

MANAGING THE CORONAVIRUS CRISIS BY SLOVAK WOODWORKING AND FURNITURE ENTERPRISES IN THE CONTEXT OF AGILE APPROACH – CASE STUDIES

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ABSTRACT

The period of coronavirus pandemic has shown that the ability to implement changes and react in a timely and effective manner, which means being agile, is becoming a prerequisite for both survival and success. The aim of this paper is to highlight examples of good and bad practices among Slovak wood processing and furniture-manufacturing enterprises in overcoming the pandemic crisis through case studies, utilising semi-structured interviews within enterprises and an analysis of changes in financial indicators. The results show that enterprises taking advantage of the increased demand for wood products, as well as those that digitised and optimised their processes, achieved significantly higher sales and profits. Conversely, enterprises that merely tried to maintain revenues without optimisation and innovation worsened their financial situation. The contribution of the paper is an extension of empirical knowledge, examining the impacts of pandemics on the business operations of wood processing enterprises in the context of business agility.

Keywords: wood processing enterprises; coronavirus crisis; enterprise agility; case studies.

INTRODUCTION

The wood processing industry (WPI), encompassing the timber, pulp and paper, and furniture sectors in Slovakia, is a vibrant business that employs thousands of people. During the COVID-19 pandemic, enterprises in the WPI in Slovakia faced numerous problems, constraints, and challenges. The Slovak WPI experienced a historic decline in activity during the first year of the coronavirus crisis. The high drop was mainly due to quarantine measures, as consumers were unable to access furniture-type products in a closed economy for at least a month during the pandemic crisis. The fact that industrial production in Slovakia experienced a greater decline in activity than in other countries can be attributed mainly to the specific characteristics of the Slovak economy (Plutzer, 2021). The pandemic caused significant disruption in supply chains, leading to shortages of raw materials and increased prices of materials. Many companies experienced a decrease in demand for their products, which had a negative impact on their sales and financial stability. Additionally, some enterprises had to reduce staff or temporarily halt production due to restrictions and quarantine measures. Despite these challenges, some companies have managed to adapt to the new conditions by increasing production efficiency or diversifying their portfolio (Bečka, 2020).

Companies with foreign capital in both the wood processing and furniture manufacturing industries have the largest share in the recovery of production in Slovakia. They benefit from a sufficient raw material base and the advantage of a high-quality and, above all, inexpensive labour force. A better financial background and higher-quality know-how favour their position and competitiveness in the Slovak market. Overall, the WPI recorded higher net profits in the three years before the pandemic than in the past. In 2017, it was €14 million; in 2018, it was €5 million more; and in 2019, they ended up in the black by €23 million. This is also reflected in the total turnover for the segment, which rose by €18 million year-on-year to €692 million. Zemaník (2020) states that the profit could have been even higher if the markets had not reacted to the surplus of timber in the European Union and worldwide with a sharp decline in prices for sawn timber and finished products.

According to data from the Statistical Office of the Slovak Republic (www.datacube.statistics.sk), during the coronavirus crisis, the sectors of the Slovak WPI gradually declined in the number of enterprises and the number of employees, with a rate of decline of up to 10%, and even in 2023 they did not reach the pre-pandemic status. On the other hand, however, average monthly wages grew. A declining trend was observed in output, which decreased by 14.21% to 22.5%. Additionally, there was a decline in sales of own products and services, ranging from 12.16% to 22.50%. The development of value-added showed an upward trend, with a decrease in 2023 compared to 2022, resulting in a 17.00% decrease across the WPI. In the woodworking and paper product industries, the development of economic results had a downward trend of 17.06 on average. A significant reduction in the economic result was observed in enterprises of the furniture industry in 2020 and 2021; in 2023, it decreased by up to 1605.56% compared to 2022.

Many authors have examined the impacts of the COVID-19 pandemic on various aspects of economic life in their studies. Belanová (2022), Cepel *et al.* (2020), Tomková *et al.* (2024), and Mura *et al.* (2022) evaluated measures to help SMEs in the Slovak Republic by comparing them with selected EU countries, the added value of the Slovak Republic, the sustainability of jobs and business risks in the SME segment. Studies by the Slovak Business Agency (SBA, 2021) and Belas *et al.* (2021) addressed reduced consumption, an economic slump, and a decline in Slovak GDP. The issue of business closures, the negative impact of the pandemic on the labour market, increased unemployment not only in Slovakia but also in the EU countries were discussed in the studies by Bauer and Weber (2020), Hlawiczka and Kollar (2021), Lambovska *et al.* (2021) and Kramárová *et al.* (2022). The areas of ICT technologies, online services and their growth in the wake of the pandemic, e-commerce, online banking, teleworking as a form of telecommuting, and the use of modern technologies providing flexibility for employees during the pandemic were the content of studies by Sánchez-Torres (2019), Como *et al.* (2021), and Svábová *et al.* (2021). The growth of e-commerce and changes in consumer behaviour due to the coronavirus crisis was the focus of studies by Sonawane (2020) and Štalmachová and Strenitzerová (2021).

The effects of the pandemic and their impact on wood product production were the content of the studies by Kuzman *et al.* (2022) and Putra Kristianto *et al.* (2021). Pirc Barčić *et al.* (2021) and Chen Yang (2021) attempted to understand the impact of the COVID-19 pandemic on consumer preferences for wooden furniture in their studies. Jelačić *et al.* (2021) highlighted the changes in managers' mindsets resulting from the impact of COVID-19 on SMEs in the wood processing industry.

The coronavirus crisis brought unprecedented challenges and also accelerated the need for the adoption of agile approaches in business. Enterprises have been compelled to respond promptly to changes, whether it is migrating to digital platforms, reorganising work processes, or adapting to shifting market conditions (Wang *et al.*, 2024; Plater *et al.*, 2022).

Experience with the application of agility during the crisis showed that companies that used agile management methods were able to react more flexibly, innovate faster and thus minimise the negative impacts of the crisis (Rofiaty *et al.*, 2022; Ludviga and Kalvina, 2024).

Business agility is broadly defined as an organisation ability to swiftly and effectively adapt its business and processes to unpredictable internal and external changes. All definitions of agility include and combine concepts such as permanent change, flexibility, adaptation, innovation, and resilience (Walter, 2021). The importance of agility lies in enabling businesses to respond effectively to market changes, enhance the quality of their products and processes, and simultaneously become more competitive (Clauss *et al.*, 2021). Fundamental foundations for proper agility functionality are agile principles, which include adaptability and flexibility, speed and agility, high customer orientation, teamwork, innovation, and learning (Wade *et al.*, 2021). The principles of agility are applied within the individual elements of agility. The publication by Brosseau *et al.* (2019) defines and describes eight key elements on which an agile organisation should be built. The dimensions of agility encompass key areas of the enterprise that enable organisations to respond quickly and effectively to change, thereby improving collaboration, innovation, and customer satisfaction (Gagnon and Hadaya, 2018). The Agile Maturity Model, which shows the completeness of enterprise agility, serves as the basic framework of agility, encompassing agility levels within the dimensions and elements of agility. The progress achieved by the maturity model can be observed and managed by defining individual levels of agility that assess the completeness of agility in the context of the level achieved by the enterprise (Wendler, 2014).

The study of literature helped to uncover knowledge gaps that became the main reasons for the focus of our study. The analysis of coronavirus crisis management by WPI enterprises has received little attention in the literature. Also, the use of the case study approach in examining the issue is low in the existing literature, and this approach does not appear in publications concerning the impact of the pandemic on Slovak enterprises. The experience of Slovak enterprises with an agile approach in the context of coping with the impact of the coronavirus crisis is also absent. The pandemic period brought unforeseen changes in the business environment and unexpected government measures. This situation forced businesses to react immediately and act in an agile manner. The coronavirus crisis literally tested the ability of businesses to be agile and apply agile principles. These gaps can be filled through a study examining the reactions of wood processing enterprises in the Slovak Republic during the pandemic.

The aim of this paper is to highlight examples of good and bad practices in woodworking and furniture enterprises in the Slovak Republic during the pandemic crisis, as observed through case studies based on guided interviews with company managers and their financial indicator development during the pandemic period.

Research question: Did the agile approach help wood processing enterprises in the Slovak Republic successfully cope with the coronavirus crisis?

MATERIALS AND METHODS

The intention of the research, the results of which are presented in this paper, was to determine the extent to which WPI SR enterprises were able to adapt to the changes caused by the COVID-19 pandemic. All changes during the pandemic period were unexpected, and

enterprises had to react quickly to survive, implementing unplanned changes and measures, which is typical of an agile approach.

By conducting primary research in the form of guided interviews linked to changes in financial performance and by creating case studies, the best and bad practices of representative WPI companies were identified. Therefore, a structure of guided interviews with owners and managers of representative manufacturing enterprises in the wood and furniture sectors was designed, and a total of 11 interviews were conducted.

Businesses were selected as representatives based on their length of time on the market, size, ownership, and level of financial performance relative to the industry as a whole. More precise criteria for selecting companies for the research sample were established based on changes in economic indicators for the entire sector so that above-average (2), average (1-2), and below-average (2) companies, compared to the industry were represented. Another criterion was the inclusion of companies from each size category existing in the wood and furniture industry in Slovakia.

The content of the interviews was constructed based on insights from the literature review on business agility as well as the impact of the pandemic on business operations. The semi-structured interviews were chosen to facilitate open-ended responses and allow for follow-up questions on the topic. The interviews were conducted in person at the end of 2023 when the effects of the pandemic had largely subsided. The guided interviews included the following questions:

1. What obstacles and challenges did the coronavirus crisis bring to your company?
2. Which areas in your company were most affected by the coronavirus crisis and anti-pandemic measures?
3. Did opportunities and innovations arise as a result of the coronavirus crisis in your company?
4. What financial and non-financial measures did you take to maintain the continuity of your during the coronavirus crisis?
5. What impact did the coronavirus crisis and the measures taken in your company have on your financial situation and profitability?
6. How did you try to maintain and strengthen relationships with customers and business partners during the coronavirus crisis?
7. How did you communicate the unplanned changes you implemented with your employees, and how did you motivate and support them in the process?
8. What successes and benefits did the unplanned changes and measures implemented bring to your company?
9. In your opinion, which decisions and measures were wrong or not taken in time and worsened the situation of your company?
10. What other changes, besides financial, occurred in your company during and after the coronavirus crisis?

The second part of the research involved analysing changes in the financial indicators of the analysed enterprises during the pandemic, specifically examining data from 2019 to 2022, including sales and profit. The data source was the financial statements database FINSTAT (www.finstat.sk), which compiles all financial information of active enterprises in the Slovak Republic, as required by law. For our analysis, year-on-year indices of change in sales and profit, which were calculated using the following formula were used:

$$X_i = \frac{X_t}{X_{t-1}} \quad (1)$$

Where: X refers to a financial indicator (sales or profit).

To increase validity, secondary data from the financial database were consulted, along with primary data, as a means of refining the findings (Gerbl *et al.*, 2015; Yin, 2018). Sources of secondary data included enterprise financial statements, annual reports, and data archived on the websites of the surveyed enterprises. All data from primary and secondary sources using the procedure outlined by Tellis (1997) were triangulated.

The results of the interviews and secondary data analysis were compiled into case studies. Case studies are particularly suited for a comprehensive examination of an event to test a theoretical concept; in our research, this involved testing the agility of SR enterprises during a coronavirus crisis. To ensure reliability, a formal, uniform case study protocol was designed. In the last stage, enterprises with significant improvements in business performance during the pandemic as best practice cases and enterprises whose situation was most worsened by the pandemic as examples of bad practice were identified.

RESULTS AND DISCUSSION

The case studies show that during the pandemic, all WPI enterprises in Slovakia had to overcome the following obstacles:

- increased safety and hygiene measures and the associated increased costs,
- staff absenteeism due to sick leave and compulsory quarantine,
- supply shortages of input materials,
- increase in the prices of input materials and energy.

On the other hand, WPI businesses faced challenges as they were:

- providing online tools and platforms and training staff to work online,
- increase in meetings dealing with customer requirements and demand for WPI products.

Table 1a presents the results of the content analysis of the guided interviews with enterprise managers. From the content analysis of the guided interviews, it is clear that enterprises, divided by size, ownership, and length of time in the market, addressed various specific obstacles while trying to implement measures during the coronavirus crisis according to their capabilities in order to achieve the best possible results. The enterprises made changes during and after the coronavirus crisis, primarily to adapt to shifts in customer needs and demands, as reported by all the surveyed enterprises. In the guided interviews, seven enterprises reported changes in the amount of work in progress and the decrease in inventory, as well as changes in the form of sales and communication to the online space. Supplier relationships and supplier selection improved for 6 of the businesses interviewed. Five enterprises reorganised processes and workflows, and in four enterprises, there was a change in the attitude of management and employees towards wastage. The measures implemented mainly concerned process optimisation, ensuring stable prices for input materials and energy by contracting for more extended periods, as well as innovating or diversifying the production programme according to changes in customer requirements, and introducing digital and online platforms for communication and sales.

Tab. 1a Content analysis of the guided interviews.

Enterprise number	Characteristics of the enterprise: industry (SK NACE), size, ownership, length of presence	Specific problems/challenges addressed	Measures implemented during a coronavirus crisis	Achieved results	Changes in the company during and after the pandemic
1.	Furniture industry (C 31) Medium-sized enterprise: 68 employees Domestic ownership Age of the company: 12 years	Low liquidity Significant increase in costs Sustaining production	Use of the bridging loan Investing in new technologies and digitisation Use of financial reserves and state aid Optimisation and digitalisation of processes Long-term contracts for the supply of both inputs and outputs	Increase in sales and profit Increased flexibility in production and delivery Increased efficiency More efficient use of material stocks Entering new markets, acquiring new customers	Customer needs and requirements Increase in stock of materials Introduction of online communication and sales Reorganisation of processes
2.	Furniture industry (C 31) Micro-sized enterprise: 10 employees Combined ownership Age of the company: 13 years	Lack of input resources and capacity Lack of cash flow Increase in stocks of finished products without export possibility	Changing distribution channels Disposal of material stocks Involving employees in the change process Use of State aid	Improving the social environment Stabilisation and improvement of cash flow	Customer needs and requirements Increase in stock of products Introduction of online communication
3.	Furniture industry (C 31) Medium-sized enterprise: 130 employees Combined ownership Age of the company: 33 years	Transition to home-office Increased requirements for office furniture Stop production for 1 week	Preparation and launch of a new production programme (home-office furniture) New investments in technology Use of State aid	Stabilization of sales Influx of new customers	Customer needs and requirements Decrease in inventories Reorganisation of processes and workflows Introduction of online communication and sales
4.	Furniture industry (C 31) Medium-sized enterprise: 80 employees Domestic ownership Age of the company: 34 years	Lack of disinfecting and protective aids Lack of staff Extension of production and distribution time	Striving to meet contracts and prices More expensive raw materials at the expense of margin Investment in a new production hall and CNC equipment Increase in material stocks Diversification of markets	Increase in sales Increase in indebtedness Liquidity reduction Loss of key employees Acquiring new customers	Customer needs and requirements Increase in inventories Changes in the selection of suppliers Introduction of online communication and sales

Tab. 1b Content analysis of the guided interviews – continue.

Enterprise number	Characteristics of the enterprise: industry (SK NACE), size, ownership, length of presence	Specific problems/challenges addressed	Measures implemented during a coronavirus crisis	Achieved results	Changes in the company during and after the pandemic
5.	Furniture industry (C 31) Medium-sized enterprise: 60 employees Domestic ownership Age of the company: 32 years	Lack of protective Sustaining production	Use of State aid Innovation of the offer	Increase in turnover An influx of new customers	Customer needs and requirements Introduction of online communication and sales
6.	Timber industry (C16) Small enterprise: 20 employees Domestic ownership Age of the company: 32 years	Decline in interest in wood products Downward pressure on price Loss of key staff Increase in receivables	Product innovation (application of new materials - metal, stainless steel and glass) Use of reserves Disposal of assets Reduction in staff Reduction of prices and profit margin	Stabilization of sales Ensuring production continuity Identification of opportunities to expand the production programme	Customer needs and requirements Decrease in inventories Reorganisation of processes and workflows
7.	Timber industry (C16) Small enterprise: 15 employees Domestic ownership Age of the company: 28 years	Decrease in demand Decrease in performance Lack of funding Lack of feedstock	Diversification of the production programme Use of stocks and reserves Increased moral and financial reward for work performance	Maintaining the viability of the company Expansion of the production programme with a new product range	Customer needs and requirements Decrease in inventories Improved attitudes towards waste Reorganisation of processes and workflows
8.	Timber industry (C16) Small enterprise: 44 employees Domestic ownership Age of the company: 29 years	Decrease in demand Decline in performance and financial losses	Tracking sales and orders Use of State aid Cost optimisation in processes	Adaptability to customer requirements Retaining key staff Cost reduction	Customer needs and requirements Decrease in inventories Management and employee attitudes towards waste have improved
9.	Timber industry (C16) Micro enterprise: 8 employees Domestic ownership Age of the company: 34 years	Lack of input materials Lack of information Significant drop in orders and sales	Finding new customers new forms of online sales Reduction of operating costs Investing in new technologies and digitalisation Use of State aid	Digitisation of processes Increase skills with online technologies Acquiring new market segments in the online space	Customer needs and requirements Introduction of online communication and sales

Tab. 1c Content analysis of the guided interviews – continue.

Enterprise number	Characteristics of the enterprise: industry (SK NACE), size, ownership, length of presence	Specific problems/challenges addressed	Measures implemented during a coronavirus crisis	Achieved results	Changes in the company during and after the pandemic
10.	Timber industry (C16) Large enterprise 250+ employees Combined ownership Age of the company: 21 years	Transition to home-office Setting off site accesses	Innovations in approval procedures - online mode Digitisation of processes Utilisation of stocks of materials and finished products	Savings on travel costs More flexible decision-making	Improved management and employee attitudes towards waste Reorganisation of processes and workflows
11.	Timber industry (C16) Small enterprise 22 employees Domestic ownership Age of the company: 27 years	Closure of showrooms Disruption of supply chains Staff shortages and staff cover Postponement of planned investments	Flexible responses to supply and logistics challenges Budget, cost and liquidity reviews Introducing flexible working patterns Strengthening internal communication channels Adapting marketing and sales strategies to the online environment	Improving flexibility and adaptability to rapidly changing conditions Strengthening teamwork Developing digital infrastructure Increase process efficiency	Customer needs and requirements Introduction of online communication and sales Changes in supplier relationships and supplier selection Reorganisation of processes and workflows

Source: own research

Table 2 shows the indices of the change in revenue and profit of the analysed WPI companies in % year-on-year comparison from 2019 to 2022.

Tab. 2 Changes in sales and profits of the analysed WPI enterprises in %.

Enterprise no.	Revenues – Indices of change				Profit – Indices of change			
	2020/2019	2021/2020	2022/2021	average	2020/2019	2021/2020	2022/2021	average
1	9.05	34.01	17.26	20.11	4.83	186.84	35.55	75.74
2	-19.90	100.97	27.20	36.09	-255.83	-174.87	1.43	-143.09
3	-7.86	18.31	-8.57	0.63	-37.11	85.84	22.07	23.60
4	20.90	9.84	7.99	12.91	-95.47	173.33	-273.17	-65.10
5	70.15	105.70	50.32	75.39	-78.53	43.27	75.55	13.43
6	7.76	-19.20	32.67	7.08	-76.67	-514.29	-100.91	-230.62
7	-1.49	46.72	0.34	15.19	253.98	-345.00	-26.53	-39.18
8	-37.84	88.41	159.62	70.06	39.17	387.14	46.63	157.65
9	-9.30	82.91	16.82	30.14	9.58	218.40	-1.25	75.58
10	-5.94	30.53	12.10	12.23	407.87	142.79	-65.01	161.88
11	-5.16	32.65	-1.54	8.65	-88.47	805.88	6.49	241.30

Source: own elaboration according to data of www.finstat.sk

As shown in Table 2, the highest increase in revenue was recorded by wood processing enterprise No. 8, up 159.62% compared to 2021/2022. The most significant decrease in revenue occurred in 2020 compared to 2019, by 37.84%, a paradoxical trend also observed in woodworking enterprise No. 8. A substantial drop in profit was noted in wood processing enterprise No. 6, with a decrease of 514.29% between 2021 and 2020. The maximum increase in profit among the studied enterprises was 805.88% for wood processing enterprise No. 10 in 2021 compared to 2020. After the decline in sales in the first year of the pandemic, 2/3 of the studied enterprises managed to increase sales by 30% – 226% over the entire pandemic period, with only enterprise 3 achieving sales at the original pre-pandemic level. In terms of profits, 7 out of 11 enterprises (2/3 of the enterprises) experienced an increase in profits during the pandemic period, ranging from 40% – 724%.

Discussion

Businesses that were agile and implemented changes during the pandemic were able to improve their financial performance, in terms of both sales and profits, despite the period of restrictions and constraints. These enterprises leveraged the pandemic as a business opportunity to their advantage, serving as **best practice** cases. Of the enterprises surveyed, four were classified as best practice cases under the WPI, comprising three wood processing enterprises (C16) and one furniture manufacturing enterprise (C31). These are micro and small enterprises, and the measures they implemented had a significantly positive impact on sales and profits. These enterprises increased their sales by 10% – 70% per year during the pandemic, and the increase in profits ranged from 76% to 241% per year.

In guided interviews with business managers, it was found that businesses adapted quickly to the new conditions and modified their offerings to meet products in higher demand as a result of the pandemic while also increasing the digitisation of their processes. The **best practices** of the companies interviewed can be considered as follows:

- **Product mix innovation:** reorientation of production towards modified products for which demand increased. These mainly were office furniture products and innovations in the materials used. In this way, the companies took advantage of a new market opportunity;

- **Entry into new markets and market segments:** In the event of disrupted customer relationships and customer loss, companies focus on finding new customers and markets whose needs they can satisfy with their offerings;
- **Maintaining an affordable price for customers:** avoiding cost increases by entering into longer-term contracts for the supply of energy and materials, with increased costs partially offset by a reduction in profit margin;
- **Digitisation and automation:** digitisation of processes, switching to online forms of communication and commerce and increasing the robotisation of production processes to acquire new suppliers and customers through the online space;
- **Production optimisation:** the introduction of methods to eliminate waste, increase the efficiency of production facilities and labour productivity, and the introduction of flexible planning has enabled companies to reduce production costs, which has been reflected in improved profitability;
- **Retaining key and skilled employees:** regular communication, transparent information, removing administrative burdens, increasing benefits;
- **Utilisation of inventories and financial reserves to ensure liquidity and continuity of production, including the sale of unnecessary assets and inventory;**
- **Rapid response and implementation of unplanned changes:** The success of the measures taken depended to a large extent on their correctness and timeliness, as well as the provision of sufficient information and staff training. By reacting quickly, companies were able to take advantage of the market opportunities created by the pandemic over a more extended period.

The above measures had a significant positive impact on the analysed companies, not only in terms of financial results but also in the form of improved production flexibility and process efficiency. During the pandemic period, the enterprises were in better financial and operational condition than they were before the pandemic.

During the coronavirus crisis in Slovakia, manufacturers were compelled to lower prices and offer substantial discounts to customers, regardless of age, gender, or educational background. In contrast, a survey conducted in Croatia by Pirc Barčić *et al.* (2021) revealed differences among various age groups, genders, and academic levels. Buying furniture at a lower price or discounted products was not that important. Positive preferences in purchases were directed towards functionality, quality and design. Plater *et al.* (2022) also found that, during the coronavirus crisis, employers introduced systems to support digitisation and process automation, enabling employees to work remotely and take on additional responsibilities. They further stated that people and technology helped reduce costs by taking the initiative and proactively preventing problems through automation. According to research (Rasskazova *et al.*, 2019), HR departments play a crucial role in digitisation and optimisation, becoming more strategic in embracing new opportunities through technology and supporting organisations in achieving their goals and objectives. The advantage of increased business efficiency is provided to organisations by top management, which, as respondents from Slovak enterprises also stated, jointly engage in strategic workforce planning, including digital transformation and workforce transformation. This approach helps companies manage change and increase performance and productivity. Timber extraction and wooden furniture manufacturer maintained employment and production, with only minor disruptions in Slovenia, Croatia, Serbia and Bosnia and Herzegovina, according

to Kuzman *et al.* (2022). Furniture manufacture operated at full capacity as demand for furniture continued to increase. Many people were unable to travel for the holidays because borders were closed, so they spent their holiday budgets on renovating and refurbishing their homes and apartments. The findings of Ludvig and Kalvin (2024) also suggest that the perceived strategic agility of an organisation has a significant positive impact on employee engagement and, therefore, on well-being. Organisational learning, leadership, and clarity of objectives are factors that contribute positively to an organisation strategic agility.

Businesses that were not agile in adapting to change or making incorrect decisions during the pandemic struggled to improve their financial performance, particularly in terms of sales and profits. This was particularly the case for businesses that focused solely on maintaining sales, made poor investment timing decisions, and overextended their credit, which primarily contributed to the decline in the profit ratio. These enterprises can be classified as **exhibiting bad practices**, and within this category, three medium-sized enterprises are identified: one from the timber sector (C16) and two from the furniture sector (C31). Although these enterprises achieved a 7%-36% increase in sales per year due to increased demand during the pandemic, they experienced a 65%-230% year-on-year decline in the bottom line and went from profit to loss. These manufacturing enterprises were not flexible enough to innovate and adapt to market changes, and as a result, they struggled to cope with the coronavirus crisis. The main **bad practices** are:

- ***Inability to take advantage of changes in demand and to innovate the product range promptly:*** striving primarily to maintain production, not responding to changed market needs, inability to be flexible in production;
- ***Production curtailment and closure:*** failure to address staff shortages and inadequate health and safety measures for employees led to reduced production and interrupted deliveries, resulting in the loss of customers.
- ***Redundancies:*** a drop or complete failure of orders meant that production had to be curtailed, reducing the need for staff and consequently creating a problem in rehiring the necessary staff after the pandemic had passed;
- ***Slow and late reactions and actions:*** unpreparedness for the security measures resulting from the COVID-19 pandemic, delayed search for alternative suppliers after a supply failure, slow response to changed customer demands, implementation of only necessary measures without process adjustments;
- ***Making costly investments:*** new, unexpected health expenditures and input price increases, increased investment spending, resulting in the need to seek savings in other areas or leading to business insolvency;
- ***Full pass-through of cost increases to sales price increases:*** significant input price increases passed on to customers in a period of uncertainty led to a reduction in demand and even a complete loss of customers.

The above reactions by businesses resulted in deteriorating financial results, increased business continuity problems, the breakdown of customer markets and difficulty in recruiting skilled staff once the pandemic is over and economic activity recovered.

Four of the companies surveyed managed to stabilise their financial situation during the pandemic by entering new markets, using their stocks and reserves, and only slightly increasing prices at the expense of margins.

Kuzman *et al.* (2022) concluded that, similarly to Slovakia, the COVID-19 pandemic severely affected the supply chain in Slovenia, Croatia, Serbia and Bosnia and Herzegovina. The most critical problems included increased prices of all materials, increased transport costs, extended delivery times, limited quantities of all materials and complete disruption of supply chains. Walter (2021) notes that, in response to slow and late changes by companies, management should observe and monitor market developments, assess and distinguish between risk and uncertainty, and respond proactively to identified trends by implementing appropriate agile measures. The results of Wang *et al.*'s (2024) research suggest that supply chain agility should also include the ability to solve problems in supplier selection as a key criterion following the COVID-19 pandemic. Measuring supply chain agility can also be considered a crucial way to manage supply chain risks and uncertainties following the COVID-19 pandemic. Rofiaty *et al.* (2022) state that the courage to take business risks needs to be encouraged, even during the COVID-19 pandemic, which was marked by uncertainty in an ever-changing business environment.

From the above results, it follows that the answer to our research question: “*Did the agile approach help the wood processing enterprises of the Slovak Republic to cope with the coronavirus crisis successfully?*” is: Yes, it did.

This statement is also supported by Pirc Barčič *et al.* (2021), who stated that the agility of companies enables them to take bold and decisive steps. It gives them the freedom and flexibility to seek unconventional solutions and to create offerings that differ significantly from those of their competitors. Similar views are shared by Clauss *et al.* (2021), who argued that to survive, companies should prioritise a strategy of exploring innovative processes to generate radically new insights, products, and services or combine a strategy of exploitation with strategic agility. Ludviga and Kalvina (2024) concluded that if employees are supported by leaders who perceive change, make timely decisions, and act agilely; they will experience higher job engagement during a crisis, which will positively contribute to their well-being and the organisation performance. Rofiaty *et al.* (2022) noted that owners and managers of small and medium-sized enterprises can enhance their performance by increasing their entrepreneurial orientation and strengthening their strategic agility. They must also continuously improve their proactive approach as part of their entrepreneurial orientation to further improve their performance.

CONCLUSION

The pandemic period, which brought about unexpected changes, forced companies to adapt quickly and find new ways to stay in business. Some businesses were able to react early to the new conditions and capitalise on the crisis, while others are still struggling to recover from the pandemic's effects.

This study highlighted cases of good and bad practices among Slovak wood processing and furniture manufacturing enterprises, which were identified by comparing the reactions and implemented changes within the enterprises with the changes in financial indicators. The results showed that enterprises that reacted quickly to the changed market conditions took advantage of the increased demand by fast deliveries or adjusted the production programme to meet the changed customer requirements, as well as enterprises that digitised and optimised processes achieved significantly better results in terms of sales and profit and profitability and were in a better financial condition than in the period before the pandemic. The most inappropriate responses of businesses can be considered to be late or incorrect

responses to change, which business representatives identified as reasons for failure to meet customer demands and maintain market position and financial stability. The worst impacts were observed in enterprises that took no action at all.

The main contribution of the paper is to extend empirical knowledge by examining the impacts of pandemics on the business of wood processing enterprises in the context of business agility. The coronavirus crisis tested the level of flexibility and the ability to apply agile principles also in wood processing enterprises. It can be concluded that agility, i.e. the ability to react quickly and effectively to change, had a key influence on the behaviour of woodworking and furniture enterprises during the coronavirus crisis and on its successful management.

The limitation of this study is the use of a smaller sample for analysis, which does not correspond to a statistically representative sample of wood processing companies in Slovakia necessary to generalise the results to the entire set of WPI enterprises in Slovakia. Another limitation is the higher degree of subjectivity due to the use of qualitative research methods. On the other hand, it is essential to note that qualitative research enables more detailed and accurate results, which are necessary to identify examples of good and bad practices in companies.

Further research will focus on examining attitudes towards agility, the ability and willingness to build agility in wood processing enterprises. It will also be necessary to explore the barriers and capabilities of wood processing enterprises in implementing agile management principles. In the next phase, we will focus on developing a methodology for determining the achievable and assessing the level of agility reached in WPI enterprises.

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