second half of the 18<sup>th</sup> century it evolved in some modifications suitable also for other type of economic subjects including management of noble estates. (Mikušek, 1986). Thanks to that cameral accounting was preferred to single-entry and double-entry accounting especially by state administration and also in some specific areas of economy such as farms, distilleries, sugar factories during the 19<sup>th</sup> and the first half of the 20<sup>th</sup> century.

The general ledger and its function in cameral accounting were closely linked to the budget. Its task was to monitor the implementation of the budget. For this reason, the general ledger had two pages, one with information on what is expected (according to the budget) and the other to record the financial operation (payment). (Slavíčková, 2022) Also in cameral accounting, similar designations of



both parties of accounts could appear, as in single and double-entry accounting, i.e. on the left side what is to be given (received or paid) and on the right what has been given. The result of the general ledger was a rest, i.e. the difference between expected income or expenditure and reality. (see Table 4 and 5)

**Table 4: The general ledger in cameral accounting: left side by František Popelka (1886)**

Attachment number	Serial number	Subject of income or expenditure	Obligation					
			Rest from the previous year		For this year		In sum	
			zl.	kr.	zl.	kr.	zl.	kr.

Source: Popelka, F. (1886). Účetnictví samosprávy obecní. Praha: Fr. L. Popelka, p. 38.

**Table 5: The general ledger in cameral accounting: right side by František Popelka (1886)**

Attachment	Serial number	Payment					Rest later this year		Note
		Article	Date						
			Day	Month	zl.	kr.	zl.	kr.	

Source: Popelka, F. (1886). Účetnictví samosprávy obecní. Praha: Fr. L. Popelka, p. 39.

To find out the overall state of implementation of the budget, the rest from the previous accounting year was recorded on the left side, while the amount from the right side of the account was transferred to the left side of the general ledger for the following accounting year. (Březnovský, 1865, p. 19)

#### 4. Conclusion

Not only economic history, but also many other scientific disciplines build their knowledge on information from historical accounting records. However, accounting sources were very multifarious in the past on the territory of the current Czech Republic, and so were the accounting terms used by them and their meanings. On the example of one of the most important part of accounting, the general ledger, I have shown a fundamental difference in function that this ledger has had in different accounting systems in the past; although its structure may have been similar at first glance. While in cameral accounting the task of the general ledger was to monitor the implementation of the budget, in single-entry accounting it was used to record debts and receivables and in double-entry accounting it recorded the balance and movement of all assets in its accounts and acted as a basis for compiling a profit and loss statement at the end of the accounting period. All these accounting systems were used in the territory of the current Czech Republic before the second half of the 20th century in parallel. Thanks to the significant features of the general ledger in a particular accounting system, its structure can be a guide for identifying which accounting system it was.

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## Capital Structure and Indebtedness of Family Businesses in Slovak Republic

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**Abstract:** Family businesses are being recognized by their significant economic presence throughout history. Behaviour of family businesses is to some extent different than other types of business. One of the behaviours is their choice of financing and the structure of their capital. The reason is that family firms are strongly dependent on self-financing. Important issues in financing can be assessed from three viewpoints: control, liquidity, and capital needs. Personal preferences concerning growth, risk, and ownership-control may be the driving forces of financing decisions of family businesses. The purpose of this paper is to investigate the capital structure of family businesses. Family firms' choice of financing can be influenced by many factors. We focused on two of them - the size of the firm and age of firm. Using the regression models and correlation analysis these two variables were investigated.

**Keywords:** family firms, capital structure, firm size, firm age.

**JEL classification:** G 32, M 10, M 19.

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### 1. Introduction

Family businesses are a traditional way of conducting business. They are backbone of the economy. The importance of family businesses can be attributed not only to job creation but also to economic production. Despite a long tradition abroad, family businesses in Slovak Republic represent a new developing form of business and they began to emerge after the change of social establishment in 1989. According to the Slovak Association of small and medium - sized enterprises and sole proprietors, the nature of the family business is about 65% to 70% of small and medium-sized enterprises, while in the Czech Republic it is 75-80%. Meaning family businesses is also confirmed by KPMG's research, which states that the average Slovak family company has been operating on the market for more than 20 years, has more than 50 employees and sales of less than € 10 million per year (KPMG, 2019).

### 2. Family businesses

The problems that family business faces relate to the very definition of family business company and its anchoring in the valid legislation of the Slovak Republic, the issue of succession, personal data protection, capital structure or transfer pricing. Despite several initiatives of political movements, the legal definition of family businesses is still not part of the Slovak legislation. In scientific studies, authors use the definition of the European Commission to identify family businesses (Strážovská et al., 2019; Andersson et al., 2018):

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- The majority of decision-making rights are in the possession of the natural person(s) who established the firm, or in the possession of the natural person(s) who has/have acquired the share capital of the firm, or in the possession of their spouses, parents, child, or children's direct heirs.
- The majority of decision-making rights are indirect or direct.
- At least one representative of the family or kin is formally involved in the governance of the firm.
- Listed companies meet the definition of family enterprise if the person who established or acquired the firm (share capital) or their families or descendants possess 25 percent of the decision-making rights mandated by their share capital.

Family businesses face the same problems of financing and financial choice funds (own resources, debt, or reinvestment of profits) like any other type of business. On the other hand, the characteristics of family-owned companies could be a possible reason for family business risk aversion and the choice of capital structure. The topic that often discussed in the literature is whether a family business has a better performance than a non-family business, so that they do not experience financial distress. Several studies addressing the issues of the determinants of a firm's financial distress, or family firms' performance refer to Agency Theory, which asserts that the separation of ownership and control results in conflicts of interest and asymmetric information between owners and managers (Gottardo & Moisello, 2017). The other problem is that family businesses intend to keep the control of the firm within their family. Some studies on family firms' capital structure point out that family firms are risk averse, pursue stability, and avoid risky investment strategies. As a matter of fact, families are "risk willing", in terms of performance hazard, to maintain a firm's control and preserve the nonfinancial returns they derive from the business, but, at the same time, they are averse to entrepreneurial risk (Gómez-Mejía et al., 2007; Gottardo & Moisello, 2017). As regards capital structure, numerous studies indicate that family businesses adopt highly conservative strategies, characterized by a stronger preference for using internal resources for financing, less investment in intangible assets, a lower level of debt, a high concentration of capital in the hands of one sole family, and a static ownership structure that leads them to reject the possibility of sharing control of the business with external partners (Gallo & Vilaseca, 1996; Ntounis et al., 2020). As financial resources are fundamental to firms' activity, age and size may be one of the most crucial factors (Serrasqueiro et al., 2016) in explaining firms' financing decisions; we can expect the financing decisions of young, small firms to be quite different from those of older, larger ones. According to some researchers the dependence on internal financing diminishes with increased firm size, since greater size generally implies less likelihood of bankruptcy, greater transparency of information provided about firm size, and greater capacity to provide collaterals (Berger & Udell, 1998; Diamond, 1991). Many studies reported positive correlation between the firm size and the debt (Biger et al., 2008; Gill & Mathur, 2011; Romano et al., 2001, Gallo & Vilaseca, 1996).

Different financing problems have also been linked with business life-cycle issues (Berger & Udell 1998; Gersick et al., 1997). It is based on principle that the higher the age of firms, the lower their debt ratio, given the higher capacity of older firms to generate internal financing funds. Dollinger (1995) indicated that sources of capital depend, to some extent, on whether a business is developing or maturing. As firms grow and mature, different types of debt arrangements (first short-term, then long-term) become important until a firm is ready to enter the public issue market and obtain outside equity. According to some authors there is a positive relationship between firms' age and debt (Vieira, 2014). The lower age and lower size of firms involves greater dependence on internal financing, due to the

firms' lesser capacity to access external funding, compared to the case of older, high sized firms. Firm size is included in all specifications to account for the fact that larger firms have a higher creditworthiness, easier access to debt markets and might be able to borrow at lower costs. Moreover, larger firms might use their financing-mix to maximize tax benefits. Overall, we anticipate a positive relation between firm size and debt ratio.

### **3. Object of research**

The subject of analysis of this paper is the Slovak family businesses. The data was obtained from Finstat database for the period 2018-2019. This database contains financial data about all subjects with a registered ID in the Slovak Republic. Family firms' choice of financing can be influenced by many factors. We focused on two of them - the size of the firm and age of firm and whether the age and size of family-owned firms influence a capital structure and indebtedness. There are a variety of measures of organizational size, we used a number of employees as a variable. Firm age was gauged by the number of years a firm has been in business and indebtedness was gauged by the debt ratio. We analysed a sample of 142 family businesses in Slovak Republic acting in Industrial Production. The data was analysed in PSPP statistics. For the measuring the statistical relationship, or association, between two continuous variables was used Pearson's Correlation Coefficient. Coefficient values can range from +1 to -1, where +1 indicates a perfect positive relationship, -1 indicates a perfect negative relationship, and a 0 indicates no relationship exists. To examine the influence of size and age on debt ratio, we employed linear regression. Linear regression is a technique used to investigate if and how a variable is linearly related to others. If a variable is found to be linearly related, then this can be used to predict future values of that variable.

Regarding the above-mentioned facts and assumptions, we formulate the following hypotheses:

H<sub>1,1</sub>: There is interdependence measured by correlation coefficient between the size of family business and debt ratio.

H<sub>1,0</sub>: There isn't interdependence measured by correlation coefficient between the size of family business and debt ratio.

H<sub>2,1</sub>: There is interdependence measured by correlation coefficient between the age of family business and debt ratio.

H<sub>2,0</sub>: There isn't interdependence measured by correlation coefficient between the age of family business and debt ratio.

H<sub>3,1</sub>: The age of family business has a statistically significant measured effect by linear regression to the debt ratio.

H<sub>3,0</sub>: The age of family business does not have a statistically significant measured effect by linear regression to the debt ratio.

H<sub>4,1</sub>: The size of family business has a statistically significant measured effect by linear regression to the debt ratio.

H<sub>4,0</sub>: The size of family business does not have a statistically significant measured effect by linear regression to the debt ratio.

#### 4. Results

Table 1 presents some descriptive statistics for each variable (mean, standard deviation, minimum, and quartiles) for the sample family companies. In our contribution, 142 family businesses with mean age 17.26 were analysed. The debt ratio is relatively higher (an average of 59.37 %). Average size (number of employees) stands at around 42.94.

**Table 1: Descriptive statistics**

Valid cases = 142; cases with missing value(s) = 0.

Variable	N	Mean	S.E. Mean	Std Dev	Range	Minimum	Maximum
Age	142	17,26	,64	7,65	28,00	2,00	30,00
Size	142	42,94	5,39	64,26	381,00	,00	381,00
Debt_ratio	142	,59	,02	,25	539	,00	,39

Source: own processing

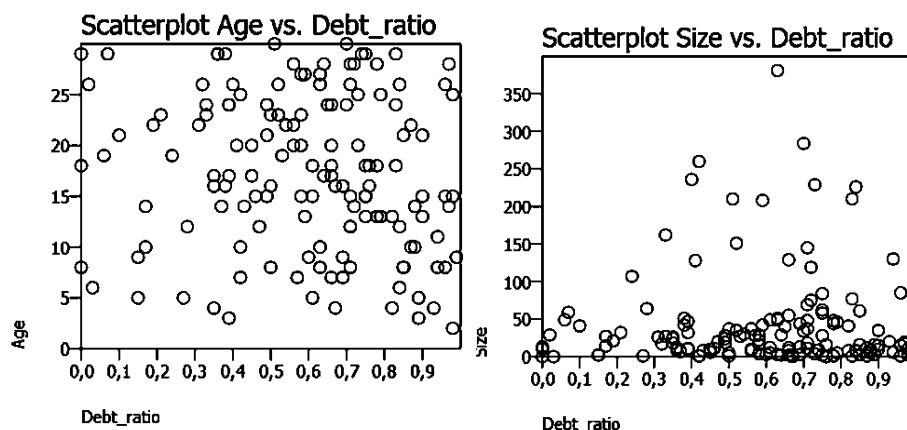
As we stated earlier, measures of selected variables showed only weak correlations among themselves (age correlating with a debt ratio,  $r=-0.13$ ,  $p=0.127$  and size,  $r=0.43$ ,  $p=0.001$ ; and debt ratio correlating with size,  $r=0.02$ ,  $p=0.842$ ). The results are displayed in Table 2.

**Table 2: Pearson correlation**

		Age	Size	Debt_ratio
Age	Pearson Correlation	1,00	,43	-,13
	Sig. (2-tailed)		,000	,127
	N	142	142	142
Size	Pearson Correlation	,43	1,00	,02
	Sig. (2-tailed)	,000		,842
	N	142	142	142
Debt_ratio	Pearson Correlation	-,13	,02	1,00
	Sig. (2-tailed)	,127	,842	
	N	142	142	142

Source: own processing

The results of Pearson correlation show that debt ratio is not positively and significantly with firm size and firm age. These relationships provide support for hypothesis  $H_{1,0}$  and  $H_{2,0}$ :



**Figure 1: Scatterplot Age vs. Debt ratio and Size vs. Debt ratio**

The output's table 5 shows the model summary and overall fit statistics. We find that the adjusted  $R^2$  of our model is  $R^2 = ,01$ . The next table is the F-test, the linear regression's F-test has the null hypothesis that there is no linear relationship between the two variables. With  $F = 0,04$  and 141 degrees of freedom the test is not highly significant, thus we can assume that there isn't a linear relationship between the variables in our model. The next table shows the regression coefficients, the intercept and the significance of all coefficients and the intercept in the model. We find that our linear regression analysis estimates the linear regression function to be  $y = 0.59 + 0.00$ . The confidence intervals for B (95% Confidence Interval for B) are CI [0.00, 0.00] tell us where the value of the searched parameter is likely to be located. There is 0 within our interval, which means that the searched parameter can be zero. Based on the above results, we accept null hypothesis.

**Table 5: Regression analysis Debt ratio-Size**

Model Summary (Debt_ratio)			
<i>R</i>	<i>R Square</i>	<i>Adjusted R Square</i>	<i>Std. Error of the Estimate</i>
,02	,00	-,01	,25

ANOVA (Debt_ratio)					
	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
<i>Regression</i>	,00	1	,00	,04	,842
<i>Residual</i>	8,83	140	,06		
<i>Total</i>	8,83	141			

Coefficients (Debt_ratio)							
	<i>Unstandardized Coefficients</i>		<i>Standardized Coefficients</i>	<i>t</i>	<i>Sig.</i>	<i>95% Confidence Interval for B</i>	
	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>			<i>Lower Bound</i>	<i>Upper Bound</i>
<i>(Constant)</i>	,59	,03	,00	23,30	,000	,54	,64
<i>Size</i>	,00	,00	,02	,20	,842	,00	,00

Source: own processing

Table 6 presents the results of regression analysis for debt ratio and age. The  $R^2$  of our model is  $R^2 = ,01$ . If the adjusted  $R^2$  is substantially lower, this could indicate that we have used too many independent variables. Next, consider the significance of the F-test. The result in Table 6 indicates that the regression model is not significant ( $\text{Sig.} > 0.5$ ). After assessing the overall model fit, it is time to look at the individual coefficients. First, we should look at the individual parameters' t-values, which test if the regression coefficients are individually equal to zero. If this is the case, the parameter is insignificant. The regression coefficients, the intercept and the significance of all coefficients and the intercept in the model. We find that our linear regression analysis estimates the linear regression function to be  $y = 0.67 + 0.00$ . The confidence intervals for B (95% Confidence Interval for B) are CI [0.00, 0.00] tell us where the value of the searched parameter is likely to be located. There is 0 within our interval, which means that the searched parameter can be zero. Based on the above results, we accept null hypothesis. Size of the family firm and age of the firm were not significant predictors of debt ratio. With  $F = 2,36$  and 141 degrees of freedom the test is not highly significant, thus we can assume that there isn't a linear relationship between the variables in our model.



**Table 6: Regression analysis: Debt ratio-Age**  
Model Summary (Debt\_ratio)

<i>R</i>	<i>R Square</i>	<i>Adjusted R Square</i>	<i>Std. Error of the Estimate</i>
,13	,02	,01	,25

ANOVA (Debt\_ratio)

	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
<i>Regression</i>	,15	1	,15	2,36	,127
<i>Residual</i>	8,69	140	,06		
<i>Total</i>	8,83	141			

Coefficients (Debt\_ratio)

	<i>Unstandardized Coefficients</i>		<i>Standardized Coefficients</i>	<i>t</i>	<i>Sig.</i>
	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>		
<i>(Constant)</i>	,67	,05	,00	12,89	,000
<i>Age</i>	,00	,00	-,13	-1,54	,127

Source: own processing

## 5. Conclusion

The paper focuses on deciding on the capital structure and the impact of two variables - the age of the family business and the size of the family business for the total indebtedness of the business. Based on four samples of Slovak 142 family-owned firms using panel data models, we determine whether age and size are relevant determinant factors of the financing decisions of family-owned firms and debt ratio. The conclusion of the investigation is that that the determinants of the family business chosen by us do not affect its indebtedness, while the starting point for the investigation was the assumption that a larger company or a company operating in the market can long afford to be more indebted and have better access to external resources than businesses, which are young or small and rely on internal resources or family savings.

The age and size of family business does not have a significant positive effect on debt ratio. These results indicate that size of the family firm and age of the family firm were not significant predictors of debt ratio. To sum up, we may confirm that our regressions support the null hypotheses.

Unless these are the limitations of research, so the first limitation is that it is not in the Slovak Republic legislatively definition of family business. Another limitation is the fact that the database of family businesses does not exist and the data for processing were obtained only on based on a single source.

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## Money priming and Self-assessment

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**Abstract:** There is a growing amount of research suggesting that the mere presence of money can change how we think and act (Vohs, 2015);(Walczak et al., 2021);(Wang et al., 2020);(Zhang, 2009). The current paper presents some theoretical considerations on the consequences of this effect, known in the literature as money priming. It is discussed why virtual money has a lesser effect than paper money (Lodder et al., 2019) on the change of people's behaviour. A small sample (n=87) of experimental research results are presented to highlight the pitfalls of online money priming studies. The route for further research is discussed, along with shopping and currency form' consequences.

**Keywords:** Money priming; self-assessment

**JEL classification:** D910; B460; Y80

### 1. Introduction

Money is crucial in modern capitalist societies. It is not only a measure of value, which we use to judge almost all transactions but also an indicator of wealth and – indirectly of social position. Already William James (James, 1890) suggested that everything a person has - including the bank account - is a part of his or her extended self. This proposition indicates that people tend to internalize money, which in turn becomes something more than just an indicator of value. Money can be thus understood as an important part of who the person is. This concept was picked up by Vohs et al. (2006) and Gąsiorowska (Gąsiorowska, 2014), who showed that the mere activation of the idea of money (money priming) increases thinking about oneself. Their research participants – adults in the studies of Vohs et al. (2006), and kindergarten kids in the studies of (Gąsiorowska, 2014) – were less helpful, more inclined to do everything themselves and creating greater distance between them and other people, just due to the contact with money or money reminders. Vohs et al. (2006) suggest that such behaviour is a consequence of the triggering of a self-sufficient orientation in people.

A different approach was postulated by (Zhang, 2009), who claims that money is similarly valued as people's self-esteem. Both concepts are related to a person's competence. Money is the reward for, or social confirmation of, personal competence. It is shown in the example the person's wage, which is usually higher for highly competent people. Self-esteem is the positive evaluation of a person, which also can be a result of high competence and/or high wage. This has brought (Zhang, 2009) to the idea that money is interchangeable with self-esteem, supporting it (augmenting), replacing it or competing with it in various contexts. Specifically, the additional money obtained by a person helps to rebuild the persons' self-esteem, being simultaneously proof of the resourcefulness of the person who obtained it. The exchangeability of money and self-esteem comes down to a situation in which people give up financial remuneration to punish a dishonest person, thus improving their own well-being. Such a phenomenon is often observed in economical games such as the dictator or the ultimatum games. In

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both games, one person decides on the split of a given amount (for example 1\$) between the decider and the recipient. Then the two games differ. In the ultimatum game, the recipient either accepts the split (and both get the money) or rejects it and then neither person receives any enumeration. In the dictator game, the recipient has no decision on the split and thus no influence on the game. The classical theory would predict that the Nash equilibrium would be 0,01\$ for the ultimatum game and 0\$ for the dictator game. Yet the laboratory studies in this paradigm show different results. (Forsythe et al., 1994) report that most players in both game types give a nontrivial portion of their money away, contrary to the economically optimal offers. This discrepancy finds a resolution in Zhang's concept (Zhang, 2009), as the money "lost" to a non-optimal offer is offset by the self-esteem gained from such a fair deal.

Besides the abovementioned strains of literature, there are different conceptualizations, which are nicely summarised by Wang et al. (Wang et al., 2020). They develop a unifying theory that recognizes money as an embodiment of social distinction. According to their concept, money serves as a means of distinguishing people from others, proving the resourcefulness, efficiency or general social strength of its owner. As a consequence, the activation of the idea of money, according to Wang et al. (2020), should increase e.g. positive thoughts about oneself and a perceived sense of own competence. This approach is in line with the original postulate of James (1890), where the money would be part of the self, co-determining positive self-perception. An additional concept supporting such thinking about money will be the theory of Socjomonitor (Leary et al., 1995), which treats self-esteem as a monitor of peoples' position among others. In the same way, money can prove a position among people, thereby increasing self-esteem, which is also indirectly indicated by Wang (2020) and Zhang (2009).

## **2. Method**

### **2.1. Study assumptions**

Based on the abovementioned considerations, the following hypothesis has been assumed:

H1. Money priming will increase the self-esteem of research participants, compared with people not primed with money.

### **2.2. Sample**

To test the hypothesis, a small sample of University students (n=87) was recruited to take part in an online study "on various attitudes and skills". All the participants were psychology students (74 females and 13 males, aged 20-22), unaware of the real research purpose at the start of the study.

### **2.3. Study design**

The study was conducted on the google docs platform. After providing general sociodemographic data and answers to some unrelated questions (like weight, height, etc.), the research participants were randomly divided into two groups. The experimental group saw a page with the photo of 10 banknotes of 100 PLN, with the task to count them. The control group got the task to count banknotes with the same nominal, but they saw banknotes derived from the Monopoly game. Both groups were also asked to imagine, how they would feel if they would receive such banknotes by post, from a trusted friend or relative. Such a task was used to strengthen the power of experimental manipulation (Lodder et al., 2019). After the task, both groups filled the Rosenberg's self-esteem scale (Rosenberg, 1965), in the Polish version by Łaguna et al., 2007). Finally, all the participants answered a question

on the strength of their feelings about money. In the last step, all research participants were informed about the true purpose of the study and thanked for their participation.

### 3. Results

As a first step, the distribution of the dependent variable was assessed by the means of the K-S test. The results indicated that the distribution was not different from normal, for both the experimental and control groups (K-S  $d=0.13639$  for the experimental and K-S  $d=0.1539$  for the control group, both  $p>.05$ ). In consequence, the mean results were compared with the Student's T-test. The results are presented in Table 1, below.

**Table 1: T-Test of the mean differences in Rosenbergs Self-Esteem (SES), between the experimental and control groups**

	Mean control	Mean experimental	t-value	df	p	Valid N control	Valid N experimental	Std.Dev. control	Std.Dev. experimental
SES	28.26087	28.78049	-0.396797	85	0.692511	46	41	6.212657	5.964529

Those results do not confirm the assumed hypothesis.

To verify if the result is related to the manipulation strength, the manipulation check variable was assessed. As the variable was qualitative, it was coded into 3 levels (no effect, some effect, full effect, depending on the open answer provided by the research participants). As a consequence, the non-parametric U test was used to analyse the results of the received variable. The results are presented in Table 2, below.

**Table 2: Mann-Whitney's U Test of the manipulation effectiveness**

variable	Mann-Whitney U Test (w/ continuity correction)						
	Rank Sum control	Rank Sum experimental	U	Z	p-value	Z adjusted	p-value
manipulation_check	1843.000	1985.000	762.0000	-1.53481	0.124831	-1.79298	0.072977

The results show a slightly stronger effect in the experimental group, but the differences are not statistically significant at the  $p<0.05$  level, which indicates that the manipulation may have been not strong enough.

### 4. Discussion

The results received in the study did not confirm the hypothesis. The first reason behind this may lay in the study form. (Lodder et al., 2019) suggests, that online studies have weaker effects than laboratory studies. Therefore, the sample used in the study ( $<100$ ) may have been just too small to capture the effect. In a similar study by (Walczak et al., 2021), but held in the laboratory with paper money, the effect was present. This line of thinking is also supported in the analysis of the "manipulation check" variable. Some research participants in the experimental group claimed to have felt as if they really would have received the money, but their number was relatively small (7 out of 41). On the other hand, none of the control group participants claimed that they had felt as if they had received real money. In the end, this effect was insignificant as well. Those results would need to be interpreted as a further confirmation of the strength of real, physical money. The virtual currency, not

held in the hands, has a significantly lower value in the eyes of the respondents. It is also easier to spend money, not in paper form, which is suggested by (Vohs, 2015). This brings up an important practical lesson – when we want to spend less money, it would be better to get them in cash form. All the steps away from banknotes, be it in virtual form or as magnetic impulses on our credit cards may encourage, or simply make it easier, to get rid of them.

It is important to state that the results in the study were not significant. This means that no real conclusions can be drawn from it. There may have been many reasons for the failure to prove the results. Therefore, it would be required to conduct further studies, with modified methodology (for example laboratory experiments in place of an online study), or simply studies with bigger numbers of participants. Alternatively, the results could be used in the Bayes methodology to augment our knowledge on the effect (or rather lack of the effect) of money priming. The last point may be treated as the strongest argument for the publication of the results.

## 5. Conclusion

The study failed to verify the hypothesis on the direct effect of priming money on self-esteem. The results can be used as an argument for the use of experimental, laboratory experiments on the effects of money.

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# Changes in management practices and management style caused by the Covid-19 pandemic

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**Abstract:** The article examines the management styles and practices that have shifted and changed due to the ongoing Covid-19 pandemic. The first part describes the different management styles in general and points out their pros and cons in connection with the fact that some of the company processes have moved online and the management of many companies became dependent on the online platforms. The second part of the paper provides insights into the changes in management processes in specific firms. It provides a description of the individual management practices and procedures, a comparison of different management methods, and attempts to look at the pros and cons of these new ways of working. Marginally, the article deals with changes in control activities and control mechanisms that had to adapt to the new style of work. The article also tries to answer the question of whether the improvement of the pandemic situation will lead to a complete return of the original control and management practices or whether some of the new processes will remain in the operations of individual firms.

**Keywords:** Management Style, Management Practices, Covid-19 Pandemic, Online Platforms, Control Mechanism

**JEL classification:** M14

## 1. Introduction

Management style is a way in which managers work to fulfil their goals. The style includes plans, decision-making, delegating, and management of employees. It is clear that during the Covid-19 pandemic most of these practices have changed, sometimes even drastically. In theory, Valamis (2021) defines three distinguishable management-style groups – autocratic, democratic, and laissez-faire. Logically, home office work is only possible in companies where employees can and are able to work from home, using platforms such as MS Teams, Facebook, Zoom, Cisco Webex, and others. Control mechanisms need to be adapted to this online environment. Home office work will be one of the main topics of this article.

The article shows many examples of online company management successfully using democratic or laissez-faire management styles. Simultaneously, online management proved to be difficult or practically impossible in autocratic companies. Moreover, the article describes some of the autocratic management styles and shows the reasons why they are unfit for the online environment.

## 2. Management styles

### 2.1. Autocratic management styles

This type of management follows a top-down approach, with one-way communication from bosses to employees. The autocratic style is the most controlling of the different management styles. Autocratic styles can be problematic, especially in a remote and high-pressure situation (e.g., the Covid-19



pandemic). In this case, work teams were hastily forced to work online, which complicated the control processes.

There are several types of the autocratic management style, authoritative, persuasive, and paternalistic style. The article will elaborate on the first two.

### **2.1.1. Authoritative management style**

Authoritative managers dictate what they require their subordinates to do and punish employees who do not comply. Employees are expected to follow orders, not question the authority of managers, and perform their tasks the same way each time. This management style allows quick decision making and creates clearly defined roles and expectations. The negatives of an authoritative management style include the dissatisfaction of employees, higher turnover, resentment, and a lack of professional development and employee engagement. If decisions need to be made and executed quickly, for example, in a time of organizational crisis, this management style can be used successfully. But only if the managers are in close contact with their employees. If the manager is not present, this style is problematic. Control mechanisms are ineffective as well as online platforms.

### **2.1.2. Persuasive management style**

Managers use their persuasive skills to convince employees that the unilateral decisions that the manager implements are for the good of the team, department, or organization. The negative of this style is that employees can feel annoyed by the management's restrictions and become frustrated that they cannot give feedback. This style can only be used when the manager has more experience and knowledge on the subject than the team. From this point of view, the management style could be used quite successfully on online platforms.

## **2.2. Democratic management styles**

In these styles, managers encourage employees to give input during the decision-making process but are ultimately responsible for the final decision. Communication goes both ways, top-down and bottom-up. This process allows for diverse opinions, skills, and ideas to inform decisions. The subtypes of democratic management style are consultative, participative, collaborative, transformational and coaching. The main complication is the online cooperation of teams, especially when the teams are big and need to consult things frequently. Technical problems, as well as problems with the control processes, can be expected.

### **2.2.1. Participative management style**

In participative management style, managers and staff are all active members of the decision process. Staff are given access to more information about the company, its goals and are encouraged to be innovative. The negative is, that this process can be slow, and there is a risk of staff with bigger personalities steamrolling less assertive staff members, leading to conflicts and resentment. The participative management style can be quite slow, which does not fit with a global crisis (e.g., a pandemic). Decisions need to be made quickly; therefore, this management style is not the best choice.

### **2.2.2. Coaching management style**

Managers see themselves as the coach and their employees as the valued members of their team. The manager's job is to develop and guide their team, putting their team's professional development at the forefront of their priorities. This style is useful when organizations want to promote and develop talent from within. This management style can be used in a crisis rather successfully using online platforms. Control mechanisms need to be adapted to this online environment; however, it all depends on the personality of the leader.

### **2.3. Laissez-faire management styles**

The Laissez-faire style is a hands-off approach to leadership. Staff is trusted to do their work without supervision, and they are left to control their decision making and problem-solving. This may have been less helpful during the lockdown, especially if an organisation's client base and/or market segment suffered. Nevertheless, if clarity of purpose is returning, the laissez-faire leader's team will be rested and ready to work once more.

#### **2.3.1. Delegative management style**

The manager is only present to assign tasks, although they still are responsible for tasks being completed successfully. Innovation and creativity are fostered by this system, especially in organizations with highly skilled workers. This style is best used in organizations with more decentralized leadership and where the team is much more skilled than the manager of the task. A decentralized leadership is tricky to maintain during a crisis. Similar to the coaching management style, it all depends on the personality of the leader.

#### **2.3.2. Visionary management style**

Visionary managers inspire their staff, explain their goals and the reasons behind them, and convince their team to work towards executing their vision. Team members are allowed the freedom to achieve their tasks with minimal interference. This is not a style that can be faked, employees must actually be inspired, or they will not perform as well. This can be a great style in technology companies, non-profits trying to innovate creative solutions or companies who have a very strong sense of purpose. Although it is a laissez-faire management style, it can be used in a crisis.

### **3. Changes in management processes in specific firms**

In the next part, the article presents companies using democratic or laissez-fair management style or a mix of both styles. The chosen companies are Microsoft, Amazon, Google, Samsung and Facebook. None of these organizations uses an autocratic management style. The Covid-19 crisis and subsequent move to hybrid working models accelerated the need for new workforce skills, particularly social, emotional, and advanced cognitive abilities.

The spread of Covid-19 triggered interventions by organizations aimed to contain its impact on the performance of their employees. However, the direction of this impact is unclear, as arguments exist for both negative and positive directions. Supporting the negative impact is a recent Deloitte survey in Chinese firms indicating that 46% of them expect a reduction in performance due to Covid-19 (Boichenko & Tymchenko, 2021). Increased stress, inadequate infrastructure, missing work environment/colleagues, unrealistic performance expectations, impaired manager-employee relationships, and difficulty establishing trust with colleagues are the downside of a virtual work environment (Graves & Karabayeva, 2020), which can negatively impact the employees' performance.

Supporting the positive impact, Eltringham (2017) revealed that virtual work is more likely to increase worker productivity than financial incentives. Research also showed that firms providing a better work-life balance through virtual work options pave way for a more productive workforce as employees feel more motivated (Stevens, 2019). Graves and Karabayeva (2020) stated that virtual work provides employees with flexibility in work, increased availability of time due to the absence of commuting, and (more importantly) access to better talent around the globe that can increase the average individual performance.

### 3.1. Pandemic experience and future decision in Microsoft

As stated in March of 2021 by Kurt DelBene – the Executive Vice President of Microsoft, in the midst of numerous and difficult circumstances brought on by the Covid-19 pandemic, they have made important observations about the future of work and how and where their employees know they work best.

Flashing back one year, they were quickly learning that the virus and its impact were too complex to predict. They soon discovered that they needed to develop a return-to-work site strategy that could account for constantly changing public health conditions and government guidance in order to keep their employees and communities safe. They also needed to drive a consistent approach across geographies, creating a unified Covid-19 response effort within the company.

With this in mind, they developed a Hybrid Workplace Dial that defines six different stages – rather than specific timelines – and allows them to quickly adjust their worksites depending on health conditions while also staying data-driven in their decision-making.

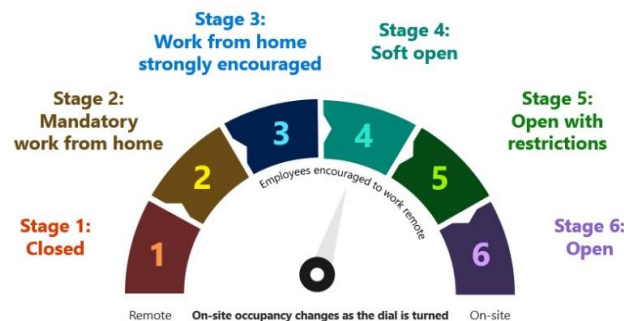


Figure 1: Six stages of the COVID-19 hybrid workplace

### 3.2. Pandemic experience and future decision in Amazon

Amazon website (2021) have adjusted their plans for returning to the office and clarified their next steps. Going forward, they have decided to offer Amazonians a mix of working at the office and working at home.

As they continue to closely watch local conditions related to Covid-19, they are adjusting their guidance for corporate employees in the U.S. and other countries where they had previously anticipated that employees would begin coming in regularly the week of September 7th. They are now extending this date to the first week of January 2022. Their return-to-office timeline will vary globally in accordance with local conditions. Amazon's new baseline includes three days a week in the office (with the specific days being determined by the team leaders), leaving them the flexibility to work remotely up to two days a week.

### 3.3. Pandemic experience and future decision in Google

As Sundar Pichai, CEO of Google and Alphabet, said in May 2021, Google will move to a hybrid work week where most Googlers spend approximately three days in the office and two days wherever they work best. Since in-office time will be focused on collaboration, the product areas and functions will help decide which days should be spent in the office. There will also be roles that may need to be on-site more than three days a week due to the nature of their work.

### **3.4. Pandemic experience and future decision in Samsung**

As stated in November of 2020 by Taher Behbehani, GM and SVP of Samsung B2B, since the Covid-19 crisis began, the majority of U.S. employees have worked remotely, with estimates indicating 62% worked from home this year compared to about 25% in previous years. Despite an initial adjustment period, many employees have found value in the flexibility of remote work and are eager for it to continue, even when Covid-19 subsides. In fact, 83% of respondents in a recent study expressed a desire to maintain the flexibility of remote work permanently. Businesses are also seeing the value of remote work through outcomes like increased employee productivity and reduced spending on resources for the office. As Taher Behbehani (2020) said, “it is clear that remote work in some capacity will be a permanent fixture in Corporate America, even after Covid-19 is no longer a concern”.

### **3.5. Pandemic experience and future decision in Facebook**

Facebook recommitted to letting staff work from home after the coronavirus pandemic.

As Brynn Harrington, vice president of Facebook's HR team, told the BBC, some employees have been "really thriving" at home during the pandemic and want to continue working remotely. She said that, for example, parents who are closer to their children and are happy to cut their commute time and optimize their workday; therefore, are thrilled to work from home. Harrington added that staff can apply to their managers for permanent remote working. Over the next 5-10 years, they think that 50% of their people will be working remotely. They think Facebook will be the most forward-leaning company on remote work at their scale, and they have been working on a thoughtful and responsible plan to do this. Mark Zuckerberg (2020) said, “there are still a lot of open questions about how this will work, so we'll need to keep learning and improving as we go”.

## **4. Return or not**

### **4.1. International experience**

Looking at the thousands of employees who have returned to Microsoft worksites in some capacity, managers are observing that employees are embracing the flexibility to split their time between a Microsoft office and home. Based on the data collected by Microsoft, 54% of respondents who have chosen to return to Stage 4 (Figure 1) are spending less than 25% of their time at one of the worksites. Furthermore, 69% are spending 50% or less time on-site. They understand that these responses are based on the current landscape where many employees are not yet vaccinated.

Kurt DelBene, Executive Vice President of Microsoft, believes in the value of bringing people together in the workplace. Their goal is to give employees additional flexibility to support individual work styles, balance business needs and ensure they live the company's culture. They also understand that some jobs require employees to be on-site, such as roles that support critical infrastructure, while other jobs are performed just as well remotely. As Brynn Harrington from Google said, taken together these changes will result in a workforce where around 60% of Googlers are coming together in the office a few days a week, another 20% are working in new office locations, and 20% are working from home.

### **4.2. Experience from Czech companies**

In the experience I have with my auditing practice, there are several different approaches to the return of employees back to offices.

Needless to say, it depends on how the company approached the first phase of the pandemic and their field of business. Some positions were fairly easy to move online (e.g., top management, accounting department), while others needed to stay offline. All these companies use a democratic management

style, specifically the coaching management style, and partly the delegative (laissez-faire) management style. None of the companies in question is using an autocratic management style.

The variants were as follows:

- a) The company introduced online operations for all employees. Their activities were strongly affected by the pandemic, some operations (mainly retail establishments) had to be closed. Management and the accounting department worked remotely, and their communication went smoothly. The auditor's visit to the company was possible only after an agreement with one of the online employees. Now, in the autumn of 2021, most of the company's operations are back to normal; however, some of the online staff remained working remotely. A 3:2 or 4:1 rule has been introduced (i.e., three days onsite, two days online). The company and its employees are satisfied with this regime.
- b) The company introduced a remote regime at the beginning of the pandemic (i.e., in the spring of 2020). The transition of the employees to online working was not difficult. They were able to connect to the company system remotely. Company meetings took place via MS Teams or a similar platform. The auditor's visits to the company were very limited or even carried out online. Now, in the autumn of 2021, the employees are mostly back to the offices. However, employees are allowed to work from home if they work out an individual agreement with the company.
- c) In the spring of 2020, the company did not introduce a plan of online operations. It solved the situation by limiting the number of employees at the workplace, shortening shifts, and stretching their deadlines. The company did not allow outsiders on their premises. The auditor's visit was allowed only after an agreement with the company's top management, and exceptionally. At present, the company is almost back to the state before the Covid-19 pandemic, of course in compliance with the measures in force in the Czech Republic.

## **5. Conclusion**

All companies and organizations around the world are experiencing every stage of this pandemic for the first time, learning, and evolving as they go. They are thinking about how to balance their desire to provide flexibility to work from home with their belief that they invent the best for customers when they are together in the office.

The future of work is flexibility. The changes above are a starting point to help people to do their very best work and have fun doing it.

Technology has been critical in making this shift to mass remote work effective, and platforms like Zoom and Microsoft Teams had dominated corporate life in 2020. However, it's becoming clear that even the most technically advanced companies will have to make sweeping technological changes to ensure the anticipated future of hybrid onsite/remote work remains effective. The method and style of managers work, the transmission of information, delegation and control mechanisms need to be adapted accordingly.

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