



# DIGITAL SKILLS accelerator



## Annex for IO1

## Regional employer needs and digital skills

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## ABOUT THIS DOCUMENT

This document reports part of the results of the Intellectual Output 1 (IO1) of the Digital Skills Accelerator (DSA) project, describing concretely activities undergone to identify regional needs and best educational practices as related to training in digital skills.

The research conducted combined surveys targeted to the different stakeholder groups with focus groups. The results are intended to inform the contents, design and instructional approach of the training materials that are part of other Intellectual Outputs of the project.

## ANNEX IO1. Regional employer needs and digital skills

Here we understand regional in the sense of socio-economic regions, and we have identified the following regions as related to the partnership in the project:

- Southern Europe, including Spain as the country of reference and Belgium<sup>1</sup>.
- Northern Europe, including UK and Ireland.
- Central Europe, including Poland.

While the definitions of those regions are not strict and varies according to the source, it served as a framework for the attempt of finding differences. Concretely, Poland is often considered as part of a differentiated Baltic region, and the British Isles also as a different region. In any case, these differences are only used as a tool for analysis of insights and not as a separation of concerns. The overall differences in digital skills according to the latest data from the Digital Agenda Scoreboard of the EC2 however give a different picture, with Spain, Ireland and Poland in more comparable status when looking at the average of EU countries than UK. However, these differences are not so large. For example, in the indicator for persons using computers at work for 2017, UK ranks high in the group of partner countries with a 57%, and Poland with a 40%, but Spain and Ireland are in a 51%. The detail of the different areas in the scoreboard are provided in the following Table.

Indicator	Poland	Spain	Ireland	UK
Have written a computer program	3%	6%	5%	10%
Basic or above basic Digital Skills - Information domain	94%	92%	94%	92%

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<sup>1</sup> EUCEN carries out its main activity in Spain, so that no additional regions have been included.

<sup>2</sup> Available at <https://digital-agenda-data.eu> 2018 data not complete at the time of this writing. It should be noted that interesting data series as perception of preparedness related to digital skills for work are only available for 2011, so we have not used them as a source of information.



Basic or above basic Digital Skills - Communication domain	89%	91%	95%	97%
Basic or above basic Digital Skills - Problem solving domain	83%	84%	87%	94%
Basic or above basic Digital Skills - Software for content manipulation	64%	68%	61%	77%

It is noticeable that the differences are small in the “Information Domain”, while there are wider differences in some others, if we consider the two groups of countries mentioned above. However, the differences may be attributable to different factors other than regional differentiated needs. While they do not correlate with macroeconomic variables as GDP per capita, it can be hypothesized that they do roughly with percentages of internet users. As it can be appreciated when looking at the available data, it is difficult to find regional differences that can be attributable to differentiated needs, and hypothesizing those may require a detailed breakdown of digital tool use across sectors in national economies, for which data could not be found at the European level.

Consistently with the analysis just provided, the survey and focus group research conducted as part of DSA activities did not reveal significant insights of the need of a specialized digital skill training when accounting for the nationality of the survey respondents or the participants in focus groups. Also, no previous studies on differentiated regional needs for digital skills were found during desk research. In consequence, we approached the research on that particular element by direct interview in an attempt to identify potential regional differences that may set future directions for inquiry. The interviews conducted were structured, aimed at the stakeholder group of employers only, and the items are provided in the following Table.

Issue	Questions
Control question	Do you think there is a gap in the digital skills of HE students when they confront the workplace? Which are those that require more attention?
Regional specificities	Do you think there are some digital skills of special specific importance in your country or region? Can you name some?

Regional differences	Which do you think are the main differences of your country with other in the EU about the need of digital skills?
Lifelong learning	Do you think there is a gap in the training of digital skills for lifelong learning in your region?
Entrepreneurship	Do you think there is a gap in the training of digital skills for entrepreneurs in your region?
Citizenship	Do you think there is a gap in the training of digital skills for entrepreneurs in your region?
Context	Can you describe some situations in which a digital skill gap is creating problems or inefficiencies?
Best practices in teaching digital skills	Do you know of some best practice in digital skills training in your region?

The protocol of the interview was as follows:

- Providing the participant with some basic context information: digital skills and categories and examples of digital skills according to DigiComp framework.
- Following the questions in the above table and taking notes of the relevant comments.
- Final reflection and opportunities to discuss ideas or issues not covered in the questions, according to the opinion of the interviewed expert.

If we consider more specific geographical areas, taking into account the surrounding areas of the specific locations of partner's offices, we can get a more detailed picture of potential differences that affect the job market. What follows is an analysis of those main characteristics, focused on the particular countries of the partners, followed by the findings of the questionnaire interview, in an attempt to fill the gap in statistical data with some qualitative insights. In the case of best practices in training digital skills, the studies did not result in any example of good practice. While many courses and offerings from HE regarding digital skill training, no study with a scientific or at least evidence-based evaluation of the initiative was found. As a consequence, the examples collected could not be classified or sorted on the basis of any sound evidence, thus no good practice was found for which a reliable basis could be taken as criteria.

## Madrid and countryside of Henares in Spain

The major industries that drive the economy of Spain are the tourism, manufacturing, agriculture, and energy industries. During the last four decades Spain's foreign tourist industry has grown into the second-biggest in the world, and the tourism industry is considered as one of the world's most competitive.

The University of Alcalá is located 35 kilometers northeast of the country's capital, Madrid, at the town of Alcalá de Henares, that has its origins in the roman town called Complutum. It stands out for its rich archaeology and as a cultural place, as its historical center is one of UNESCO's World Heritage Sites. The author Miguel de Cervantes was born in Alcalá de Henares, and many important figures of the Spanish Golden Age are connected or studied at the University. But the surrounding area, known as countryside of Henares (the river) is also a highly industrialized area. This creates a combination of attraction for tourism, especially cultural tourism, and a residential area for one of the highest concentrations of industrial and technology enterprises in Spain.

Madrid is one of Europe's largest financial centers and the largest in Spain. The city has 17 universities and over 30 research centers distributed in the surrounding area. It is the third metropolis in the EU by population, and the fourth by gross internal product. In consequence, the area is a hub for employment in industrial and technology companies, with unemployment rates significantly and systematically lower than in the rest of the country. Madrid is also considered one of the top European destinations concerning art museums and it is a destination for events or as a destination for visiting other parts of the country.

According to CEDEFOP in 2017<sup>3</sup>, in the digital economy and society index (DESI), Spain is weak on the demand side, with low levels of digital skills and internet use; only 54% of Spaniards have basic digital skills. However, it is, strong in the use of digital technologies and in digital public services, the area where Spain performs best.

Considering the socio-economic needs of the country and particularly the area, there is a clear need for digital skills training, that can be connected with the major economic sectors in the country.

Structured interviews were conducted with three entrepreneurs, two from IT companies and one from a training company, and also with three managers representative of the tourism, energy and IT sectors. All of them considered that a gap exists in the skills of students, but in the case of IT, it was mostly related to high-end software engineering and technical skills, not basic transferable digital skills. Regarding the differences and specificities, all the participants showed a perception of the country labor force to be in general below the mean in the EU. However, no concrete gap in

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<sup>3</sup><http://www.cedefop.europa.eu/en/news-and-press/news/spain-promoting-digital-skills-young-people>

DigiComp competences areas was clearly pointed as a lack specific to the region. Similarly, there was no clear differential gap for entrepreneurship or lifelong learning, and only in the area of citizenship there was an opinion that more emphasis should be given to communication skills.

## Szczecin and the West Pomeranian Voivodeship in Poland

The economy of Poland is the sixth-largest economy in the European Union, GDP per capita at purchasing power parity growing on average by 6% p.a. over the last two decades, the most impressive performance in Central Europe, which in effects doubling Polish GDP since 1990. The largest industries in Poland are the agriculture, manufacturing, energy, and tourism industries.

The West Pomeranian University of Technology, Szczecin (Polish: Zachodniopomorski Uniwersytet Technologiczny w Szczecinie, ZUT) is a technical university in Szczecin, Poland. The university was established on January 1. 2009 in Szczecin, from the merger of the Agricultural University in Szczecin and the Szczecin University of Technology.

The University has 10 faculties with 47 fields of study. The university employs 2.3 thousand employees, and about 15 thousand students are taught at the University. The main goal of the University's activity is to educate and conduct scientific research in the field of technical, agricultural, economic, biological, chemical and mathematical sciences.

Szczecin is the capital and largest city of the West Pomeranian Voivodeship in Poland. Located near the Baltic Sea and the German border, it is a major seaport and Poland's seventh-largest city. The area of Szczecin is known as a vital place for the start-up and IT community, and also by its level of maritime and production sector. Besides the West Pomeranian University of Technology, Szczecin is the site of the University of Szczecin, Pomeranian Medical University, Maritime University, Szczecin Art Academy.

According to CEDEFOP in 2018<sup>4</sup>, in the digital economy and society index (DESI), Poland is overall very weak (fourth from the end in EU) on the demand side, with low levels of digital skills in most cases. From this point of view, there are some urgent needs in terms of the development of digital skills.

Structured interviews were conducted with: dozen of entrepreneurs, from different industries - from production, through retail to IT. All representatives were on the top-management level but different in functions - managing, hiring, engineering. All agree upon key findings, that there is a room for improvement in an education process which should in effect deliver a better understanding of the digital skillset and its practical usage.

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<sup>4</sup> <https://www.cedefop.europa.eu/en/country-data/poland>

## Northern Ireland part of the United Kingdom

The economy of the United Kingdom is highly developed and market-orientated. It is the sixth-largest national economy in the world. The service sector dominates, contributing around 80% of GDP; the financial services industry is particularly important, and London is the world's largest financial centre. Britain's aerospace industry is the second-largest national aerospace industry. Its pharmaceutical industry, the tenth-largest in the world, plays an important role in the economy.

Northern Ireland is a constituent country of the United Kingdom located in the north-east of the island of Ireland. It shares a border with the Republic of Ireland to the south and west and is bounded in the north by the Irish Sea and Atlantic Ocean. Northern Ireland consists of six counties. Although its R&D indicators are significantly below UK's average, Northern Ireland presents other strengths, such as a highly educated English-speaking workforce, one of the youngest populations in the European Union, a competitive cost structure and a pro-business environment.

Northern Ireland is a rather sparsely populated part of the UK. In 2017, it made up nearly 6% of the UK's landmass but had less than 3% of its population (1.87 million people; Eurostat, 2018). It has the smallest economy of all regions within the UK, with a Gross Domestic Product (GDP) of €51.1b, which corresponds to 2.1% of the 2016 UK total and was significantly lower than the GDP of 55.7b in 2015 (Eurostat, 2018).

Northern Ireland also underperforms economically as its GDP per capita (PPS) in 2016 was one of the lowest in the UK at €23,600 compared to the UK average of €31,400 (Eurostat, 2018) and the labour productivity in 2016 was 16.5% below the UK average (UK Office for National Statistics, 2017).

Despite its strengths in school and higher education, Northern Ireland has traditionally lacked the types of firms needed to retain its well-educated workforce. Data from the Labour Force Survey shows that in the first months of 2017 some 16% of the Northern Ireland working age population had no qualifications at all: this was almost eight percentage points higher than the United Kingdom average (8.3%).

Northern Ireland has a particularly poor record for R&D spending by businesses, innovation activity and patents. This shortcoming is becoming more important as developed economies are increasingly relying on commercial knowledge as their competitive advantage in global trade. Research economies, including Finland and Sweden, now have levels of BERD five to six times higher than Northern Ireland.

NI is home to two universities and a number of higher education colleges. Queens University Belfast is a research-intensive university; in the UK-wide 2014 research excellence framework (REF), Queen's had 14 subject areas ranked within the top 20 in the UK, six in the top 10 and two in the top five. The percentage of the population aged 30-34 with tertiary education level in Northern Ireland (35.5%) was below the 39.1%

EU average and well below the 48.1% UK average after a sharp decline from the 41.6% just two years before.

In 2016, there were 23,100 people employed in the High Tech sector; in 2017, this number decreased remarkably and resulted in a total of only 20,700 people employed (Eurostat, 2018). In 2017, 35.3% of the population aged between 30-34 years had a degree in tertiary education, lower than the UK average of 48.3% (Eurostat, 2018).

The 2014 Framework for Smart Specialisation identifies five priority technologies: information and communication technologies, life and health sciences, advanced manufacturing and agri-food technologies.

According to CEDEFOP in 2017<sup>5</sup>, in the digital economy and society index (DESI), in Human Capital, the United Kingdom performs very well but its recent progress has been rather limited. A large proportion of the UK population uses the internet regularly (93% - at least once a week); most people do so daily; and only 4% of the population has never used the internet. These figures are well above the averages for the European Union, 81% and 13%, respectively. Nevertheless, the UK faces some digital skills gaps. In terms of basic digital skills, the UK performs above average in the European Union: 71 % of the population had at least basic digital skills in 2017; the EU average was 57%. However, as such, almost 30% of the population does not have basic digital skills. The UK also suffers from a shortage of skilled ICT professionals. There is also a strong and growing gender divide with increasingly fewer women studying for and choosing ICT careers. Only 17% of Computer Science students in the UK are female (2016/17).

Structured interviews were conducted with three entrepreneurs, one from an IT company (web development) one from a Food Processing company and one from a training company, and also with three managers representative of the tourism, agriculture and IT sectors. All of them considered that a gap exists in the skills of students, but in the case of IT, it was mostly related to programming, coding and software engineering skills, not basic transferable digital skills.

Regarding the differences and specificities, all the participants were of the opinion that while the Northern Ireland labour force was above the mean of the EU average, it was felt that they were also below the mean of the United Kingdom labour force as a whole (this is in fact broadly inline with macro economic and skills assessments). However, when the DigComp framework was introduced and was used to guide the discussion, a general conclusion was that there were no specific regional difficulties for particular digital skills, but rather that the Northern Ireland region would be in line with the United Kingdom as a whole.

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<sup>5</sup> <http://www.cedefop.europa.eu/en/news-and-press/news/spain-promoting-digital-skills-young-people>