

Impact of the Covid-19 pandemic on the operation of small and medium-sized enterprises

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Abstract

The onset of the pandemic and the subsequent introduction of restrictive measures created many risks for the functioning of SMEs. But at the same time, it also brought a lot of opportunities. Although many economists long expected the arrival of the crisis and in 2019 the first signs of recession appeared in advanced economies, no one expected that it would be accelerated and deepened by the global pandemic. SMEs had to adapt to the new situation as quickly as possible to survive. Moving those activities, the nature of which allowed them, to the online environment became key. The aim of the article is to theoretically define what changes SMEs had to deal with after the spread of the Covid-19 pandemic. As part of the fulfilment of this goal, on the one hand, we decided to monitor several indicators capturing the economic situation in SMEs and, on the other hand, their approach to the modernization of the process. Within this research, we identified how the share of employees working via home office changed during the pandemic period, how SMEs prepared for the possibility of introducing a home office, how added value and employment in SMEs developed during this period, as well as whether the share of innovative SMEs in the Slovak economy changed.

Keywords: added value, Covid-19, home-office, innovations, Slovakia, SMEs

Introduction

The Covid-19 pandemic, which broke out at the end of 2019 in China and spread to the whole world in a short time, represented an unprecedented shock to the operation of all economies, Slovakia including. At a time when a vaccine had not yet been developed, the only successful means of combating the highly contagious Covid-19 disease was social isolation. Although some developed countries initially pursued the path of building

collective immunity in order to have as little impact on the economy as possible, the evolution of the situation eventually forced them to adopt restrictive measures. Enterprises in economies around the world, including small and medium-sized enterprises (SMEs), have thus felt the impact of this pandemic. Some of them have been temporarily closed, and others have had to adapt their operations to meet the demands of social isolation. Governments have, of course, put in place a range of measures to help businesses mitigate and overcome the impact of the crisis related to the Covid-19 pandemic. However, the assistance provided was often criticized as insufficient or slow, which not only led to some employees being made redundant but could also have led to the complete liquidation of many SMEs. Although there is a tendency in society to view this crisis as only a negative, after partial adaptation to the situation, it has turned out to have some positive effects as well. The possibility of working at least partly from home has been made available to more employees than ever before, which has increased interest in the introduction of ICT and at the same time confirmed the need to support all other innovative activities.

Methods and Data

The aim of the article is to theoretically define what changes SMEs had to deal with after the spread of the Covid-19 pandemic. As part of the fulfilment of this goal, on the one hand, we decided to monitor several indicators capturing the economic situation in SMEs and, on the other hand, their approach to the modernization of the process. Within this research, we identified how the share of employees working via home office changed during the pandemic period, how SMEs prepared for the possibility of introducing a home office, how added value and employment in SMEs developed during this period, as well as whether the share of innovative SMEs in the Slovak economy changed.

We used several scientific methods when processing the contribution. In the theoretical part of the contribution, we described the development of the situation in the monitored area through the descriptive method. After the theoretical analysis of the issue under study, we focused on quantitative research in the empirical part of the paper. When working with statistical data, we used time series analysis and comparison. The processed indicators were monitored until 2021 or 2020 when the availability of data did not allow to include the year 2021. We drew part of the statistical indicators from Eurostat and the database of the European Commission (European innovation scoreboard), the other part from the website <http://monitoringmsp.sk/> operated by the Slovak Business Agency. Where the availability of data allowed us to do so, we used the above-mentioned method of comparison and compared the situation in the Slovak Republic with the situation in other countries, or with the average value of the indicator for the EU. When identifying the rate of home office use, we compared the pre-pandemic year 2019 with the years 2020 and 2021, which were already affected by the pandemic. Following this, we analysed the share of SMEs that in 2020 increased the % of employed persons who have remote access to their e-mail system, as this was one of the prerequisites for the introduction of a home

office. This indicator was created precisely as a response to the pandemic and was not available in other years. For the data taken from <http://monitoringmsp.sk/> it was not possible to make international comparisons, therefore for greater objectivity we applied time series analysis and followed the development of selected indicators in the Slovak Republic in 2012-2021. By deduction we tried to apply general scientific conclusions to the individual facts, by induction we in turn tried to draw general conclusions, based on the evaluation of the development of sub-indicators. Finally, we applied the synthesis method when formulating the conclusions.

Theoretical background

The outbreak of the pandemic brought many challenges for all enterprises, which they had to deal with in a short time if they wanted to overcome this unexpected situation. Although from time to time an epidemic has occurred, especially on the Asian or African continent, a pandemic of the current nature has had no parallel in the world since the time of the Spanish flu, which began to spread in 1918. Before the outbreak of the pandemic, studies dealing with the impact of infectious diseases on economic indicators were mostly based on the fact that countries can be divided into 3 groups: countries with almost no incidence of infectious diseases (OECD countries), countries with a relatively low incidence of infectious diseases (developing countries) and poor countries with a frequent incidence of infectious diseases (countries of sub-Saharan Africa) (Goenka, Liu, 2020). However, Covid-19 meant a radical intervention in the economies of all countries, and it was a bigger shock precisely for developed countries that were not used to a similar situation.

Small and medium-sized enterprises are mostly considered to be the main drivers of the economies of individual countries. However, at the time of the Covid-19 pandemic, it was SMEs that were more vulnerable compared to large enterprises, as this type of business is highly dependent on the speed of money turnover, while reduced demand during the corona crisis disrupted the company's cash flows (Winarsih, Indriastuti & Fuad, 2021). In addition, many SMEs operate precisely in those areas that were most affected by the pandemic. Although crises come at regular intervals and businesses anticipate that economic difficulties may arise, the corona crisis was significantly different. In the beginning, the only successful means of combating the highly contagious disease Covid-19 was social isolation. The measures taken by the governments of individual countries led to the fact that many businesses had to be temporarily closed, especially in the field of services such as catering, culture, and tourism. However, restrictive measures are always necessarily accompanied by economic losses, and it was no different, even in this case. Covid-19 had a negative impact on businesses, especially in financial and operational performance, profitability, and access to finance, but e.g., also in customer satisfaction (Xiao, Su, 2022). Lockdowns introduced to prevent the spread of the disease caused logistical problems that affected not only the timeliness of deliveries but also the transfer of labour and marked a significant drop in customer demand (Kharlanov et al., 2022).

Although SMEs were more vulnerable than large companies during the corona crisis, everyone perceived the effects of Covid-19 differently, therefore there were also opinions that financial assistance from governments should consider the individual characteristics of specific companies rather than their size (Wieczorek-Kosmala, Blach & Doś, 2021).

The problem was also the disease itself and its course, which led to numerous outages of the workforce at a certain moment, or the consequences that the disease left in a certain part of the population, which had an impact on their re-entry into the work process. Developments in the past have already shown that the effects of a pandemic on health cannot be separated from its effects on the economy, as the consequences of a pandemic are often a function of economic conditions (Arthi, Parman, 2021). In countries with better access to health care, individuals are more likely to receive timely and adequate treatment, which will speed up their return to work or overall ability to manage the disease.

It is known from the past that every crisis moves humanity forward. For example, even wars, on the one hand, meant huge losses of human life and extensive economic damage, but on the other hand, they were an accelerator of scientific and technical progress. Currently, it is an opportunity primarily to advance in the development of information technology and digitization. Even for SMEs, the pandemic was a challenge to accelerate the process of digital transformation, which was already underway in most advanced economies. Some studies report that, especially in the 21st century, the adoption of digital technologies plays an important role in crisis responses, as digital technologies improve the available resources of firms in terms of both scale and flexibility (Guo et al., 2020). They can e.g., reduce the costs related to the transfer of resources, shorten the time of their transfer, and make it possible to coordinate individual activities more flexibly. Covid-19 has therefore prepared human resources, but also entire labour markets, to be able to adapt quickly and, if necessary, react flexibly to any situation (Dvořák et al., 2020).

To create a safe and reliable situation in enterprises in the uncertain conditions caused by the pandemic, it is necessary to pay attention to the three pillars of reliability, which include human resources, information and communication technologies, and management (Azizi et al., 2021). The structure and interaction of these pillars in the enterprise necessarily changed during the pandemic. The importance of ICT increased rapidly, human resources were forced to overcome resistance to rapid changes. In such a turbulent environment, the role of human resource managers has also increased as an essential pillar in the adaptation of businesses to this pandemic situation (Gonçalves et al., 2021). The pandemic has therefore created many challenges for businesses not only in human resource management. The introduction of the home office, the increased risk of layoffs, the prevention of increased turnover, and the decrease in employee motivation or productivity were all facts that required an adequate opinion. As a result of the isolation, psychological problems began to appear in many employees, and the level of anxiety and stress increased, which affected their performance and quality of work, therefore strategies to improve the physical and mental health of employees, as well as mechanisms of communication with employees, began to be developed (Azizi et al., 2021).

The results in Portuguese companies showed that the main changes occurred in the processes of work organization: an increase in the use of remote work was recorded, and the processes of corporate education, recruitment and selection of employees, and communication processes also underwent changes (Gonçalves et al., 2021). Some areas were directly affected by health risks related to the spread of infectious diseases. Other areas such as communication processes were affected indirectly, by the fact that the introduced changes had to be consistently explained, thus requiring more intensive communication with subordinates from the management. All the above facts related to the pandemic should lead the top management of SMEs to transform their formal and informal structures and increasingly use digital resources, as consumer habits have also changed (Rodrigues et al., 2021).

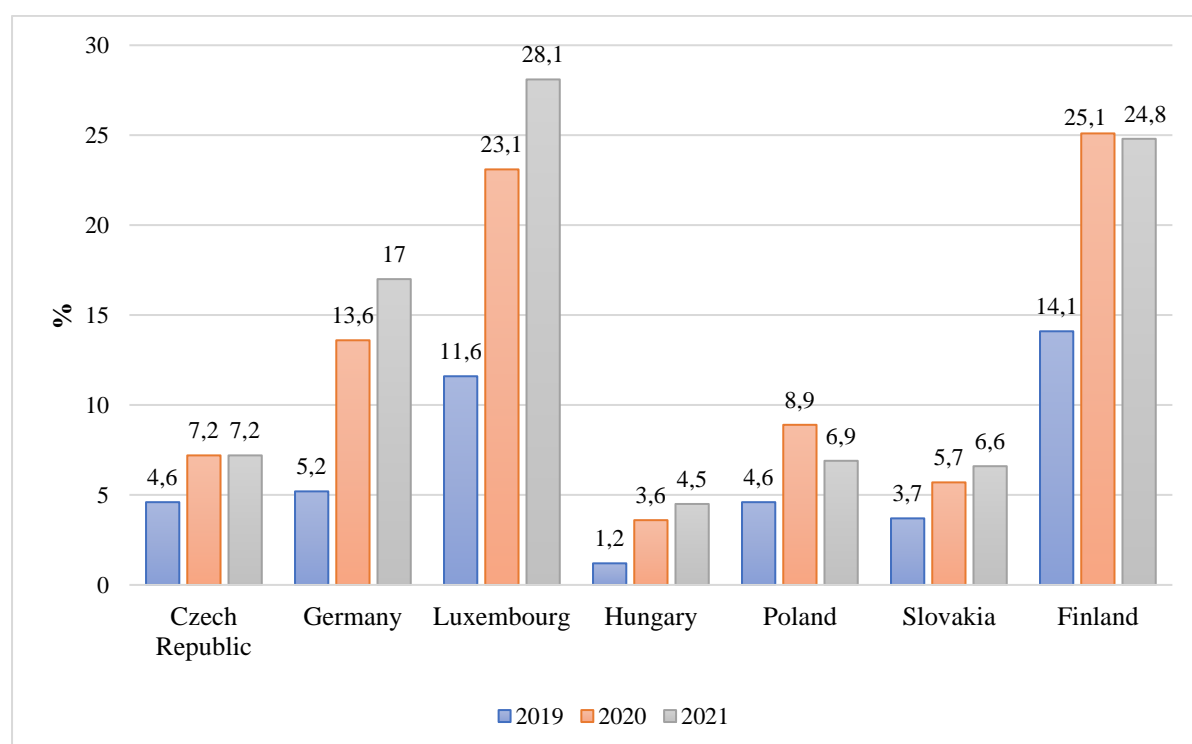
In developing and newly industrialized countries, SMEs employ the majority of the workforce and are responsible for income generation opportunities in the economy (Singh, Garg & Deshmukh, 2008). Even in the Slovak Republic, the share of SMEs in employment is high - in 2021 it was 74.3%, while this significant share was not seriously disturbed even by the pandemic. Since SMEs play an essential role in the economies of many countries, in today's constantly changing environment, it is necessary to pay attention to their innovative performance, which becomes a prerequisite for ensuring their prosperity in the future. In the area of innovation, SMEs apply an operational rather than a strategic approach, they approach their management and planning mostly unsystematically - according to current market needs and especially considering the availability of quick resources (Brecková, 2017). Although SMEs play the most important role in developing and newly industrialized countries, their innovation performance is also a subject of interest among developed countries, in whose economies they also have an irreplaceable place. The European Commission (2021) monitors the share of SMEs that introduces at least one product innovation per year, as well as the share of SMEs that introduce business process innovations. Product innovation leads to an increase in the competitiveness of SMEs. However, many SMEs do not innovate by introducing new products or improving existing ones, but by improving their business processes. Innovations in this sense then relate to ongoing processes, marketing, or the organization itself. The introduction of process innovations leads to an increase in the productivity of SMEs compared to SMEs that do not introduce any innovations, and the lifetime of this productivity increase lasts for one innovation period (Mañez et al., 2013). Productivity growth can be one of the elements through which SMEs increase their competitiveness, which is very important for them because the competition between companies is still intensifying in the current globalized environment. SMEs are aware of the importance of innovation for overall progress and have been expanding their innovation activities in recent years. When there is a drop in GDP, investments aimed at supporting various activities also drop very often (Sun, Cai & Shen, 2022). Therefore, the Covid-19 pandemic may have been the aspect for SMEs in some countries that disrupted their developing innovation activities, either due to a decrease in SMEs' resources caused by lockdowns or insufficient compensatory measures by governments. However, increasing investment is not the only way to support innovative activity. In addition, an increase in the stock of

various types of human capital leads to an increase in innovative activity (Teslenko, Melnikov & Bazin, 2021). This could be one of the strategies for businesses during the pandemic to maintain the current level of innovation.

Results

On the one hand, the pandemic caused economic problems for SMEs and affected their economic performance, but on the other hand, it was the stimulus that accelerated the pace of digitization in them. It was already clear from the beginning that Covid-19 will not disappear from day to day, but will return in waves, so businesses must urgently adopt a new vision of the future, part of which will include transferring to the virtual environment those activities that can be implemented in it.

Graph 1: Employed persons usually working from home as % of all employed

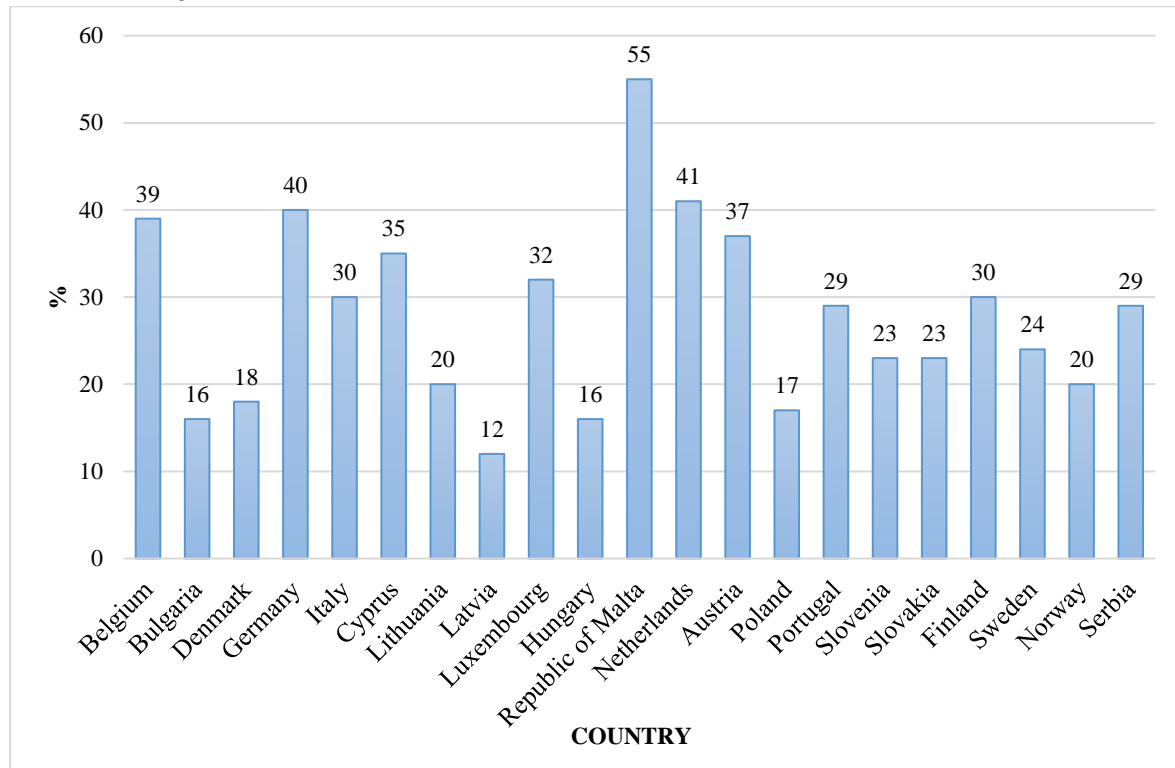


Source: Eurostat, own processing.

Figure 1 captures the changes in the use of working from home that have occurred because of the pandemic. The share of employed home workers increased in all countries. In the V4 countries, there was only a slight increase, since in these countries, despite the gradual reorientation of their economies towards services and more scientifically demanding sectors, industrial production continues to dominate, so the personal participation of employees in the workplace was also necessary during the pandemic. We recorded the smallest proportion of people working from home before the pandemic in Hungary (only 1.2%), while even the pandemic did not cause a significant increase in people employed in this way. Germany, which in 2019 was at approximately the same

level as the V4 countries in terms of the share of workers from home, saw an increase in this share to 17% at the time of the pandemic. In Finland and Luxembourg, the share of workers from home was relatively high even before the pandemic, while during it increased to 24.8%, respectively. 28.1%. The development of the share of people working from home in Poland was interesting, where in 2021 there was a decrease of 2 percentage points. This probably happened because, at a time when social isolation was no longer the only measure of protection against Covid-19, some employers preferred the return of employees to the workplace, or they no longer allowed employees a full home office, but only a combination of working from home and from their usual workplace. However, the initiative to return to the usual workplace did not have to come from the employers, but directly from the employees. For example, even a study carried out in India showed that after the end of the pandemic, up to 29% of the population wants to return to the office (Mukherjee, Narang, 2022).

Graph 2: Share of SMEs that increased the % of employees who have remote access to their email system in 2020

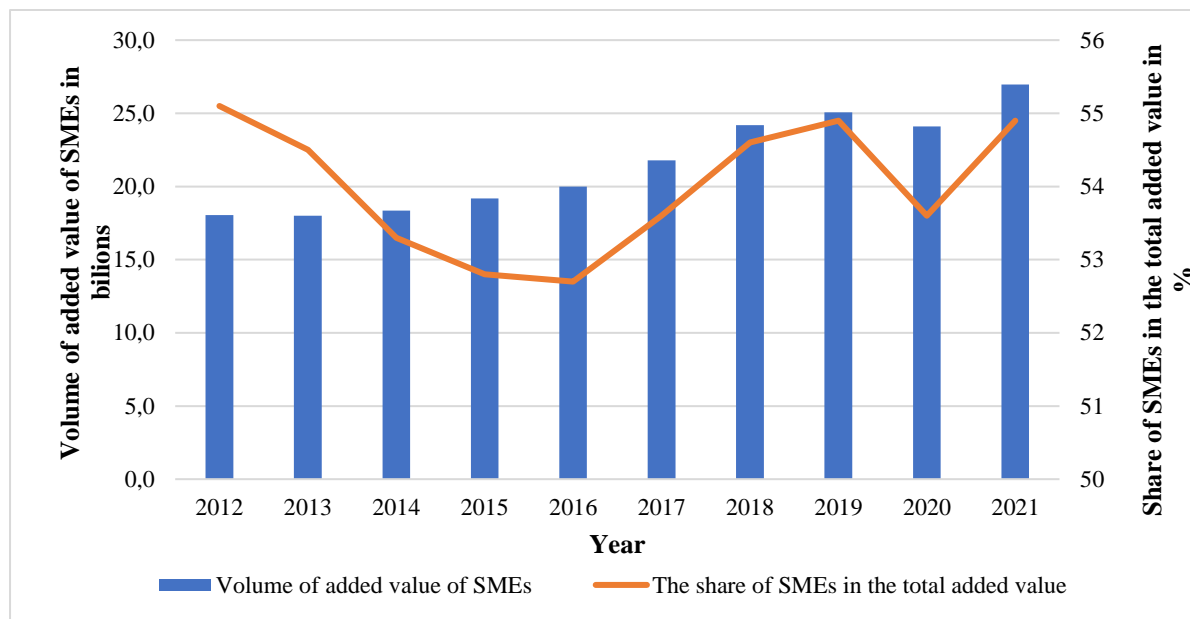


Source: Eurostat, own processing.

If we have already pointed out the increase in the share of workers from home during the pandemic period, it is necessary to look at what changes in connection with this issue have manifested themselves within SMEs. We watched how in 2020 the share of SMEs increased year-on-year, which increased the percentage of employed persons who had remote access to their e-mail system (Figure 2), which was a prerequisite for the introduction of a home office. We monitored the indicated indicator in all EU countries for which data were available. According to Eurostat (2022) in Slovakia, the share of such

businesses increased by 23% in the first year of the pandemic. The smallest increase was recorded in Latvia (12%) and the highest in Malta (55%). However, this indicator only reflects the current response to the pandemic but does not take into account that the share of SMEs in which employees had remote access to their e-mail system was already significantly different in individual countries before the outbreak of the pandemic.

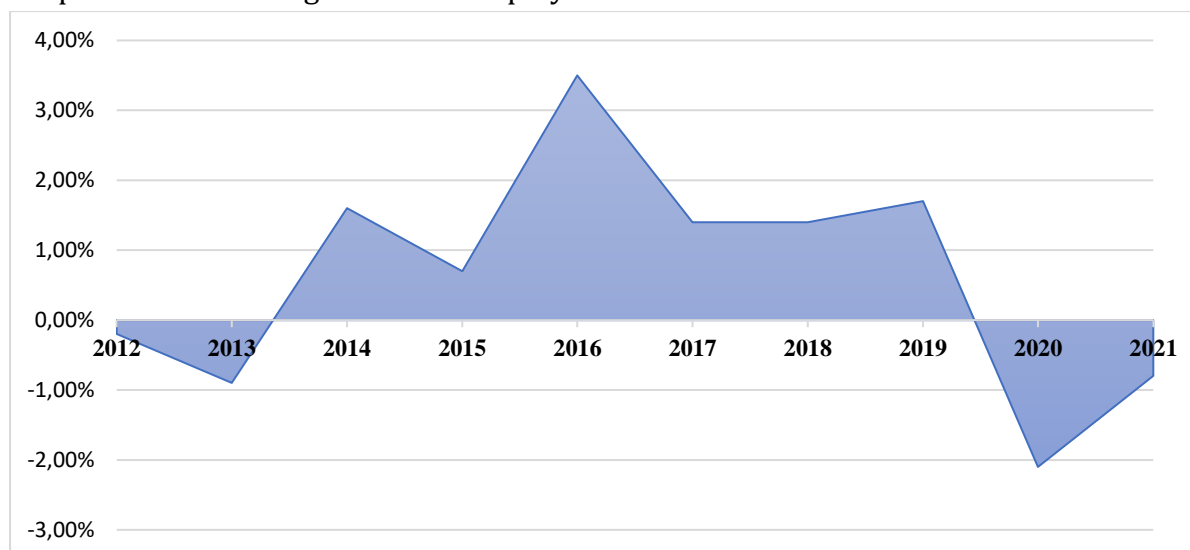
Graph 3: Development of the added value of SMEs in the Slovak Republic



Source: <http://monitoringmsp.sk/>, own processing.

The added value produced by SMEs (Figure 3) increased every year from 2014 until the arrival of the pandemic, up to 25,1 billion. in 2019. In 2020, in connection with the arrival of the pandemic and the temporary closure of many businesses, the added value of SMEs decreased by approximately one billion to 24,1 billion. and at the same time, in this pandemic year, the share of SMEs in the total added value also decreased from 54.9% in 2019 to 53.6%. Although the pandemic continued in 2021, the volume of added value produced by SMEs increased again, even to a higher level than before the pandemic (27 billion), and the share of SMEs in the total added value returned to the pre-pandemic level. This fact may be a signal that SMEs have adapted relatively well to a previously unimaginable situation.

Graph 4: Annual change in SMEs' employment in Slovakia



Source: <http://monitoringmsp.sk/>, own processing.

The share of SMEs in employment in Slovakia is significant. In 2021, it represented 74.3%. After overcoming the consequences of the financial crisis that broke out in 2008, there has been an annual increase in the share of employees in SMEs since 2014 (Figure 4). According to Slovak business agency (2022) the most significant increase in employment was recorded in 2016 – 3.5%. This favorable development was stopped in 2020 by the outbreak of the Covid-19 pandemic when there was an annual decrease in employment in SMEs by 2.1%. In 2021, a decrease was recorded again, but less significant than in the previous year - 0.8%.

Tab.1: Share of innovative SMEs

		2014	2015	2016	2017	2018	2019	2020	2021
Share of SMEs introducing product innovations	SR	13,1	13,1	13,1	11,2	11,2	12,5	12,5	14,0
	Average EU	22,6	22,6	22,6	22,2	22,2	24,2	24,2	28,7
Share of SMEs introducing business process innovations	SR	26,3	26,3	26,3	23,4	23,4	20,5	20,5	21,1
	Average EU	33,8	33,8	33,8	32,3	32,3	35,1	35,1	40,0

Source: <https://ec.europa.eu/docsroom/documents/46934>.

When comparing the innovation performance of the Slovak Republic, it lags many EU countries, so it is not surprising that the situation in Slovak SMEs is similar. While the average share of SMEs introducing product innovations in 2021 in EU countries was 28.7%, in the Slovak Republic (Tab. 1) this share was only 14%, and since 2014, after a temporary decline, it increased by only 0.9%. However, the development trend was correlated with the development in the EU. A different situation was noted in the

development of the share of SMEs introducing business process innovations. While in the Slovak Republic the share of these SMEs has decreased since 2014, it has increased on average in EU countries. A more significant increase, like the share of SMEs introducing product innovations, was recorded especially in 2021. We assume that this happened because the arrival of the pandemic and the introduction of lockdowns in 2020 was a shock for businesses, from which after a certain period of restrictions on innovation they were able to deal with the activities mainly thanks to their re-start and introduction even in those areas that did not require it to such a great extent before the pandemic arrived. This assumption is also confirmed by a study carried out in Mexico: innovation is a key aspect of business recovery during the ongoing pandemic and in the post-pandemic period (Caballero-Morales, 2021).

Discussion

The pandemic has contributed to an increase in the share of employees working from home in all countries monitored. However, the increments were different. While this increase was more significant in Luxembourg, Germany, and Finland, it was less significant in the V4 countries. We assume that such a situation was caused, among other things, by the different nature of the economies of these countries. Even in the 21st century, the V4 countries remain predominantly industrial economies, with production processes requiring the personal participation of employees at the workplace, which significantly reduces the possibility of introducing a home office. Even during the strongest pandemic wave, manufacturing enterprises had to operate in standard mode. The only way to slow down the spread of the disease, or to deal with missing staff, there were temporary production interruptions. While manufacturing businesses could choose to temporarily suspend their operations, many service businesses were closed due to measures taken by the government. We believe that this very fact contributed to the decrease in the share of SMEs in the total added value. The financial compensation provided by the government was mostly slow and insufficient, because of which many SMEs resorted to laying off part of the workforce. This also reflects the year-on-year decrease in SME employment in 2020-2021. Slovak SMEs lag the EU average in terms of innovation performance, and this trend has not been changed even by the pandemic. On the contrary, it rather contributed to the deepening of differences. While in the EU the share of innovating enterprises has visibly increased, in the Slovak Republic we have seen rather stagnation. This situation can also be linked to the lack of financial assistance for businesses during the pandemic, since if a business has a lack of resources, it is difficult for it to engage in any innovative activities.

Conclusion

SMEs have a dominant place in individual economies, their share in the total number of enterprises is significant and their share in total employment is equally significant. The

pandemic disrupted the economic performance of SMEs, especially in 2020, which was also reflected in the decrease in the added value produced by SMEs or in the decrease in their share of total employment. Even though the pandemic continued into the following year, most SMEs found a way to operate relatively efficiently even during the time of restrictions. Although the pandemic contributed to the temporary deterioration of economic indicators in many SMEs, it also brought new impulses to their functioning. Customer interest in online shopping has increased, and the affected businesses have had to respond to this if they want to remain competitive. As a result, there was a rapid development of the processes of electronification and digitization. Already in the first year of the pandemic, the proportion of employees who had remote access to their e-mail system increased, which can be considered one of the prerequisites for a smooth transition to the home office in areas where work can be done from home. The development of the processes of electronification and digitization contributed to the increase of innovative activities in SMEs, but in the Slovak Republic this increase was not so significant compared to the EU average, and Slovak SMEs continue to lag behind the situation in the most advanced European countries. At a time when it seemed that the world would gradually fully recover from the pandemic and it would no longer be treated as a common disease that would not lead to any restrictions, a new reality disrupted global economic relations – the military conflict in Ukraine. The effects of sanctions, as well as the disruption of global energy security, cause the price of many commodities to rise, which leads to an acceleration of the rate of inflation and creates new risks for the functioning of SMEs. A certain limitation of our research is the fact that we considered only quantitative indicators, while for an objective assessment of the situation in SMEs, it is necessary to deal with qualitative ones as well.

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