Diagnosis of the Digital Competence Gap between SMEs in Poland and the EU

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Abstract

The purpose of this study is to point out the gap in the digital competence between SMEs in Poland and the European Union. For this evaluation the Eurostat database was used. A literature review in relation to organizational competence allowed the definition of digital literacy contained in the broadly defined ICT competence. Digital tools simplify and accelerate decision making processes throughout the management chain (EDI, ERP systems); allow the carrying out of more effective business analyses (cloud computing); facilitate transactions (e-commerce/e-invoicing), allow effective image and branding building (CRM systems, social media), facilitate penetration of new markets and reachingnew customers (e-commerce, CRM). The inference refers to the degree of digitization of SMEs in selected areas, and diagnosis of the digital skills gap in Polish small and medium-sized enterprises. The results of the analysis can be a starting point in building recommendations regarding the use of modern information and communication technologies by SMEs.

Keywords: digital competence, digitizationof SMEs, Integration of Digital Technology
JEL classification: O
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Introduction

The purpose of this study is the diagnosis of the digital competence gap between SMEs in Poland and the EU. The subject is important in the context of the Digital Single Market being developed by the European Commission in order to overcome the barriers to fully benefitting from the growth opportunities offered to enterprises by digital technologies (European Commission, 2015).According to the Digital Single Market assumptions,the condition of the Polish economy will be determined by the level of digital competence acquired by SMEswhose share in Poland's Gross National Product comprises 48.5% (Polish Agency for Enterprise Development, 2014). The article's research question concerns the digital competence gap between Polish SMEs and SMEs in the EU. For this evaluation,the Eurostat database was used (EC Eurostat, 2014), the chieffocus being on the following areas: electronic data exchange, social media, electronic invoicing, cloud computing, and e-commerce.The conclusions presented in this article illustrate the situation of SMEs against SMEs in the EU.A literature review in relation to organizational competence allowed the definition of digital literacy contained in the broadly defined ICT competence.

The use of digital technologies may initially become a significant growth factor in the new EU member states.The Internet, as well as digital technologies in general, offer them leapfrog progress opportunities.The relevance of the internal ICT competence to the development of a competitive SME advantage has been provenin studies (Caldeira et al., 2002; Caldeira et al., 2003; Montealegre, 2002; Peppard and Ward, 2004; Tarafdar et. al., 2007), however, when constructing ICT competence models, one should allow for the differences between small and medium-sized enterprises (Cragg et al., 2011; Cragg,

2002; Eikebrokk, 2007; Grandon 2004).When defining an organization's competences, including its digital competence, it is necessary to refer to the resource-based view (Barney, 1991) and tostrategies for managing assets concerned with developing specific organizational skills (Teece et. al., 1997).On the organizational level, digital competences are demonstrated in the form of technical and operational processes that employ selected technologies and employees' skills identified on the individual level (Teece, 2000; Bharadwaj 2000; Tarafdar et al., 2007; Orzechowski, 2008).The main goal of this paper is to evaluate the state of the ICT technology implementation by Polish enterprises comparing to those of EU. The paper has been structured as follows: the theoretical background about digital competence and research question are presented in the introduction part, followed by the presentation of empirical studies and findings interpreted and discussed with references to the literature of the subject. The paper ends with a conclusions and information about future research.

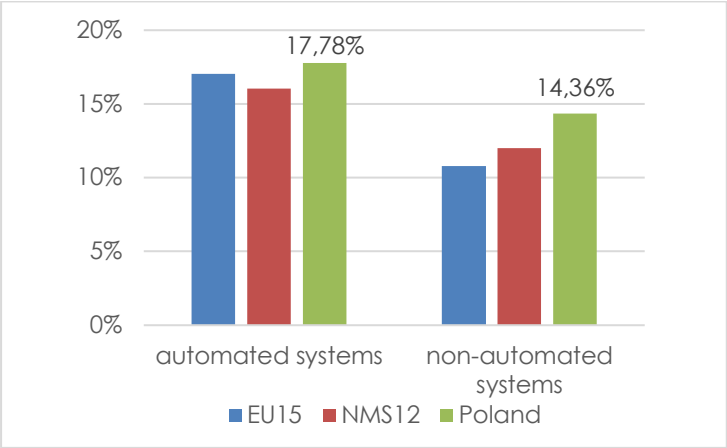
Methodology

In order to diagnose the Polish SME digital competence gap, we analysed the entire period of digital technologies implementation by Polish businesses against those in the remaining EU states.The analysis covered the EU15 (European Union in 2003) and the NMS12 (New Member States post-2004).The categorization into these two main areas enabled us to evaluate the status of digitization in Poland not only against the "old" EU states, but also against similar institutional environments of the "new" EU members, where knowledge-based economies are built.The available data permitted the analysis of SMEs defined in terms of personnelnumbers falling between 10 and 249 employees.The evaluation was based on data published by Eurostat (EC Eurostat, 2014).Eurostat provides the comprehensive working database with the results from the surveys on the usage of information and communication technologies by households and by individuals. This dataset is available on EC Eurostat (2014). Basing on the data from the dataset available for 2014 and all EU member states we provide the analysis on the averages for "old EU MS", new EU member states and Poland. SMEs were diagnosed in five main aspects of digitization: electronic data exchange, social media, electronic invoicing, cloud computing and e-commerce.The conclusions refer to the SMEs' digitization status in the analysed areas and to the SMEs digitization determinants.

Results

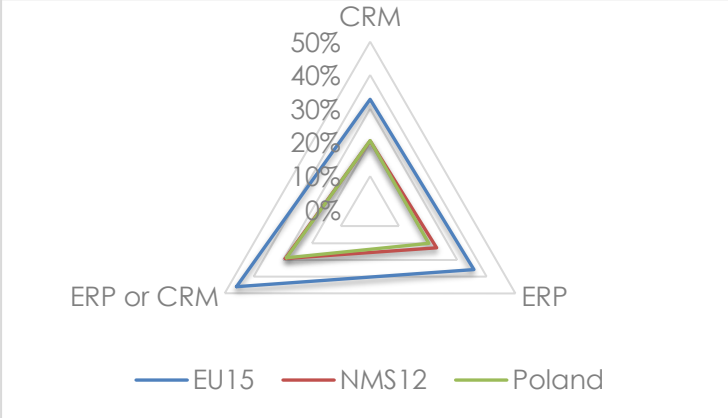
In terms of digital performance, Poland is ranked a lowly 24thin the list of 28 EU states.The degree of Polish company digitization is, for example, two times lower than that recorded in Denmark, Sweden or Finland,.As far as electronic data exchange is concerned, Polish SMEs use both automated and non-automated systems in exchanges with external partners (Figure 1).The situation may result from the high level of foreign investment in Poland, as well as from the financial support Polish SMEs have been obtaining under EU grants. Polish SMEs use business management software, such as ERP or CRM, much less than their EU counterparts (Figure 2). Only 17% of Polish SMEs use social media, while in the case of EU15 and NMS12 this share is 39% and 30% respectively. Polish entrepreneurs employ blogs, multimedia services and Wiki pages far less than their European counterparts do (Figure 3). The use of cloud computing is four times lower in SMEs from Poland than in EU countries (Figure 4).

Figure 1
The percentage of SME using EDI in 2014



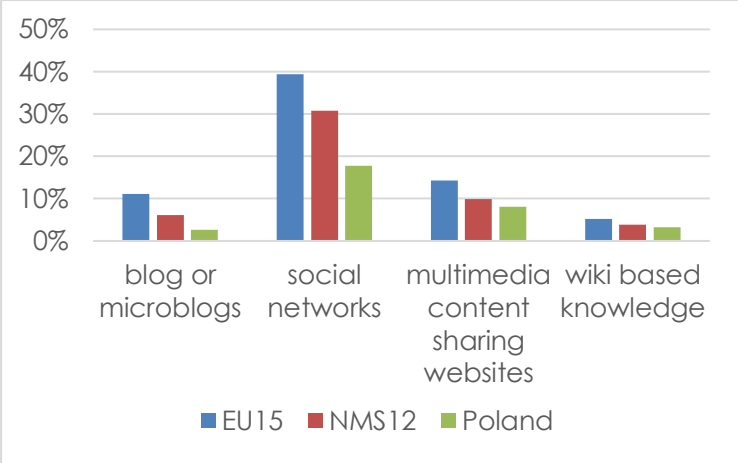
Source: Author's illustration based on: (EC Eurostat, 2014)

Figure 2
The percentage of SME using CRM/ERP systems in 2014



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

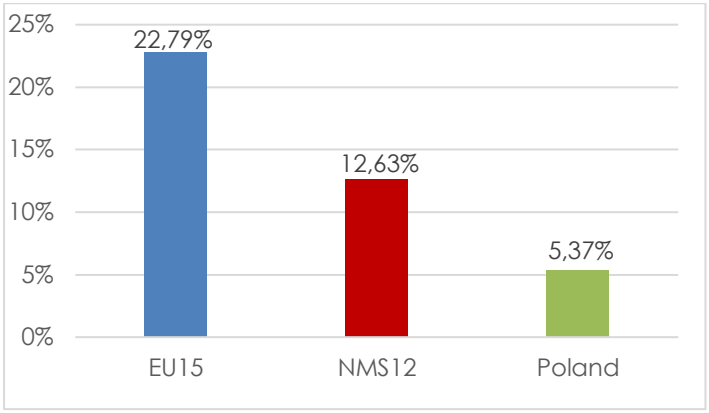
Figure 3
Enterprises using any social media in 2014



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

As far as the acceptance of e-invoices is concerned, Polish SMEs also lag behind average European indicators (Figure 5). One in seven EU15 SMEs send e-invoices to its customers, while only one in twenty has adopted this practice in Poland. Businesses in Poland are characterised by a very low level of e-commerce competences (Figure 6). Orders placed via computer networks were received by one in ten Polish SMEs, while in EU15 that figure is one in five. The percentage of Polish SMEs selling online was two times lower than in EU countries with the consequence that the need to be able to accept online payments via a website was less important.

Figure 4
Enterprises buying cloud computing services used over the internet in 2014

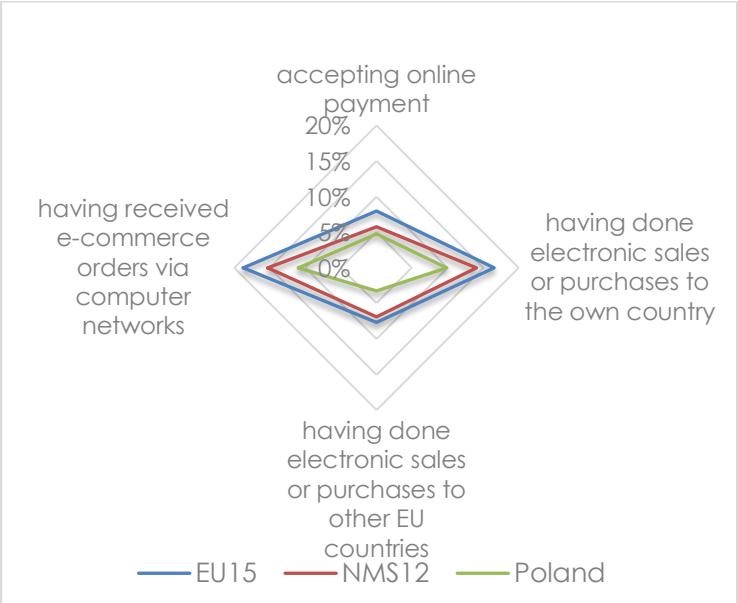


Source: Author's illustration based on: (EC Eurostat, 2014)

Figure 5
Enterprises sending / receiving e-invoices in 2014

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

Figure 6
Enterprises engaged in e-commerce in 2014



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

Discussion

Digital tools simplify and accelerate decision making processes throughout the management chain (EDI, ERP systems); allow the carrying out of more effective business analyses (cloud computing); facilitate transactions (e-commerce/e-invoicing), allow effective image and branding building (CRM systems, social media), facilitate penetration of new markets and reaching new customers (e-commerce, CRM). Having competence in these areas enables enterprises to make strategic decisions regarding the use of innovative technologies, the alignment of ICT strategies and implementation policies with their business strategy, the choice of adequate technologies (including the business management software), the efficient management of processes designed to control the implementation, operation and maintenance of technologies supporting their business process (Caldeira et al., 2002, 2003; Montealegre, 2002; Peppard and Ward, 2004; Tarafdar et. al., 2007, Cragg et al., 2011).Regrettably, Polish SMEs are deficient in almost all aspects of "digital technology implementation" compared to the EU15 and NMS12.The development of the Digital Single Market is expected to enhance competition in EU markets, while reducing entrance barriers to these markets (European Commision, 2015).Today, Polish SMEs are building an advantage (over their EU counterparts) through increased productivity while keeping salaries relatively low. However, thiscurrently favourable position is expected to gradually worsen.Polish SMEs should be seeking a new competitive edge from thegreater digitization of their businesses, yetthis requires a higher digital competence.Raising entrepreneur awareness in the gap existing in this area is the first step towards a digital revolution in Polish SMEs.

Conclusion

Competences in the field of ICT are developed in the situation where the processes and structures allow an organization to allocate its human, technical, and intangible assets in a manner enabling it to achieve its strategic goals with the use of ICT (Bharadwaj, 2000; Peppard and Ward, 2004; Orzechowski, 2008).ICT competences are embedded in

business processes (Teece, 2000) and should have a positive impact on organizational efficiency.Existing studies have demonstrated the positive effects of ICT competencies on e-commerce businesses: improved performance, top-class customer service, and the resultant competitive advantage (Montealegre, 2002; Peppard and Ward, 2004; Tarafdar et. al., 2007).The analysis presented here reveals the gaps in the use of digital technologies between Polish small and medium enterprises and those from the EU, with low ICT competencies in SMEs' being the prime reason.Polish SMEs are characterized by a relatively low use of ICT tools in all areas covered by the study, which may indicate that they suffer from insufficient internal assets in the field of ICT and are incapable of acquiring the additional resources required to fill the internal gap, as well as managing their ICT resources efficiently.These results are compatible with other studies on enterprises in Poland (Lewiatan 2012).The study is based only on statistical analyze. We don't provide more comprehensive research methods such as econometrics ones. The focus of further studies should be on identifying the causes / determinants of this situation and the Polish economic policy tools required to support the process of digitization in Polish SMEs.

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