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Expert Report

Micro and Small Enterprises in the Czech Republic on the Path to a Digital Future

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Introductory Comments

The study works with a definition of micro and small enterprises (MSEs)[1] according to which a micro enterprise has fewer than 10 employees and a turnover/annual balance under EUR 2 million, and a small enterprise has fewer than 50 employees and a turnover/annual balance under EUR 10 million. The study is based on several targeted surveys among MSEs (for more information, see below), on data from the Czech Statistical Office, Eurostat and external secondary sources. Most of the statistical data focuse on small to medium-sized enterprises (SMEs), with the database for micro and small enterprises in particular being less ample, which is why some parts of the study are also based on SME data; this is always indicated in the text.

Aims and Summary of the Study

The aim of the study is to identify the state of affairs and conditions for the digital transformation of micro and small enterprises (MSEs) in the Czech Republic to propose specific recommendations in areas by which the public administration, regional and local self-administration, as well as commercial and non-profit bodies can facilitate further development of digitalization of such enterprises. Importantly, the study focuses on the municipal and regional levels because they serve as a key link between the central state administration and specific MSEs and are actually motivated to improve the competitiveness and resilience of local micro and small enterprises.

This study highlights effective digitalization as an indispensable condition of the future competitiveness and resilience of MSEs across economic sectors. MSEs are of fundamental importance for the future of Czech society and the economy. We focus only on the non-financial part of the economy – in 2022, the non-financial economic sectors accounted for 96.1% of the total GDP in the Czech Republic (while the European average was 95.7%). In the non-financial sectors, micro and small enterprises generate over a third of the Czech GDP and provide employment to half of Czech employees, thus playing a significant role in key segments of the Czech economy. Micro and small enterprises also constitute important links in the supply chains of larger companies. In regions and smaller municipalities in particular, they also serve indispensable functions in terms of satisfaction of social needs and services. Therefore, supporting the competitiveness of MSEs amounts to supporting the competitiveness of the entire Czech Republic.

The study highlights the critical importance of a "small-scale enterprising" for Czech society and the main challenges faced by this segment. It examines the overall state of utilization of digital technologies in the Czech Republic, which has a fundamental

[1] The definition of micro and small enterprises, which is binding for state aid programs and European programs, is used in this study. In terms of available data, some of the analyses are based on data for MSEs and some for small and medium-sized enterprises, i.e., SMEs. As the share of micro enterprises and small enterprises in the overall SME distribution is significant, we believe that the data available is also of information value for MSEs.

impact on small enterprises. The study works with data from targeted questionnaire surveys conducted by IPSOS, 60 Decibels and CzechInvest, as well as additional data from Eurostat and the Czech Statistical Office. The final part of the study provides a set of specific recommendations that also reflect the changes occurring in the context of the ongoing digital transformation of the economy and society in the Czech Republic.

Due to their size, MSEs are highly flexible entities, capable of dynamically changing their business processes, which is a prerequisite for successful digital business transformation. The analysis shows, however, that compared to large firms, MSEs do not see the obvious benefits of digital technologies for their further development and are consequently lagging behind larger firms in the utilization of digital technologies. Moreover, Czech micro and small enterprises lag behind the EU average in a number of technological indicators, which will diminish their prospects in an integrated European and global economy in the future. This is true in particular for the use of more sophisticated digital tools, such as efficient processing of (big) data, the utilization of artificial intelligence, as well as the use of more advanced digital communication tools.

Digitalization concerns virtually all levels of business processes, from planning through manufacturing, to marketing, customer service, data analytics, inventory and delivery tracking and much more. However, the analysis revealed that MSEs generally have a very limited understanding of where digital tools can be employed.

Crucial barriers to digital transformation include lack of motivation, financial resources, information, skilled labor, as well as the regulatory and bureaucratic environment. There are major disparities as to individual regions, age, education, economic sector and – as we would particularly like to point out – as to gender. This is disturbing information as unequal access to digital technologies and their meaningful utilization enhances the vulnerability of already at risk socio-economic groups.

There are a number of support programs for MSEs provided by the non-profit, corporate or state sectors and there are resources in the National Recovery Plan, etc. Information about them does not, however, come easily to businesses, the implementation of subsidized programs involves a great administrative burden, and resources are not used efficiently. Moreover, many companies do not appreciate the importance of change. To improve this situation, the benefits of digital technologies for MSEs need to be demonstrated by means of specific examples and positive motivation needs to be created.

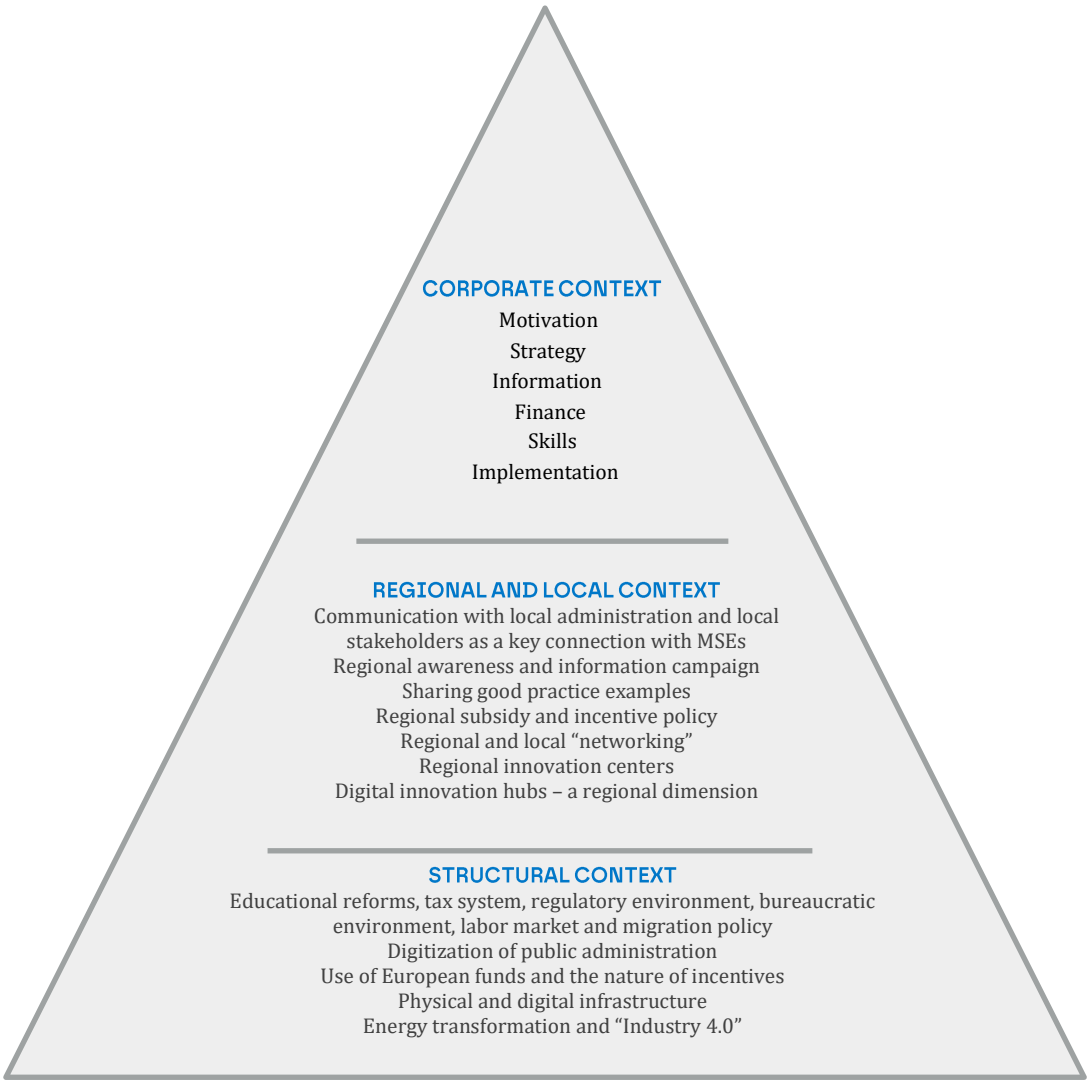
Successful digital transformation is directly related to necessary structural changes in education, digitalization of the state administration, improvement of the business environment, infrastructure building and strategic leadership in general. The pace of these nation-wide activities is, however, slow, and the path to reform is often unclear and unpredictable. For MSEs, change needs to be instigated much faster. In this regard, one of the main paths lies in a very local, municipal focus and in finding inspiration in concrete good examples and in the sharing of practical experience and successes.

The study identified regional, and especially local, levels as an essential element in communicating with MSEs, both in terms of information and in the sphere of financial and other motivation.

Structure of the Study

The study first highlights the crucial importance of micro and small enterprising for the Czech Republic's economy and its overall future social development. Our underlying argument is that without healthy, motivated, competitive – and therefore successfully digitalized – small enterprising, it is impossible to imagine a successful future for the Czech Republic.

The figure below illustrates the levels of analysis that are of key importance to targeting support for the digitalization of MSEs. The figure (pyramid) below shows the three areas explored in this study. In the corporate area, we examine MSEs and the main factors that influence their level of utilization of digital technologies. In the regional and local area, we describe the subjects and activities capable of improving the level of utilization of digital technologies and the level of training of employees of small firms at the municipal and regional levels. They can also facilitate access to financial resources, business and financial planning. In the third area, we have named the factors that operate at the nation-wide level and influence the development of the utilization of digital technologies in the long term (while structural reforms and transformations are not covered by this study, we want to highlight their crucial role in the digitalization of MSEs).



The initial part of the study is dedicated to the **overall state of utilization of digital technologies and the level of digital skills** in the Czech Republic at the societal level, at the level of public administration, the economy and the corporate sphere. This is followed by the **data and analytical parts of** the study which are divided according to the factors we have defined below as being of key importance for the improvement and development of the digital competences of MSEs in the Czech Republic:

Motivation – Are MSEs aware of the importance of digital transformation for their business and its future?

Information – How informed are MSEs about digitalization and how interested in information are they?

Finance – What role does finance play in decisions on digitalization, do MSEs use the existing support programs?

Implementation – Do MSEs have adequate human resources and skills for the successful implementation of digital tools and their actual utilization?

We have identified the **regional and local levels** as being crucial for interaction with MSEs in all these factors. The **level of information** about specific conditions, issues and opportunities at this level is **greater.** Both communication and support can be addressed **more directly,** and last but not least, there is **direct and concrete interest in making the support to MSEs as useful as possible** at the regional and local levels.

The final recommendations reflect this practical and regional conclusion and also offer a brief overview of the existing tools for increasing the digital competences of MSEs.

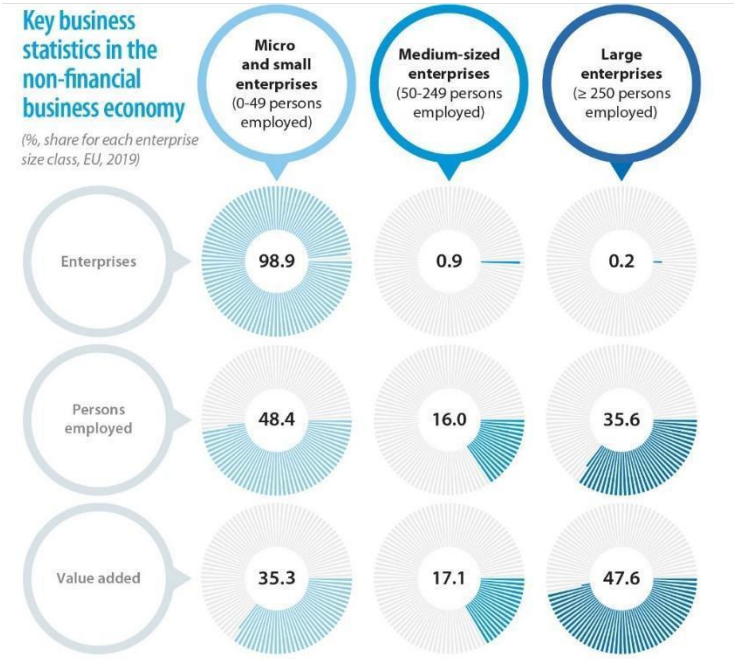
The Importance of Micro and Small Enterprises for the Czech Republic

In the European context, the Czech economy is one of the most vulnerable face to face with three global and European economic megatrends:

1. The changing nature of globalization.
2. The energy and "green" transition.
3. The shift to a digital economy.

Although this study focuses on the last area mentioned, it needs to be kept in mind that all three work together and generally pose the greatest threat to micro and small enterprises in particular. **MSEs are the backbone of the Czech economy,** and at the same time, especially in more remote regional areas, **provide indispensable services.** MSEs not only – as in the whole EU (Figure 1) – generate the above-mentioned one third of the GDP and provide half the jobs. They are also **a key link in many supply chains of large companies.** According to data from the Czech Statistical Office and other surveys, around **twenty thousand small and medium sized export companies (SMEs)** operate in the Czech economy, for which international trade is absolutely vital; they account for over half of export, directly or indirectly.

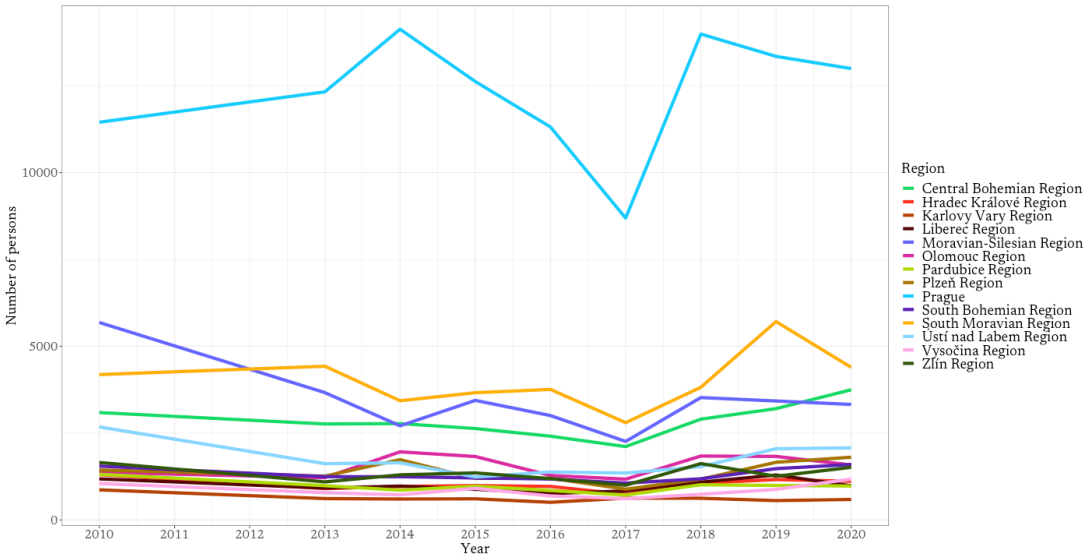
Figure 1: MSEs in the EU economy



Source: Eurostat

A critical point in the development of enterprising in the MSE sector is securing of **trade and other social services**. The closure of retail, catering and other establishments, as well as depopulation, is a continuing trend at the level of individual cities and municipalities. Over the last five years, the number of MSEs has been growing or stagnating in most regions and economic areas. The number of enterprises in the IT sector and enterprises focusing on specialized or personalized services and products is growing. In terms of innovation, these sectors are more resilient and competitive. They are declining, however, in number in the **health care and retail sectors**, as well as in the **accommodation and catering services sectors** following the Covid-19 pandemic. The number and share of micro and small enterprises in sectors important for securing local social and economic services, such as retail, restaurants, as well as in the health care sector, is therefore declining. This is also related to the lack of service functions in rural areas, which leads to residents leaving for better developed municipalities or cities. These factors contribute to the **growing interregional disparities**, which is one of the **most dangerous socio-economic pathologies of the present and future Czech Republic**. In the Ústí, South Moravian, Olomouc and Moravian-Silesian Regions and partly in Prague, the number of enterprises that have survived the first three years of their business operations has been declining since the Covid-19 pandemic (see Figure 2).

Figure 2: Number of employees in enterprises that survived the first three years of operations (by region)

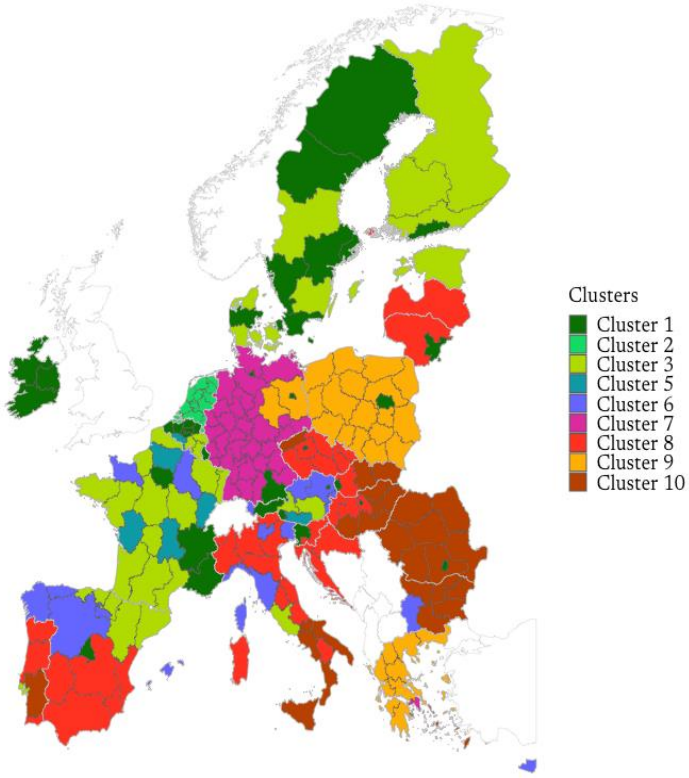


Source: Eurostat. Visualization: GARI

The uneven development of regions is a problem for the entire European Union, but given the specific economic nature of Central Europe (such as lower added value, high share of industry and lower share of services in GDP generation, high energy

requirements, dependence on international trade) and the three megatrends referred to above, the **growing disparities between regions in the Czech Republic are indeed a fundamental problem** (see Figure 3) for the future of Czech society and even for the resilience of democracy as such.

Figure 3: Regional vulnerability vs. preparedness vis-à-vis digital and green transition in the EU



Source: Eurostat. Index and visualization: GARI

According to the MIT analysis (2019), weaknesses in and threats to the development and sustainability of enterprising in the MSE sector generally include the following:

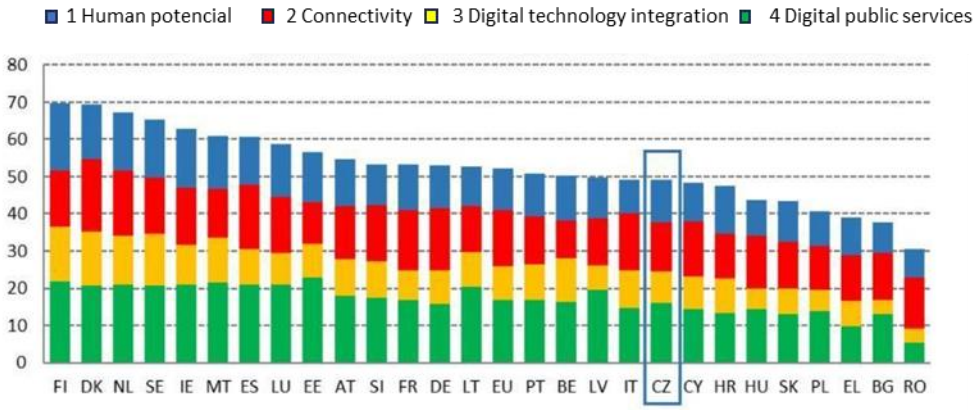
- Lower capitalization and limited access to finance.
- Manufacturing with low added value.
- Insufficient emphasis on the development of vocational training.
- Underestimation of marketing activities.
- Shortage of skilled labor.
- Continuing high administrative burden.
- Low motivation to automate and digitalize.
- Enterprises lagging behind technically and technologically, non-acceptance of current trends.
- Technologically equipped competition on "Western" markets (MIT, 2019).

As will be shown below, almost all of the above-mentioned weaknesses in the MSE sector **also apply to the utilization of digital technologies and digital transition**; they are two sides of the same coin.

Brief Summary of the Condition of the Digitalized State, Society and Economy in the Czech Republic

According to the 2022 results of the Digital Economy and Society Index (DESI), the Czech Republic is ranked nineteenth among the 27 EU Member States, i.e., one place lower than in 2021. The most vulnerable aspect is the **integration of digital technologies**; it also ranks below average in the area of **digital public services**. There has been, however, a slight improvement in both areas over the last year.

Figure 4: Digital Economy and Society Index, Czech Republic (2022)



Source: Digital Economy and Society Index 2022, Czech Republic.

In the area of **digitalization of public administration**, the Czech state performs **well below average** compared to the EU. In the area of electronic identification, specifically in relation to business enterprising, it ranks third from the end of the E-Gov index[2] (Eurostat data), behind Romania and ahead of Ireland and below the EU average. The situation is similar in the case of E-documentation, and the Czech Republic performs slightly better in the area of sharing of digital information across public administration, but is also here below the EU average. As regards the facilitation (but not the simplicity or utilization) of online communication of the business sphere with the state, however, the Czech Republic is in the group with the best index.

[2] Source: https://digital-agenda-data.eu/datasets/e-gov-2020/visualizations. The DESI index assesses to progress made at the national level in meeting targets related to the enhancement of employees' digital skills, the utilization of digital technologies, the improvement of connectivity and infrastructure, and the digitalization of goverment services. Addiotionally, it monitors the extent of investment in digitalization supported by the European Recovery Fund (ERF).

The basic level of digital skills in the Czech Republic is slightly above the EU average. However, the **overall "digital divide" in the Czech Republic has not been narrowing in recent years.** As regards the age gap, this is in all probability a temporary issue, but as for income, it is a long-term problem given that digital skills will be an increasingly important, even integral, part of people's lives. There is a **digital divide between income brackets.** For instance, only 46.3% of people in the lowest income bracket own a computer, with 53.4% of people in that bracket using a computer in 2021, while people in the highest income quintile reach nearly 100% in both indicators. A digital divide also continues to exist between **age groups** (in the 65+ age group, 46.3% of people own a computer, 53.4% have Internet access, in the under 40 group, 92.9% of people own a computer and 97.7% have Internet access). Almost all families with children have, however, both a computer and Internet access. The biggest shift over the past six years has been in the "middle class", where Internet use has grown from 75% to 90%.

Access to the Internet in Companies

96% of companies in the Czech Republic (regardless of their size) are connected to the Internet, putting the Czech Republic above the EU average. The Czech Republic has, however, an above-average proportion of connection of companies via mobile Internet, with small enterprises in particular accounting for a smaller share of connections via Wi-Fi routers. As for **connection speed**, the Czech Republic lags behind the EU average: 76% of enterprises in the Czech Republic have an Internet connection of 30 Mbit/s and faster, which puts it at the **eighth place from the bottom,** between Bulgaria and Greece (the EU average is 84%), while only 43% of enterprises have a connection of 100 Mbit/s and faster (the EU27 average being 57%). This is a big difference compared for instance to Denmark, the Netherlands or Romania, where a connection speed of 300 Mbit/s and faster ranges between 90 and 100%.

The differences in connection speeds lie in the enterprise size. It is only in the last year that the disparity in access to faster connections (up to 100 Mbit/s) between companies with fewer than 50 employees and larger companies has partially diminished, but this is not the case for speeds above 100 Mbit/s, where companies with over 250 employees have 70% access, **while in companies with fewer than 50 employees it is only 42.8%.** This data are corroborated by information from the IPSOS survey, in which **insufficient connection speed** is cited as a frequent problem.

Utilization of ICT Technologies in Companies

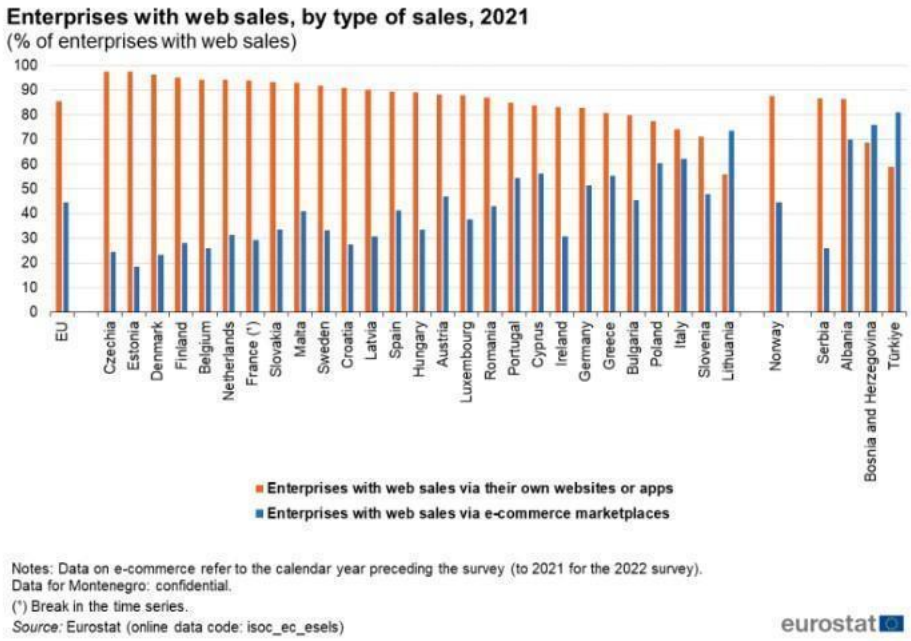
There are no significant differences according to company size as regards the basic functions of using digital services (such as a website, offering products via the Internet, tracking and processing of orders via web interfaces or applications) and the Czech Republic ranks among countries that are above the EU average. **There are differences, however, in more advanced functions**, such as order status tracking and such (only 13% of companies, with fewer than 50 employees, utilize such functions, compared to 23% of companies with over 250 employees).

There are significant differences between sectors, construction, transportation and storage, manufacturing and real estate being the least "digitalized" sectors when it comes to the utilization of online sales and marketing tools. Travel, accommodation and trade, on the other hand, are the most "digitalized" industries. The **Czech Republic is generally, however, above the EU average** in these parameters.

The Czech Republic (regardless of company size) **ranks second** among EU countries after Ireland in terms of the **share of online sales in total sales** (30%, while the EU average is 17%).

The Czech business environment is specific in that it **utilizes its own web interfaces or applications** for sales to **an above-average extent**, as opposed to using external commercial e-services (Figure 5). Czech MSEs (and the Czech Republic is no exception in this respect) prefer to spend a rather large amount on software purchases rather than paying much less in monthly license fees. The fact that ownership is preferred to borrowing is characteristic of small enterprises.

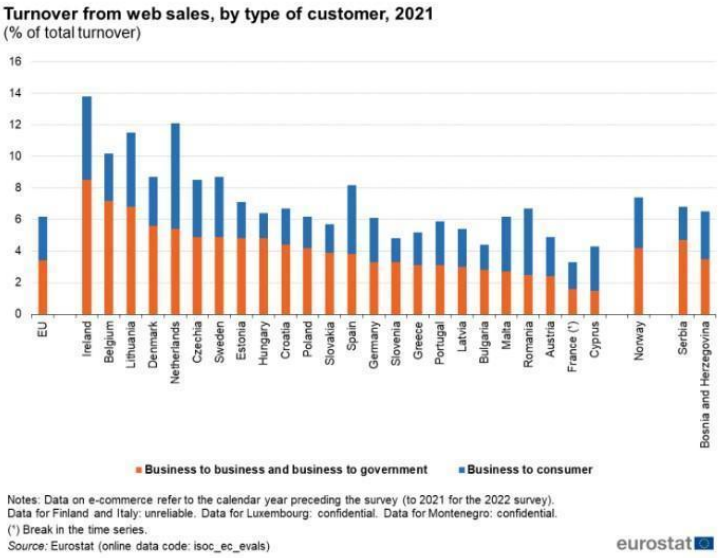
Figure 5: Online sale in terms of shares of own and external digital sales platforms



Source: Eurostat

Companies (regardless of their size) most frequently report logistics-related high costs (49%) among problems in online sales. This is a problem that impacts small, and even more so micro, enterprises to a greater extent. Further problems that arise from product conformity required by regulations (packaging, country of origin; 26 %) also impact MSEs more severely. Despite the above-mentioned obstacles, the Czech Republic is among countries with above-average online sales (Figure 6).

Figure 6: European comparison of the share of online sales in total turnover



Source: Eurostat

There are tangible differences between MSEs and large companies in the area of working with social networks, with 49% of MSEs (as opposed to 83% of large companies) using Facebook or LinkedIn, and a mere 22% of MSEs (as opposed to 52% of large companies) using YouTube or Instagram. In this respect, the **Czech Republic lags seriously behind the EU average,** which is an interesting piece of information given the fact that the Czech society as a whole is well above the EU average in the utilization of digital social networks.

There is once again a significant difference in the utilization of **more sophisticated forms of digital business communication,** such as data and document sharing between companies (Electronic Data Exchange), with **a mere 5% of MSEs** using some form of data and document sharing in 2022, as compared to 31% of large firms; this proportion has declined even further for MSEs over the last decade.

23–29% of small enterprises (31–38% of large enterprises) have **remote Internet access. There is a vast difference, however, in the more sophisticated utilization of remote access** – 46% of small enterprises permit remote access to corporate documents and applications and 33% of them use online meetings (**as compared to 94% for companies with more than 250 employees**), while **only 7% of small enterprises** prefer **online meetings** to face-to-face meetings (as compared to 46% of large companies). In all these parameters, the Czech Republic is among the **below-average countries in the EU.**

The share of enterprises that use any of the **cloud services** (which, however, also includes email or security) in the Czech Republic is 44%. In this regard, the Czech Republic is at the EU average, but far behind developed economies such as Finland and Denmark with their 77%.

Small enterprises rely on **cloud accounting services** more than large companies (23.4% vs. 15.4%), but the difference is reversed as regards more sophisticated use, such as cloud databases (15.4% vs. 32.2%). A mere 14% of enterprises in the Czech Republic use cloud databases (the EU average is 19% and that of the leader in this dimension, the Netherlands, is 51%). Once again, there are **large differences according to company size** when it comes to the use of **sophisticated ICT tools, such as artificial intelligence (AI) or the Internet of Things (IoT),** in the Czech Republic. In companies with fewer than 50 employees the utilization rate is **28% (IoT) and 4.5% (AI)**, in **large companies, it is 55% and 24%, respectively**. As regards AI utilization, this difference is very important because this tool ought to be able to "level" the playing field and help SMEs; however, the trend is quite the opposite. IoT is mostly used for **simpler processes**, such as building security or consumption monitoring (once again, very important for MSEs), with a mere 4% of enterprises (regardless of their size) using IoT, for instance, to monitor the movement of goods and such. **In the case of IoT, the Czech Republic is at the EU average, in the case of AI, it is well below the average.**

Another **major difference from the perspective of company size lies in measures designed to ensure the security of ICT operation.** 78.2% of enterprises, with fewer than 50 employees, use the data backup service, 48.6% use virtual private networks (VPNs) and 27% use data encryption (as compared to 87.1%, or 95%, or 71% in companies with more than 250 employees). This shows that MSEs are obviously more vulnerable in terms of cybersecurity. In addition, the utilization of these ICT services is the lowest in the catering and hospitality sectors, i.e., sectors with a significant share of MSEs.

Digitalization at the Level of Micro and Small Enterprises in the Czech Republic

The challenges faced by MSEs in the Czech Republic in the transition to new (digital) technologies do not differ in principle from those faced by other economies. Digitalization is simply not a priority for small enterprises. They are dealing with a number of other pressing issues that are more urgent in the context of day-to-day issues. These include challenges related to supply chains, growing prices, uncertain economic prospects or labor shortages. For this reason, investments into the company's digital infrastructure are put off indefinitely, projects already in the pipeline are put on hold, or topics such as the strategic digital future of the company are not being addressed at all. Over the long term, however, this approach is believed to pose a threat not only to the growth of the company, but in many cases to its very sustainability.

Deloitte's global survey shows that 45% of small and medium-sized companies face investment costs that are a significant obstacle to digital transformation (Deloitte, 2021). Limited financial resources often obstruct their ability to effectively adopt and implement digital technologies. According to the World Economic Forum, approximately 40% of small and medium-sized companies worldwide do not have

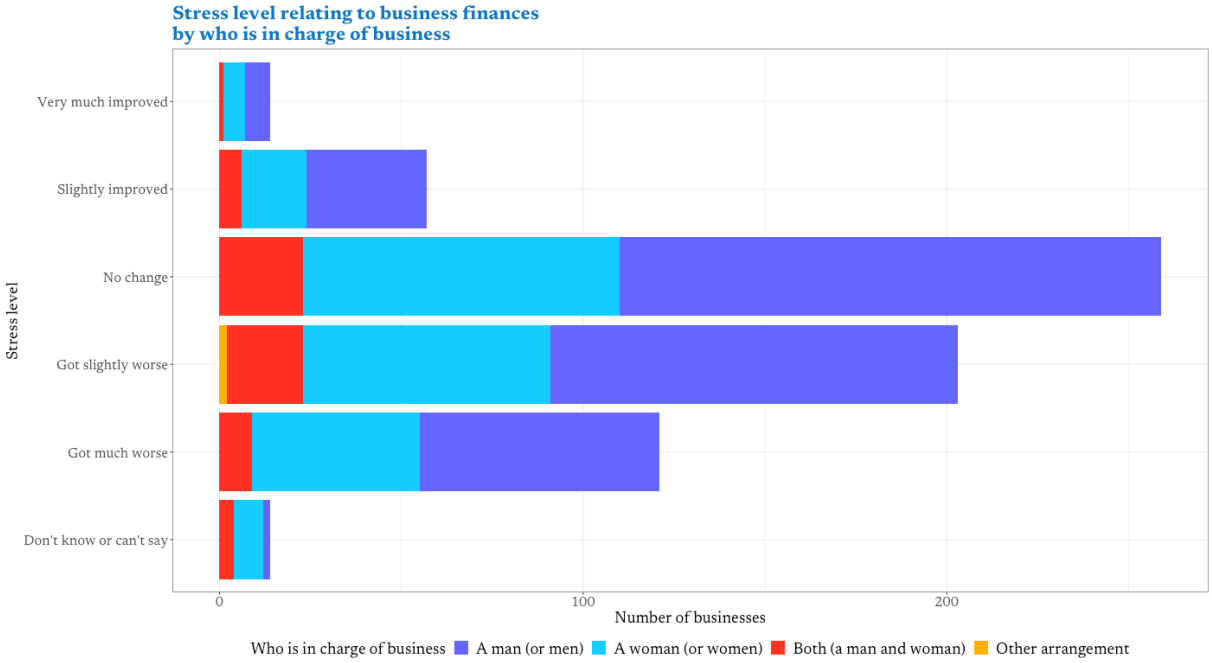
access to the requisite skills and talent necessary for a successful digital transformation. The shortage of skilled professionals poses a significant challenge to their effort to implement digital technologies (World Economic Forum, 2020). According to McKinsey & Company, a mere 16% of small and medium-sized companies worldwide have a clear digital strategy. The absence of a well-defined plan hinders their ability to navigate the complexities of digital transformation (McKinsey & Company, 2020). A study conducted by Microsoft further points out that 62% of small and medium-sized companies worldwide cite fear of data breaches and cyber threats as a barrier to a more intensive utilization of digital technologies (Microsoft, 2021).

MSEs are also often unaware that given the current economic prospects, postponing digital transformation may aggravate their problems in the future even further. Economic recession or financial instability can put a more significant strain on the financial resources of small and medium-sized companies and hinder investment into digital technologies and the implementation of comprehensive digital transformation initiatives. Economic recession may lead to downsizing or restructuring in organizations, thus resulting in a reduction of human resources. This may aggravate the existing shortage of digital skills faced by small and medium-sized companies and make it more difficult to find and retain skilled professionals with the requisite expertise in the area of digital technologies. Economic uncertainty may cause volatility of demand in market and customer preferences. Small and medium-sized companies may find it difficult to align their digital transformation efforts with evolving market trends, which makes it difficult to identify the right digital strategies and technologies to be implemented. During economic recession, competition within a sector may intensify as companies strive to survive and retain their market share. Small and medium-sized companies that lag behind in digital transformation may face heightened competition from more digitally advanced competitors, which further highlights the urgency of digital transformation.

Economic uncertainty may cause small and medium-sized companies to take greater care to avoid risk, which will discourage them from investing in digital transformation initiatives. Fear of financial losses or poor results may also render them unwilling to accept risks and use digital technologies to a larger extent (Yvanovich, 2023). Data obtained from the project *Touha prosperovat (situace českých mikro a malých podniků 2022) / The Desire to Prosper (the Situation of Czech Micro and Micro Enterprises 2022)*,[3] Figure 7, have shown that a majority of MSEs already feel greater pressure in terms of their financial situation, with economic uncertainty already permeating the very substance of business enterprising.

[3] Data for the *Touha prosperovat (situace českých mikro a malých podniků 2022)* project was processed by 60 Decibels under the *Strive Czechia* program, a joint initiative of the Mastercard Center for Inclusive Growth and CARE Czech Republic, an NGO. The data was partly newly processed for the purposes of this study.

Figure 7: Perceived financial pressure at the level of company management

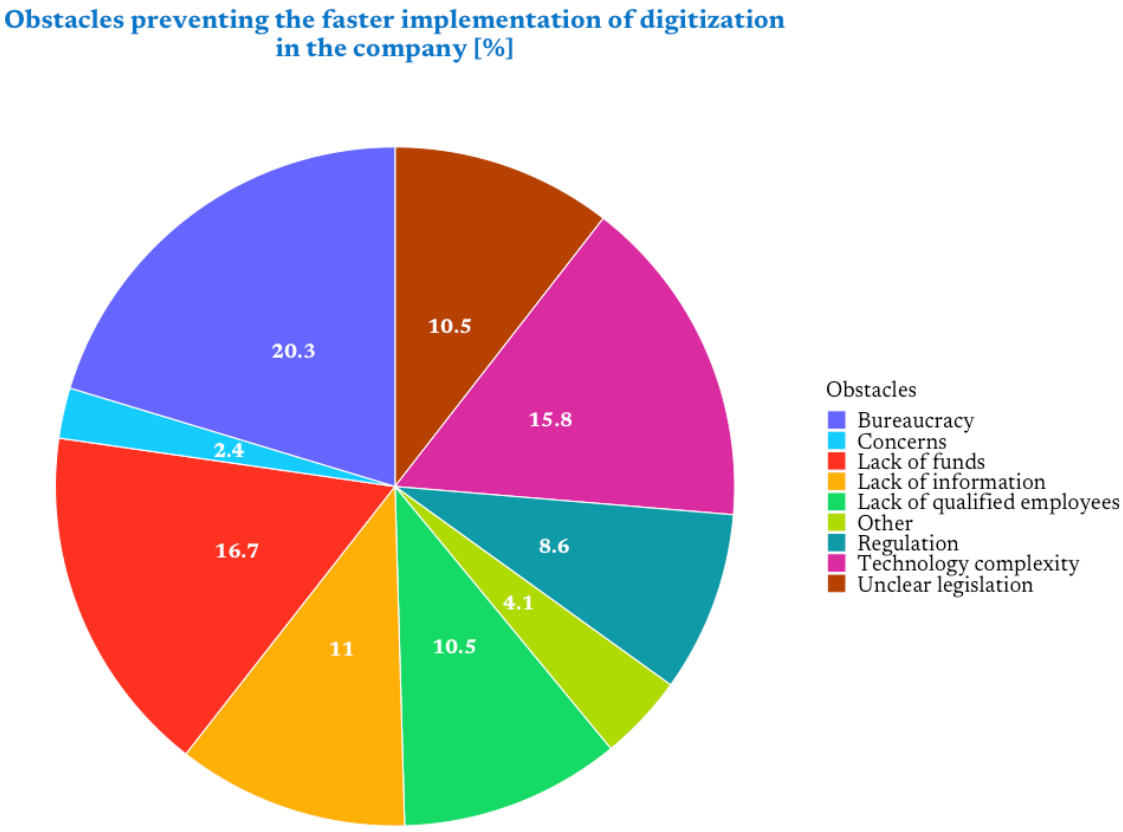


Source: 60 Decibels by: GARI

The perception of obstacles to digitalization, on the part of management of Czech MSEs, largely copies the general challenges described above. A specific fact needs to be pointed out: nearly 40% of all informants, male and female, view the government's approach as the main obstacles to digitalization.[4]

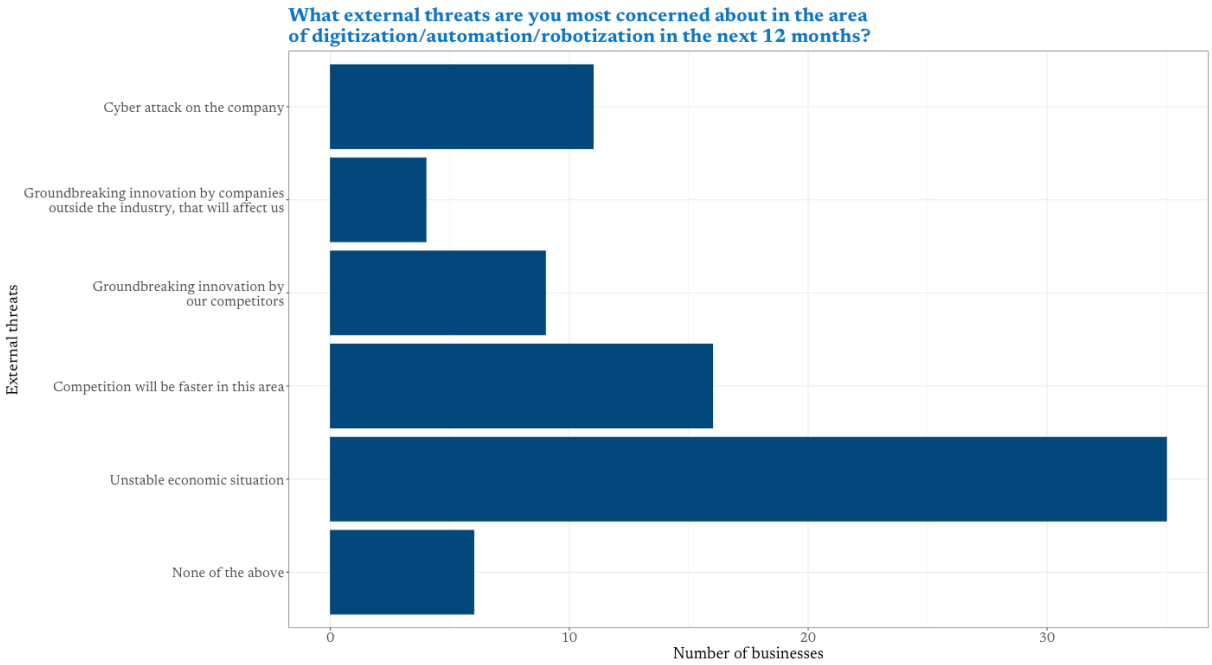
[4] The results of the questionnaire survey need to be placed, however, in context with the generally unsatisfactory business and regulatory environment in the Czech Republic.

Figure 8: Obstacles to faster implementation of digitalization in companies (%)



Source: Survey carried out by IPSOS. Visualization by GARI.

Figure 9: Perception of external threats by MSE management



Digitalization and Motivation

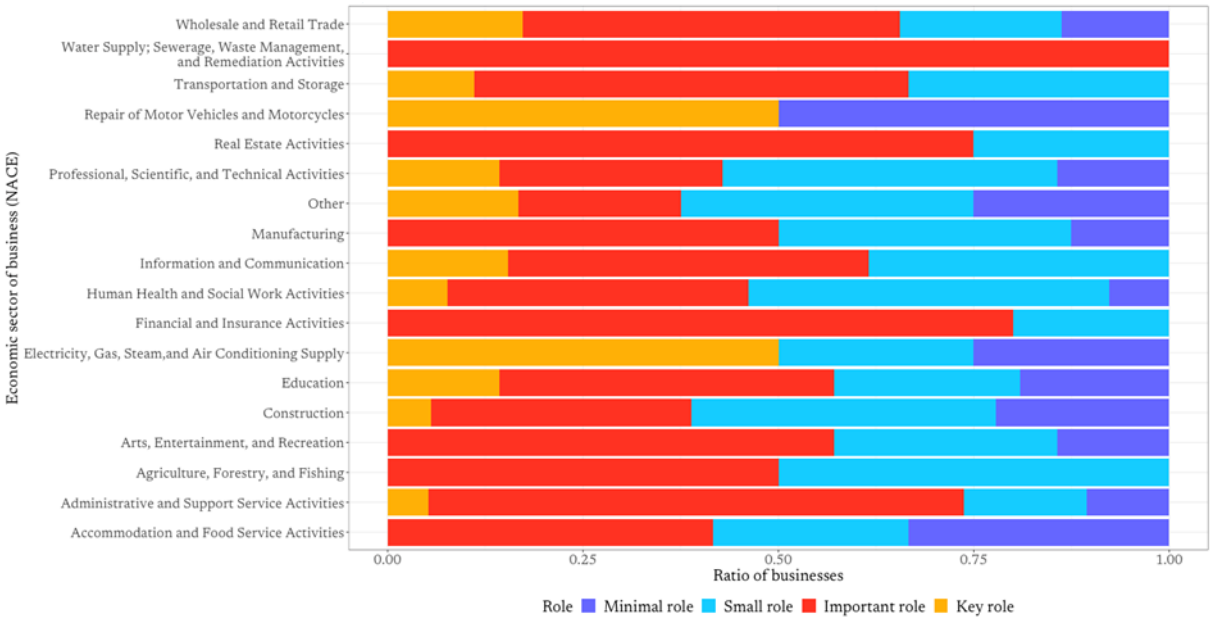
During the work on the study, *motivation* turned out to be one of the most fundamental, most difficult to grasp and, at the same time, most difficult to resolve problems in the assessment of the future of MSE digitalization. This is a complex issue, if only because it touches upon the very substance of the ambitions of the owners of micro and small enterprises in terms of their future. Are they aiming for further growth, or do they simply wish to maintain the current scale of their business? Under the current economic conditions, it is not easy for small enterprises to determine to what extent investment into new technologies will facilitate future growth or the sustainability of their business. The figure shows how small companies perceive costs of new technologies with great caution. The following main questions have been identified with regard to *motivation* for the purposes of this study:

- How do small and micro enterprises perceive the notion of "digitalization", what does it mean to them – do we have a similar understanding of this term?
- What motivation do small and micro enterprises have for both digitalization and actual growth?
- How willing are they to overcome the barriers/aversion to digitalization? Do they know what digitalization can bring them?
- What importance do Czech MSEs therefore attribute to digitalization and what motivation do they feel?

Data obtained from the survey conducted by IPSOS (Figure 10) is complemented with data from a questionnaire survey conducted by 60 Decibels for comparison purposes

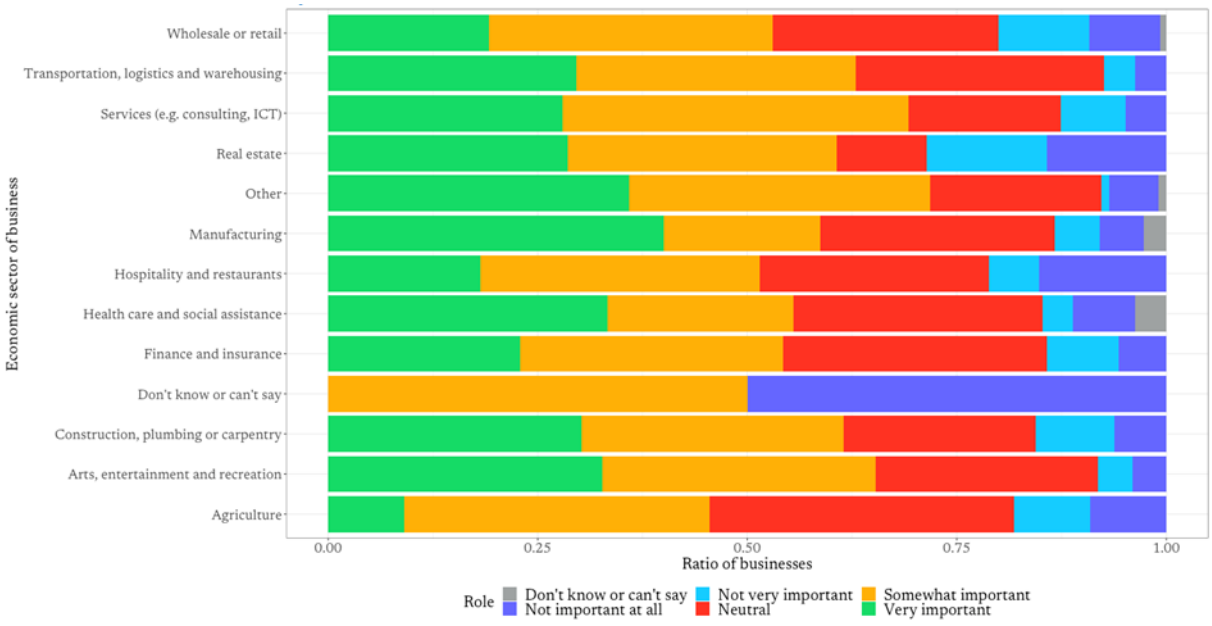
(Figure 11). Among the MSEs asked, between a third and a half do not view digital technologies as having a significant role (however, there are differences between individual sectors).

Figure 10: What role do you attribute to digital technologies (by business sector)? (IPSOS)



Source: Survey carried out by IPSOS. Visualization by GARI.

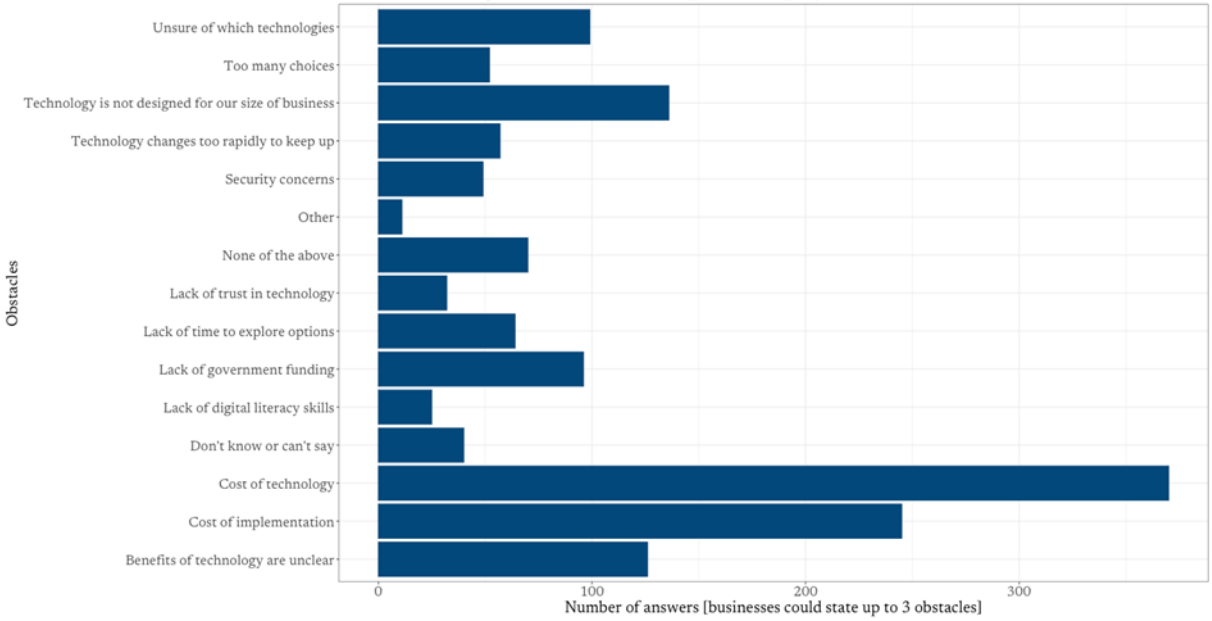
Figure 11: What role do you attribute to digital technologies (by business sector)? (60 Decibels)



Source: Data from the survey by 60 Decibels. Visualization by GARI.

A large percentage of MSEs also voiced uncertainty as to understanding technologies and uncertainty as to their contribution, although costs dominate among the obstacles (Figure 12).

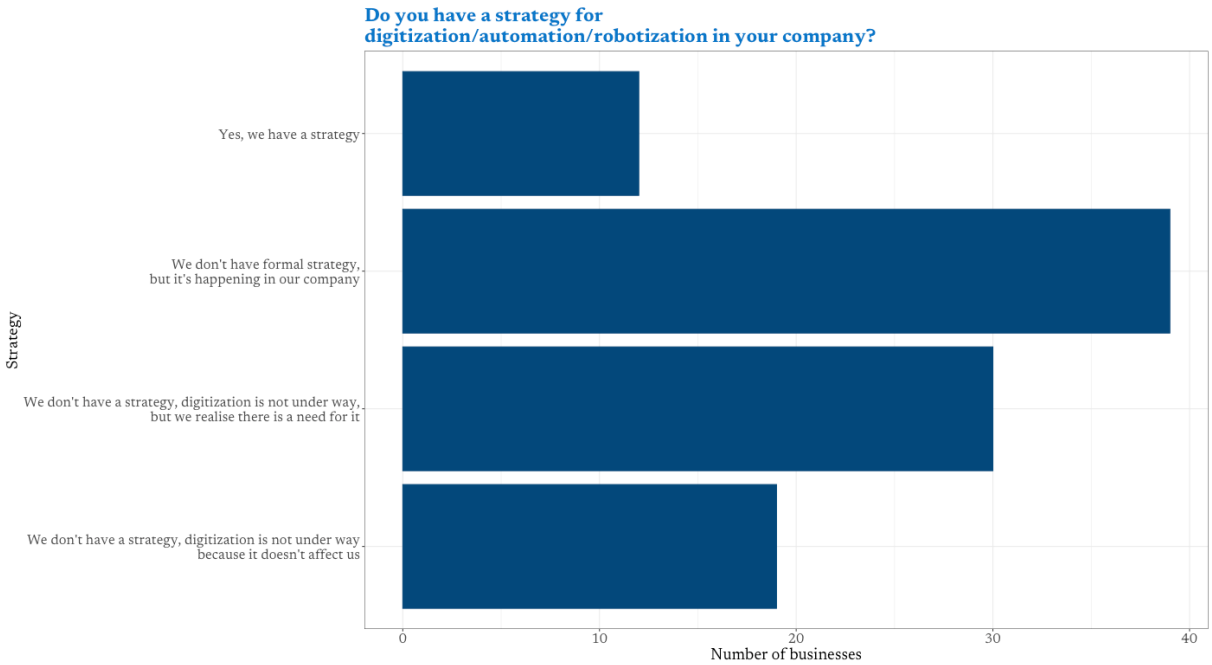
Figure 12: Perception of main obstacles to the implementation of new technologies (companies with fewer than 10 employees)



Source: CzechInvest by GARI.

The intensity of motivation to digitalize is also illustrated by a very low willingness regarding strategic planning of technological investments (Figure 13a).

Figure 13a: Technology Investment Planning Strategy of MSEs



Source: CzechInvest, processed by GARI

Out of the sample of 100 companies surveyed, a mere 12% has a formally designed strategy, less than 40% are implementing digitalization without a strategy, a full fifth of the companies believes that digitalization does not concern them, and 30% of companies perceive the need for digitalization, but do not address it, whether on operating or strategic levels.

Figure13b: Investment outlook of MSEs over a 2-year period

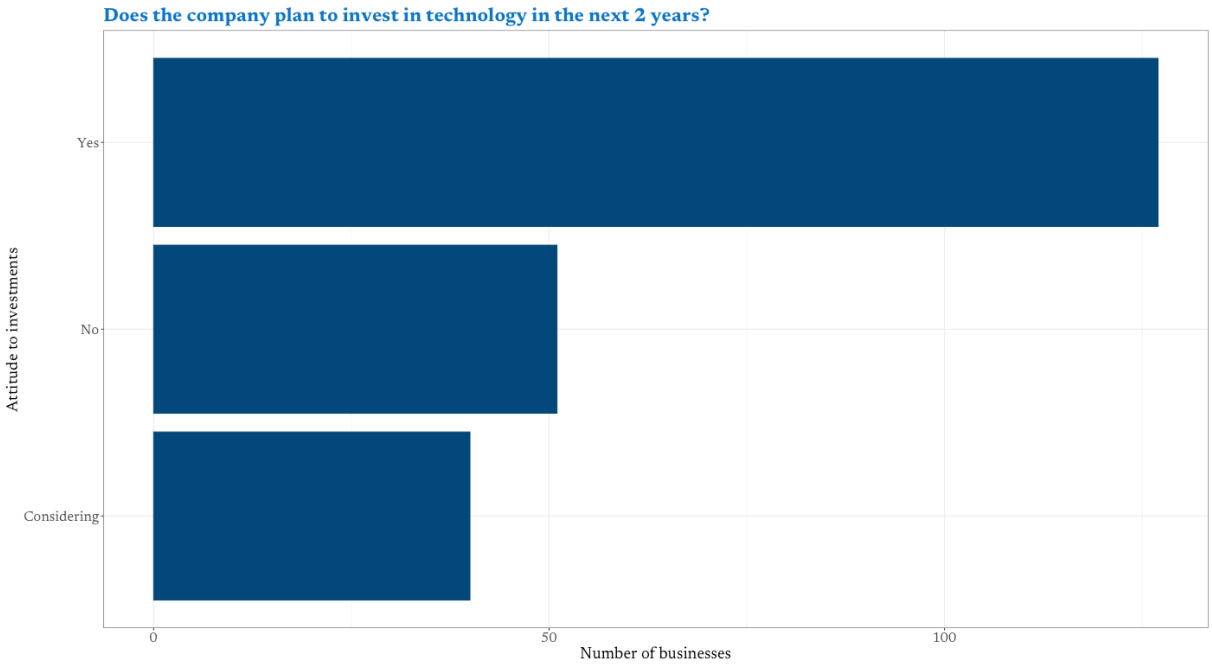
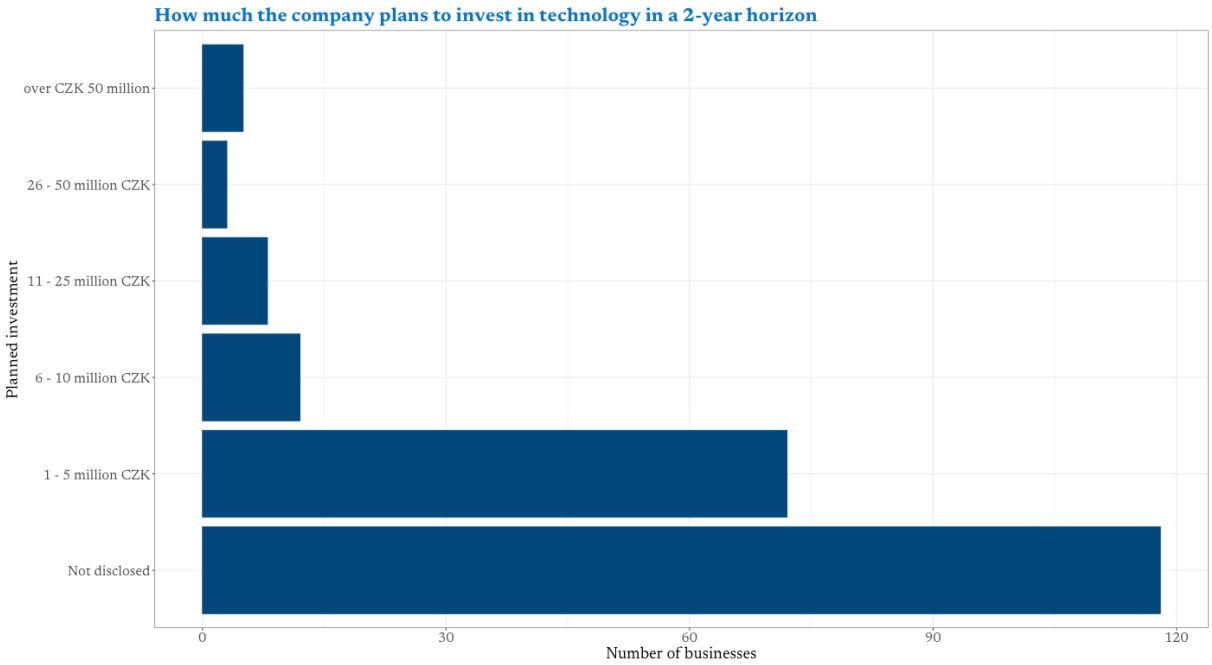


Figure 14: Investment plans for the next 2 years

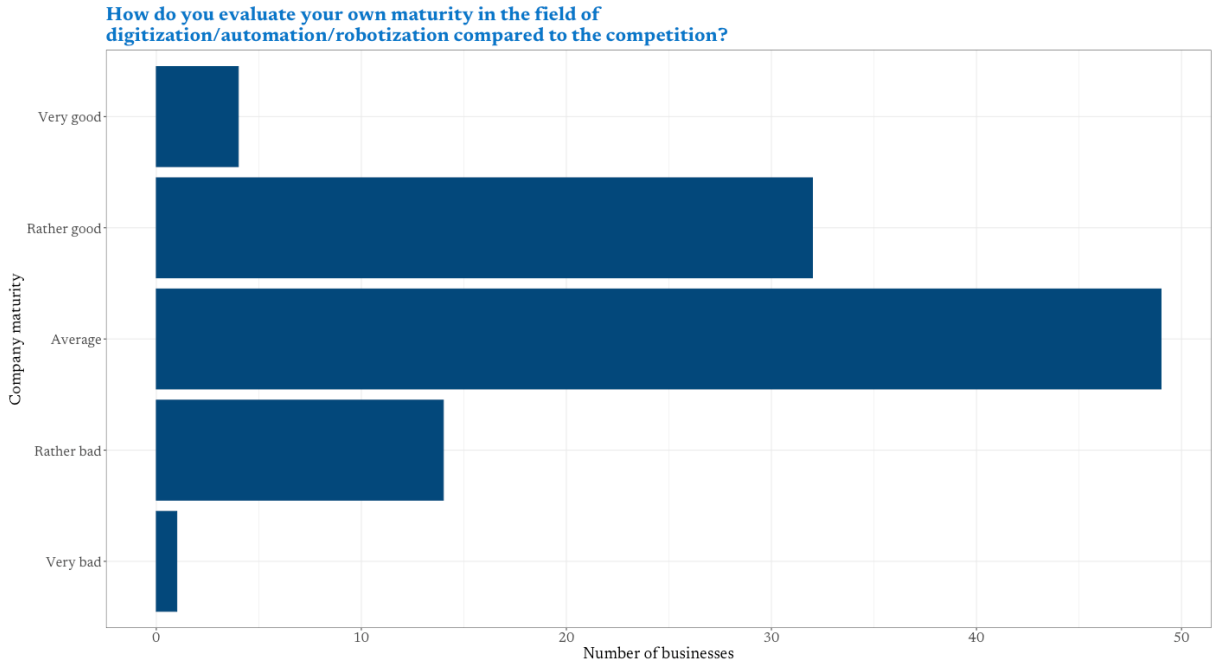


Source: CzechInvest. Visualization by GARI

The previous two figures show that while a vast majority of the companies surveyed are planning or considering investments into technologies in the next two years, the largest

group of respondents was unable – or unwilling – to express the level of investment. If the time horizon is as short as two years, this indicates the uncertainty and vagueness of the investment ambitions. The results of another questionnaire survey can be interpreted in a similar way: companies were asked to self-evaluate themselves according to how technologically advanced they believed themselves to be in relation to their competitors (Figure 15). Nearly 50% of respondents viewed their companies as "moderately" advanced.

Figure 15 : Self-evaluation of how technologically advanced companies are compared to their competition



Source: CzechInvest. Visualization by GARI.

The motivation for investing into technologies also translates into the companies' own interpretation of the benefits of digitalization for business enterprising. The following figure (Figure 16) classifies enterprises according to how they rate themselves as to how advanced they are in technology penetration on the one hand and how they view the benefits of technologies on the other. Firms that consider themselves advanced hope that technologies will mainly increase their productivity and bring them new customers, while firms on the opposite spectrum hope for a reduction of the bureaucratic burden. On this basis, a certain ranking of ambitions and expectations can be compiled: firms that consider themselves more technologically advanced tend to focus on growth, while firms that identify as less advanced expect technologies to improve basic internal processes. Firms that consider themselves to be moderately advanced have evenly distributed expectations of new technologies.

Figure 16: Strategy for digitalization according to how technologically advanced companies are.

Source: CzechInvest. Visualization by GARI.

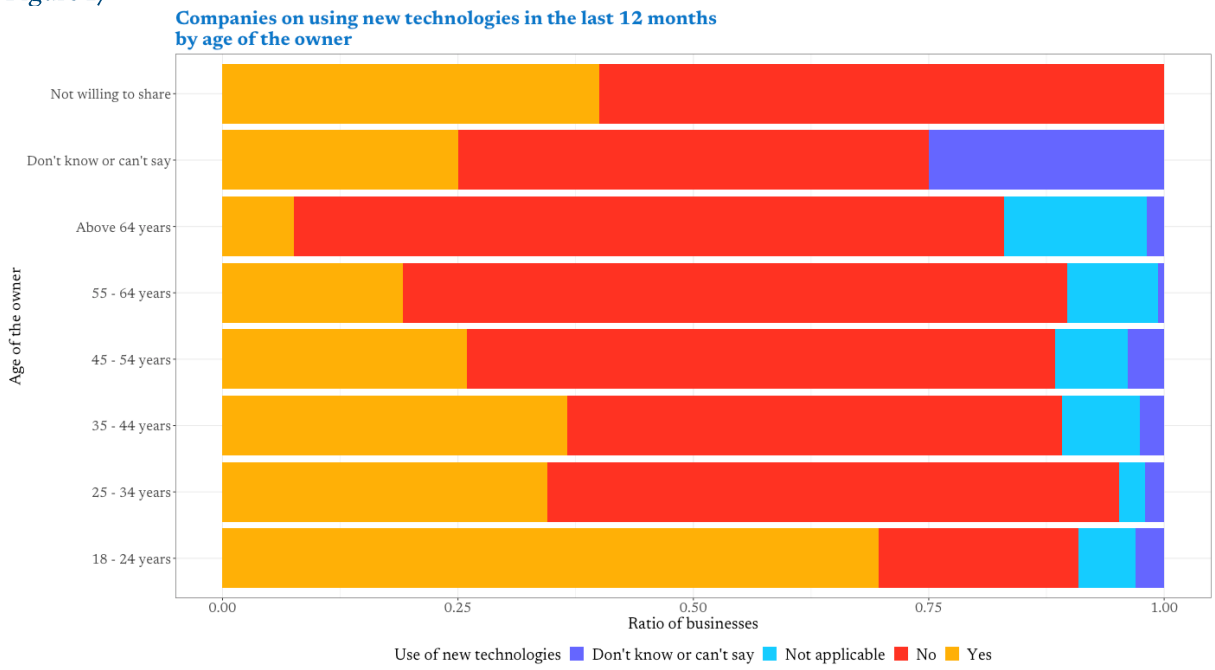
A vague and lower motivation for the digitalization of MSEs needs to be put in context with the general motivation for micro and small enterprising in the Czech Republic. Despite the fact that the Czech Republic's share of micro enterprises and self-employed persons[5] per capita is well above average, the number of persons engaged in enterprising as their main activity is declining. This suggests a diminishing motivation for long-term pursuit of one's own business plan and a more secure reliance on employment. Self-employed women and businesswomen are an exception, and their share is growing. On closer inspection, this trend cannot be viewed as positive because insufficient flexibility of employers is one of the important reasons for such a decision.

The question of succession and handover of family MSEs is a specific issue. The upcoming generation is frequently not interested in taking over the family company, and the survey conducted by IPSOS (MIT, 2022) shows that two thirds of company owners are not preparing handover plans. This has a negative impact on investments into new technologies. Under the circumstances, it is understandable that

[5] In this context, we do not examine the impact of false self-employment ("švarc-systém"), i.e., a situation where a company concludes a business agreement (e.g., an agreement on the provision of services) with a self-employed person. However, the self-employed person in fact performs dependent work and is thus actually in the position of an employee.

the business owner, whether male or female, does not intent to examine prospects for the next decade or two. This is why this large segment of small family enterprising is in a precarious position, not only in terms of its own digitalization, but also in terms of business continuity as such. Moreover, CzechInvest data (Figure 17) illustrate that technology utilization declines inversely with age.

Figure 17

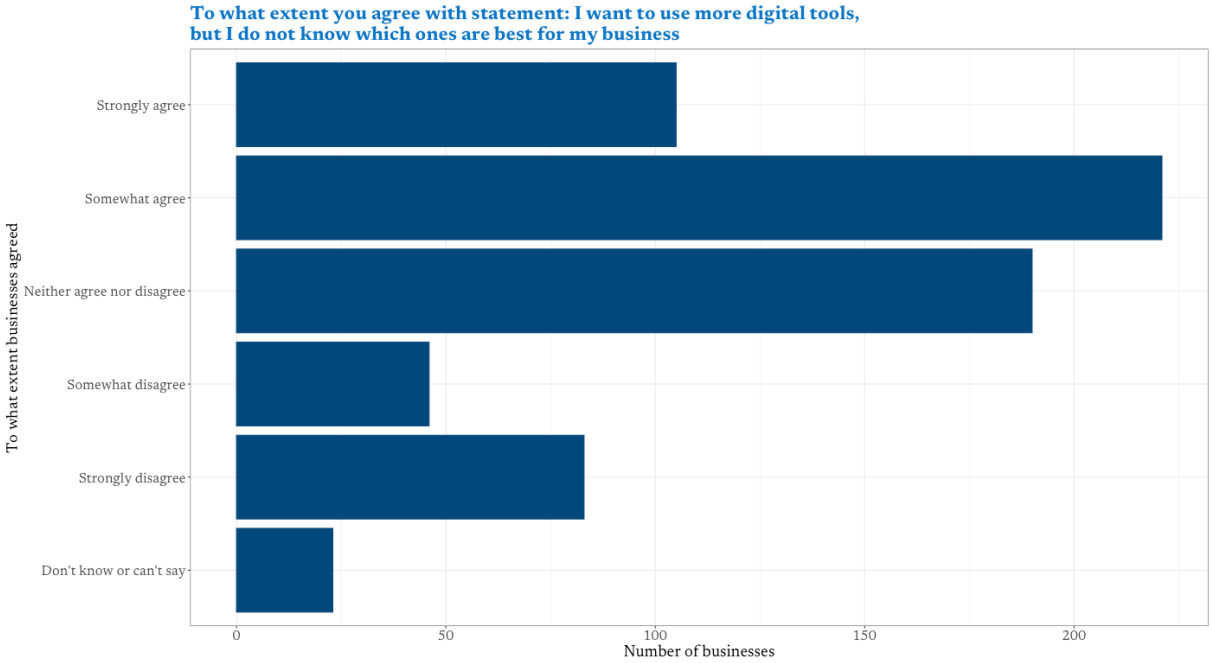


Source: CzechInvest. Visualization by GARI.

Digitalization and Information

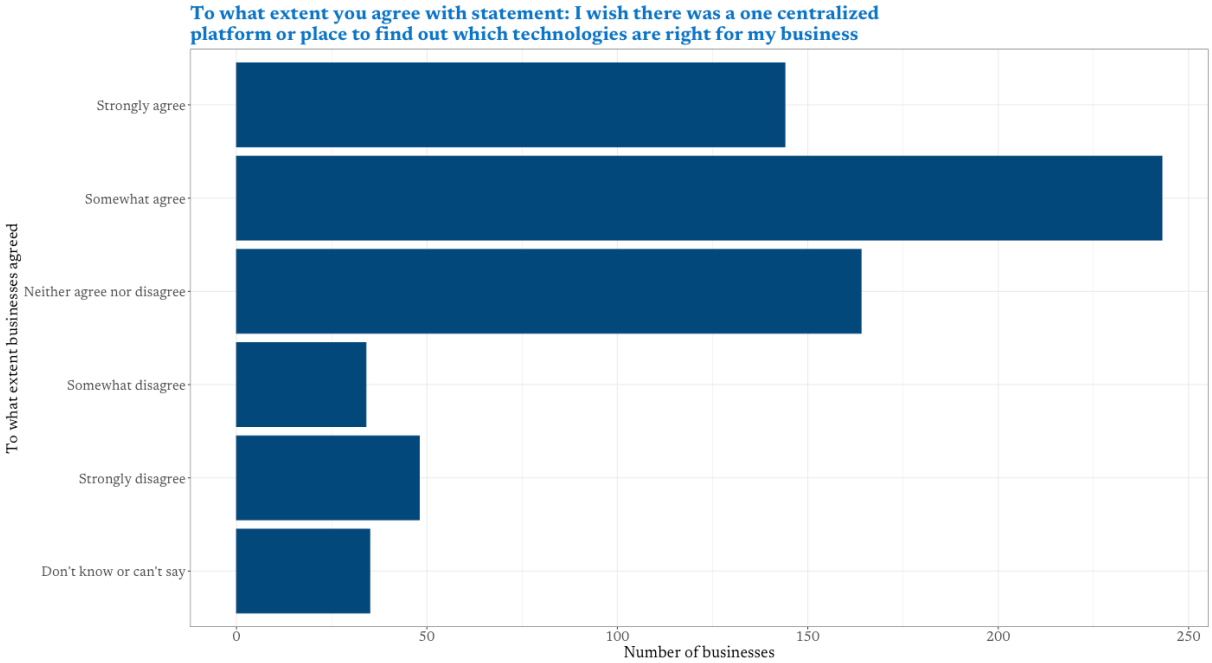
When the initial hurdle – motivation for digital transformation, including long-term business development planning – is surmounted, the path to digitalization is already half open. Data from 60 Decibels survey show (Figures 18 and 19) that Czech companies with fewer than 10 employees would welcome more awareness raising in the area of digital tools, or possibly a uniform platform that would guide them through the complex maze of offers in this area in an easy to navigate and practical manner.

Figure 18a: Micro enterprises' awareness of utilization of digital technologies



Source: 60 Decibels. Visualization by GARI.

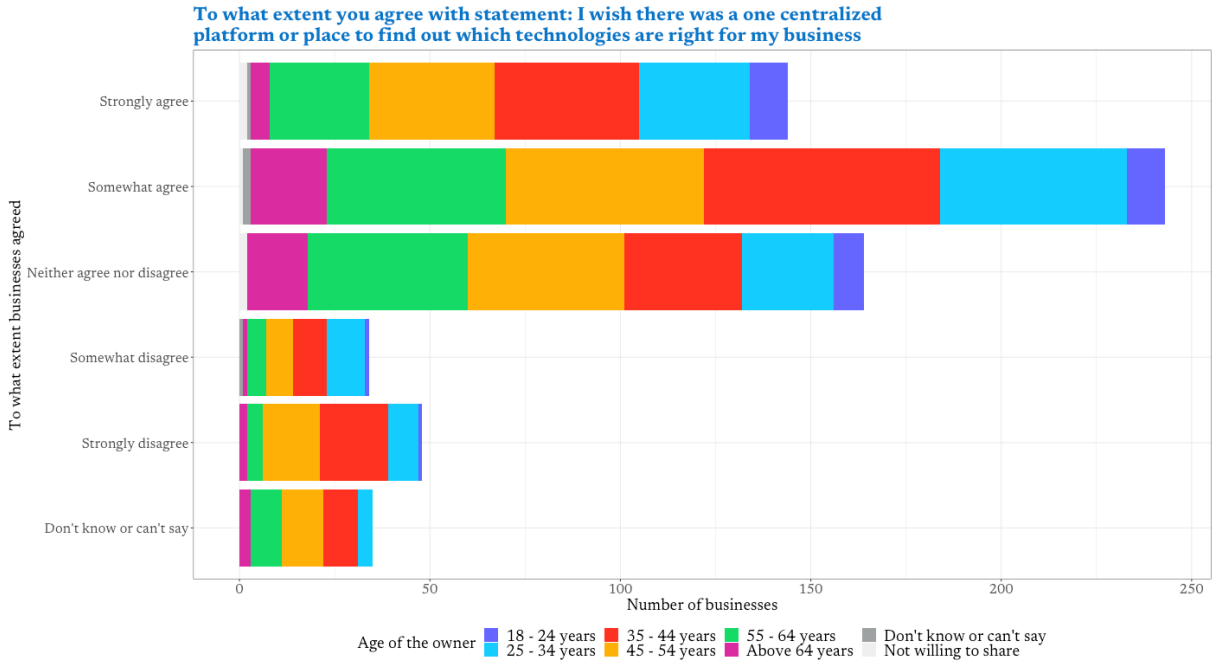
Figure18b: Micro enterprises' awareness of utilization of digital technologies



Source: 60 Decibels. Visualization by GARI.

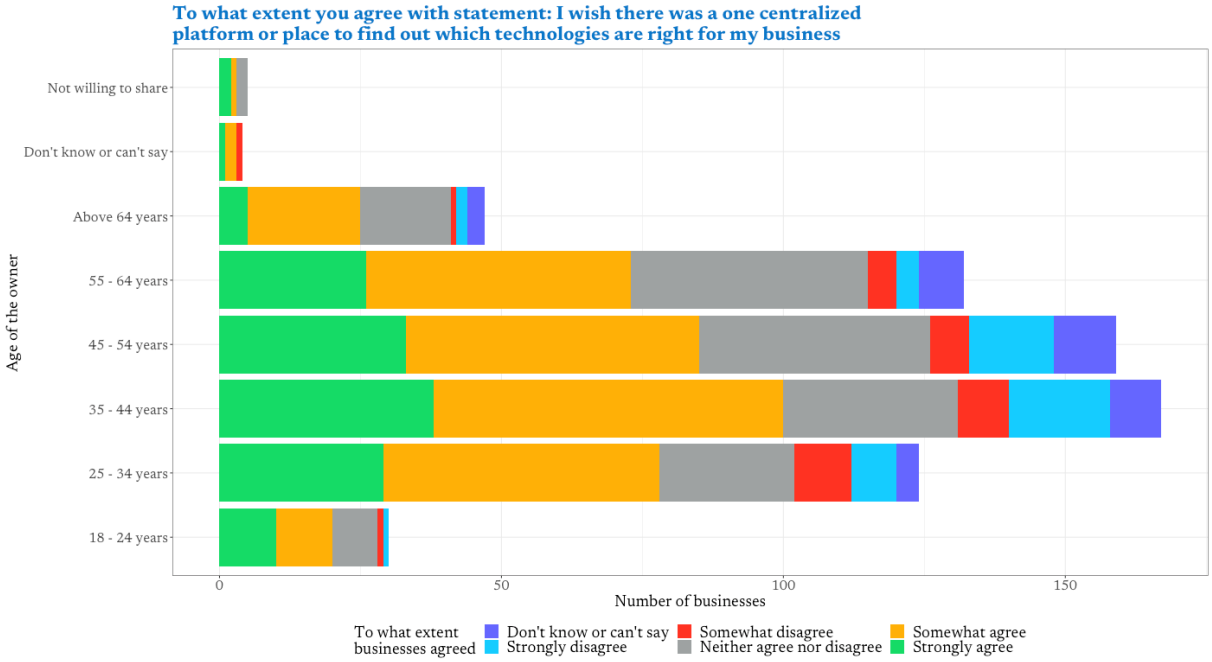
This is where a notorious rule applies: if you are aware that you lack information, you are willing to search for it. The basic problem is when the businessman or businesswoman is not even aware of the need for awareness or information seeking. The chance of even very well-intentioned information campaigns or communication strategies reaching where they are needed the most is then very slim. This is partly confirmed by interpolation of answers to the above question with the respondents' age (Figures 19 and 20).

Figure 19: Interpolation of MSEs' awareness and age



Source: 60 Decibels. Visualization by GARI.

Figure 20: Interpolation of MSEs' awareness and age



Source: 60 Decibels. Visualization by GARI.

Figure 8 (above) shows that roughly one in ten companies considers lack of information a problem.

The Czech state, as well as the corporate and non-profit sectors in the Czech Republic, is making a considerable effort in information and awareness campaigns, including on a regional scale (e.g., regional innovation centers). Precisely for this reason, these efforts are ineffectual where they are needed the most. **This is why the reach and impact of information and awareness-raising efforts need to be considered as consistently as possible.** In this context, the need for targeted work with local organizations, municipalities or stakeholders needs to be stressed; **sharing examples of good practice** that clearly show the added value of digital transformation in a local context, rather than a general information campaign, would be helpful.

Digitalization and Finance

If the *motivation and information deficit* can be overcome, the lack of funding is yet another significant challenge. The above overview shows that Czech MSEs are not so much lagging behind in "soft digitalization", i.e., in the use of basic digital tools, but rather in more sophisticated technologies which are often more skilled labor-intensive and require higher acquisition costs. Given the currently prevailing uncertain economic outlook, small enterprises prioritize immediate cash-flow over more strategic

investment planning, as the very question of employee retention or even survival is at stake in the short term. Once again, the dangerous inverse proportionality applies: the smaller the business, the more difficult it is to access finance for investments. As a result, this may further weaken their competitiveness and widen the gap between small and large enterprises, with all the negative impacts described in the introduction.

The public, private and non-profit sectors have long been offering a very diverse range of support programs and projects designed to boost the resilience and competitiveness of MSEs/SMEs in general and their digital capabilities in particular. However, these projects both grapple with the motivational and informational barriers described above and face not insignificant challenges in terms of their attractiveness to enterprises. The absorption capacity analysis of the *Operational Program Technologies and Application for Competitiveness* (2020) mentions as principal barriers, for example, the unsuitable setup of support areas that do not correspond to the needs of the organization, the administrative burden of the support application, that low level of financial support under the Operational Program or problems involved in its co-financing and pre-financing. These obstacles are only inherent in support under the operational program but occur across a wide range of support programs.

The fact that businesses are unable to meet the conditions for drawing funds constitutes a serious obstacle to the utilization of subsidies. A survey conducted for the Association of Small and Medium-sized Enterprises (2022)[6] shows that the conditions are often set up without a deeper insight into the business environment (for instance, the subsidy was conditioned on increasing the number of jobs and maintaining them, which conflicts with the effort to increase productivity, and at the same time, this requirement is difficult to satisfy given the qualified labor shortage, in particular in technical professions). Excessively large projects are under conditions where micro enterprises would find support of several hundred thousand crowns helpful, but the support projects are on a higher order of magnitude and are another challenge.

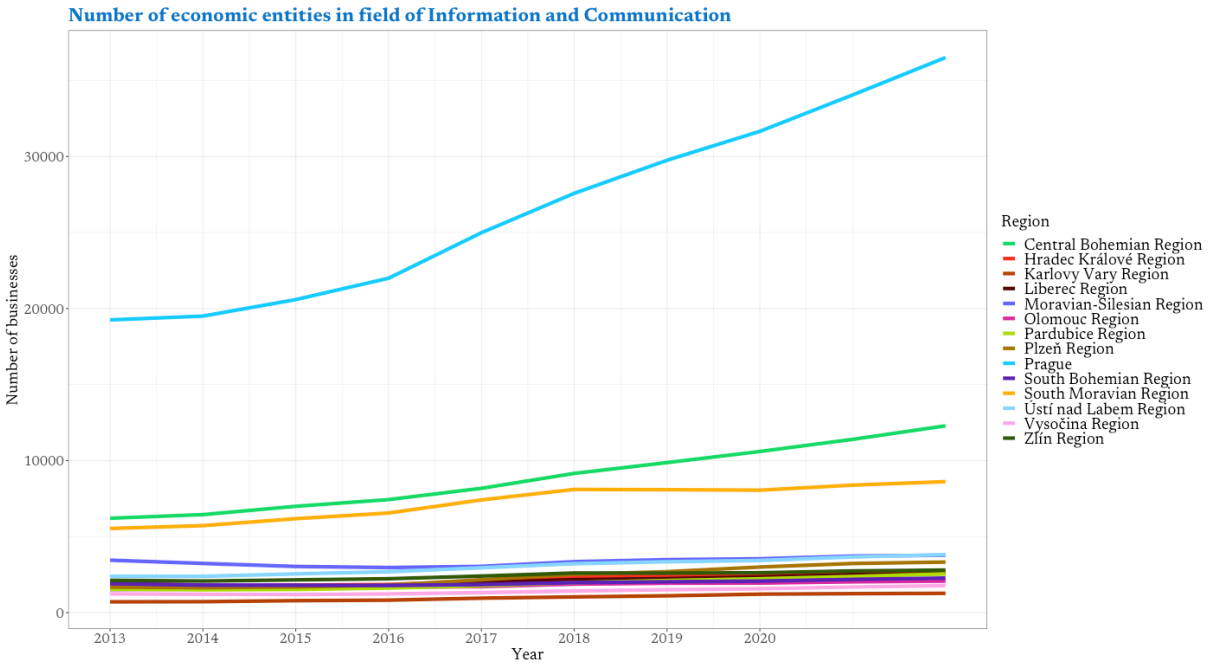
Similarly, the requirement was to increase *turnover* rather than *profit*, a condition better suited to the nature of technological innovation.

This is not to say that project providers are not aware of these problems. Finding a compromise between transparency, efficiency, enforcement of rules and monitoring of project implementation on the one hand – and the availability and attractiveness of support on the other – is very difficult. It is also important to reiterate in this respect that the various barriers to obtaining support are disproportionately higher for micro and small enterprises. Large enterprises already enjoy better access to the decision-making process on support allocation and have a more robust administrative capacity for submitting or implementing projects. They can afford to hire external consultants, have easier access to pre-financing or co-financing, etc.

[6] Source: BusinessInfo.cz

Balancing regional and opportunity disparities between large and small firms should be one of the driving principles of any economic strategy and policy. While the idea of "national champions" is tempting and necessary, with a view to the future development of the Czech society and economy, it must not come at the expense of socio-economic imbalances which are already an undeniable fact. For instance, Figure 21 demonstrates the very different dynamics in Prague and the Central Bohemian Region as to the number of SMEs in the ICT sector over the last ten years.

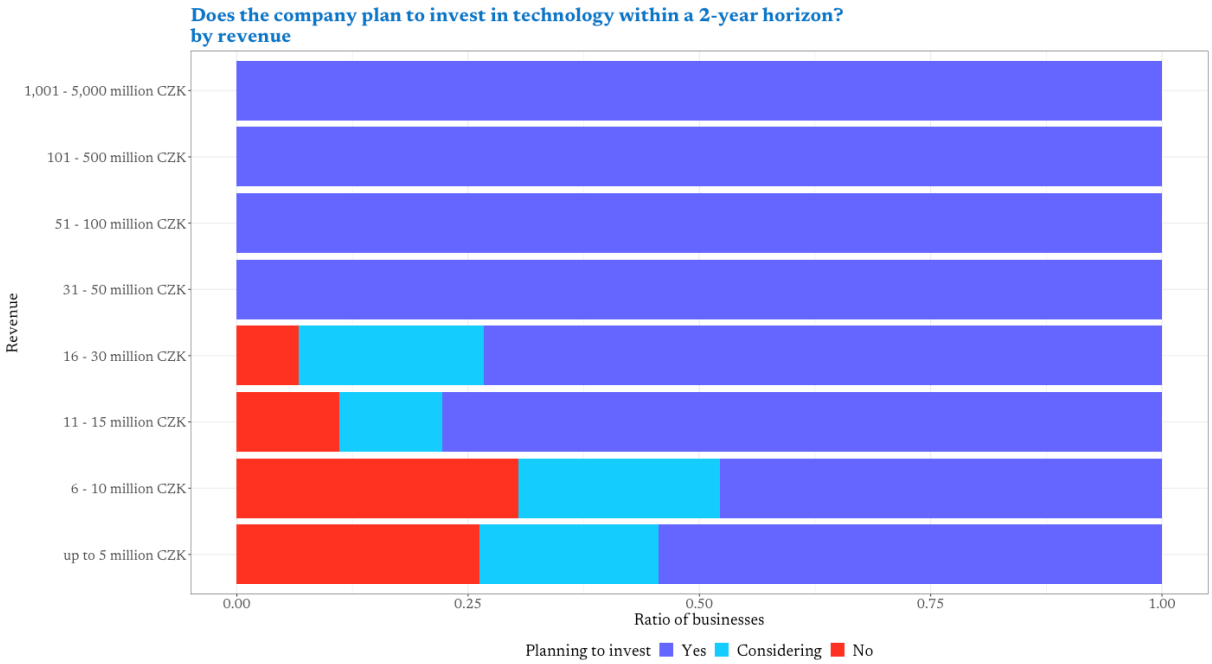
Figure 21: SME development in ICT by individual regions



Source: Eurostat. Visualization by GARI.

The following visualization shows the varying ambitions in terms of investments into new technologies based on company turnover and profit, business sector, but also on the age of the owner or manager.

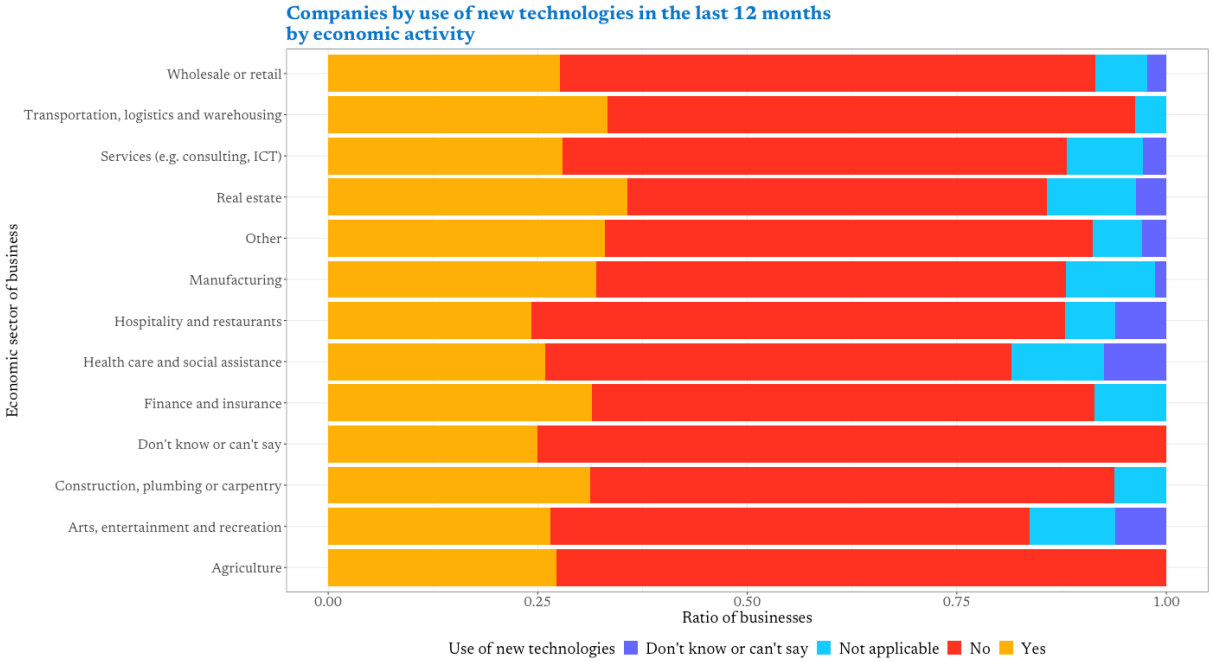
Figure 22: Investment plans by turnover



Source: IPSOS. Visualization by GARI.

In the past year, Czech MSEs tended not to invest into/use new technologies (Figure 23), with the share varying slightly by sector from one-quarter to one-third of firms. This data is partly at odds with the investment plans data, which, in contrast, most firms expect to make in the future (see above).

Figure 23: Utilization of new technologies by economic sector



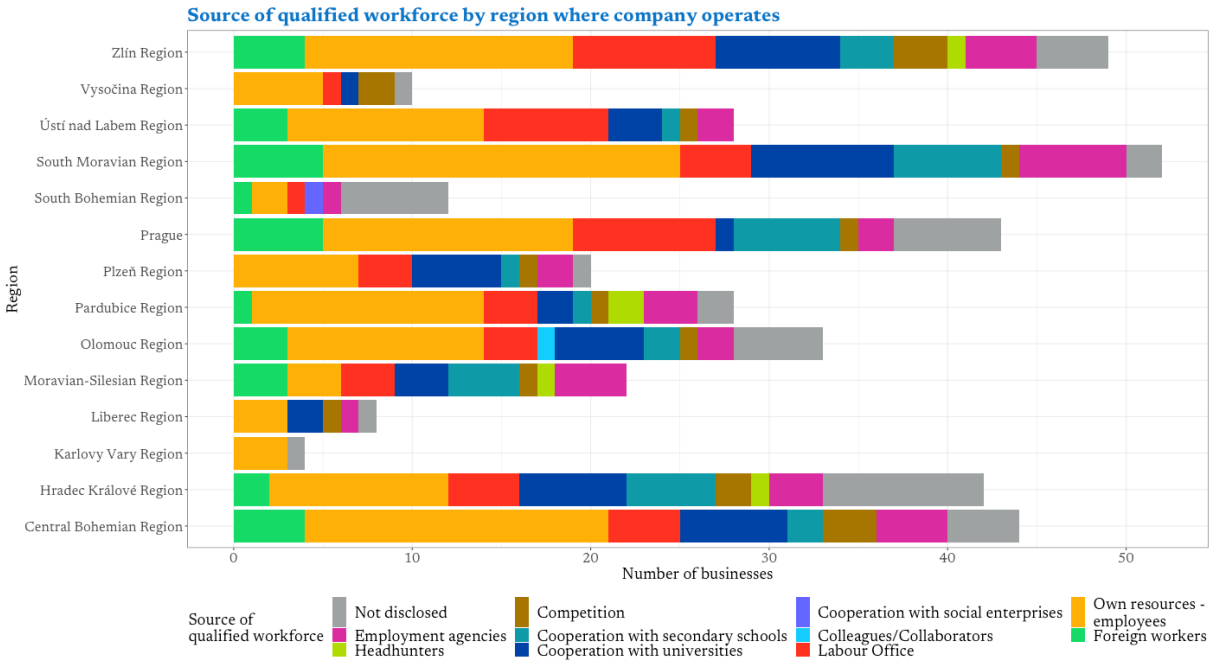
Source: IPSOS. Visualization by GARI.

Digitalization and Implementation

The area of implementation of strategies and introduction of new technologies in MSEs closely relates to the management of internal business processes, cybersecurity or regulatory and legal compliance, and as such lies partly outside the scope of this study. In this part, we will only focus on the issues of human resources and digital skills.

Figure 24 illustrates that there are regional differences in where firms look for sources of skilled labor. However, in general, the largest share of labor is recruited in-house. The biggest differences in terms of sources of skilled labor lie in collaboration with universities or secondary schools. This is an area which, while enjoying long-term political support, remains practically undervalued. Foreign workers are another important source – and here too the regulatory environment has long been lagging behind the needs of the private sector.

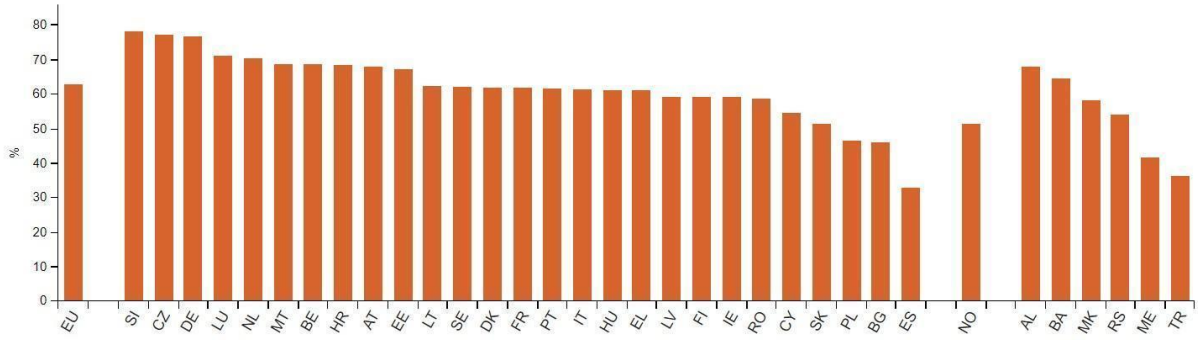
Figure 24: Sources of qualified labor of MSEs by region



Source: Eurostat. Visualization by GARI.

Czech companies (in general, not only MSEs) have a fundamental problem with the accessibility of qualified labor. In 2021, three quarters of Czech companies, who recruited or tried to recruit ICT specialists, reported they had problems filling those positions. This is the second highest value in the EU, with qualified labor being a crucial point in the implementation of digital transition.

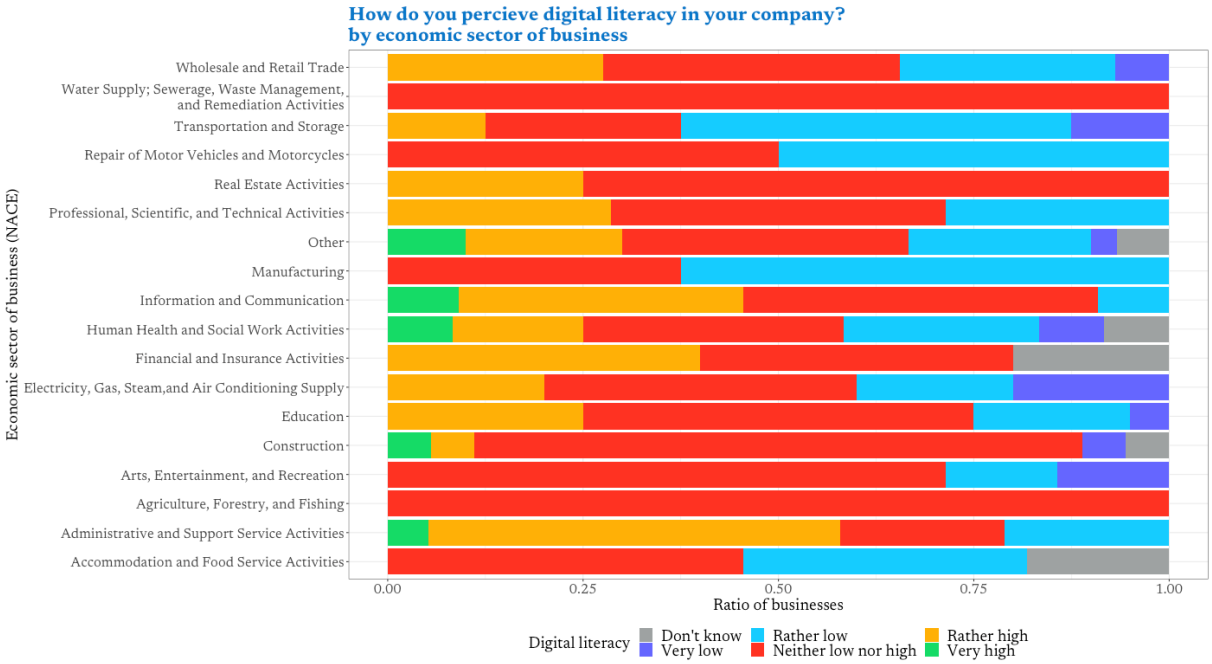
Figure 25: Difficulties faced by companies when recruiting ICT specialists according to DESI index, 2022



Source: DESI, 2022

The management of Czech MSEs also finds it difficult to determine the level of digital literacy, as shown in Figure 26.

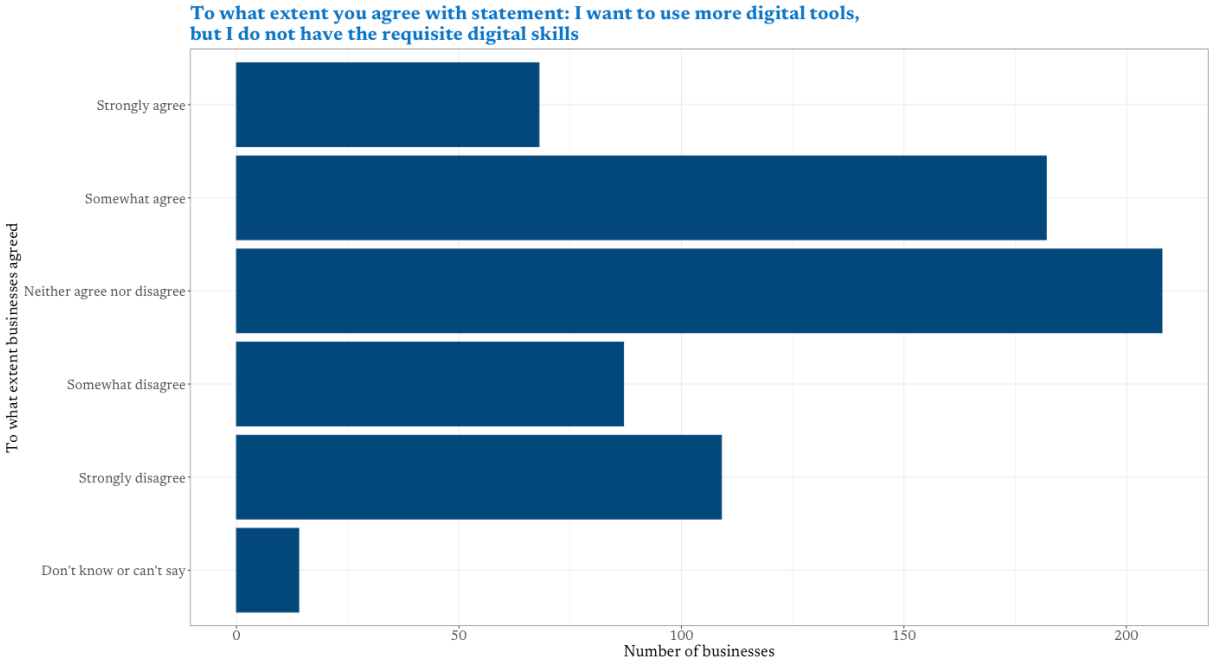
Figure 26: Perception of digital literacy



Source: IPSOS. Visualization by GARI.

In addition to the fact that MSEs generally rate the digital literacy of their employees rather negatively, one should pay particular attention to the fact that respondents were often unable to determine its level at all (the predominant response was "neither low nor high", which can be interpreted as meaning that this is not a question that companies would consciously ask themselves. Other questionnaire surveys in other segments of this study exhibit a similar pattern, for instance, in the case of investments where a neutral type of responses predominates. Businesses also recognize that a lack of digital skills negatively affects their ability to implement digital technologies (see Figure 27).

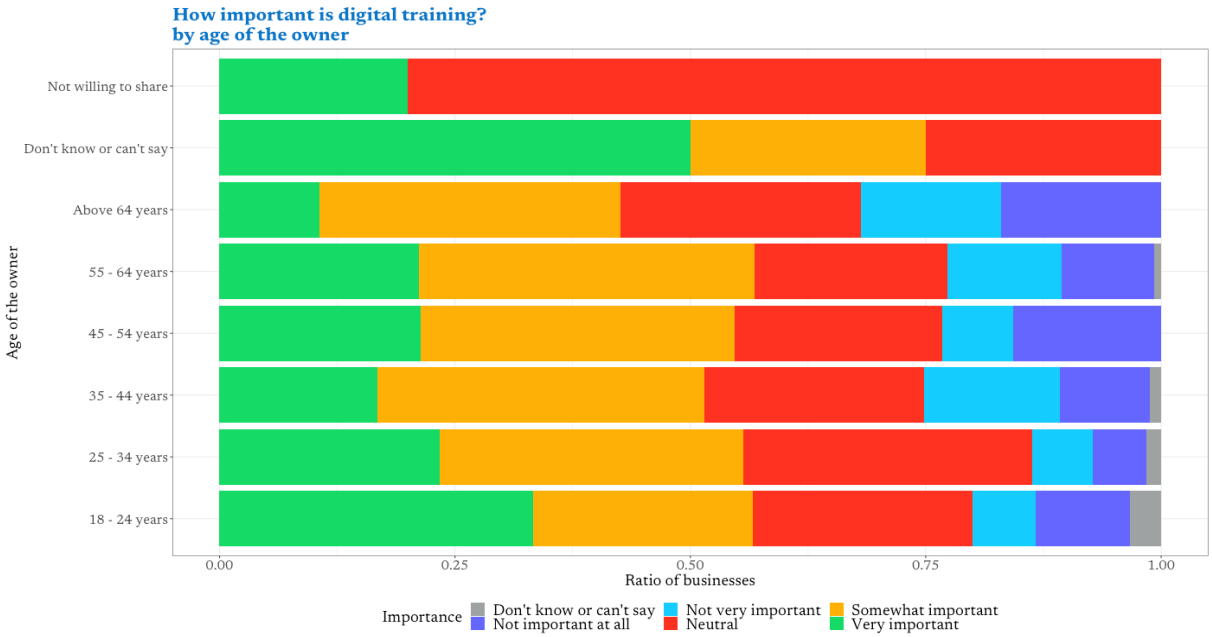
Figure 27: Importance of digital skills in the utilization of digital tools



Source: IPSOS. Visualization by GARI.

If company managers are aware of this fact, it is remarkable that they do not attribute unequivocal importance to the actual idea of digital skill training (see Figure 28) or hold a neutral stance.

Figure 28: Perception of the need for digital training



Source: IPSOS. Visualization by GARI.

Companies are, on the one hand, unable to determine the level of digital skills of their employees and recognize that a lack of digital skills can be a problem for their implementation. They do not, on the other hand, feel the need to invest time or money into digital training. In order to successfully implement digital technologies, MSEs need to monitor and develop the digital capabilities of their employees more pro-actively.

Even where MSEs pursue digital training and improvement of digital skills, they face the difficult problem of *replaceability*. To put it simply, companies cannot dedicate time to their employees or managers because there is no one to replace them in the day-to-day processes.

The issue of technology *supply* also plays a role in the implementation. MSEs also face a specific problem here, as the (mostly large) companies offering technological and digital solutions both give preference to large contracts with higher margins and have a low degree of willingness to adapt their products to the specific needs of particular small enterprises. This is also why MSEs in the Czech Republic – more often than is usual in the EU – rely on their own solutions which are often cheaper and more individualized. This approach is problematic, however, in that it may offer a lower level of cybersecurity and regulatory compliance. Equally so, the affordability of these solutions will gradually level out because even the cost of "homemade" solutions has been growing rapidly. It will therefore be necessary to search for ways to help MSEs surmount the challenges of accessibility and delivery of digital solutions by large established companies.

There is also, however, a diverse range of tools available on the market for increasing the digital level of businesses in virtually all aspects of business enterprising: point of sale systems; warehousing systems; customer relations; accounting and tax administration; e-commerce; web and interface design; digital marketing; cloud solutions; data analytics and reporting; social media management; cybersecurity; payment gateways and interfaces; project and task management or – last but not least – online and digital communication tools.

Digitalization and Gender Issues

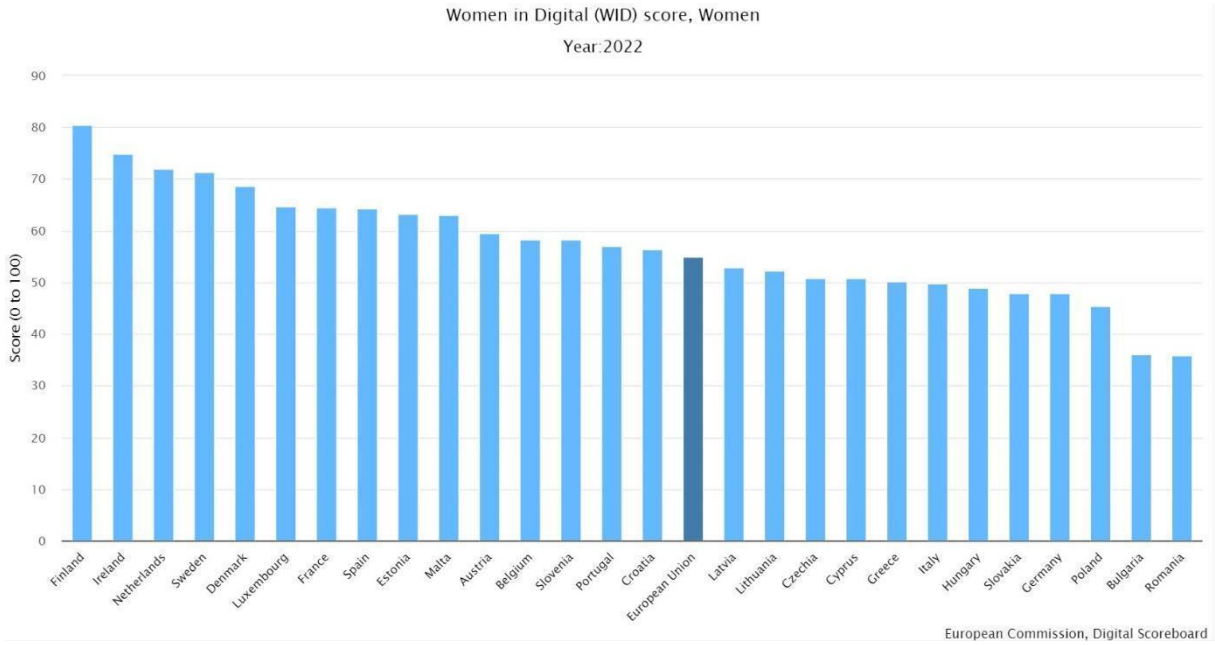
According to the *Women in Digital Scoreboard (2021)*[7] assessment, a significant difference between men and women persists in the area of specialized digital skills. Although this difference has been growing smaller in the specific area of Internet user skills (the difference between men and women in basic digital skills has declined from 10.5% in 2015 to 7.7% in 2019), significant differences between men and women still continue to exist in the area of specialized digital skills. Women account for a mere 19% of information and communication technology specialists and roughly a third of graduates in natural sciences, technologies, engineering and mathematics. The goal under EU's digital compass is that by 2030, there ought to be 20 million information and communication technology specialists employed, and the numbers of women and men is to balance out over time.

The difference is markedly smaller when it comes to Internet use and Internet user skills. In 2020, 85% of women as compared to 87% of men used the Internet on a regular basis. A difference of 4 percentage points can be observed in digital skill indicators: In 2019, 54% of women had at least basic digital skills (58% of men), 29% had greater than basic digital skills (33% of men) and 56% had at least basic software skills (60% of men).

Women in Finland, Sweden, Denmark, Estonia and the Netherlands have the best digital skills. All these countries also score very well in the DESI index. Romania, Bulgaria, Poland, Hungary and Italy have the lowest scope in women's participation in the digital economy and society.

[7] Source: https://ec.europa.eu/newsroom/dae/redirection/document/80470

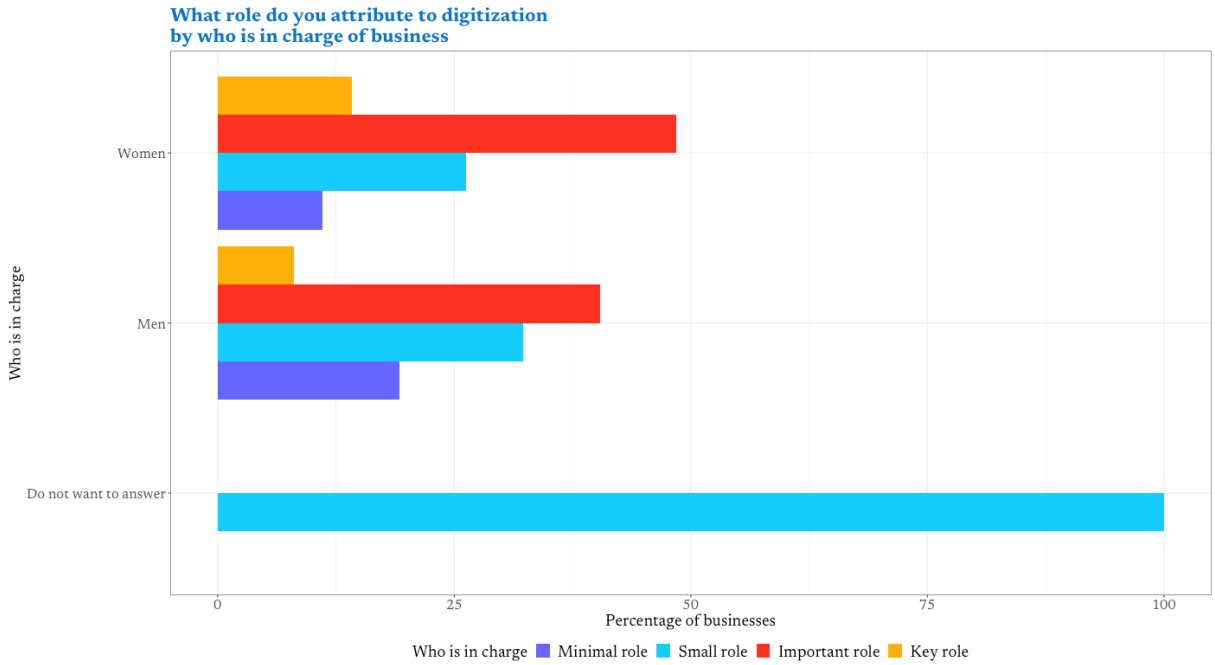
Figure 29: Country ranking according to the Women in Digital index



Source: Eurostat. Visualization by GARI.

Women have nevertheless been at the forefront of numerous innovations that were of fundamental importance for the development of digital technologies – from computer algorithms to programming. The questionnaire survey conducted by IPSOS showed that women view the role of digitalization as slightly more important than men (Figure 30).

Figure 30: Perception of the importance of digitalization between men and women in company management



Source: IPSOS. Visualization by GARI.

It is less likely for women than men to have specialized digital skills and work in this area. The situation in the Czech environment is even worse in that there is no shift in the share of female ICT specialists (see Table 1).

Table 1: Employment rate of men and women in ICT and a comparison to the EU average

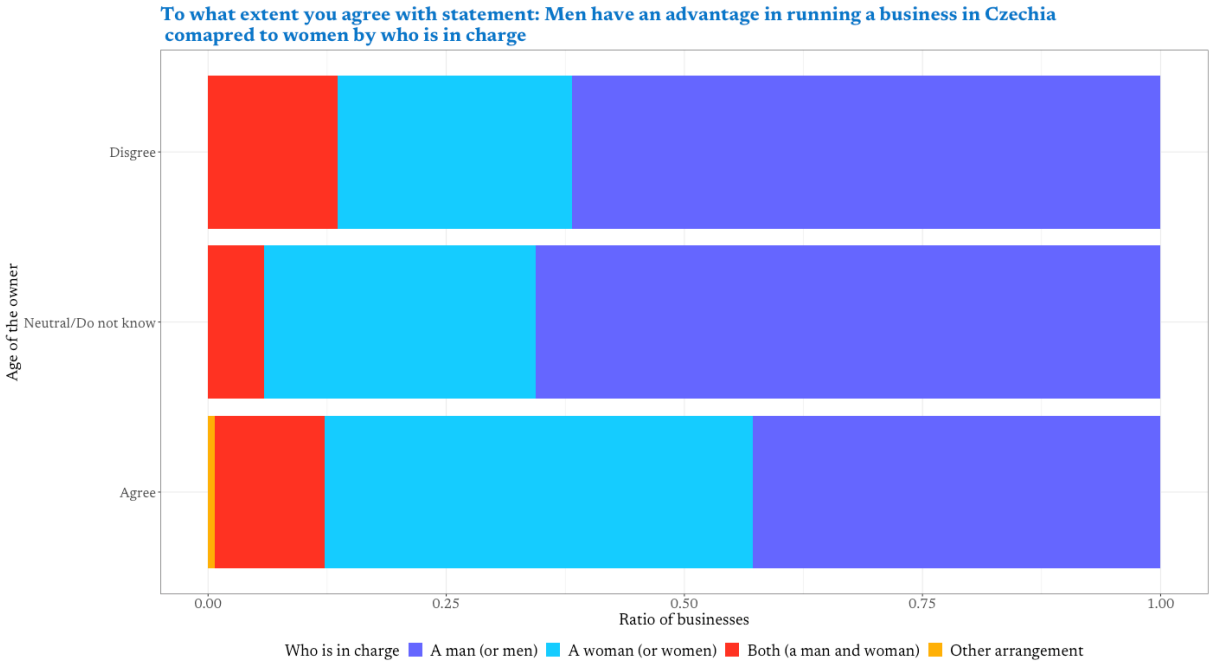
	Czechia			EU
	DESI 2020	DESI 2021	DESI 2022	DESI 2022
1b1 Male experts in ICT % of men employed (age 15-74)	4,0 % 2019	4,2 % 2020	4,6 % 2021	4,5 % 2021
1b2 Female experts in ICT % of specialists in ICT	10 % 2019	10 % 2020	10 % 2021	19 % 2021

Source: DESI 2022

These differences persist even when attention is switched over to company management. Most men in company management do not agree with the claim that men have advantages in company management (Figure 31). Men prevail in company management in specific age groups (18–34 and over 64) (see Figure 32). These

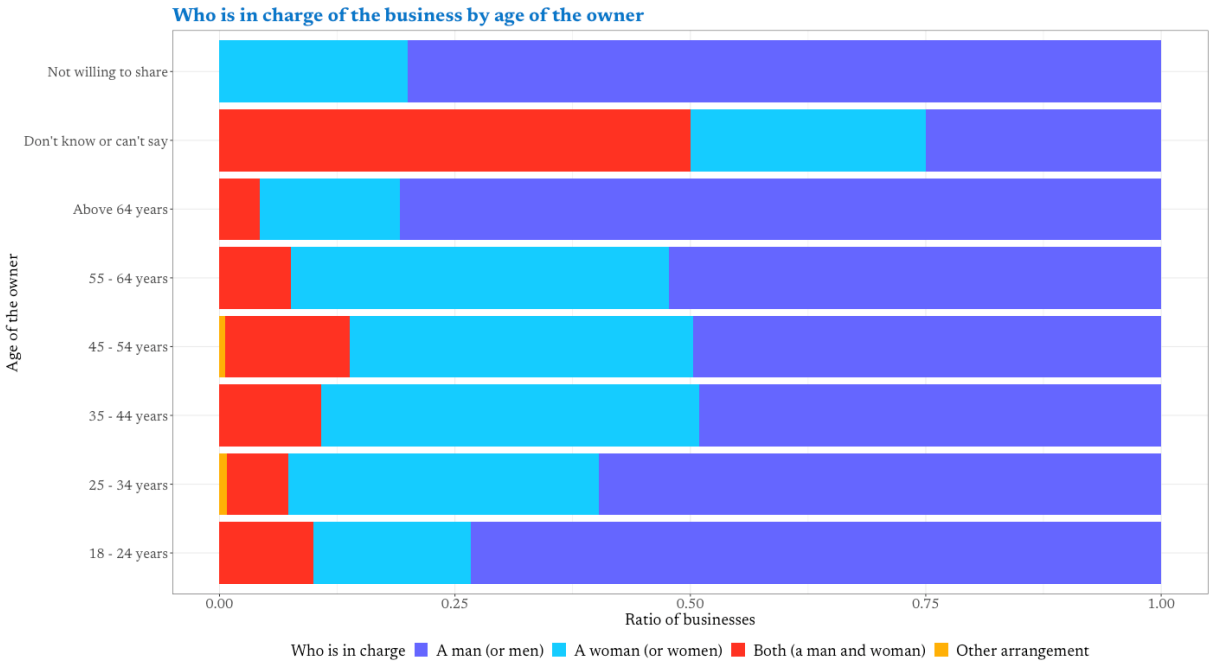
differences have to do with both the socio-cultural context and the way conditions for the employment of women are set up and their share of childcare in the Czech Republic.

Figure 31: Do men have advantages over women in company management?



Source: 60 Decibels. Visualization by GARI.

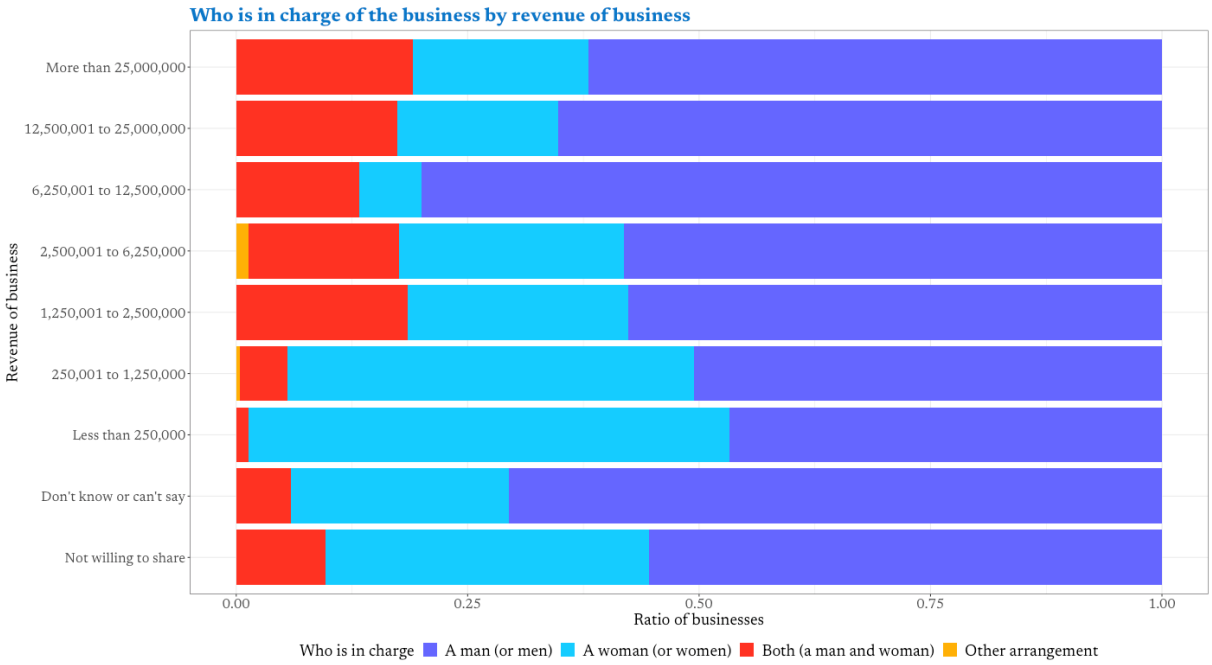
Figure 32: Who manages the company depending on the owner's age



Source: 60 Decibels. Visualization by GARI.

There is also a disparity in company management in terms of turnover (Figure 33).

Figure 33: Who manages the company depending on turnover



Source: 60 Decibels. Visualization by GARI.

Both support for women in MSE management and the development of women's digital skills should be tailored to specific needs. For instance, the 60 Decibels' analysis showed that women would be more likely to welcome training in business management, financial management and digitalization, or better access to technologies, rather than, for instance, support in the form of incubators, platforms or access to finance. To target support correctly, it is therefore necessary to have the best possible information about actual needs – and design the individual tools with this knowledge in mind. It is also important here to work with the non-profit sector to share experience, to inform and to aim the support tools.

Conclusion and Recommendations

Successful digital transformation **is directly related** to the requisite **structural changes** in education, in the digitalization of public administration, improvement of the business environment and the building of infrastructure. Strategies for these activities have been developed at the national level and are contained in the current National Recovery Plan (NRP), including the priorities and focus of EU investments under the Regional Development Fund. This transformation is, however, going **more slowly and less predictably** than it ought to, and we are therefore making several recommendations that could help businesses already in the short and medium term. It is true that most of these recommendations pertain to the focusing of attention on **regional,** and even better, on **local self-government** and other local bodies.

All the obstacles to the development of micro and small enterprises identified by this study are connected with the problem of planning, or the lack of development plans using digital technologies. In this area, it is absolutely crucial for small enterprises to understand market developments and see opportunities for their business enterprising in the future. As we have already noted, there is a fundamental lack of this information in most small businesses. Market data and assumptions on digital technology development must also be complemented by information on development planned at the place of business of the individual entities. Cooperation between local governments and experts from the government and the commercial sector is required here in order to create a system for the sharing of information on future developments. For small businesses, this information has to be as simple and comprehensible as possible, with links to sources of assistance, etc.

An important connection between all the recommendations is that if there is a sufficient **trigger** to motivate the digitalization of MSEs (such as the introduction of the EET in the catering and accommodation sectors or simple application procedures under Covid-19 support programs), there can be an incremental upturn in digital skills and their level. Another connecting link is that **communication, interaction and support for MSEs** should take place at the lowest possible regional and local level.

Recommendations:

- **Motivation for business enterprising, sharing practical experiences and examples of good practice, help with plan development.** It is essential to focus on supporting MSEs at the local level, using in particular the regional innovation centers (represented in each region) and the emerging digital hubs (currently five). The activities of innovation centers directly include support for fledgling entrepreneurs, including support in the area of subsidies or assistance with the creation of a business plan. For the time being, the digital hubs do not primarily focus on MSEs, but offer for instance the service of audit of digital technology utilization and can also help with training and digital upskilling of small enterprises.
- **Involvement of MSEs in local development plans in cooperation with municipalities.** Based on a knowledge of the local environment, identify priority MSEs with the greatest impact in the region and also identify areas for the establishment of new MSEs. Combined with the use of available data and information systems, it is essential to facilitate further development of MSEs through activities aimed at sharing examples of good practice, practical experience and successes. There are support programs and projects provided by the non-profit, corporate or government spheres. Information about them often fails, however, to reach the right places, and moreover, many companies do not recognize the importance of change. We recommend that new and existing subsidy or other aid projects be accompanied by individualized, local (and familiar with local conditions) communication. In addition to self-government, other local or regional "stakeholders" in business activity, as well as local enterprises that have undergone a more or less extensive digital transformation which brought them success, should play a greater role in the preparation and implementation of communication. (We do realize that it is virtually impossible for public administration to achieve a similar level of interaction with companies, or process the information obtained. We therefore recommend searching for a realistic path that would come as close as possible to the ideal state.

  When doing so, we recommend paying attention to the publicly available data environment of the CzechInvest agency, which already provides a valuable and detailed data base that continues to grow and evolve. It is very difficult to help enterprises that fail to see any benefit in digitalization.

  - **Focus:** Local government, regions, digital innovation hubs (DIH), regional innovation centers (RIC), regional chambers of commerce (CC), professional associations, major local enterprises and other stakeholders, MIT, CzechInvest.

- **Support for cooperation between the commercial sphere and the educational environment.** This does not involve only cooperation between companies and universities in research and development, but also cooperation between companies and the educational environment in the area of human resources. The principal problems are well known: lack of motivation, unclear benefits, returns and costs, different cultures, time required, lack of mutual communication of opportunities. This area needs to be prioritized more, new and more efficient tools need to be sought out and there needs to be more communication about successful examples and models at the local level. One of the very effective – and at the same time relatively easy – ways is to support practical internships for high school and university students with stronger digital skills in MSEs. An effective, yet simple, regulatory framework for these internships will need to be found here.
    - **Focus:** Universities and secondary schools, Ministry of Education, private research institutions, professional associations.
- **Upskilling of employees in digital technologies.** This is part of the National Recovery Plan. These resources will be available to companies. As concerns better information and ensuring the best use of these resources, industry associations and municipalities can also help, thus promoting awareness of these resources among companies. Activities should also include communication with schools and universities able to provide qualification training locally. The problem of "replaceability" also needs to be addressed and flexible educational and upskilling models sought. Residence for work purposes for foreigners and students from countries outside the EU also needs to be facilitated.
    - **Focus:** Ministry of Labor and Social Affairs (Call under the National Recovery Plan – Requalification conducted by the Labor Authority of the Czech Republic in the area of digital skills (IT) and skills required for Industry 4.0), local government, regions, Ministry of Education, Ministry of Industry and Trade, Ministry of the Interior, NGOs and educational institutions, regional innovation centers, digital innovation hubs.
- **Financial support for MSEs.** Financial support for small enterprises, for projects relating to the implementation and utilization of digital technologies, is also a part of the NRP. Unfortunately, practice to date shows that drawing funds under support projects at small business level is inadequate. This is primarily due to the administrative burden on the applicants and their concern that should they fail to meet the conditions for drawdown, they would have to repay the funds.

In some projects in the past, for instance, in the education sector, the creation of "pre-packaged grant applications", i.e., pre-packaged projects, turned out to be a viable option; this approach could also be used for small enterprises. Model projects could be prepared in cooperation with the ICT Union, etc. Such an approach also allows for a fairly quick sharing of good projects, exchange of experience on a local level and less concern about risks. We recommend searching for the correct ratio between incentives for start-ups and companies with a longer history. Both segments play a key role in the future Czech economy, however, more established companies face a greater challenge in terms of motivation, information and skills.

Support programs need to be as simple as possible, individualized and designed with a knowledge of local and sectoral environments. One of the possible ways – keeping in mind potential problems posed by implementation control – is support in the form of vouchers, as chosen for instance in Greece or Spain.

  - **Focus:** Local government, regions, Ministry of Finance, Ministry of Industry and Trade, CC, foundations of (technological) companies.

- **Facilitation of the issue of implementation of digital technologies.** Suppliers of these technologies and their work with the ecosystem of partners, providing services based on their technologies, play a key role. It is essential to find a way to reduce MSEs' disadvantage in their search for partners/technology suppliers and find incentives for large technology suppliers, so as to make this segment attractive for them, whereby large contracts would not be given preference over small ones.

  - **Focus:** Ministry of Industry and Trade, Ministry of Finance, CC, technological partners, foundations of (technological) companies.

- **Supporting women in MSE management:** It is essential to not only support and further develop existing successful projects, but also to find ways to tackle barriers faced by women in MSE management or support the acquisition and use of digital skills. Focusing on age-specific barriers would be appropriate even here. The questionnaire survey shows that women themselves would welcome training focused on managerial, financial and digital skills, rather than the creation of platforms and incubators or easier access to finance. We also recommend working closely with the non-profit sector. This issue is also related to Czech labor law and the labor market which continues to disadvantage women.

  - **Focus:** Ministry of Labor and Social Affairs, NGOs and foundations.

Further observations and questions:

- It will be necessary to explore the question of motivation further, in greater detail and in a broader context: What reasons do/can MSEs have for maintaining the current level of business, rather than growing and expanding, as their goal?
- To what extent, in which regions and in which economic sectors, would not only growth, but even the very continuity of business be jeopardized without at least a partial digitalization?
- Why do problems with succession in family companies persist in the Czech Republic? If succession is not resolved satisfactorily, does the current owners' motivation to develop and innovate the business, and thus to invest into digital future, diminish?
- Data showed that the companies' ambitions and expectations from digitalization depend on the extent of their own assessment of how technologically advanced they are. Digital hubs can be used for this purpose, as noted in the recommendations above.
- Questionnaires revealed discrepancies which show that the approach to the digital agenda is ambiguous. For instance, while MSEs are aware of the importance of digital skills, they do not attribute sufficient importance to their training. Therefore, while they are passively aware of the problem, they do not need to address it actively. This is a feature that is manifested across themes and data sets: specifically, MSEs have a rather vague idea of both the importance and the nature of digitalization.
- Communication ought to be conducted with a maximum effort to make contact with locations, sectors and subsequently specific businesses that may be assumed to have not yet felt the need to address the issue of digitalization or have not addressed it for other reasons.
- Communication ought to be very down to earth and not intended to convince; it has to be a two-way dialogue striving to understand the needs, conditions and ambitions of the specific business and adapt the digital tools and services based on the assessment of the benefits of the investment (time, finance, personnel, etc.).
- If the preparation of projects is not preceded by such an information phase, it is highly likely that the support will once again fail to reach the critical and vulnerable areas and the next opportunity may come too late. The absorption capacity for successful implementation will also be very limited and unevenly distributed across regions, sectors, age or social groups without proper communication.
- Czech MSEs are also lagging behind in relation to "softer" digital tools, such as the use of social media for marketing, sales or networking, or for ordering tracking and user satisfaction monitoring. Explaining the benefits and upskilling in these areas should also be a priority, as it goes hand in hand with low entry requirements and usually also with quick results.

- The study has shown that the use of in-house web or other software tools, as opposed to external services, by Czech companies in online sales is well above average. It would be important to understand to what extent and from what perspective this situation poses a problem or, on the contrary, an opportunity.
- In the Czech Republic, a higher-than-average number of companies are connected via mobile Internet, with small enterprises in particular accounting for a lower share of connections via Wi-Fi routers. Wi-Fi is a better option not only in terms of speed but also in terms of security. This is a very important issue because of the new regulation on NIS2 security, GDPR rules (etc.).
- The subsidy method of support should be robustly complemented – or balanced – by other forms of support by means of incentives, especially in the tax area (such a step, however, requires a high level of mutual trust between the business sphere and the state apparatus, which is lacking in the Czech Republic, and this thus brings us back to the basic problems presented at the beginning of this set of recommendations).
- The promotion of dual education – the creation of a voluntary dual branch of vocational training where responsibility for part of what the student is to learn would pass directly to the company providing practical training – is one of the important tools prepared and implemented over the last few years. Experience to date shows that this is a successful model, and its faster rollout should therefore be encouraged. The problem, for example, is that it is difficult for companies to take on full responsibility for part of their students' on-the-job training.

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