



## Digitalisation - the Basis for Building an Agile Enterprise

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### Abstract

*Enterprise digitalisation and agility are two key concepts that can work together to contribute to an organisation's competitiveness. Enterprise digitalization as a process of transforming traditional business models and processes using digital technologies enables the implementation of agile principles. Enterprise agility as the ability to adapt quickly and efficiently to unpredictable changes in the environment is becoming an important competitive factor. The aim of the article is to reveal the interactions between digitalization and enterprise agility and to present the results of primary research in industrial enterprises of the Slovak Republic focused on the perception of the importance of digitalization in the context of agility. The results showed that digitalization is an important element of agility and an essential starting point in building an agile enterprise. Slovak industrial enterprises consider digitisation as an important help in coping with unexpected changes such as the coronacrisis, as a result of which digitisation has accelerated. However, the current adverse global circumstances mean that one third of enterprises have reduced or stopped digitisation altogether and the number of digitising enterprises has declined over three years. Digitisation can transform business models and create agile operating models.*

**Keywords:** *digital transformation; enterprise agility; rapid adaptation; industrial enterprises; agile business model*

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## 1. Introduction

IT-enabled business transformation came to the fore with the commoditization of computer technology and the spread of the Internet in the 1990s and has recently revived in the wake of global crises such as the coronacrisis and the energy crisis. The adoption of digital technologies affects almost all areas of firms, such as production, organizational structures, and relationships with partners. The use of digital technologies to create new or modify existing business models and processes or to support the transformation of organizational structures, resources or relationships with internal and external stakeholders is also referred to as digital transformation

(DT) (Vial, 2019). Plekhanov et al. (2023) outlined a layered model of DT with three layers: organizational core, organizational periphery, and external environment. Regardless of whether DT-induced changes are bottom-up or top-down, firms eventually evolve into interconnected networks of decentralized communication channels that do not follow the rules of traditional vertical hierarchies. Digital technologies have the potential to improve resource efficiency, optimize production processes, and strengthen risk management (Kusiak, 2018). Digital business models are characterised by accelerated rates of value creation and changes in resource management (Paiola and Gebauer, 2020). Digitalization of business models tends to trigger subsequent innovation, contributing to a chain reaction of interrelated and co-dependent innovation activities (Wiesbock & Hess, 2019). Many industries are moving towards shorter innovation cycles due to advances in digital simulations, reduced product creation costs and shorter time-to-market requirements (Rossi et al., 2020). According to Kwilinski (2023), there is a link between sustainable development and digital transformation; the introduction of digital tools, new methods and data processing methods is a priority for the development of the different components of sustainable development. Several sources conclude that DT has the potential to significantly increase the sustainability of business operations by enabling automation, designing smart solutions and facilitating direct communication between producers and customers (Sklyar et al., 2019).

In order to enable the effective adoption and use of digital technologies, firms are changing their organisational structures and establishing innovation labs, corporate innovation centres and so-called digital business units, which have greater autonomy and dedicated budgets (Seran & Bez, 2021). Autonomous teams contribute to higher organisational agility, shorter innovation cycles and flexibility. Enterprise agility is a firm's ability to proactively respond to changing customer demands and market trends by adapting and reconfiguring organizational processes and the delivery of products and services (Brock & Von Wangenheim, 2019). Agile approaches based on frequent and rapid experimentation can improve firms' responsiveness to technological change and competitive pressures. Becoming an agile firm with the ability to respond quickly and effectively to changes in the global business environment is a necessity for business. The role of IT/IS in the context of enterprise agility is undeniable, IT helps to ensure agility mainly by accelerating decision making and effective communication (Kocu, 2018). In the context of DT, agility means learning from failure and increasing the speed of development of digital products and services, that requires appropriate structures that enable rapid adaptation and can take advantage of opportunities arising from digital technologies (Baiyere et al., 2020). Sjodin et al. (2020) pointed out that agile and short process cycles are essential to accelerate innovation that is always up-to-date with technological advances and customer preferences. Various approaches such as Scrum, autonomous cross-functional teams, and continuous feedback loops can be used to help firms achieve agility (Guinan et al., 2019). It is important to note that the ability of firms to adapt to the environment is mainly supported by adequate competencies. An

agile approach requires dynamic capabilities, which Teece et al. (2016) characterize as a firm's ability to innovate, adapt to change, and create changes that are favorable to customers and unfavorable to competitors.

The aim of the paper is to identify the interactions between digitalization and enterprise agility and the perception of the importance of digitalization in the context of agility by managers of Slovak industrial enterprises. The main hypothesis was stated: Is digitalization leading enterprises to become agile?

## **2. Methodology**

The first part of the research focuses on the analysis of existing knowledge in the areas of digitalization and enterprise agility in order to identify and summarize aspects of the relationship between these two concepts (phenomena). The second part of the paper presents the results of a primary questionnaire survey in Slovak industries conducted by Trexima. The aim of the survey was to determine the perception of the importance of digitalization in the context of coping with unexpected changes caused by the coronacrisis, which required the application of an agile approach and tested the ability of agility in enterprises. The research sample consisted of 57 respondents from the engineering, automotive and electrical engineering industries. The questionnaire survey was conducted repeatedly, between 2000 and 2022, to capture trends and track developments. More than 50% of the research sample consisted of large enterprises with over 249 employees and foreign ownership. Descriptive statistics methods and time series trend analysis were used to evaluate the results.

## **3. Results**

### **3.1. Identifying the interactions between agility and enterprise digitalisation**

From the analysis and summarization of theoretical and scientific knowledge, it is possible to identify the interactions between digitalization and enterprise agility in several aspects, as shown in Table 1.

**Table 1. Relationships between agility and enterprise digitalization.** Source: own.

<b>Aspect</b>	<b>The principle of agility</b>	<b>A feature of digitisation</b>	<b>Interaction</b>
Ability to adapt quickly	Agile methods are based on the ability to react quickly to changes	Allows you to better adapt to changes and technological trends	Digitisation provides the means to implement change quickly
Improving process efficiency	Flexible and efficient processes are the key to agility	Enables automation and optimization of processes	Digitisation simplifies and speeds up processes
Improved communication and cooperation	Fast and open communication	Enables effective information exchange and cooperation	Digital tools support agile working methods
Faster innovation	Rapid testing of new ideas	Supports innovation processes, enables the creation of new products and services	Digitisation provides the means to introduce innovations quickly.
Increasing competitiveness	Rapid adaptation to changes in the competitive environment	DT enables faster and more efficient delivery of value to customers	Digitisation makes delivery and meeting customer requirements faster and efficient

As can be seen from the data in Table 1, digitalisation and enterprise agility are intrinsically linked, with digitalisation forming the basis for the application of agile principles.

### **3.2. Perception of the importance of digitalization in industrial enterprises in the Slovak Republic**

23% of industrial enterprises in the Slovak Republic are undergoing digital transformation today, despite the fact that up to 85% of enterprises that have not yet started to change see the need for digital transformation. However, in a three-year view of the share of digitizing firms, we see a continuous decline (2020 - 35%, 2021 - 26%, 2022 - 23%) (Industry 4UM, 2022). From the survey results, we have extracted the findings regarding the attitudes of businesses towards digitalisation in conjunction with unexpected changes due to the impact of the coronacrisis, as presented in Figures 1-4. The data in the graph in Figure 1 shows that businesses recognise the importance of digitisation in conjunction with a corona crisis, with 52% confirming that more significant digitisation would help to better prepare them to cope with changes during a corona crisis.

The graph in Figure 2 presents the impact of the corona crisis on the approach to digitalisation in the enterprise. Of the enterprises that had already started digitisation, 58% continued to make transformational changes in 2020 as they did before the pandemic, but this proportion dropped

to 50% within three years. The proportion of enterprises that have reduced (from 16% to 25%) or stopped (from 8% to 10%) digitization has gradually increased. 11% of enterprises are implementing even more intensively, and the number of enterprises that plan to resume digitization processes soon has dropped from 9% to 4%.

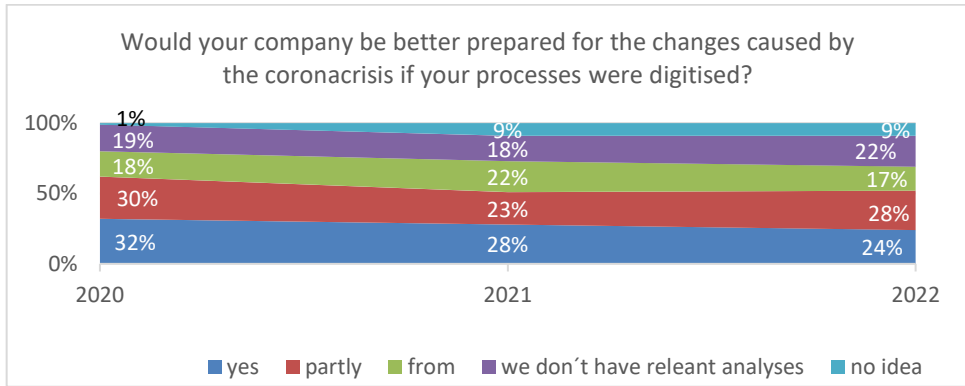


Figure 1: The importance of digitalization for corona crisis preparedness. Source: own.

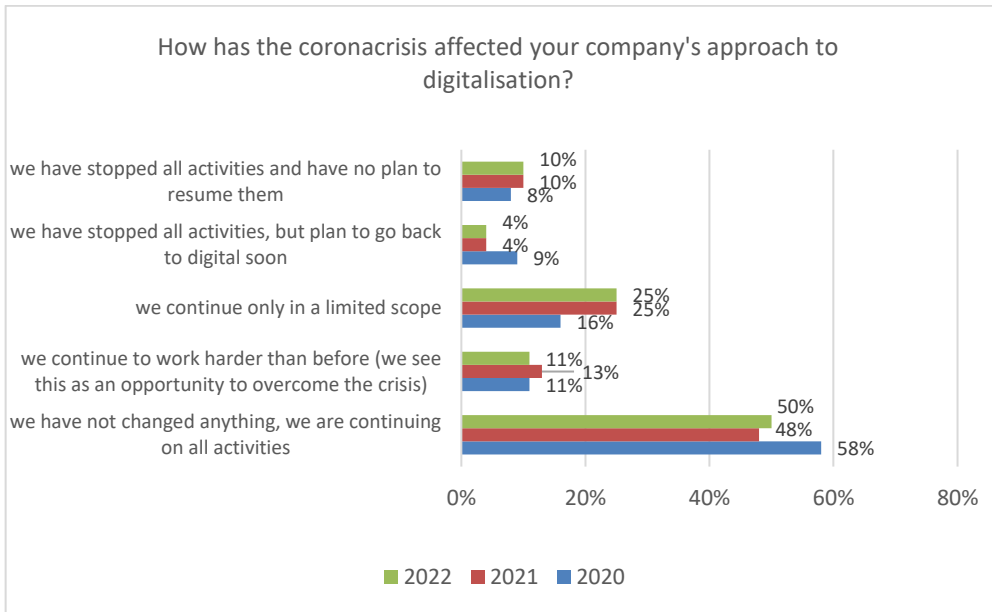
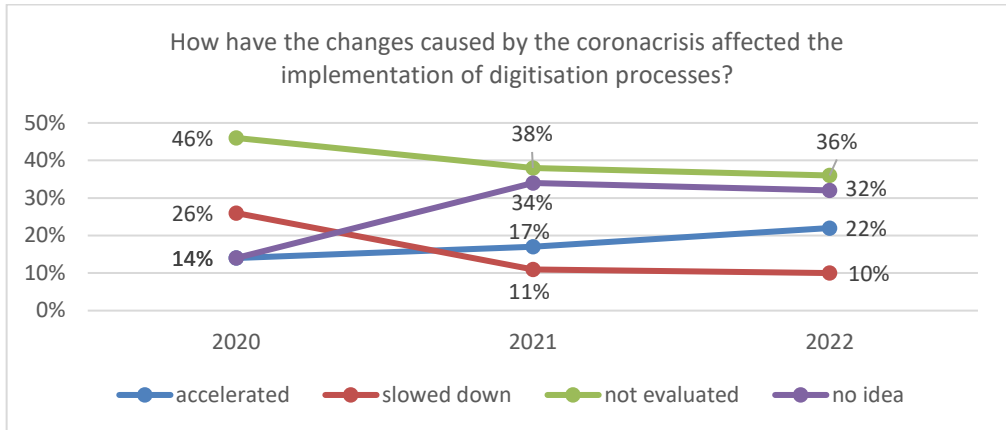


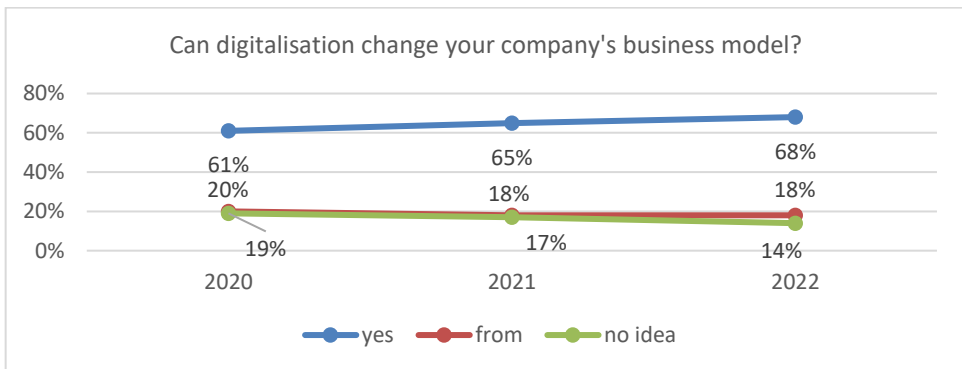
Figure 2. Businesses' approach to digitalisation during the corona crisis. Source: own.

The impact of corona crisis on the change in the rate of DT implementation is shown in Figure 3. Three thirds of enterprises did not know or did not assess this impact, but 22% said that the changes caused by the corona crisis had accelerated the digitisation processes in enterprises, while in 10% it had slowed them down.



*Figure 3: Impact of coronary crisis on the implementation of digitisation processes. Source: own.*

When asked whether digitisation can change the business model of an enterprise, over 60% of enterprises said yes, with the proportion of enterprises saying yes rising steadily over the three years from 61% in 2020 to 68% in 2022. On average, 20% said no, and the number of enterprises that could not say gradually fell from 19% in 2020 to 14% in 2022. The results are shown in the graph in Figure 4.



*Figure 4. The opportunity to change the business model by going digital. Source: own.*

However, according to more detailed findings, only foreign-owned companies are digitising almost exclusively, mostly applying the know-how of their parent companies. On the contrary, the share of Slovak companies in the monitored parameters is appallingly low and critically stagnant in terms of development. Companies see the need to digitise primarily in production processes and logistics, and in cooperation with customers, suppliers and buyers. One of the key challenges that the survey repeatedly identifies is building a corporate culture that supports the digital transformation of businesses. Enterprises lack strategic and application teams, do not build an environment for innovation development, and do not properly understand the role of

management in relation to the preparation and management of digital strategy. A fundamental barrier to the development of digitalisation is the lack of knowledge about digitalisation in industry. Businesses want to digitise but do not know how. More than half of enterprises lack the information they need to apply digital solutions and do not know where to get it.

#### **4. Discussion and Conclusions**

Digitising the business brings a number of benefits, including faster decision-making, increased efficiency and accuracy, improved competitiveness, innovation and better meeting customer needs. Organisations that successfully integrate digital technologies into their business are more likely to become agile and thrive in a rapidly changing business environment. Digital technologies enable faster responses and adaptation to change by providing the necessary resources and tools. In the difficult situation of the coronacrisis, industrial enterprises in the Slovak Republic have become more aware of the importance of digitisation for current stabilisation, future development and maintaining competitiveness, as the results of the survey presented here show. However, the pace of transformation is hampered by rising inflation as well as uncertainty linked to domestic political turmoil and the war conflict in Ukraine. These circumstances are setting priorities for businesses and influencing attitudes towards digitalisation. Transformational change has been halted or limited by 34% of enterprises due to adverse global circumstances. Barriers to the adoption of digital technologies are also barriers to the implementation of agility elements and thus to building enterprise agility. According to the results of the survey in Slovakia, the barriers of Slovak industrial enterprises include mainly lack of information, digital literacy of employees, lack of management support and corporate culture.

Enterprise digitisation and agility are interlinked and can be mutually reinforcing. Organisations that successfully combine these two aspects are more likely to achieve sustained success in today's dynamic and competitive business environment. Based on our findings, it can be concluded that digitalisation is an important starting point for building enterprise agility. The main message for practitioners is that going digital will enable the enterprise to be agile.

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