7. SME digitalisation initiatives in the Slovak Republic

This chapter assesses policies to support the adoption of digital technologies by SMEs in the Slovak Republic. It assesses the current level of digital development by SMEs in the Slovak Republic and identifies strong and weak points compared with other countries. It also assesses existing Slovak Government interventions to enable SMEs and entrepreneurs to digitalise, including measures to support SMEs that are already innovative and digitally-attuned as well as those that lag behind. It formulates a number of policy recommendations.

SME digitalisation – Why does it matter and what are the policy options?

Digitalisation, productivity and growth performance are closely linked

Digitalisation offers crucial opportunities for business of all sizes and in all sectors to set up expand and innovate. There is a correlation between investments in ICT and digital technologies and business performance indicators such as sales or profitability, especially over the long term (see for example, Ahmad and Murray, 2018 or Ferreira et al., 2019). In particular, the adoption of ICT and digitalisation (including the use of hardware, e-commerce, and software programmes that can help professionalise small business management) is considered as a key driver of firm productivity in the economic literature (Marchese et al., 2019).

A recent study examines cross-country firm-level productivity data and finds strong and robust evidence that digital adoption (more precisely of high-speed broadband internet, simple and complex cloud computing services, Enterprise Resource Planning and Customer Relationship Management software) is associated with significant productivity returns at the firm level (Gal et al., 2019).

Furthermore, structurally, the Slovak Republic has a relative weighting of its SMEs towards the individual entrepreneurs and micro firms, as noted in Chapter 2. Digitalistion is a promising route to scaling up for individual entrepreneurs and micro firms. Digitalisation may also help address the structural problem of relatively weak productivity performance of SMEs in Slovakia compared to OECD peers.

SMEs lag behind large enterprises

At the same time, the adoption rate of digital tools and technologies tends to vary significantly, not least by enterprise size. In the EU28, for instance, 42% of all large companies sell online, compared to 28% of midsized firms and 17% of small firms. As another example, large firms are more than twice as likely to use cloud computing services than small firms across the OECD (OECD, 2019a). As further evidence, a 2018 study conducted in Denmark classified firms active in the country according to their digitalisation status. More than 80% of large firms were highly digitalised, i.e. have adopted at least 7 out of 12 digital technologies, compared to less than 40% of firms of fewer than 50 employees (Danish Ministry of Industry, Business and Financial Affairs, 2018).

In addition, there is some evidence that SMEs that implemented digitalisation projects often do so only on a very modest scale, and so may not fully exploit the potential. A large-scale survey in Germany, conducted in 2018, shows that an increasing proportion of German SMEs have a digital strategy in place, but adopt a very gradual approach. Micro-enterprises in their sample (i.e. firms with one to ten employees), who declare to have implemented digitalisation projects over the last three years, spent less than EUR 10 000 on average for this kind of investment (KfW, 2018).

Key challenges faced by SMEs

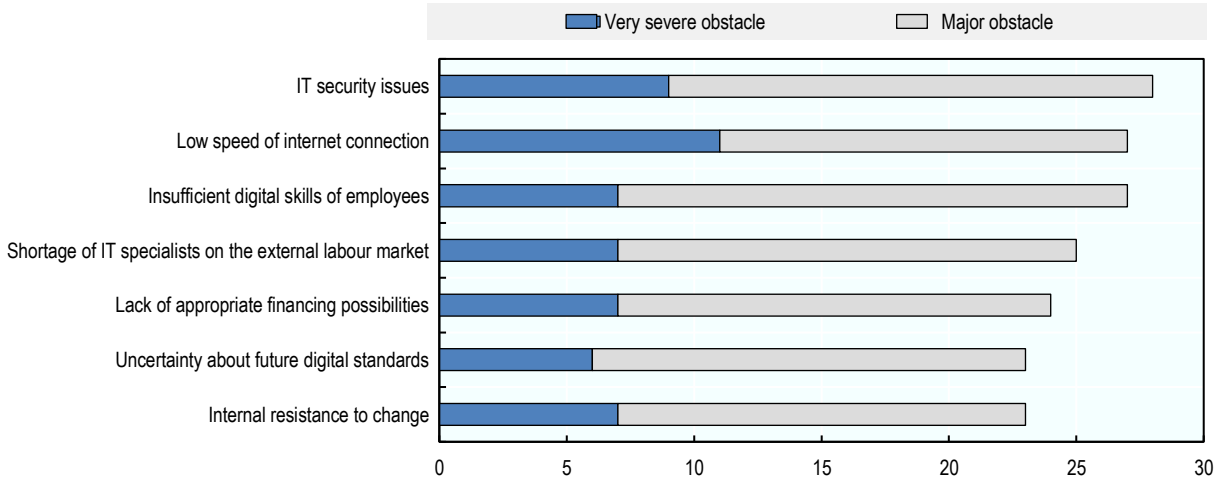
The difficulties SMEs face in this area are manifold. Smaller firms often lack the financial, managerial or skills resources to adopt digital technologies. At the same time, issues related to data protection, privacy concerns and cybersecurity appear significantly more challenging for smaller ventures than they are for large businesses (see, for example, OECD, 2019a for evidence). Finally, digital markets are sometimes characterised as “winner take-all” dominated by few actors with access to abundant data. Such dynamics may it hard for entrants and smaller businesses to compete.

A recent large-scale survey in five European countries (France, Germany, Poland, Spain and the United Kingdom) sheds more light on the hurdles SMEs perceive. First of all, a slight majority of surveyed SMEs consider digitalisation of strategic importance, and for one in three it represents a top priority.

Among these firms, there is a belief that the adoption of new technologies is necessary to secure competitiveness. The study also finds evidence of a strong connection between the importance management attaches to the issue and the actual technology adoption across all types of digital activity and innovation (Abel-Kock et al., 2019).

IT security issues rank foremost among obstacles to digitalisation by SMEs, followed by a lack of sufficient skills among the workforce (with a shortage of IT specialists also often cited). Low connection speed and the dearth of financing possibilities are also commonly cited (Abel-Kock et al., 2019). Figure 7.1 illustrates.

Figure 7.1: Obstacles to digitalisation



Source: Abel-Koch, Dr. Jennifer, Leath Al Obaidi, Sabrina El Kasmi, Miguel Fernández Acevedo, Laetitia Marin, and, Anna Topczewska (2019), "Going Digital: The Challenges Facing European SMEs", European SME Survey 2019, https://www.kfw.de/PDF/Download-Center/Konzernthemen/Research/PDF-Dokumente-Studien-und-Materialien/PDF-Dateien-Paper-and-Proceedings-(EN)/European-SME-Survey-2019.pdf.

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SME digitalisation represents a growing concern for policy makers

The uneven uptake and diffusion of digital technologies represents a major source of the productivity slowdown many high-income countries have faced in recent years, as well as the increasing productivity gap between "frontier firms" and firms that lag behind (OECD, 2019b and Andrews, Criscuolo and Gal, 2016).

This observation has implications for economic growth, regional development, and income inequality. A growing body of research points out that, unless (digital) technology diffusion among businesses improves, income inequalities may worsen, business dynamism suffer and competition decline. Empirical research confirms that policy makers can make a large difference in this respect (Sorbe et al., 2019).

As a result, digitalisation, including for SMEs, is emerging as a key concern for policy makers across the globe. In the OECD SME Ministerial Meeting, which took place in Mexico City in February 2018, 55 countries stressed the importance of enabling SMEs to make the most of the digital transition. As this chapter illustrates, many jurisdictions have recently introduced initiatives to promote SME digitalisation and Industry 4.0 applications.

Policy makers should favour a combination of broad-based policies and narrowly targeted interventions

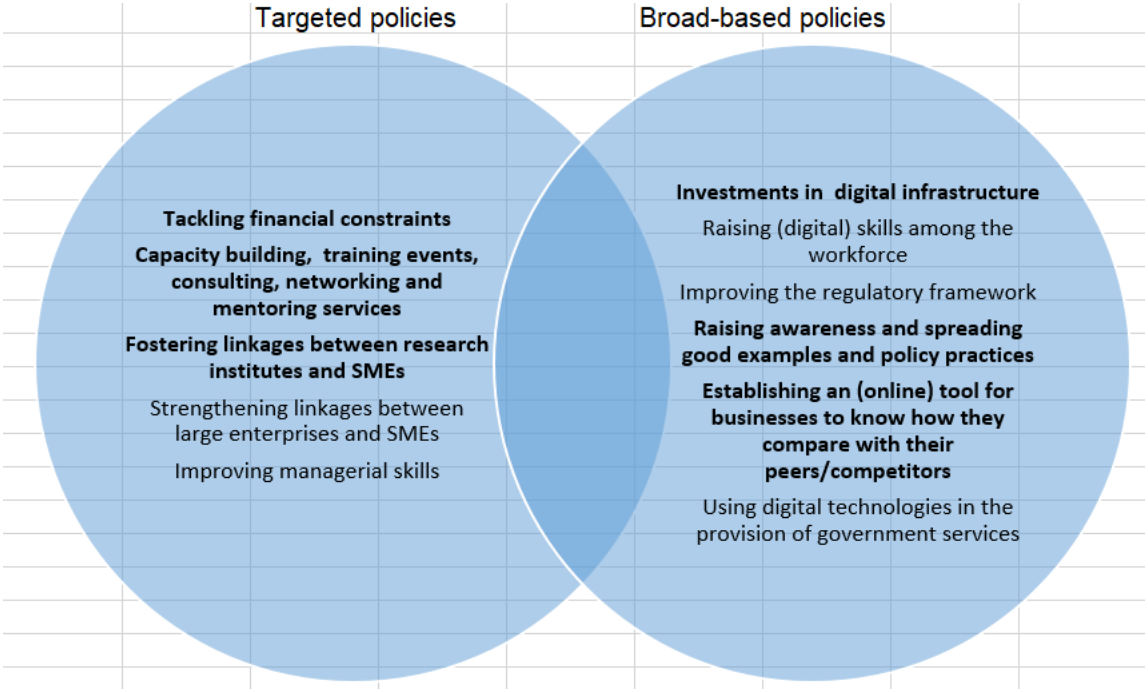
Research shows that firms that were already relatively productive ex ante gain most from the adoption of digital technologies Gal et al., 2019). This observation illustrates the interaction between the use of digital tools and other factors of business success, such as workforce and managerial skills, organisational structure, investments in process innovation, and the overall business model, as documented by Haskel and Westlake, 2017, among others. Policy makers are thus advised to embed support to enable SMEs to digitalise in a wider policy framework. This also raises the question if policy makers aiming to assist firms in adopting digital tools should focus their targeted policies on a relatively small subgroup of companies that are already productive and have high growth ambitions.

This chapter advocates a two-pronged approach to assist SMEs in the Slovak Republic to digitalise. On the one hand, the government should favour broad-based policies that support the diffusion of digital technology across the overall business population in the country. This includes upgrading the digital infrastructure, tackling skills shortages, for example for ICT specialists, designing an appropriate regulatory framework, raising awareness of the issue and introducing a single point of entry for companies seeking public support in this area.

At the same time, more targeted policies, such as vouchers, mentoring or advisory services should ideally be limited to a relatively narrow subgroup of SMEs that are highly motived to (further) embrace digitalisation. This is in line with a recent study on digitalisation support to SMEs from the European Commission. One of the key takeaways is that the motivation of beneficiaries is a vital recipe for success and that they should take the initiative to participate in support programmes. Experiments to select SMEs randomly from the business registry to receive funding and mentoring led to very low take-up rates and were generally not deemed successful (European Commission, 2019a).

Figure 7.2 provides a non-exhaustive overview of possible policies governments can take in this area. This chapter will focus on policy approaches in bold to avoid overlaps with other parts of this publication. For instance, initiatives to foster innovation and R&D among SMEs would very likely positively impact adoption rates of digital technologies, but are already discussed in depth in discussed in chapter 5. In a similar vein, other chapters in this publication provide recommendations to improve in the education system in general, and boosting participation in lifelong learning especially. Other possible policy options, for example related to cybersecurity (such as the implementation of relevant EU directives or the creation of computer security incident response teams) fall well beyond the scope of this review.

Figure 7.2: Policy options to raise SMEs' uptake of digital tools and technologies



Note: Improvements to the regulatory framework notably includes exemptions or specific regulation for SMEs. A well-known example is the General Data Protection Regulation (GDPR). While the general regulation applies to firms of all size, some of the applications do not apply to (all) SMEs. With some exceptions, companies with fewer than 250 employees are not required to keep records of their processing activities, nor do they have to appoint a Data Protection Officer (https://ec.europa.eu/info/law/law-topic/data-protection/reform/rules-business-and-organisations/application-regulation/do-rules-apply-smes_en)

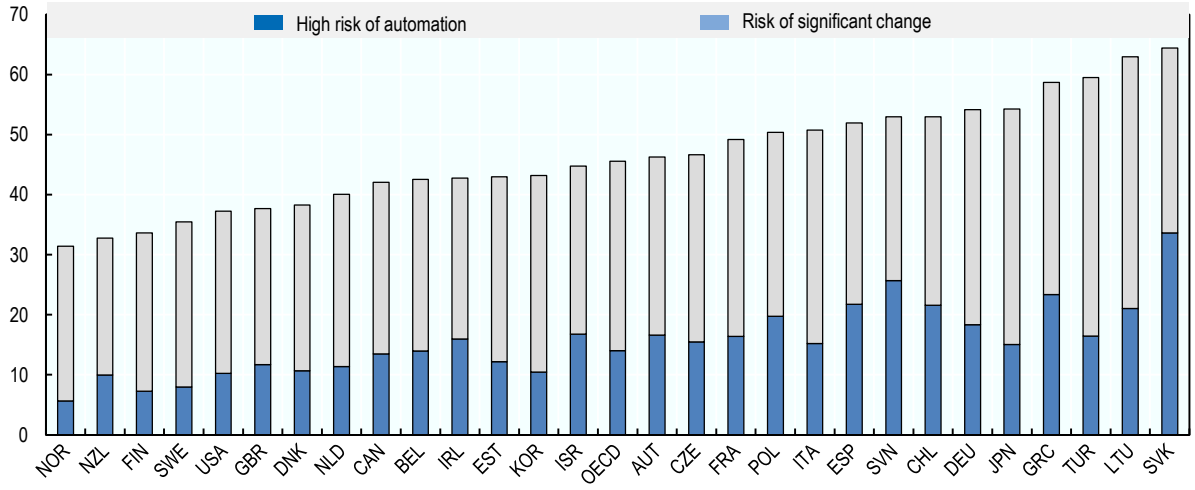
The state of SME digitalisation in the Slovak Republic

The labour market in the Slovak Republic is especially vulnerable

Many governments across the globe have taken action to support digitalisation among SMEs. The vulnerability of its labour market posed by digitalisation and automation represents a compelling reason why this issue should rank as a top priority of policy makers in the Slovak Republic. Fully 34% of all workers active in the Slovak Republic face a high risk of losing their job because of automation with another 31% likely to face significant changes to their job (Nedelkoska and Quintini, 2018). This combined share is higher in the Slovak Republic than among any other jurisdiction for which comparable data are available (see Figure 7.3). Policy makers and SMEs (which employ around two-thirds of the private sector labour force in the Slovak Republic) should therefore be well prepared to face the challenges that digitalisation poses.

Figure 7.3. Risk of job automation

Per cent of jobs at risk, by degree of risk



Note: High risk – more than 70% probability of automation; risk of significant change – between 50 and 70% probability
Source: Nedelkoska and Quintini (2018)

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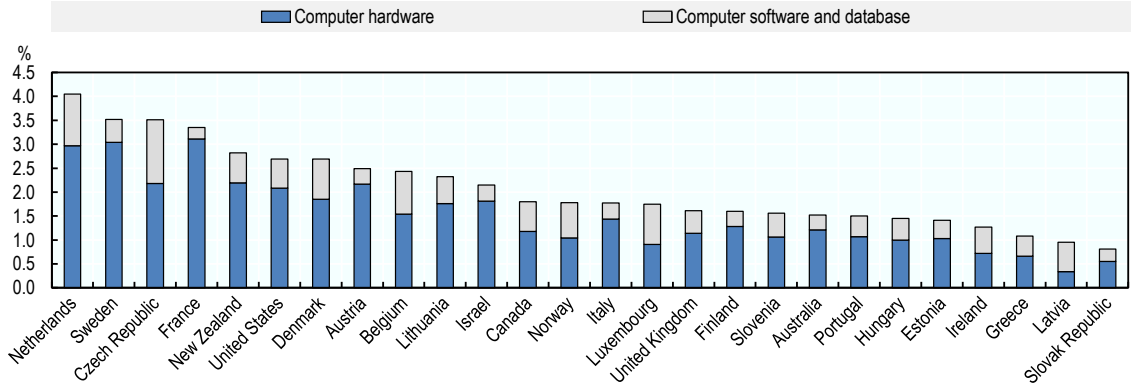
SMEs in the Slovak Republic spend less on ICT and digitalisation than their counterparts in other European countries

There is a very large dispersion in the SME digitalisation performance within Europe. The European Commission groups countries into three different categories based on how much an average SME spends on ICT and digitalisation. SMEs in the "high enabling region" consisting mainly of countries in Northern Europe, spend 2.5 times as much as SMEs in the "modest enabling region," consisting mainly of countries in Eastern and South-Eastern Europe, including the Slovak Republic (with countries in the "modest enabling region" taking an intermediate position). In addition, the gap is not expected to narrow according to estimates of the European Commission. It expects that in 2022 overall spending in the top region will be 12 times as large as spending in the lagging region (Innovation Finance Advisory and European Investment Bank, 2019).

OECD data confirm this picture. In 2017, companies in the Slovak Republic spent an equivalent of 0.84% of GDP on IT investment, below all other OECD countries (see Figure 7.4).

Figure 7.4. Investment in ICT by type

Percentage of total gross fixed capital formation in 2017 or the latest year available



Note: For Denmark, Ireland, Latvia, and Sweden, the data is from 2016. For Germany and Japan, data on computer hardware is not available. For New Zealand and Greece, information is missing for computer software.
Source: OECD (2020), National accounts at glance: Gross fixed capital formation database.

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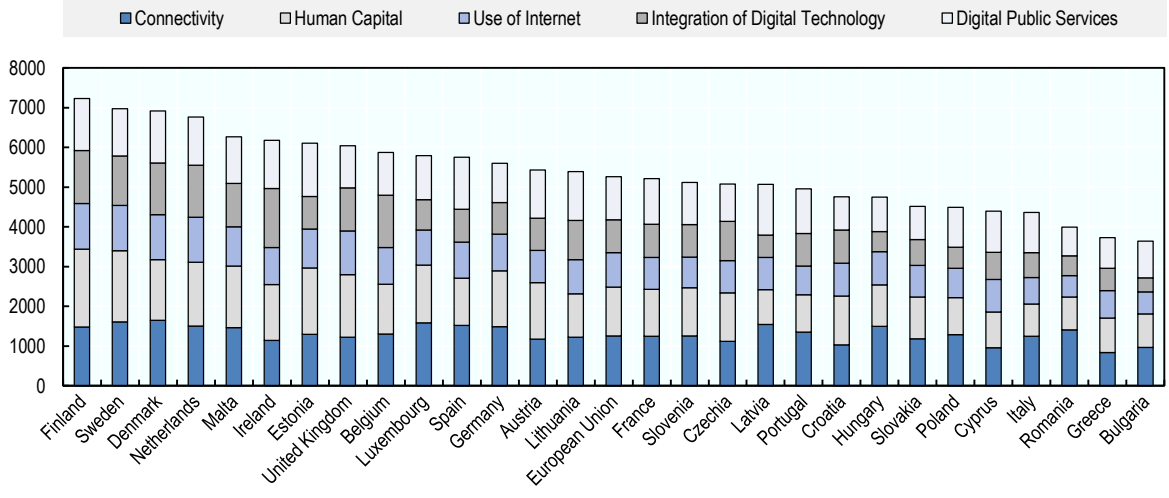
The digital preparedness is relatively poor among businesses in the Slovak Republic

The relative poor performance of the Slovak Republic (and other countries in the region) is reflected in various rankings and data sources. The European Union, for instance, ranks all EU28 countries according to their digital preparedness on an annual basis, called the digital economy and society index (DESI). The Slovak Republic significantly trails leading countries on most dimensions (see Figure 7.5).

Accordng to data from the European Commission, only 13% of businesses in the Slovak Republic is highly digitalised, and 50% has a very low level of digitalisation, compared to 18% and 46% as the EU average (European Commission, 2019b).

Figure 7.5. Digital economy and society index, 2019



Note: Higher scores refer to a better performance.
Source: European Commission (2020), "Digital Single Market", The Digital Economy and Society Index, https://ec.europa.eu/digital-single-market/en/desi

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In a similar vein, the Going Digital Toolkit, developed by the OECD, enables countries to easily identify their weak and strong points when it comes to digital developments. Some 33 parameters, grouped into 7 categories, capture how to assess a country's state of digital development. The Slovak Republic tends to perform below the OECD average, which points to room for improvements and the possibly need for policy makers to step up the efforts.

The access to communications infrastructures, services and data is below average

This section focuses on the infrastructure necessary for companies (as well as citizens) to adopt digital tools and technologies, such as measured by broadband penetration rates. Empirical evidence indicates that investments in fast broadband lead to more ICT investments by firms or all size, and can therefore be considered a key enabling factor of SME digitalisation (Andrews, Nicoletti and Timiliotis, 2018).

OECD data shows a relatively poor performance for the Slovak Republic with scores systematically below the average of the OECD or EU 28 (see Table 7.1). This indicates ample room for improvement. Interestingly, the relatively poor score in terms of access to the digital infrastructure appears unrelated to the regulatory and competitive environment, as there are relatively few barriers to entry and competition services compared to other OECD members (OECD, 2019c).

Table 7.1. Access to digital infrastructure: How the Slovak Republic compare to the OECD average

In 2018

	OECD Average	Slovak Republic	Ranking of the Slovak Republic
Mobile broadband subscriptions per 100 inhabitants	110	86	27th (out of 37)
Fixed broadband subscriptions per 100 inhabitants	31	28	30th (out of 37)
Machine-to-machine SIM cards per 100 inhabitants	16*	12	19th (out of 34)
Share of households with broadband connections	86	79	26th (out of 36)
Share of businesses with broadband contracted speed of 30 Mbps or more	43.6*	33.4	24th (out of 28)

Note: * the EU28 average is used instead due to data constraints.
Source: OECD (2021), own calculations

In addition, improvements in internet connectivity, bright spots such as ultrafast broadband coverage (which is well above the EU average) notwithstanding, have also been weaker in the Slovak Republic than in most other European countries (European Commission, 2019c). The government should make a priority to raise infrastructure investments going forward, including in regions that currently lag behind.

Digital skills among the workforce in the Slovak Republic are slightly below the EU average

Adult skills are regularly surveyed through the OECD Programme for the International Assessment of Adult Competencies (PIAAC) across a broad range of countries. "Problem solving in technology-rich environments" represents one of the three key dimensions that are monitored, alongside numeracy and literacy. It is defined as "using digital technology, communication tools and networks to acquire and evaluate information, communicate with others and perform practical tasks" and the indicator is thus suitable to proxy digital skills (OECD, 2019b). The Slovak Republic scores slightly below average with a mean score of 26 out of 100, compared to the OECD average of 30.

The human capital dimension of the EC's DESI ranking covers both "internet user skills" and "advanced skills and development." Its 2019 results also ranks the Slovak Republic somewhat below the (EU 28) average with an especially low score for the advanced skills and development ranking (European Commission, 2019d). This may be one of the factors behind growing shortages of ICT specialists and other qualified workers. Employers in the IT sector estimate that the labour market could absorb 10 000 additional specialists, a number that is expected to double within five years (OECD, 2019d). At the same time, the Slovak Republic has a larger than average share of the population with at least basic an above basic digital skills, according to a European ranking (European Commission, 2019c).

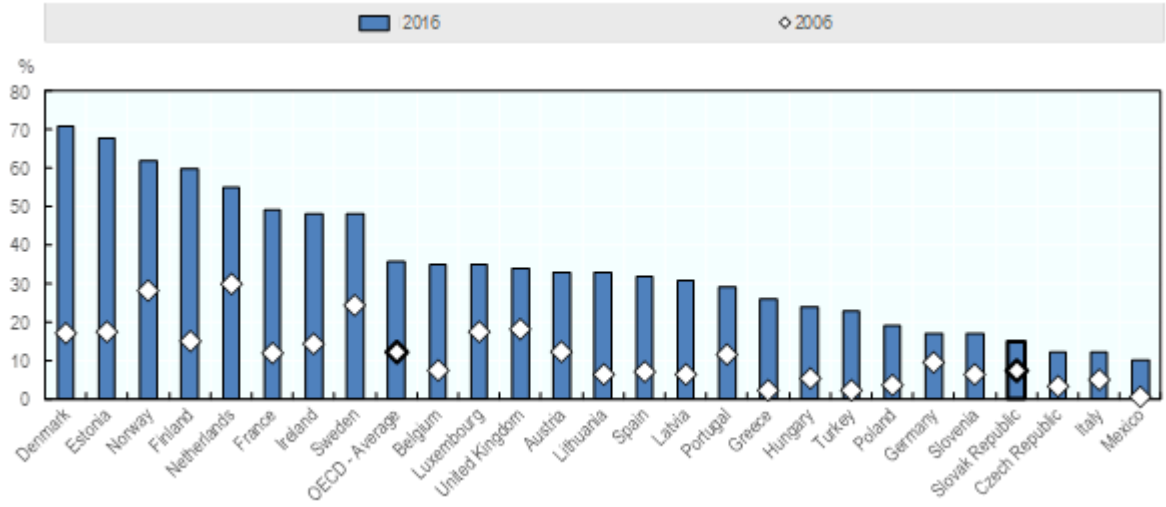
The government is taking steps to digitalise its operations, but further progress would be welcome

The Slovak Government could boost SME digitalisation by setting the right example and digitalising its operations and services, especially in its dealings with (small) businesses. This represents an area where the Slovak Republic is traditionally underperforming compared to most other EU countries.

In 2016, 15% of individuals responded that they used internet to send forms via public authorities within the past months. In contrast, over 60% of individuals used internet for forms with public authorities in Northern European countries such as Denmark, Estonia, Finland or Norway) (See Figure 7.6).

Figure 7.6. Digitalisation of government in the Slovak Republic

Percentage of individuals that used internet for sending filled forms via public authorities in last 12 months



Source: OECD (2020b), Government at a Glance database

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However, the Slovak Government made significant progress in e-government services over the last few years. In 2018, only 20% of firms were registered to fill their tax online, but following a campaign to raise awareness and assistance offered to individuals at the tax centres, the tax authorities were able to collect nearly 100% of the tax fillings online. In a similar vein, the business start-up process has been streamlined and made easier thanks to a reform introduced in early 2019.

This relative improvement is also apparent in the "digital public services" ranking of the Digital Economy and Society Index. In 2019, the Slovak Republic ranked 21st of 28 EU member states in this ranking,

9.3 points below the EU average. In 2017, the country ranked 24th with a gap of 11.6 points with the average, indicating that the country has caught up to some extent (European Commission, 2019c). E-government can have important demonstration effects to the economy, and provide platforms, technologies, and standards that facilitate transactions and create opportunities for SMEs.

As another example of recent progress, the government passed a new law on "guaranteed" electronic invoicing in April 2019 (by transposing EU regulation), which will come into force in early 2021 and apply to public contracts. It introduces a structured invoice content based on international standards, which will be issued by budgetary and contributory organisations and public contracting authorities (for amounts exceeding EUR 5 000). In practical terms, this means that invoices do not have to be manually inputted into accounting systems and the need to print, send or email invoices will no longer be necessary. By making this obligatory for all providers of goods and services to government bodies, this introduction also incentivised the business community at large to embrace e-invoicing. The implementation of this law, and its impact on the adoption of e-invoicing by SMEs, should be monitored.

Policy developments in the Slovak Republic

This section provides a non-comprehensive overview of government plans to stimulate digitalisation among Slovak SMEs. It excludes initiatives that impacts SME digitalisation, but are described elsewhere in the publication, most notably in Chapter 5 on government programmes (for example related to skill development and business development programmes as well as innovation policies).

A key take-away of this overview is that the government is aware of the main issues at hand and has developed ample action plans or strategies. Going forward, it will prove crucial to (ii) prioritise the main avenues to improve policy making in this area, (ii) properly implement the selected proposed reforms drawing on the experience from other countries that have taken similar actions in the past, (iii) closely monitor and evaluate the impact of the policy changes and (iv) revise public initiatives accordingly.

After describing some key policy developments, this chapter proposes a limited number of key recommendations that would have significant impact on SME digitalisation for the consideration of policy makers in the Slovak Republic.

The Strategy of the Digital Transformation of Slovakia 2030

The Office of the Prime Minister of the Slovak Republic for Investments and Informatization (ODPMII - *Úrad podpredsedu vlády SR pre investície a informatizáciu*) is he central government body responsible for the coordination of activities arising from the Digital Agenda of Europe. It has established the "Strategy of the Digital Transformation of Slovakia 2030." It articulates an inter-departmental government strategy with respect to digitalisation broadly defined (so thus not only covering SMEs, but also government actors, citizens, large businesses and so on). The ODPMII will serve as the principal coordinator for this strategy.

The 64 page documents outlines a broad vision and direction. The document is inspired by good practices from leading countries, aligned with recommendations of international organisations such as the OECD, and provides some information about the current weak and strong points in the country.

At the same time, it lacks quantifiable and well-defined objectives, key performance indicators and timelines, as well as concrete policy measures on how to improve the current situation. In addition, while the ODPMII will be responsible for the coordination of the strategy, it is unclear how other organisations, both within government and beyond, will be engaged in the process. In other words, the document (or a follow-up document) could specify the institutional responsibilities of the targets (ideally with a budget estimate), and establish a co-ordination mechanism across different ministries. Even

though the action plan (see below) is more concrete in terms of the ambitions and how to measure progress, it would be advisable to draft a more actionable long-term vision as well.

The Action Plan for the Digital Transformation of Slovakia 2019-22

The action plan derives directly from the aforementioned strategy and provides a way forward to implement measures over the period of Q3 2019 until the end of 2022. It identifies four strategic areas:

- The digitalisation of the education system and improving digital skills;
- Creating the basis for a "data economy" and a digital economy in general;
- The digitalisation of public administration;
- The development of artificial intelligence.

This action plan provides guidance for policy makers in the short term. Its recommendations are relatively concrete, and allocates ownership of various measures and includes a timeline. Many of the recommendations refer to the establishment of coordinating bodies, the drafting of proposals and the creation of more digitally attuned regulation. Consequently, the main expected output remain relatively vague.

Some of the recommendations with particular salience for this publication include:

- The establishment of digital innovation hubs, platforms for artificial intelligence and for distributed ledger technology, a competence centre for high-performance computing;
- An analysis of how to improve digital skills, including through life-long learning;
- Improving the digital infrastructure with the ambition, among others, to provide 5G coverage in one big city by the end of 2020;
- The possibility to extend the mandate of the Slovak Investment Holding.

The national Action Plan for Smart Industry

After consultation with various stakeholders and involving several ministries, the government of the Slovak Republic adopted the National Action Plan for Smart Industry in 2018. Part of the document refers to creating better conditions to implement digitalisation and the challenges and opportunities for smaller businesses are explicitly mentioned. Some of the strategic goals in the National Action Plan are also related to SME digitalisation. The plan formulated 35 measures in total and identified five priority areas in need of policy attention to reach these goals, as follows:

- Research, development and innovation;
- Basic principles of IT security implementation of smart industry;
- Labour market and education;
- Reference architecture, standardisation and creation of technical standards, the establishment for a framework for European and national legal conditions;
- Information and promotion.

The National Coalition for Digital Skills and Occupations of the Slovak Republic

In 2017, the National Coalition for Digital Skills and Occupations of the Slovak Republic was established by Deputy Prime Minister Pellegrini, as recommended by the European Commission. As in other countries who have set up a similar arrangement, it aims to improve digital skills among the workforce through the proposal of concrete measures. It bring together partners from various backgrounds such as companies using digital technologies, education and training providers, education and employment

ministries, public and private employment services, associations, non-profit organizations and social partners. On November 2019, the organisation had 83 members in total, which have made various commitments in this area.

The IT Fitness Test

The IT fitness test is a self-assessment test, providing insights into the IT literacy skills and competences of the Slovak population, divided into five categories (internet, security and computer systems, complex tasks, office tools and collaborative tools and social networks). Comenius University, the Technical University of Košice and the IT Association of Slovakia developed the test. The tool has a separate module for primary school students who want to assess their readiness to enter secondary schooling. Between its inception in 2010 and 2019, more than 200 000 individuals self-tested, providing policy makers and other stakeholders with ample information about the main challenges and issues (www.itfitnesstest.sk). The tool indicates that there is ample scope to improve digital skills among different groups in the Slovak Republic, in particular the use of office software.

Conclusions and policy recommendations

1. Improve collaboration with non-government bodies

Non-government bodies often play an important role in providing support, and governments should complement private-led initiatives rather than substitute them. Chambers of Commerce and business associations, for instance, are often very well placed to raise awareness and allow companies to learn from the experience from their peers. Box 7.1, for instance, provides information about the pivotal role of the Federation of Finnish Enterprises in this respect. The SME digitalisation approach in Austria, elaborated in Box 7.3, represents another case in point of how to collaborate with such actors; a key success factor to their approach was a mapping exercise of initiatives (many of them private) that already exist throughout the country and try to replicate and scale up the most successful of them.

In fact, there are many initiatives from private enterprises, business associations and similar organisations to stimulate the digital transition of SMEs in the Slovak Republic (VVA and WikConsult, 2019). Similar to their colleagues in Finland, policy makers in the Slovak Republic could try to set up partnerships with organisations active in the country that have outreach to the business community, and engage them more in the design and implementation of SME digitalisation policies. At the moment, such partnerships appear rare to non-existent, and government actors seem largely unaware of relevant initiatives and actions organisations that represent SMEs (or businesses of all size).

Box 7.1. The Federation of Finnish Enterprises (FFE) support to promote the digital transformation of SMEs

Description of the approach

Finland is considered a front runner when it comes to SME digitalisation with around 80% of Finnish SMEs employing basic digital tools in their day-to-day operations. Nonetheless, a sizeable gap between large and small firms remains for the adoption of more advanced digital technologies such as robotics, artificial intelligence or the use of big data. Survey data indicates that only one in ten Finnish companies are "digitally oriented," i.e. having significantly digitalised some of its functions.

The Federation of Finnish Enterprises (FFE) is trying to narrow the gap. The support can be classified in five categories.

- First, the organisation aims to raise awareness about the opportunities digital tools and technologies can bring. In partnership with other organisations, both from the private and public sector, the FFE organises the *Entrepreneur's Digital School*. This involves a series of events spanning the whole country such as case studies and peer-to-peer learning opportunities for small business owners that are in the early stages of their digital transformation;
- Second, the FFE organises webinars on how to use digital tools and applications. These training seminars can reach a large mass of interested parties at low cost;
- Third, the FFE publishes an instructional online manual, the *Entrepreneur's Digital Guidebook*. This document, freely accessible, provides practical information to various aspects to business digitalisation, and includes links to other information and digital service providers in the country. Similarly, the *Entrepreneur's GDPR Handbook* is a source of information for companies with questions regarding the EU's data protection regulation;
- Fourth, the organisation has several print and online editorial outlets which aims to inform their members, including on digitalisation;
- Finally, the FFE conducts surveys and studies on the issue on a regular basis. They also collaborate with the Ministry of Economic Affairs and Employment for the biannual SME Barometer, which occasionally maps the state of digital transition of Finnish SMEs.

Factors of success

As the largest and most influential business federation in Finland, with a membership of more than 115 000 of enterprises of all sizes and sectors, it has the necessary scale and outreach to raise awareness among a large segment of the Finnish business community. This also makes the FFE a natural representative of SMEs towards the national government, which routinely consults and partners with the organisation when making policies that aim to promote the digital transition of the Finnish economy and public sector.

The FFE consists of 20 regional organisations and nearly 40 local associations, which all work together with deal with their counterparts in regional and local governments in boosting development and deployment of digital tools and skills in SMEs.

In order to sustain its position as a credible stakeholder, the FFE routinely offers fresh and concrete solutions to all levels of government in affairs related to digitalisation. This is done through its policy programmes which the organisation publishes every election cycle, the Digital Platform released ahead of the 2019 national ballot being a recent example.

Obstacles and responses

An umbrella federation like the FFE faces difficulty to represent and serve a field as diverse as SMEs for obvious reasons. The sheer breadth of an all-encompassing phenomenon as digitalisation, which touches every company, industry and region in a slightly different fashion and crosscuts every policy sector, from taxation to education, and level, from EU to national and local, makes it hard to provide concrete services or advice to SMEs.

At the same time, public officials may struggle even more with the same issues of scope and diversity when drafting and deploying their responses to new technology, especially when it relates to the business community. This presents SME organisations like the FFE an opportunity to act as a co-ordinator. It sees its role as a bridge builder between the government and companies, i.e. to voice the concerns of companies and entrepreneurs, raise their awareness, and ensure that policy making in this area is fit for purpose, high-quality and of relevance for (small) businesses. In this way, the FFE and its counterparts elsewhere can provide the government a source of both legitimacy and real-life experience in order to advance the transition to a sustainable digital economy.

Relevance to the Slovak Republic

The Slovak Government could try to establish partnerships with similar organisations in the country to strengthen their role to support SMEs to digitalise. Chambers of commerce and employer associations are well placed to raise awareness of the issues at hand, provide peer learning opportunities, and diffuse knowledge and good practices in a languages SMEs and entrepreneurs can relatively easily understand, as the Finnish experience showcases.

The prime minister's office (or another government organisation) could therefore more actively seek various models to collaborate with private sector organisations. Relatively modest partnerships at the regional level that are deemed successful could be scaled up and established in other parts of the country.

Source: SME United (2019) and written exchanges with experts from the FFE.

2. Establish centres of excellence/digital hubs across the country, embedded within the smart specialisation strategy.

Many countries in the European Union and beyond have developed digital innovation hubs or centres of excellence. They "act as one-stop shops that help companies expand their use of digital technologies to improve business and production processes, products, and services and to increase overall competitiveness. Digital innovation hubs share advanced knowledge and expertise with their customers and provide them with access to the latest technologies. They also guide customers in exploring and piloting digital innovations, and when required, they offer business and financing support to customers to allow them to implement these innovations across the value chain (Innovation Finance Advisory and European Investment Bank, 2019).

A 2019 study found that there are 386 digital innovation hubs spread around EU 28 countries, and that up to 70% of SMEs with a digital project makes use of their services. These hubs are less common in countries where SMEs lag behind in the adoption of digital tools and technologies, mainly in Eastern and South-Eastern European member states. In these countries, there is one such facility for every 10 000 SMEs on average compared to 3 500 in other EU 28 countries. In addition, there are differences in terms of the range of services these hubs offer and how many SMEs are aware of the available support channelled through them (Innovation Finance Advisory and European Investment Bank, 2019).

In fact, one of the proposed initiatives of the "action plan for the digital transformation of Slovakia" is the creation of a network of digital innovation hubs, in recognition that the Slovak Republic is of the few EU

28 member states who have not already created a strong network. In April 2020, there were three digital hubs in the Slovak Republic under preparation, and not a single active one (according to data from the "smart specialisation platform" of the European Commission). Two are based in Bratislava (The Institute of Informatics of SAS and the National Centre of Robotics) and one in Kosice (Technicom).

Establishing fully operational digital hubs represents one of the measures proposed in the "smart industry action plan." The government should proceed with its plans to support the creation of these hubs in the form of (i) networking and match-making services, (ii) the provision of finance and (iii) allocating human resources so as to make these centres fully operational. Box 7.2 describes the approach adopted by Germany, which could be a learning model for the Slovak Republic.

Box 7.2. The Mittelstand 4.0 Competence Centres: Local support for SME digitalisation

Description of the approach

Germany has set up 23 Mittelstand 4.0 Competence Centres across the country and an additional 6 focusing on specific sectors. These serve as companies' regional point of contact for everything related to digitalisation. These centres were set up specifically because of support SMEs, given a widening gap of digital adoption rates between large firms and (a segment of) start-up on the one side and established SMEs on the other. The Mittelstand 4.0 Competence Centres is one of the initiatives under a wider action plan for a widespread adoption of Industry 4.0 in German SMEs.

The Federal Ministry of Economic Affairs and Energy (henceforward the BMWi according to the acronym in German) is responsible for these centres. The BMWi sets forward the overall strategy and procedural guidelines and works closely with various stakeholders in its implementation by establishing discussion groups and expert meetings.

These centres offer support to SMEs interested in digitalisation such as workshops, demonstration plants, guidance on how to make a concept for digitalisation, qualify their employees and provide network opportunities in their region. They "help businesses to first gauge at what stage of digitalisation they are currently at, develop together with the company an individual digitalisation road map and assist it in the selection and implementation of suitable measures. The Mittelstand 4.0 Competence Centres are also at hand to advise companies on whether a technical solution is economically viable and which security aspects must be considered" (BMWi, 2019). The services are provided free of charge and the centres are fully funded by the federal government.

Factors of success

Each centre has its own specialised focus, which is often related to regional strengths, local expertise, and existing clusters. For example, the centre in Augsburg places an emphasis on manufacturing, machinery, metallurgy and vehicles, reflecting the position of the city and area as an industrial hub. The centres have been founded by separate consortiums, which vary from one centre to the next. These consist of higher education institutes, chambers of commerce, various institutions and so on. This approach enables them to cater to specific needs at the local level, and establish close collaboration with partners in the region with the necessary expertise and qualifications.

Another factor of success if that these centres bring together various stakeholders, both from academics (such as the *Fraunhofer* institutes – a research organisation focussing on applied science), as well as from "innovation diffusion partners" such as associations and chambers who have outreach to the business community, knowledge about their needs and can provide practical support.

Each Competence Centre has targets, and once or twice a year, representatives from the BMWi assess whether they have been reached. In addition, the BMWi conducts a survey among stakeholders and

beneficiaries and performs an evaluation every year, based on parameters such as the number of activities, its focus and the outreach to SMEs.

Obstacles and responses

An inherent challenge is how to transfer knowledge from research institutes about technical topics (such as robotics or big data) to entrepreneurs and small business owners in a language they can understand and with practical applications for them. To bridge that divide, the academic staff of the relevant research institutions and partners of the consortiums receive training to workshops by the Mittelstand 4.0 Agency for Communication.

While all centres have internal evaluation procedures, and surveys among its beneficiaries, it is much more challenging to perform a full-fledged impact assessment, in particular to isolate the effect from these centres from other organisations, programmes and activities to promote digitalisation among SMEs. As a result, it is hard to gauge the additionality of this approach.

Relevance to the Slovak Republic

The Slovak Republic could adopt this model and set up a handful of centres in different parts of the country. As in Germany, these centres need to be build on existing strengths, for example by exploring partnerships with (technical) universities, and embedded in smart specialisation strategies and cluster policy. The consortium model, whereby different partners work together to achieve a common goal, also represents a key pillar of the German model should ideally be adopted in the Slovak Republic, as well as the practice to establish common guidelines and opportunities to "train the trainers." As a final recommendation, the activities of these centres should be monitored, compared to pre-set ambitions and beneficiaries' should be surveyed.

Source: BMWi (2019)

3. Create a coordination mechanism to design and implement policy responses related to SME digitalisation

As Chapter four of this publication highlights, policy making in the Slovak Republic is often fragmented and poorly coordinated across different stakeholders when it comes to SME and entrepreneurship support more generally. This appears to hold true for its current digitalisation efforts as well. While the office of the Prime Minister has taken the lead to develop a digitalisation strategy, it is unclear how other ministries and government contribute towards its implementation, and were consulted in the process in the first place. For example, the SBA would be well placed to provide business development services in this area. Nonetheless, they seem not be a partner in the development of the strategy, nor in its implementation.

Coordination and effective implementation of initiatives is especially relevant in this area of SME digitalisation, as this requires involvement of a broad number of different ministries and government bodies, as well as stakeholders outside of the government. Experience in other countries indicates that there are often a large number of public initiatives in place that aim to raise the take-up of digital tools for SMEs. This raises the possibility of wasteful duplication of efforts, gaps in the provision of services, the existence of initiatives that lack scale and are therefore not cost-efficient, and causes difficulties for SMEs who want support to navigate the support landscape. High-level political leadership on governance as well as an effective working-level coordination mechanism will be equally important.

The "action plan for the digital transformation of Slovakia" designates the "Directorate General for Digital Agenda at the Office of the Deputy Prime Minister of the Slovak Republic for Investments and Informatization."

Austria is a good example of a country that aims for a cohesive approach and set up coordination mechanisms through the Austria's Digitalisation Agency (DIA) (see Box 7.3). While the establishment of a new government body to streamline and coordinate policy efforts may not be warranted in the Slovak Republic, the prime minister's office may want to adopt some of the mechanisms employed by the DIA to ensure buy-in and engagement from a broad spectrum of relevant stakeholders.

Box 7.3. Austria's Digitalisation Agency (DIA)

Description of the approach

In 2018, a new Ministry was created in Austria, called the Ministry of Digital and Economic Affairs (*Ministerium für Digitalisierung und Wirtschaftsstandort* or BMDW). This Ministry centralised many federal policy competences related to digitalisation, which were previously scattered across different Ministries. This led to the creation of the "Digital Austria initiative," also in 2018, which aims to streamline policy making in the area. To facilitate and coordinate this process the Digitalisation Agency (DIA) was established in the same year. An overview of key actors and policies in this area provides insights in the need for coordination.

Key government players, aside from the BMDW, at the national level include:

- The *Forschungsförderungsgesellschaft* (FFG, the Austrian Research Promotion Agency),
- the AWS (*Austria Wirtschaftsservice Gesellschaft*) provides certain specific support measures, including a non-repayable grant (open to businesses of all size if the conditions are met),
- The Austrian Federal Ministry of Transport, Innovation and Technology (bmvit);

As in many countries, the government is concerned about the gap in the adoption of digital tools between large firms and SMEs, and have developed initiatives to reduce the disparity. Key programmes in this area are:

- The "KMU digital" programme provides support for SMEs active in Austria. It is a joint project between the BMDW in cooperation with the Austrian Chamber of Commerce (WKÖ). As a starting point, certified consultants will assess the opportunities digitalisation offers to firms that apply for the programme, and how advanced they already are. These consultants would then provide guidance on how to digitise the firm. In addition, funding for participating in training workshops are provided as part of the programme.
- The "Smart and Digital Services initiative" aims to support R&D investments in the service industry and for services as added value for the traditional industries. While it is open to businesses of all sizes and is broader than digitalisation, it represents a relevant programme in this area.
- Austria created a national platform for Industry 4.0, which brings together a very broad number of stakeholders from industry, science, regional and national policy makers, associations, trade unions and NGOs to better manage the digital industrial transformation. Among other activities, it created the Business Model Lab, where ….

In addition to the actors and measures described above (which is far from an exhaustive list), there are a large number of initiatives at the subnational level, both from government bodies as well as from non-governmental organisations. Chambers of Commerce and sector organisations, for instance, play a central role in fostering the take-up of digital technologies among their members.

A key part of the mandate of the DIA is therefore to keep track of relevant initiatives in this area. The conducted a mapping of current initiatives at different regions and by different organisations.

Obstacles and responses

A report from the European Commission indicated that there is scope to prioritise and quantify policy priorities. Currently, the policy targets are not deemed sufficiently clear and quantifiable, which complicates monitoring and evaluating the impact of policy making. In addition, the digital infrastructure lags behind leading EU countries in certain respects, such as the take-up rates of fixed broadband lags behind in Austria compared to, especially in rural areas. This hampers policy efforts to increase the adoption of digital tools among Austrian SMEs (European Commission, 2019b).

Relevance to the Slovak Republic

There are several lessons policy makers in the Slovak Republic can draw from the Austrian model. First, it may prove helpful to map current initiatives to support SMEs' digitalisation efforts (even if they are not officially labelled as such). While it may very well prove impossible to conduct a comprehensive and exhaustive mapping exercise, it is worthwhile to have an overview of the most important measures, also at the subnational level of government and by private actors.

Second, the Austrian approach illustrates the importance of establishing partnerships with relevant organisations and stakeholders. For instance, the AWS (*Austria Wirtschaftsservice Gesellschaft*) is a key institution in the provision of business development services, including in relationship to digitalisation efforts. Their buy-in and commitment is therefore crucial to implement policies and realise goals set by the central government.

Third, the Slovak Republic could step up efforts to draw on policy experiences from across the country, scale up initiatives that work well, pilot them in other regions and fill in gaps in the provision of support measures as necessary.

Sources: Exchanges with experts from the DIA, European Commission (2019e) and Boog et al. (2019).

4. Develop an online diagnostic tool for SME digitalisation in the Slovak Republic

Online diagnostic tools are cheap and accessible, enabling policy makers to reach out to businesses that are hard to get through to otherwise. International evidence indicates that can be an important entry point for businesses in need of support and advice. Often, these tools also enable participating firms to benchmark their performance in several areas, and thus identify potential areas for improvement. As a follow-up step, these tools typically provide information about how to address the identified weak points and direct them to relevant support initiatives and programmes (OECD, 2018).

These auto-diagnostic services can focus on various areas relevant for SME performance, such as on productivity (as in the "Canada business productivity" developed by the Canadian Business Bank) or on innovation (as is the case with "Cotec Portugal) (OECD, 2018). The Slovak authorities may want to establish a similar auto-diagnostic tool, which does not exist at the moment of writing. The SME digitalisation angle could be embedded in a broader toolkit, as in the above examples. Alternatively, a tool with an exclusive emphasis on SME digitalisation could be developed. The French example, outlined below, may serve as a suitable model to follow.

BPIFrance, the French public investment bank, is increasingly focusing attention on SME digitalisation. Its online self-diagnostic tool, *digitalomètre*, represents one of the main trusts to achieve their ambition in this area (among other initiatives). It is on online, free questionnaire for small businesses that takes around 15 minutes. It aims to gauge their "digital matureness," to identify strong and weak points and to make firms aware of possible support programmes tailored to their specific needs and profile. The auto-diagnostic tool is considered by BPIFrance as an essential tool to offer guidance to SMEs that want to take action, but find it hard to know where to start (BPIFrance.fr).

5. Pilot a financial support programme specific for relatively risky or advanced SME digitalisation projects

While SMEs in the Slovak Republic generally find it relatively easy to access credit on private market, experience from other countries suggests that there may be a need for specific support in this area for (larger-ticket) digitalisation projects. Around a quarter of SMEs in five large European countries (France, Germany, Poland, Spain and the United Kingdom) indicate that the lack of financing represents a hurdle, to digitalise, even though the financing conditions for SMEs were generally favourable when the survey took place (Abel-Koch et al., 2019). This provides a potential rationale for policy makers to intervene.

A recent report funded by the European Commission, through the European Investment Advisory Hub, for example, recommends the Portuguese Government to establish a dedicated guarantee facility for higher-risk, transformative digital projects. The document considers this facility would represent a key enabler for the government to drive forward its Indústria 4.0 digitalisation strategy (the existence of various support schemes for SMEs in need of finance already in place notwithstanding) (COTEC Portugal and the European Investment Advisory Hub, 2019).

Reasons why there may be a specific financing gap for digitalisation projects in many countries include:

- The intangible nature of digitalisation projects. Even though digital investments may significantly impact productivity and profitability, the resulting assets are typically very hard to collateralise and banks may be reluctant to provide the necessary financing in the absence of ample tangible collateral (see, for example, Brassell and Boschmans, 2019);
- The uncertainty of the impact of digital investments on firm performance, especially for more advanced, riskier, large-scale and transformative projects;
- Banks encounter difficulties to technically appraise the merits and expected returns of investments in digitalisation technologies, and often perceive that these investments are inherently more risky than investments in tangible assets;
- Many firms lack own funds for this purpose, especially for relatively large-scale projects (COTEC Portugal and the European Investment Advisory Hub, 2019);
- The insufficient availability of risk capital markets in many countries. Investments in digital projects, again especially involving larger tickets and an elevated risk profile, benefit from well-developed capital markets (see, for instance Demmou, Franco and Stefanescu, 2020).

The last bullet point is especially pertinent for the Slovak Republic, which does not have a well-developed (risk) capital market, thereby strengthening the case for government intervention. Venture capital investments in ICT projects for instance, represent 0.0016% of GDP, compared to the OECD average of 0.0184% (https://goingdigital.oecd.org/en/dimension/innovation/), while financial instruments other than straight debt are underdeveloped (European Commission, 2019b).

The Action plan for the digital transformation of the Slovak Republic identifies the high financial burden of introducing new technologies as a key challenge. In addition, it acknowledges that public support in this area has historically been “somewhat low,” and that there thus could be scope for additional action on this front,

Some countries have established dedicated finance facilities for SMEs that want to digitalise for the above reason, often supporting relatively risky and/or large investments. The *KfW Loan for Growth* scheme, established in Germany in 2018, is a case in point of a specific scheme for digitalisation (and innovation) projects. This facility covers up to 70% of the risk by KfW, Germany’s SME bank, in cooperation with the European Investment Bank (EIB) under the Investment Plan for Europe. The scheme aims to support mid-sized enterprises that struggle to attract large-volume financing in the private market.

On October 2019, the European Commission (EC) and European Investment Fund (EIF) launched a Digitalisation Pilot under the COSME Loan Guarantee Facility. It aims to enable financial intermediaries to offer broader and more comprehensive financing to relatively risky digitalisation projects of SMEs through a (counter-)guarantee agreement of up to 70%. The final recipient must fill out a questionnaire to assess eligibility, in particular to ensure that the loan finances digitalisation projects that are relatively transformative. Investments in tangible assets are capped at 40% of the overall financing volume (with the remainder of the loan reserved for investments in intangible assets and/or working capital) (European Investment Fund, 2019).

A third example pertains to the Small Business Digital Champions programme in Australia. Under this scheme, a grant of up to AUD 20 000 can be provided to 100 SMEs active in the country to enable them to “digitally transform”, as well as additional products and services from the corporate partners of the programme. Out of these 100, 15 will be selected to receive business development services (as described in Box 7.4).

The Slovak authorities could possibly collaborate with the EC and the EIF to test the aforementioned scheme and/or pilot a similar programme as in Australia or Germany. A limited pilot project would enable policy makers to gauge whether there is sufficient interest from SMEs and financial intermediaries, which could then possibly be scaled up after an evaluation. Such a programme could possibly fall under the mandate of the Slovak Investment Holding (described in the programmes chapter of this publication), as suggested by the “Action Plan for the Digital Transformation of Slovakia.”

6. Expand business development services (training, mentoring, coaching) both to SMEs in their early stages of digitalisation and to a select number of disruptive innovators

Business development services (BDS) can be defined as non-financial services aimed to entrepreneurs and business owners to raise their managerial capabilities. These services can include mentoring, coaching and training. A distinction for the purpose of this chapter can be made between services aimed at disruptive innovators at the one hand and services for incremental or sustained innovators (OECD, 2018). Anecdotal evidence suggests many SMEs in the Slovak Republic lack the managerial skills, acumen and even awareness to adopt basic digital technologies. At the same time, there is little support to enable more disruptive innovators to digitalise.

The Slovak Business Agency (SBA), discussed in more detail in Chapter three of this publication, has establised a network of National Business Centres. These centres are designed to act as a one-stop-shop, providing various services to SMEs, differentiated by the life cycle of their intended beneficiaries (acceleration, internship, incubation and growth). It is, however, unclear how many business development services are provided through the SBA, nor what impact the provision of these services has on its beneficiaries, although plan to conduct an impact assessment are in the making. In addition, there appears to be no specific services to support SMEs in their digitalisation process.

The SBA could develop dedicated business development services in the area of SME digitisation. Ideally, one programme should focus on companies with ambitious digitalisation plans, and provide more intensive support, while another programme provides more generic advice for the much wider segment of incremental innovations within the SME population. Australia is a case in point of a country that provides both types of business development services. Its approach is descibed in Box 7.4

Box 7.4. Business Development Services for SME digitalisation in Australia

Description of the approach

As part of the Australian SME strategy, developed by the Australian Government Department of Employment, Skills, Small and Family Business, four support pillars to foster SME digitalisation were designed.

Two of these four programmes, one open to a large segment of the small business population, and one reserved for a limited number of SMEs with an ambitious digital transformation plan, are discussed in more detail below.

Another notable initiative is related to e-government. The Bussiness.gov.au website functions as the single point of information and advice for Businesses active in Australia and provides tips, tools, templates, how-to-guides and referral services to help small businesses improve their business sustainability and management practices. For completeness, the fourth pillar concerns the Small Business Innovation Research for Defence Programme. As part of the Next Generation Technologies Fund, this programme also support research undertaken by SMEs and the Defence Cooperative Research Centres strengthen industry-science linkages, particularly with SMEs, to increase research and innovation capability.

The Australian Small Business Advisory Services (ASBAS) Digital Solutions

Small businesses around Australia can access support to grow their digital capabilities through Australian Small Business Advisory Services (ASBAS) Digital Solutions. The services include:

- websites and selling online;
- social media and digital marketing;
- using small business software;
- online security and data privacy.

Through this portal, small business operators can access professional advice at a cost below market prices. The services can be delivered one-to-one or in groups, on-line or face-to-face. Small for-profit businesses with fewer than 20 full time employees are eligible to use the service. It aims to be provide accessible and easy to understand advice to raise the digital capabilities of SMEs across the country.

Small Business Digital Champions

The Small Business Digital Champions Project will provide financial support to 100 Australian small businesses for their digital transformation. Out of these 100, 15 are selected to become a “digital champion”. Each champion is then partnered with a digital mentor, who will guide the company closely throughout its digital transformation process. These are high-profile innovators with a proven track record in digital technologies, often (formerly) employed by large companies, who will provide personal guidance and advice for a period of 12 months.

The mentoring activities are documented online, to enable other companies to draw lessons from their experiences and follow their example. Successful case studies will be disseminated by the Department of Employment, Skills, Small and Family Business. To get broader outreach, the Department also collaborates with 15 selected industry associations who will also share lessons learned and committed to provide advice to their members free of charge.

Factors for success

ASBAS advisors have formal qualifications in information and business related disciplines. They also have at least two years experience in providing digital advice to SMEs. In a similar vein, the mentors

In addition, the government has set clear targets for these programmes, for example in terms of the expected number of beneficiaries, and it is clearly formulated what government body will be responsible for the implementation of the policy. A budget has also been allocated to these organisations to enable them to provide the envisioned support.

A third important take-away is that these initiatives are actively promoted to the business community in partnership with associations and partners at the local level.

Relevance to the Slovak Republic

The Slovak Republic could establish a similar two-pronged approach to provide business development services in the area of SME digitalisation through the Slovak Business Agency. One pillar would consist of providing services to SMEs in the early stages of their digital transformation and the second one of more specialised support to a select number of "high-potential" ventures. Both pillars could be piloted on a modest scale, involving a limited number of SMEs and service providers and scaled up later if proven successful.

The creation of a network of advisors, mentors and coaches represents a key step in this process. The Australian experience, among others, suggest that this requires reaching out to the private sector actors such as large businesses, consultancy and sector organisations who have the required expertise and experience. These experts possibly need to be certified and even trained to ensure the quality of the service delivery.

In addition, the Slovak authorities should ensure sufficient awareness and outreach to the business community. The National Business Centres could be well placed to take up that role, involving referring businesses they come into contact with to the digital service package and liaising on a regular basis with stakeholders from the private and public sector.

7. Increase opportunities to acquire digital skills through on-the-job training and life-long learning activities

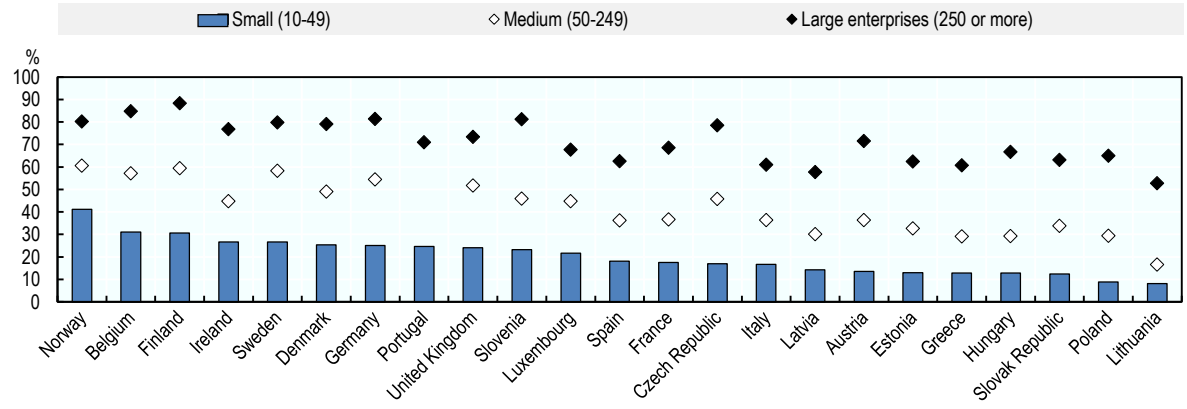
One key area where the Slovak Republic could improve is related to on-the-job training and life-long learning activities, which are directly and positively associated with the adoption of digital tools among SMEs (Andrews, Nicoletti and Timiliotis, 2018). Taking additional initiatives to raise (digital) skills would be timely and relevant, given the large proportion of jobs that will be disrupted by automation and digitalisation in the Slovak Republic. This process will require workers, especially with low or medium skills, to upgrade their skills. There appears to be a strong case for policy intervention, given the proportionally large number of (possible) employees with low to very low digital skills. One out of four Slovak adults are deemed computer illiterate (OECD, 2019d).

Despite the potential benefits to its labour market and economy, the Slovak Republic performs poorly when it comes to the participation of adults in the labour market according to most sources of information. For instance, Eurostat data indicates that in 2019 only 3.6% of the working age population in the Slovak Republic took part in training or education activities over the last four weeks. The EU 28 average stands at 11.2% (Eurostat, 2020).

Data on on-the-job training activities shows a similar picture. In particular, SMEs could do more to provide training to their personnel to develop their ICT skills. Data indicates that 12% of small firms in the Slovak Republic did so in 2019, compared with 20% as the OECD area. Medium-sized firms are more likely to provide ICT training. At the same time, only about one in three Slovak mid-sized companies provided such training in 2019, lagging behind the average of 41% across EU countries (see Figure 7.7).

In addition, many of the training that is on offer in the Slovak Republic is informal or non-formal, and focus on learning-by-doing (OECD, 2019e).

Figure 7.7. Prevalence of on-the-job training



Source: OECD (2020a), National accounts at glance: Gross fixed capital formation database

StatLink https://doi.org/10.1787/888934248046

The Slovak Government and other stakeholders has taken some action to improve digital skills among its workforce in recent years. In 2016, for instance, the country set up the dual education platform. It aims to create partnerships between employers in the form of a learning agreement. It is aimed to make the education system more attuned to the needs of the labour market, including digital needs. The European Social Fund (ESF) and European Regional Development Fund (ERDF) will provide EUR 33.6 million by the end of 2020. The Digital Coalition has a similar ambition through vocational training in 2017, but with a more explicit focus on digital skills and training. It was established by ITC Association in the Slovak Republic. It receives no public funding, however, and its impact is unclear.

The Slovak Republic's National Programme for the Development of Education ("Learning Slovakia") acknowledges the relative paucity of on-the job training opportunities within SMEs as problematic, and is exploring the use of tax instruments to spur on-the-job training activities (Vantuch and Jelínková, 2019). While the government introduced a tax deduction for companies that invest in training their employees, and a subsidy for SMEs through vocational education and training, other financial support mechanisms to encourage employees of (small) firms to participate in adult learning are underexplored in the Slovak Republic (OECD, 2019e). A tax allowance, as currently under consideration by the Slovak Government, could increase the prevalence of on-the-job training, including for digital skills. Given the discrepancy in training opportunities by firm size, the government may want to set eligibility criteria accordingly to minimise deadweight. As an additional consideration, the allowance could be reserved for approved training courses, focusing on transferable skills for which there is a demonstrable shortage in the labour market, such as ICT skills.

In addition, more efforts to stimulate (ICT) training among the unemployed would be welcome. Adult participation rates among adults without work are among the lowest among OECD countries in the Slovak Republic (OECD, 2020a).

Public spending on active labour market policies in the Slovak Republic represented 0.14% of GDP in 2017, compared to an OECD average of 0.34% (https://goingdigital.oecd.org/en/dimension/innovation/).

The Office of Labour, Social Affairs and Family offers some training and mentoring facilities for the unemployed, but activities have decreased in recent years because of cuts of funding. The number of beneficiaries for entrepreneurship training and coaching activities has declined by 69.3% over the 2012-17 period (OECD, 2018b).

The government is piloting vocational and educational training (VET) programmes for the unemployed, often with support from the ESF. The Ready for Work (*Pripravení na prácu*) programme is a case in point. Under this scheme, up to 20 000 unemployed (registered at the employment office) can receive training, especially tailored to the needs of the automotive industry. The most successful applicants will receive further and more specialised training opportunities. REPAS+ and KOMPAS+ are other novel VET progammes, offering courses to facilitate the transition into the labour market. The Slovak Republic is advised to fully implement and possibly expand these programmes. In addition, considering the mounting skills shortages on the labour market, some modules should have a strong focus on ICT and digital skills.

Box 7.5. Key policy recommendations on SME digitalisation

- Stimulate on-the-job training activities to acquire digital skills, possibly through the introduction of a tax allowance for SMEs investing in an approved training course for their personnel.
- Pilot a finance support programme for digitalisation for relatively risky or advanced SME digitalisation projects.
- Expand business development services (training, mentoring, coaching) to selected high-potential SMEs, and more basic services for firms in their early stages of digitalisation.
- Develop an online business diagnostic tool for SME digitalisation in the Slovak Republic.
- Include quantifiable and well-defined objectives related to SME digitalisation in the Strategy of the Digital Transformation of Slovakia 2030.
- Create a cross-government coordination mechanism to design and implement policy responses related to SME digitalisation.
- Improve collaboration with non-government bodies to provide support for SME digitalisation projects.
- Establish Digital Innovation Hubs across the country, as foreseen in the Action Plan for the Digital Transformation of Slovakia, embedded within the smart specialisation strategy, and provide financial, logistical and human resources support to make them fully operational.

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