(Un)Digital Poland: The Gap in the Digital Skills of Human Capital

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Abstract

The aim of the paper is to present data concerning the current gap in the digital competences of human capital in Poland in comparison to other EU countries. To this end we use data from the Digital Economy and Society Index (DESI) and Eurostat. The data show that computer and Internet skills amongst Poles are significantly lower than the skills of other Europeans, including those from other new EU member states. We argue that the gap in human digital skills is the major cause of the low level of digitalisation of the Polish economy as a whole, which may critically impair its development prospects in the context of the EU Digital Single Market.

Keywords: digitalisation, digital skills, human capital, digital economy
JEL classification: O

Introduction

The starting point for the paper is the fact that the digitalisation of Polish enterprises, as shown by the Digital Economy and Society Index, is low. Polish SMEs rank 24th among EU countries when it comes to "introducing digital technologies". Generally speaking, in terms of digitalisation, the Polish economy is lagging behind the EU15. Moreover, it even performs poorly in comparison with the other new member states. DESI and Eurostat data show that Polish SMEs are not managing well with the adoption of digital tools. The basic goal of the paper is to illustrate the issue of the low level of digital competences of human capital in Poland. Furthermore, we argue that levels of SME digitalisation and digitalisation of human capital are closely related and the relationship is a classic vicious circle. Polish SMEs find it hard to recruit people with adequate digital competence and as such they are not eager to implement digital technologies (Juchnowicz 2015, Caldeira&Ward 2002, Kretschmer 2012). On the other hand, if they are not implementing digital technologies, they are not making digital competence a recruitment criterion, nor are they motivating their employees to develop this competence.

The digital competences of the enterprises may be analysed on two levels: individual and organisational. There is an abundance of research into individual digital competences, particularly targeted at the computer, communication and media skills of young people (ICILS, 2013), as well as issues of digital exclusion/divide (Żak, 2013). Individual competences are usually defined as being a combination of knowledge, skills and attitudes (European Qualifications

Framework, 2008; DIGCOMP). Knowledge ('I know how') concerns acquiring information by means of learning on the basis of facts, rules, theory and practice. Skill is the ability to apply knowledge ("I know how and I can do it") in order to cope with a task or solve a problem. They may be of cognitive (based on logic, intuition and creative thinking) and/or of practical character (physical fitness, using tools, instruments and materials). Attitudes motivate people to undertake activities ('I want and I am ready to use my knowledge) and form a basis for future development.

According to recommendations made by the European Parliament and the European Council (2006) concerning key competences in the lifelong learning process, digital competences are one of eight key competences in the knowledge society. Those competences ensure labour flexibility and its faster adaptation to labour changes. Additionally, they contribute to innovation, productivity and competitiveness, shape the motivation and satisfaction of workers, and, ultimately, the quality of work. The digital competences include skilful and critical usage of technologies used in the information society, particularly the use of information and communication technologies (ICT).

On the individual level digital competences comprise basic skills that enable communication, acquiring information, production of content in a digital environment, as well as more advanced skills useful in business practice (i.e. finance management, contacting clients, logistics processes, communication within project teams, and contacting other business actors and public institutions). They require knowledge about specific ICT solutions (products and services), dedicated or adapted to business functions, but also management, analytical and programming skills, that enable identification, modelling, analysing and carrying out business processes with the use of a technological system. "The workers' skills are the most precious capital of the enterprise; the task for the personal processes is not only recruitment, evaluation and the planning of the development of the workers, but also adapting their skills to the needs of the enterprise and using them according to those needs" (Rostkowski 2004).

Methodology

The individual digital competences of SMEs' workers may be diagnosed by means of secondary analysis of the data concerning the competences of people of working age in Poland and other EU countries. Indirectly, this may help to evaluate the recruitment barriers that face SMEs and to answer the question of whether inadequate digital competence may prove to be a barrier to using digital technologies by SMEs, and, in the long term, a barrier to future development.

The research uses data from DESI (the Digital Economy and Society Index), with support from Eurostat data. Eurostat provides a comprehensive working database with results from surveys on the usage of information and communication technologies by households and individuals. This dataset is available at: http://ec.europa.eu/eurostat/web/information-society/data/comprehensive-database. Based on data from the dataset available for 2014 and all EU member

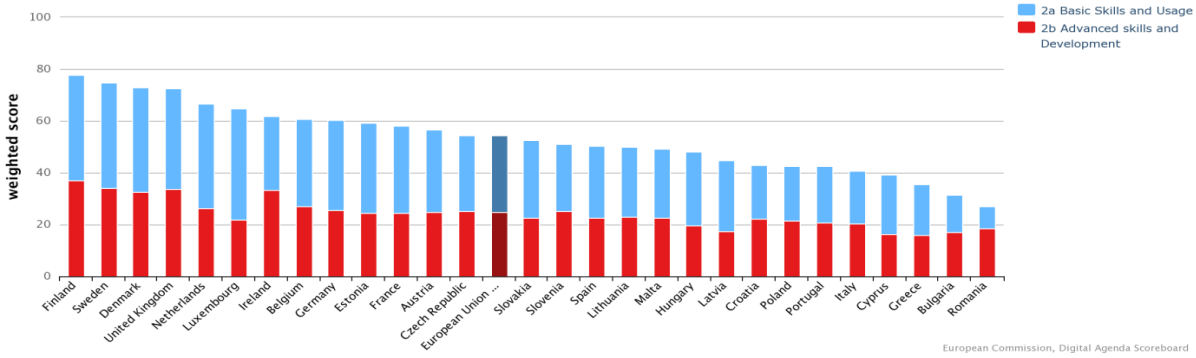
states, we provide analysis of the averages for "old EU MS", new EU member states and Poland. We compare the state of digitalisation of human capital in Poland with the remaining 26 European states. The Index measures digital skills on a scale from basic to advanced, the latter being necessary to use digital technologies in one's workplace.

Results

The analysed data show that in terms of human capital the Polish economy is lagging in digitalisation. The major conclusions are following.

The Polish workers take 22nd place in a ranking of digital competence in the EU, ahead of only the Portuguese, Italians, Cypriots, Greeks, Bulgarians and Romanians.

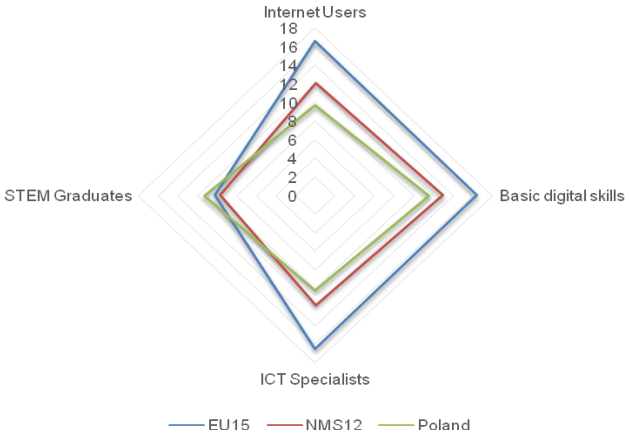
Figure 1
Digitalisation of Human Capital



Source: Author's illustration based on: (EC Eurostat, 2014).

The Polish workforce reveals a significant advantage over other European countries in one dimension: the very high digital competences of STEM graduates.

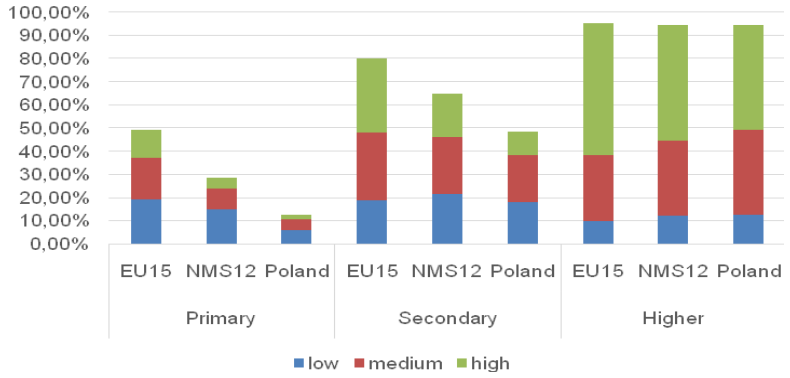
Figure 2
Comparison of digital competences: basic, among STEM graduates and common Internet users between EU15, NMS12 and Poland



Source: Author's illustration based on: EC Eurostat, 2014.

Generally, people with higher education in Poland display a similar level of digital competence as people with higher education in other EU countries. However, more specifically, people with higher education in Poland less often have advanced digital skills.

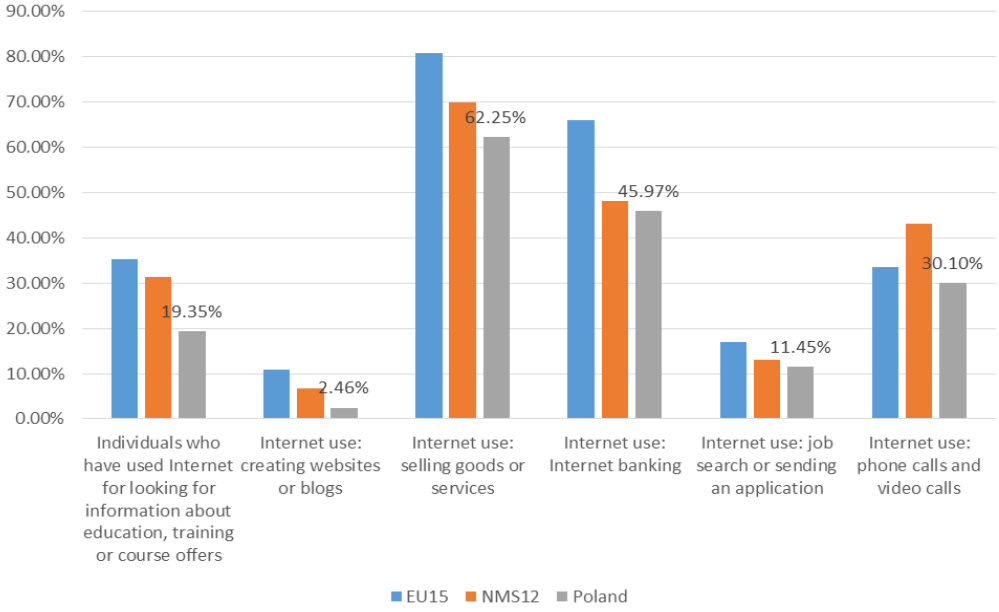
Figure 3
Digital competences among people with primary, secondary and higher education in EU15, NMS12 and Poland



Source: Author's illustration based on: (EC Eurostat, 2014).

In other respects the Polish workforce has deficits in digital competence when compared to the workforce from the EU15, as well as from the new member states. This particularly concerns people with primary and secondary education. This can be aptly illustrated, e.g., by comparing the level of Internet use.

Figure 4
Internet use: comparison between EU15, NMS12 and Poland

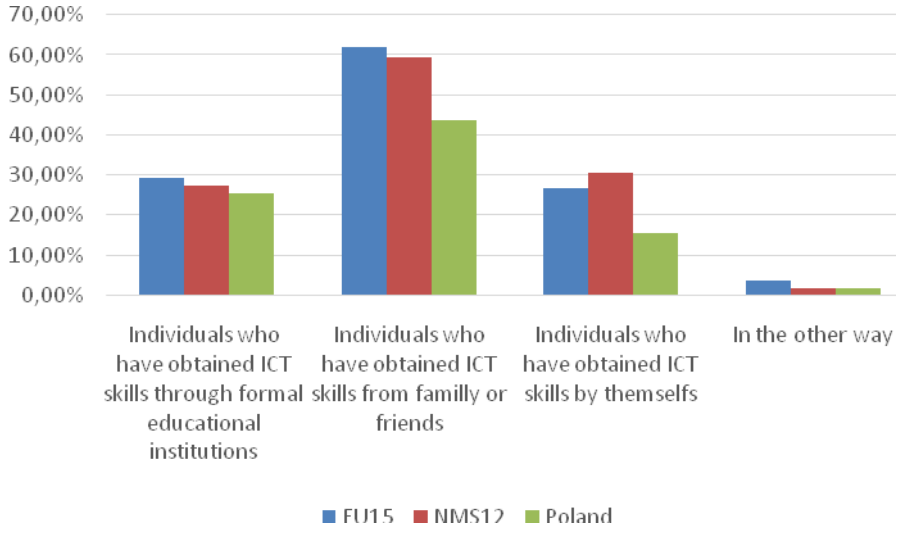


Source: Author's illustration based on: (EC Eurostat, 2014).

Generally, Poles use the Internet less often than other EU citizens: e.g. when searching for information about goods and services (80% in EU15, 70% in NMS12 and 62% in Poland) or to use Internet banking (65% in EU15, 48% in NMS12, 45% in Poland). Relatively few Poles buy via the Internet and the rise in the number of customers using online shops in 2010-2014 was slower than in the case of other low-performance group; this especially concerns people with primary or secondary education (Diagnoza Społeczna 2013, Seybert, Reinecke 2014, Seybert 2012).

Poles differ from other Europeans when it comes to the models of gaining digital knowledge and skills. For example, they use informal channels of education, such as network education or help from members of their family of friends, much less often. What's also important, Poles are not prone to self-education.

Figure 5
Modes of obtaining ICT skills



Source: Author's illustration based on: (EC Eurostat, 2014).

Discussion

We argue that the low level of digitalisation amongst Polish SMEs stems from the low level of digitalisation of human capital. Polish SMEs usually do not encounter difficulties with introducing more advanced digital technologies, due to adequate digital competences amongst workers with higher education. But on the other hand, often they are not able to introduce technologies that would appear to be "digitally simple" (i.e. their introduction and usage do not require advanced digital knowledge or skills) due to the lack of digital competences amongst workers with just primary and secondary education. Therefore, without structural investment in digital skills in the framework of lifelong learning, there is a risk that the Polish SMEs not only will not sustain their development, but also will lose their share of their traditional internal markets.

Conclusions

The gap in digital competences of human capital in Poland, which negatively affects the digitalisation of Polish SMEs, critically impairs development prospects for the Polish economy in the context of the EU Digital Single Market. Digital technologies are adopted in SMEs because of people with the right attitude: both entrepreneurs and their employees. Our research was based on general quantitative data; hence its inherent limitations as it only marginally takes into account the specificity of different business sectors. Further research should elucidate the causes of the digital gap at the educational level and at the junction between the educational system and the labour market. It should also focus on the modes of breaking through the behavioural patterns and 'acquired inefficiency' regarding digital technologies, as well as incentives to learn new digital skills and competences both independently and from other sources.

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