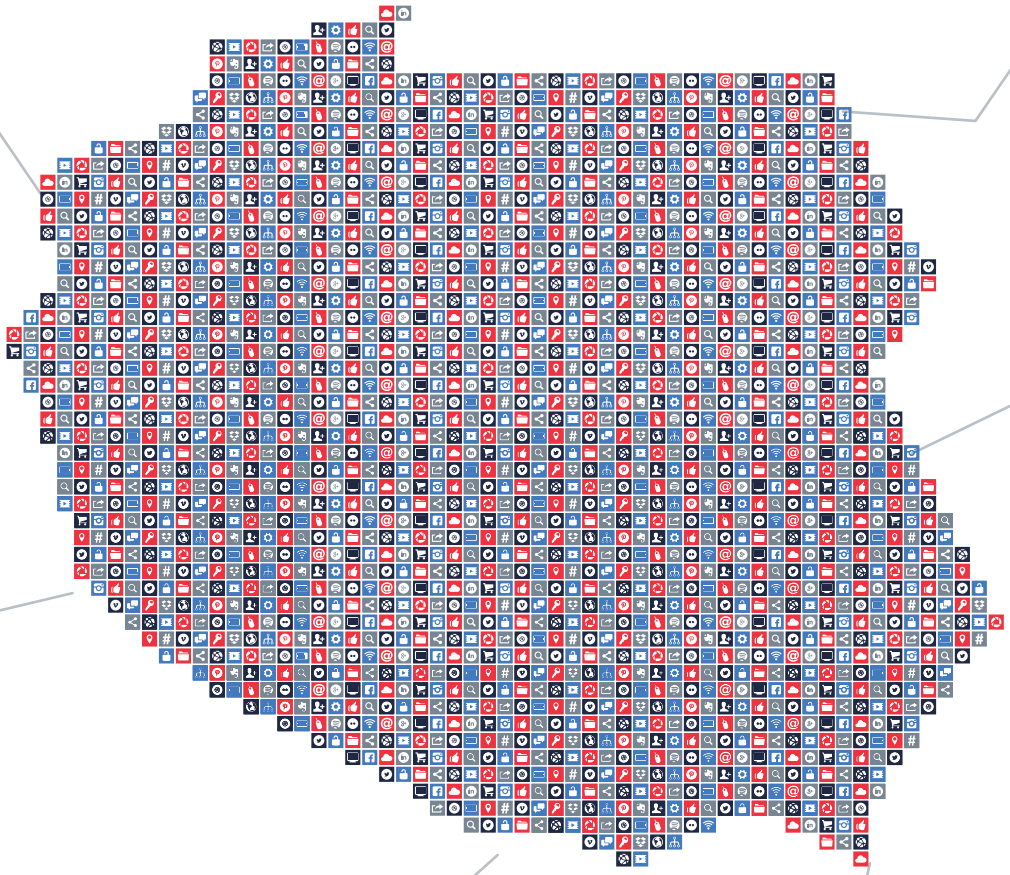
Digital Transformation of Small and Medium Enterprises in POLAND



DELab UW Country Report

June 2016

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Commissioned by Google

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Acronyms

B2B – Business to Business
B2C – Business to Customer
B2G – Business to Government
CRM – Customer Relationship Management
DESI – Digital Economy and Society Index
ERP – Enterprise Resource Planning
EU15 – Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom
EU28 – all EU member states
ICT – Information Communications Technologies
Mbps – Megabits (Mb) per second
NMS13 – Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovak Republic, Slovenia
RFID – Radio-frequency identification
SCM – Supply Chain Management
SMEs – Small and Medium-sized Enterprises

Executive Summary

In this report we examine the level of digital transformation of SMEs in Poland in comparison to SMEs from other EU countries. We take into consideration both the digital business environment (digital infrastructure such as Internet availability and digital skills of human capital) and the adoption of digital technologies. The introduction of digital technologies such as websites, social media, e-commerce, electronic information sharing and cloud computing simplifies and accelerates decision making, allows effective brand building, facilitates transactions and makes it possible to reach new customers.

Why is it so important for SMEs to go digital?
Internet and digital tools become a must in the context of the Digital Single Market strategy. The regulations proposed within the DSM greatly enhance the opportunities stemming from successful digital transformation, as well as pose risks connected with losing markets and customers due to digital business illiteracy. Although the digital revolution affects both ICT and traditional businesses, it puts significant pressure on Small and Medium Enterprises (SMEs) that are relatively more sensitive to global competition occurring within the Internet compared to their stronger, bigger counterparts.

Are Polish SMEs ready to compete on the Digital Single Market?
Most Polish SMEs are not prepared for the DSM: not only do they not reap the benefits of digital transformation they also risk losing their traditional markets and customers. Almost one in ten Polish SMEs does not have Internet access, although the digital infrastructure is relatively good and cheap. They hesitate to adopt digital tools, particularly cloud computing, and neglect the opportunities created by e-commerce. Admittedly, Polish entrepreneurs have limited access to a digitally skilled workforce, but at the same time they seem to be little inclined to improve the digital skills of their employees. In other words, the Polish SMEs are in a strong need of digital transformation.

Definitions

Digital transformation of enterprises

Changes in the functioning of enterprises due to the adjustments in business environment associated with the new application of digital technologies

Digital business environment

The digital skills of human capital and the development of digital infrastructure enabling utilisation of digital technologies

Digital skills of human capital

Adoption and skillful utilisation of digital technologies by human capital

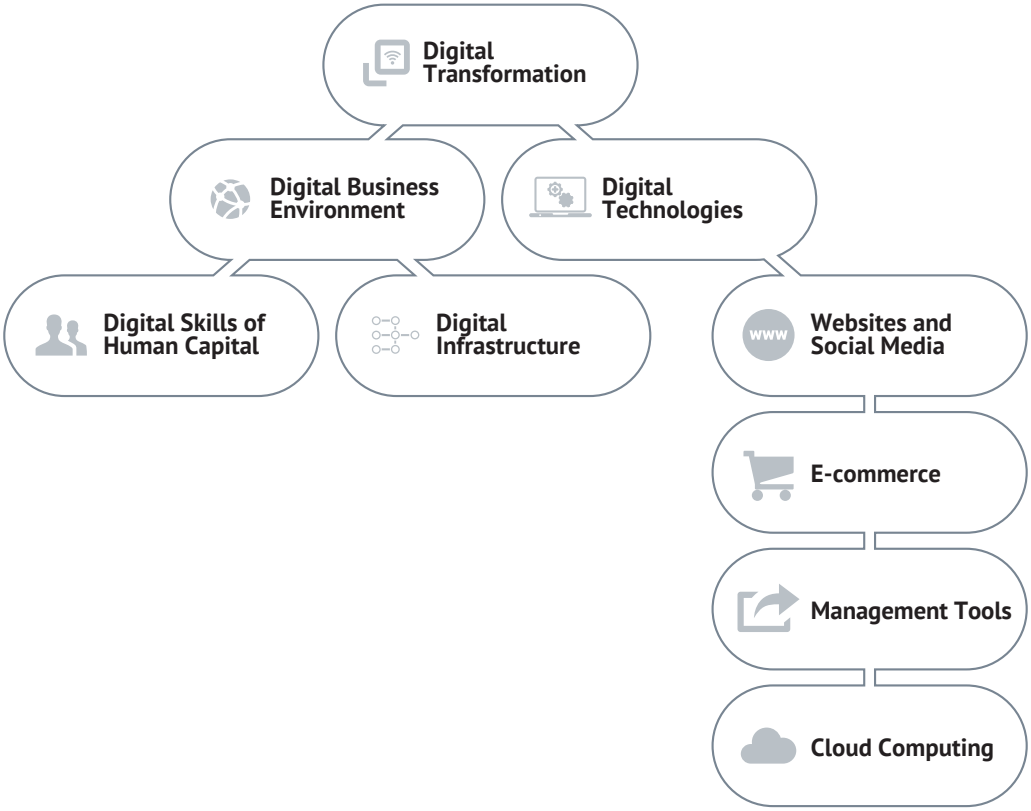
Digital infrastructure

Structure needed for adoption and utilisation of digital technologies; facilities to interconnect components of digital business environment

Digital technologies

Electronic tools, systems, devices and resources that generate, store or process data: websites, social media, e-commerce, management tools, cloud computing

Main Concepts



Digital transformation enables and accelerates the smart integration of products and services into the economy and society. Its strongest effect lies in the optimal combination of digital technologies with digital business environment.
The more developed the digital infrastructure and digital skills within a society, the better the utilisation of digital technologies. Similarly, the higher the utilisation of digital technologies, the higher the demand for human capital to employ and upgrade digital inventions. Digital tools enable smart economic integration of production and delivery of products and services to customers. Digitally aware SMEs find new market opportunities with greater ease, grow their business partner networks faster and obtain quality feedback from their clients through customer relation management tools.

Poland in a Nutshell

Key findings for SMEs in Poland

- Have access to moderately priced Internet access

- Suffer from the low digital skills of the labour force
- Do not hire ICT specialists and do not train employees
- Have no access to high speed Internet
- Lag behind in the adoption of digital technologies

Poland in the EU28

- 5th in Mobile broadband take-up
- 7th in Mobile broadband coverage
- 9th in Fixed Broadband price

- 15th in Digital Public Services
- 22nd in Human Capital
- 22nd in Use of Internet
- 24th in Connectivity
- 25th in Integration of Digital Technology

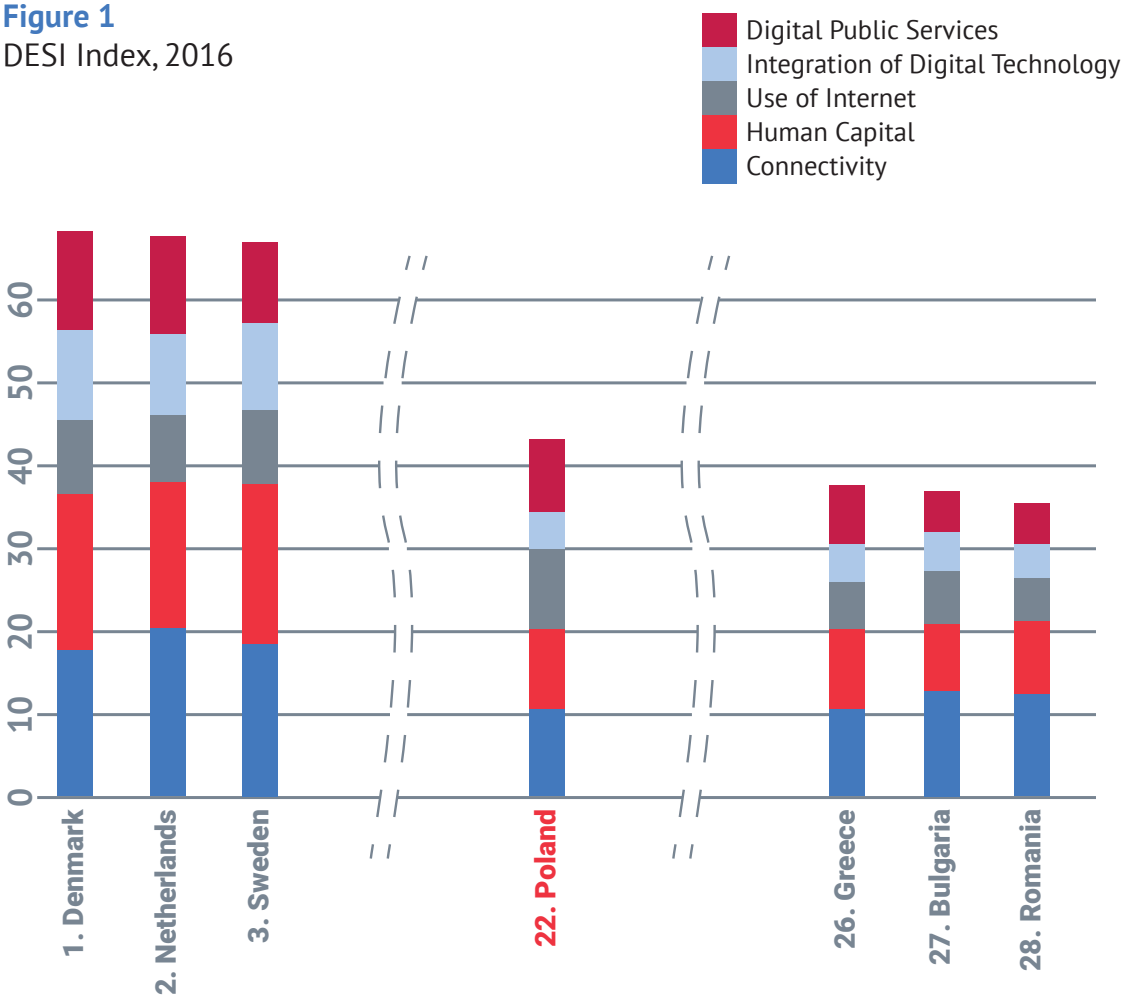
Digital Map: Poland in the EU28

"Digital Economy and Society Index" (DESI) measures the degree of digital transformation of the EU member states. Namely, the index reports the level of development in the following categories: access, speed and quality of Internet infrastructure (represented by "Connectivity"), digital skills of society ("Human Capital" and "Use of Internet"), digitalisation of businesses ("Integration of Digital Technology") and public e-services.

According to the DESI Index, Poland takes the 22nd place in the EU, revealing considerable gaps with respect to other countries in almost every dimension. Poland performs the worst in Integration of Digital Technology, occupying only the 25th position, which clearly shows the lack of digital development of Polish business.

In Human Capital, which indicates the level of digital skills of a society, Poland ranks 22nd. This low position is mainly due to the low share of Polish Internet users (65%) and the relatively low digital skills of the Poles. Poland is also 22nd in the Use of Internet dimension, which can be illustrated by the low usage of online banking (22nd), social networks (23rd) and music, videos or games online (25th). The score is somewhat better in the provision of Digital Public Services, where Poland takes 15th position.

Figure 1
DESI Index, 2016

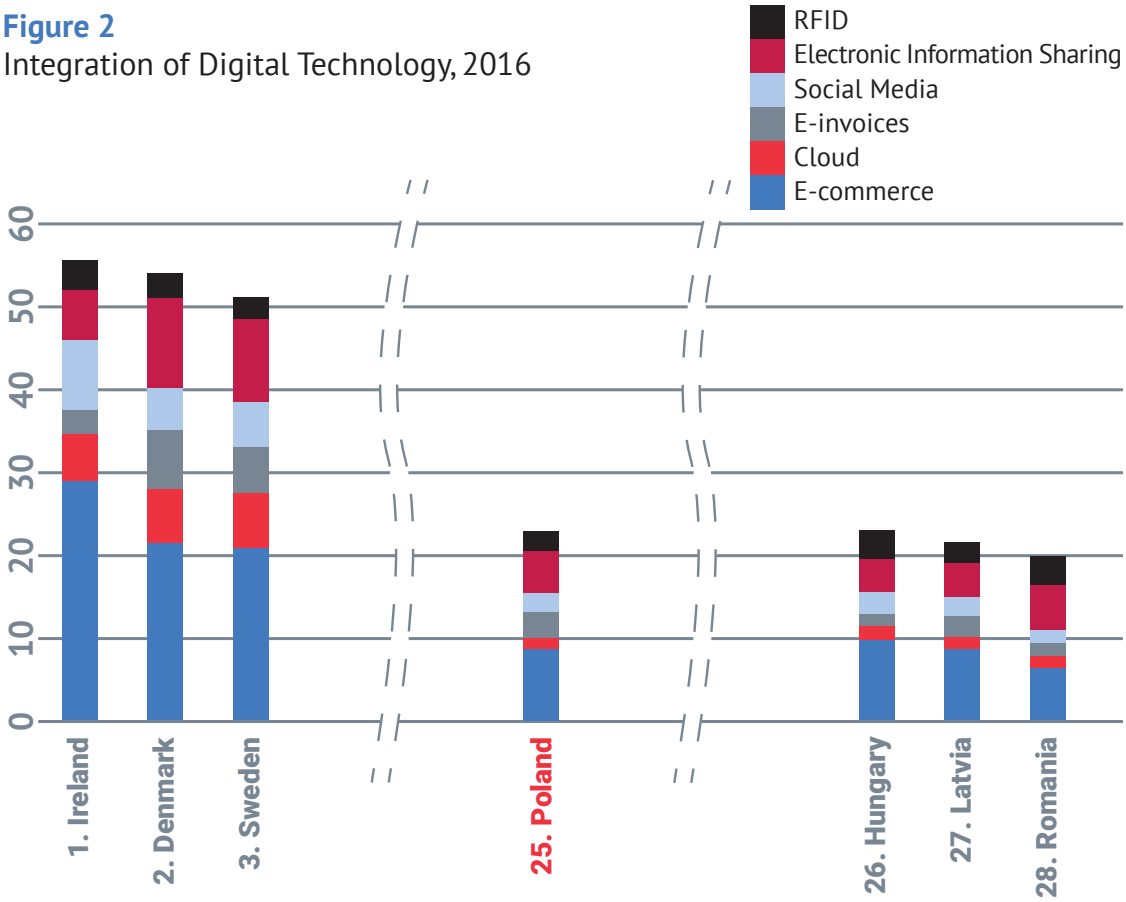


Source: Digital Agenda for Europe, DESI

Integration of Digital Technology represents the level of Digital Transformation achieved by enterprises (with more than 10 employees). It is measured by the adoption of digital tools, like cloud computing services, and the engagement in e-commerce.

The greatest challenge for Poland's digital transformation is the adoption of digital technologies by enterprises (25th position). Besides their very poor performance in the usage of cloud computing services and social media (27th place in both), Polish enterprises are only 25th in the usage of electronic information sharing services (digital management tools), and 22nd in the usage of Radio-frequency identification (RFID). Regarding e-commerce, Poland occupies the 22nd in ~~regarding~~ the share of firms selling online, and is 25th in cross-border e-commerce. The only advantage of the Polish business is the frequent usage of e-invoices (10th position).

Figure 2
Integration of Digital Technology, 2016



Source: Digital Agenda for Europe, DESI

Digital Business Environment for SMEs

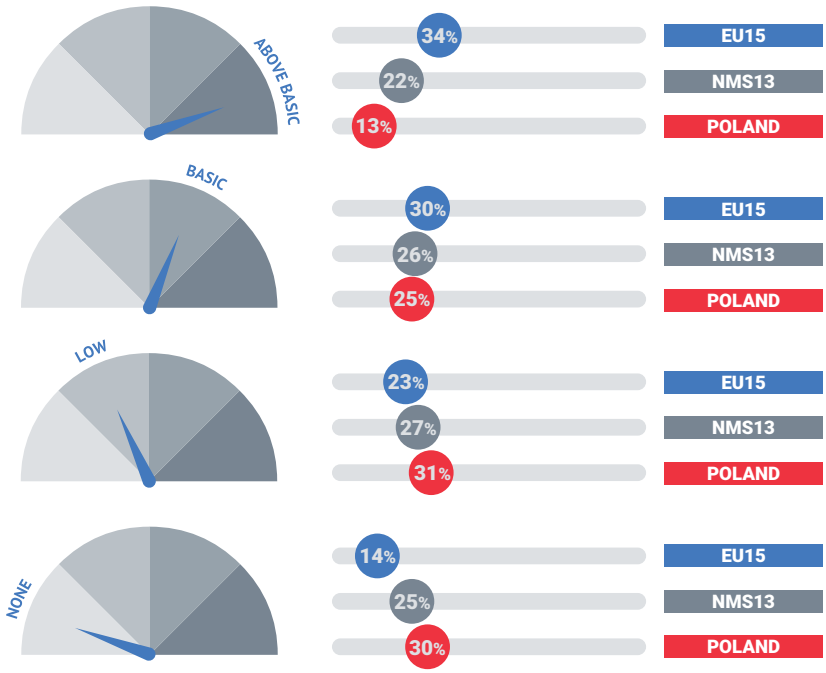
Digital Business Environment creates the common framework that enables SMEs to utilise digital technology and facilitates engagement of SMEs in the digital economy.

We assess Digital Business Environment by analysing the development of digital skills and digital infrastructure. More precisely, we consider the efforts of companies in hiring and training digitally skilled people (including, but not exclusively, ICT specialists) and we assess digital infrastructure by the access, affordability, speed and quality of the Internet.

Digital Skills

When it comes to digital skills, the Poles visibly lag behind the average NMS13. Only 13% of Polish citizens report "above basic" digital skills, compared to 22% in NMS13 and 34% in EU15. At the same time, the share of individuals with "low" (31%, compared to 27 for NMS13) and no digital skills (30%, NMS13: 25%) is considerably higher than regional average.

Figure 3
Levels of digital skills amongst individuals (%), 2015

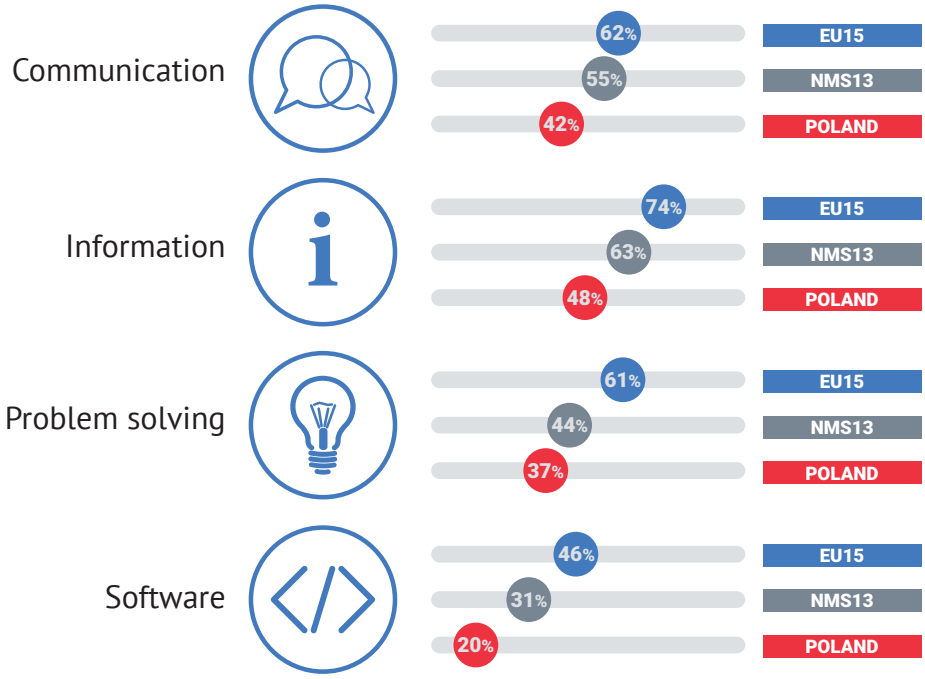


Above basic skills refer to the ability to carry out most of the tasks in all of four general categories (Communication, Information, Problem Solving and Software)
Basic skills refer to the ability to carry out one specific task in each category
Low skills refer to users who are unable to perform any tasks in up to 3 categories
No skills refer to users who are unable to perform any tasks in all categories listed including those who have not accessed the Internet in the last 3 months

Source: DELab UW own calculations based on the data from Eurostat

The gaps between the Poles and the EU15 citizens reporting "above basic" skills are worryingly large in all analysed dimensions. For example, almost every second EU15 citizen reports advanced software skills, while in Poland only every fifth person.

Figure 4
Individuals with "above basic" digital skills (%), 2015

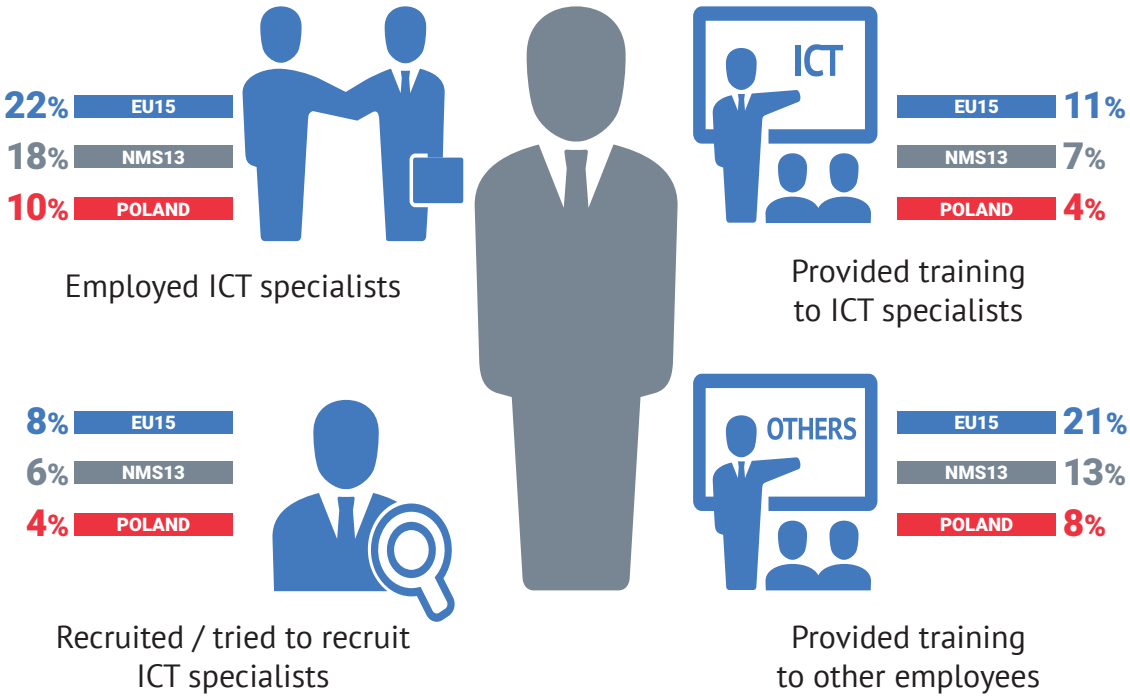


Communication skills include the ability to communicate online via e-mail, video calls or the social media
Information skills show the ability to find relevant information online
Problem solving skills represent the ability to manage files, change settings of software and use online services
Software skills include the ability to use word processing, spreadsheet and multimedia editing software

Source: DELab UW own calculations based on the data from Eurostat

Polish SMEs seem to be unaware of the benefits of having ICT specialists among their staff: only every 10th Polish SME employs them, while in the NMS13 and EU15 about every 5th. The gap between Poland and the other EU countries is even more striking in terms of training their employees. Just 4% of the Polish SMEs provide trainings for ICT specialists (11% in EU15), and only 8% of SMEs develop the digital skills of other employees (21% in EU15).

Figure 5
SMEs employing and training ICT specialists (%), 2015



Source: DELab UW own calculations based on the data from Eurostat

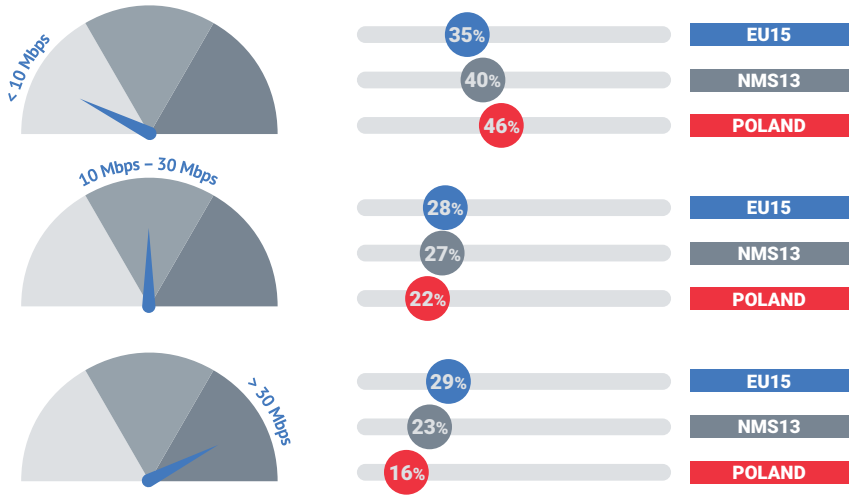
Digital Infrastructure

The access to high-speed and good quality Internet should be the cornerstone of digital infrastructure. In Poland, around 8% of SMEs do not have access to the Internet, which is four times higher than in the EU15.

Figure 6
SMEs with no Internet access (%), 2015

Almost every second Polish SME uses a slow Internet connection, while in the EU15 only every third. There is a gap in the usage of fast Internet: just 16% of Polish firms are subscribed to it, while the EU15 average is 29%.

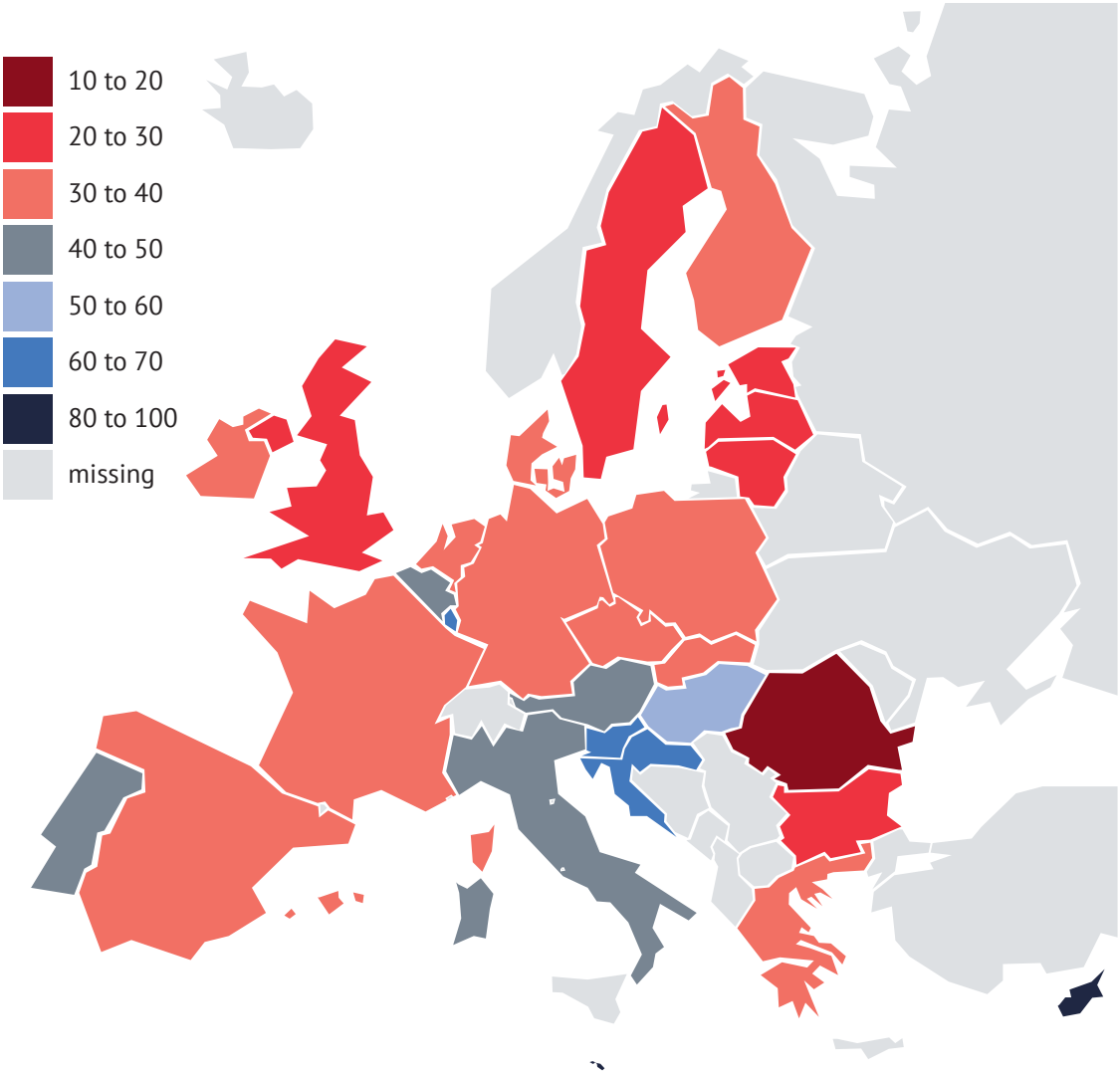
Figure 7
SMEs according to the speed of their fixed Internet connection (%), 2015



Source: DELab UW own calculations based on the data from Eurostat

The low uptake of high-speed connections by Polish SMEs is very surprising, considering the fact that high-speed Internet is relatively cheap in Poland where it amounts to 33.5 euros, which is below the EU15 average of 37 euros.

Figure 8
Median price of monthly subscription to the Internet (30-100 Mbps) in euros/PPP, 2015



Source: DELab UW own calculations based on the data from Eurostat

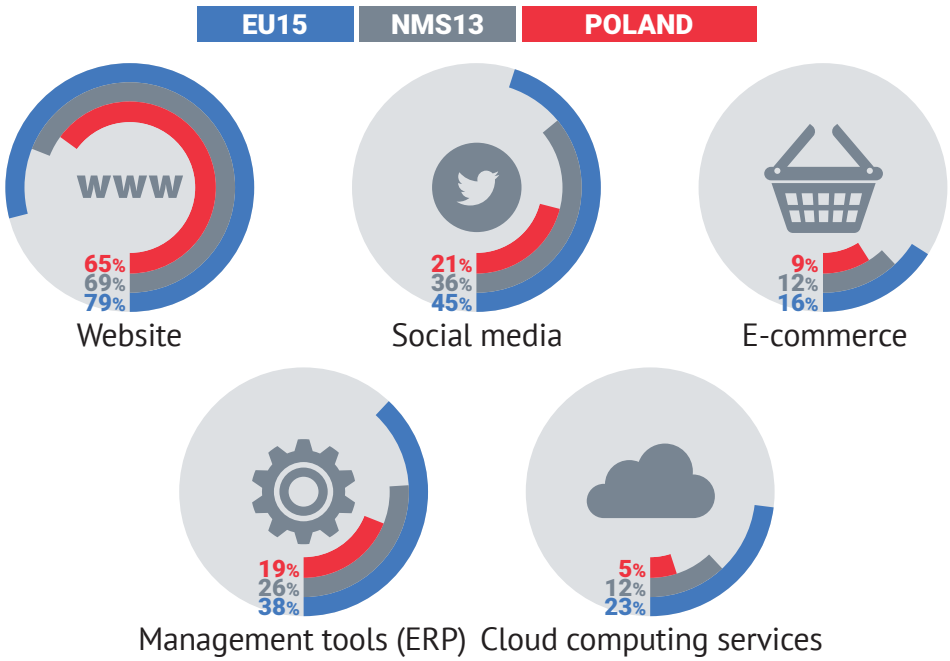
Digital Technologies

The usage of digital technologies simplifies and accelerates decision making processes within the enterprise; allows more effective business analyses; facilitates the communication with business partners; allows effective image and brand building; and supports the penetration of new markets as well as reaching new customers. To measure the adoption of digital tools we consider the usage of five key technologies: websites, social media, e-commerce, management tools (like ERP) and cloud computing.

Polish SMEs are much less likely to reap the benefits of digital technologies than other EU countries. Only every tenth Polish SME conducts e-sales, while in the EU15 every sixth. Polish SMEs lag behind the most in the usage of cloud computing, as the share of firms using such services is four times smaller than in the EU15. Furthermore, two times less SMEs in Poland use social media and management tools than in the EU15. The smallest gap between Poland and the rest of the EU exists in terms of possessing websites.

Figure 9

SMEs using main digital technologies (%), 2015

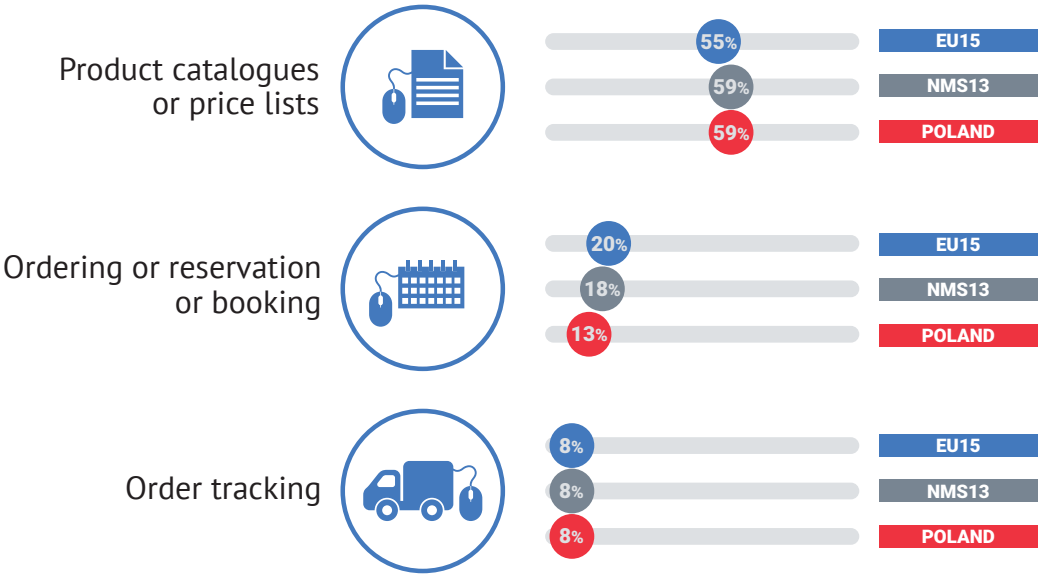


Source: DELab UW own calculations based on the data from Eurostat

Websites and Social Media

Even though Polish SMEs offer websites less frequently than their EU15 counterparts (65% compared to 79% in the EU15), a higher share of SMEs in Poland provide basic website features like product catalogues or price lists. However, there is a gap in provision of ordering, reservation or booking options on the website. In terms of order tracking, Poland is at the same level as the EU average.

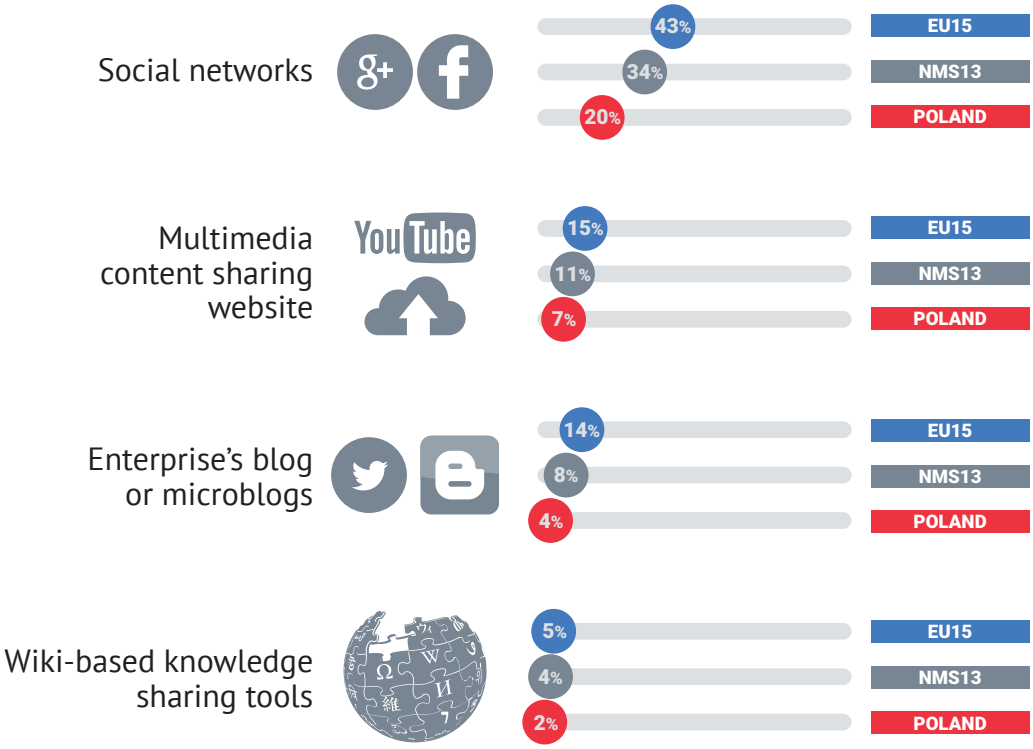
Figure 10
SMEs with websites providing selected services (%), 2015



Source: DELab UW own calculations based on the data from Eurostat

Although social media and microblogs are powerful tools for marketing and communication, the share of enterprises in Poland using social networks is very low: only 20% compared to 43% in the EU15. Likewise, the usage of multimedia content sharing websites (e.g. YouTube) is less than the EU15 average (7% against 15% in the EU15). Moreover, blogs and microblogs are three times less frequently used by SMEs in Poland, than in the EU15. Wiki-based knowledge sharing tools are also less popular among Polish firms.

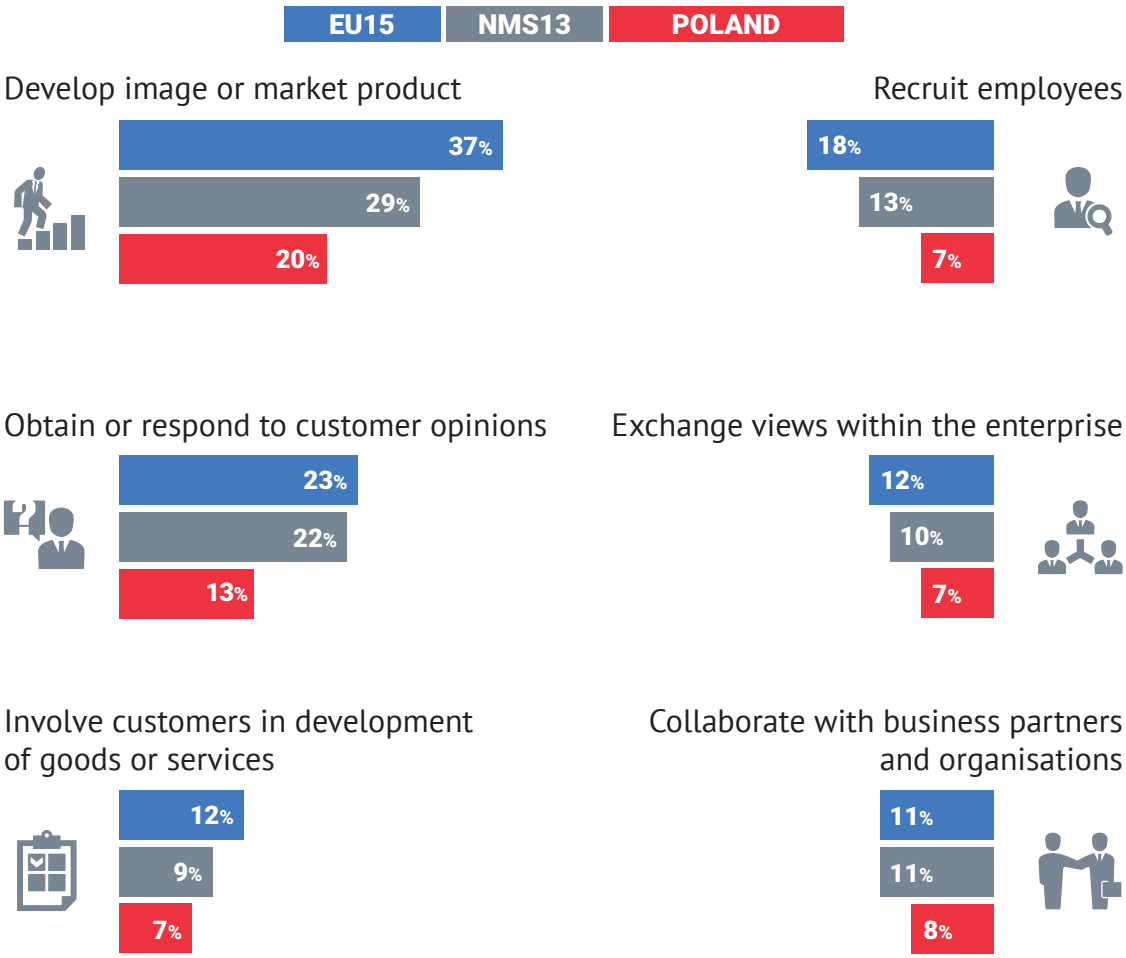
Figure 11
SMEs using social media services (%), 2015



Source: DELab UW own calculations based on the data from Eurostat

Analysing the reasons for using social media, we need to keep in mind the overall low share of Polish SMEs using them (21%). Almost all of these SMEs use social media for developing image or marketing. While the share of Polish firms using social media to communicate with customers is much lower than the average of the EU15, in the case of collaborating with business partners the gap is relatively small. The biggest gap between Poland and the EU15 appears in recruiting employees by social media, as the share of Polish SMEs using social media for that purpose is almost three times lower than in the EU15.

Figure 12
Reasons for using social media services by SMEs (%), 2015



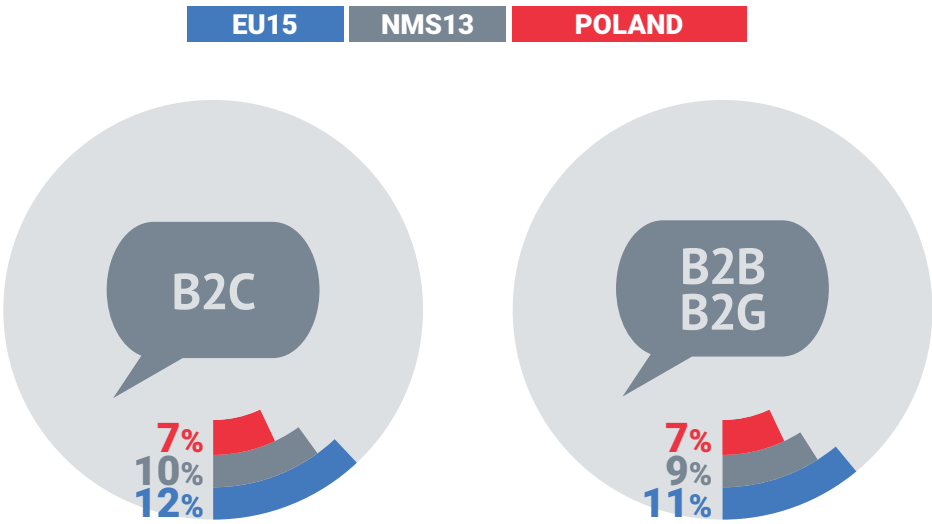
Source: DELab UW own calculations based on the data from Eurostat

E-commerce

An **e-commerce transaction** is the sale or purchase of goods or services conducted over computer networks
Business to Consumer (B2C) refers to sales to private consumers
Business to Business (B2B) refers to sales to other enterprises
Business to Government (B2G) refers to sales to public authorities

The engagement of Polish SMEs in e-commerce is significantly lower than in most EU countries. A lower share of firms engage in electronic sales to private consumers (B2C: 7% compared to 12% in the EU15), or to other enterprises and public authorities (B2B, B2G: 7% compared to 11% in the EU15).

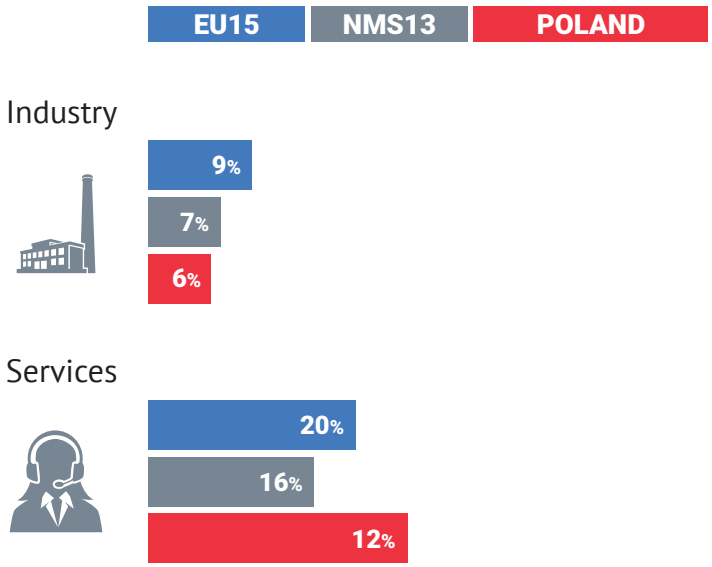
Figure 13
SMEs selling via a website or apps (%), by type of transaction, 2015



Source: DELab UW own calculations based on the data from Eurostat

The gap between Polish and EU15 SMEs is larger in services: only every tenth Polish firm sells online, while in the EU15 every fifth. The difference is slightly less visible in industries (6% compared to 9% in the EU15). To be more specific, the largest share of enterprises selling online is in tourism (almost every second travel agency sells online), or in the creative industries (e.g. publishing activities - 35%).

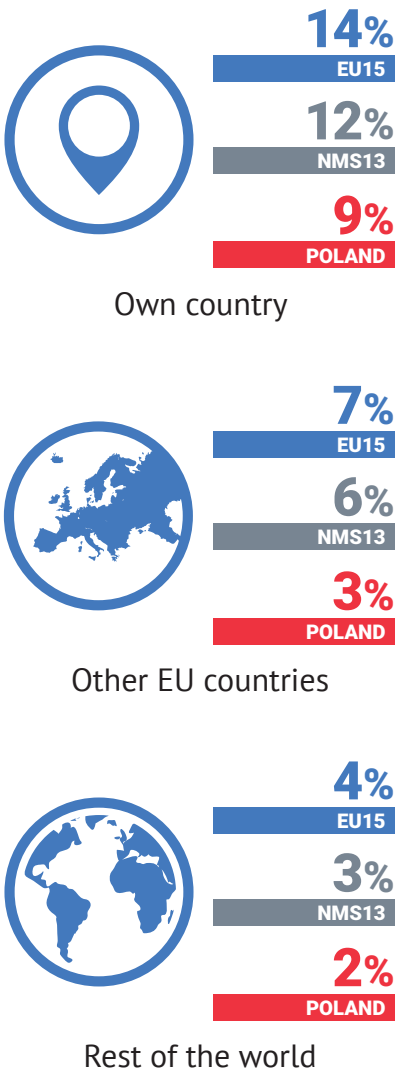
Figure 14
SMEs selling vie a website or apps, according to sectors (%), 2015



Source: DELab UW own calculations based on the data from Eurostat

E-commerce is mostly concentrated within the country, as it is the case for the EU15. However, the share of Polish SMEs that are involved in cross-border e-commerce is more than two times lower than in the EU15: only 3% of Polish SMEs make electronic sales to other EU countries, and only 2% sells outside the EU. The Polish cross-border trade is among the lowest in the EU.

Figure 15
SMEs engaged in electronic sales (%), 2015



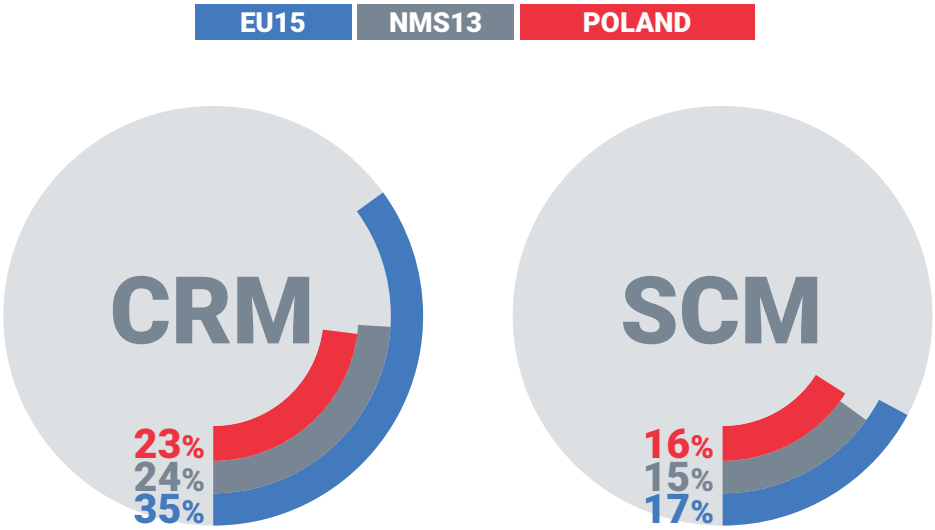
Source: DELab UW own calculations based on the data from Eurostat

Management Tools

Management tools (Enterprise Resource Planning - ERP) enable automatic flow of information between different business functions such as accounting, planning, production and marketing.
Supply Chain Management (SCM) means exchanging all types of information with suppliers and/or customers about the availability, production, development and distribution of goods or services.
Customer Relationship Management (CRM) is a management methodology which places the customer at the centre of the business activity, based on an intensive use of information technologies to collect, integrate, process and analyse information related to the customers.

Polish SMEs use CRM to the same extent as other NMS13 countries (every fourth SME) but still considerably less often than firms in EU15 countries (every third). Polish SMEs perform well in using Supply Chain Management tools, which suggests a high automatization of data interchange between suppliers.

Figure 16
SMEs using CRM and SCM software (%), 2015



Source: DELab UW own calculations based on the data from Eurostat

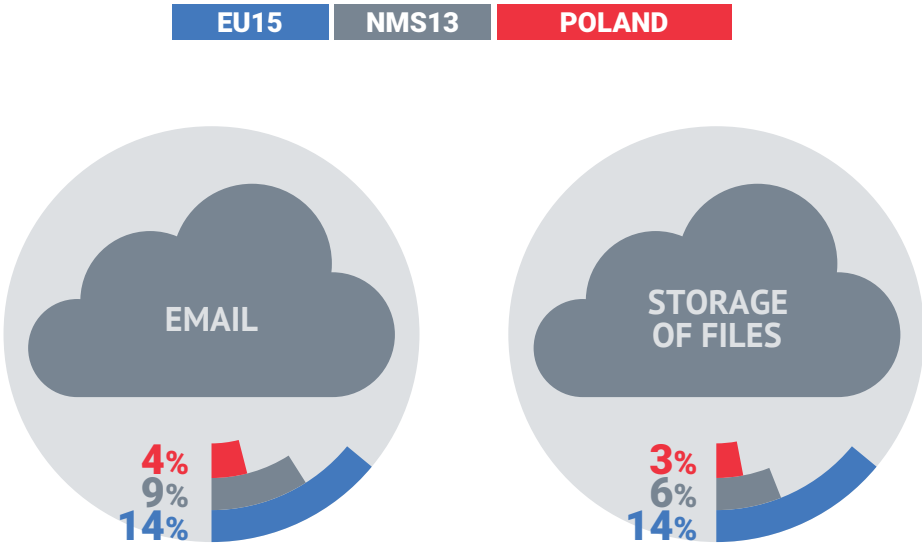
Cloud Computing

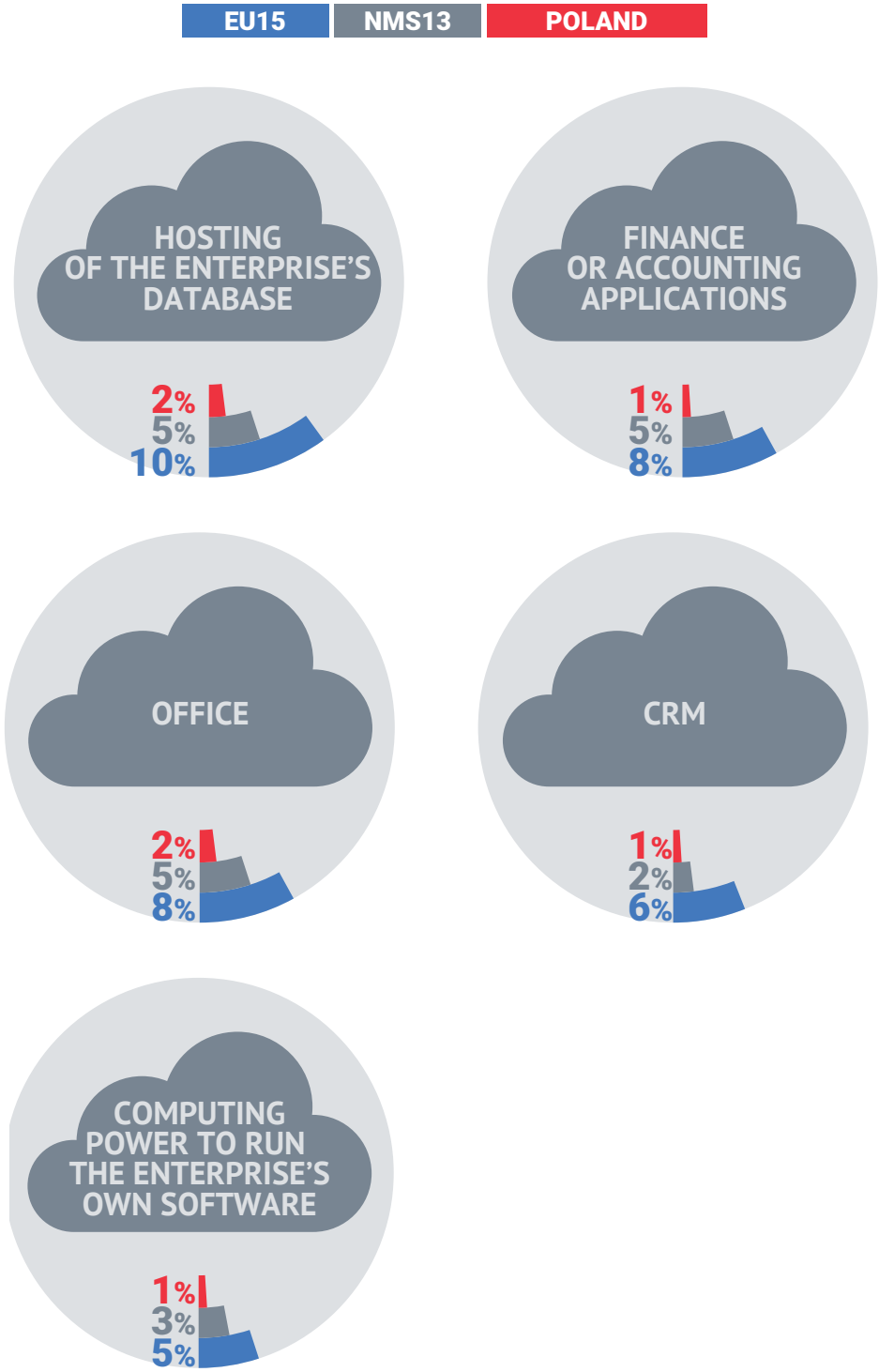
Cloud Computing (CC) refers to ICT services that are used over the Internet to access software, computing power, storage capacity, etc.

SMEs in Poland reveal a very low adoption of cloud computing: the EU15 average level of usage is several orders of magnitude higher in all analysed services.

For example, the share of SMEs that use CC for professional e-mail is three times lower than in the EU15. For hosting the enterprise database, storing files or for computing power it is five times lower. Only a negligible share of the Polish SMEs use cloud accounting applications, CRM or computing power.

Figure 17
SMEs buying selected Cloud Computing services (%), 2014





Source: DELab UW own calculations based on the data from Eurostat

Conclusions

What have we found?

- In almost all dimensions of digitalization Poland is lagging behind not only EU15 but also most of the NMS13 countries. The country, along with its entrepreneurs, needs a decisive push to enter the path of digital transformation. Otherwise, both the economy and society will suffer from losing the potential benefits stemming from growing digitalization.

What are the challenges?

- Polish entrepreneurs seem indifferent to the benefits of digitalization: some of them do not even have access to Internet, most of them see no need to introduce digital technologies and as a rule they do not invest in the improvement of the alarmingly low digital skills of their workers.

What needs to be done?

- In case of Poland the first step on the way to digital transformation should be to strengthen e-leadership. The business community needs to understand the benefits of digitalization, particularly those connected with the introduction of digital tools in the areas of internal management, customer relations and marketing of their services and products. The best way to do it is to highlight those benefits by presenting and sharing success stories of those small and medium enterprises that use digitalization to simplify their functioning as well as reach new markets and new customers.

- Strengthen e-leadership to improve the use of the digital technology by employers and their employees by showing its simplicity and functionality in facilitating the everyday functioning of the enterprise and solving its problems.

- Convince employers to provide training for their workers to boost their digital skills. Likewise, encourage workers to undertake such training as a way to improve their employment opportunities.

- A better Internet infrastructure is needed. To use the new digital technologies, companies need to have access to cheap Internet.

Digital Economy Lab (DELab) is a research centre established in 2014 within the University of Warsaw to accelerate the development of digital economy and society by providing high-quality research on the impacts of digital transformation and innovation. By application of data science methods DELab examines how digital markets, skills and societies build smart economies, businesses and governance. We deliver policy recommendations on how to better meet the challenges of global digitalisation. Our studies promote entrepreneurship and enhance society's awareness of the benefits of digital transformation. DELab's interdisciplinary team consists of professors and young researchers from various academic backgrounds including economics, sociology, law, administration, IT, European integration, philosophy, political sciences, globalisation, management and entrepreneurship.

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