Digital Skills Requirements of Workers in Ireland

An analysis based on CEDEFOP's European Skills for Jobs Survey

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1. Introduction

The digital economy has transformed the world of work and extended the need for ICT skills to large shares of the workforce. Nowadays, most workers require a least a basic ability to use technology. This paper aims to describe the digital skills required by Ireland's workforce. The analysis is based on CEDEFOP's European Skills for Jobs Survey (ESJ Survey), which although not particularly recent (conducted in 2014) is due to be updated in 2021. As such, while the data presented here provides a snapshot of the digital skills in Ireland's workforce at one point in time, it also serves as a baseline for comparison for the forthcoming updates, due in mid-2021.

At EU level, much of the data in relation to digital skills has been documented (CEDEFOP 2016)[1]. However, here, in addition to the EU comparison, we conduct further analyses on the Ireland data to give a more in-depth picture of the situation of workers in Ireland. Due to the relatively small sample size, however, it was necessary to present some of the variables in a small number of groups rather than by detailed level (e.g occupation, education level, etc.).

2. Workers' perceived need for ICT skills

The ESJ Survey asks respondents to categorise the level of ICT skill they believe is required to do their job. There are four possible categories of ICT skill: basic, moderate, advanced and jobs which require no ICT skills. The Appendix details the tasks associated with each of these skill levels.

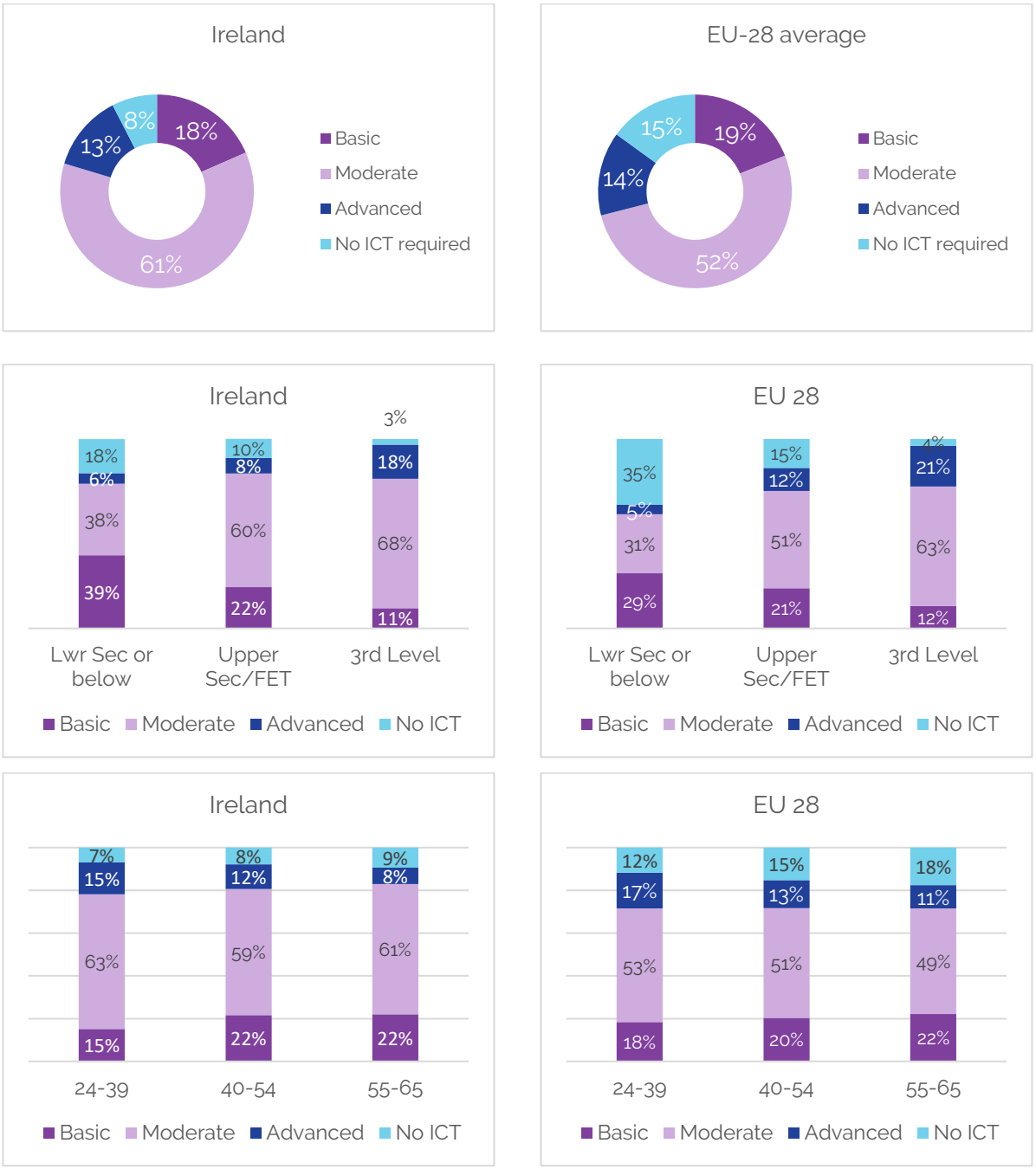
Figure 1 shows workers' perceived need for ICT skills (Ireland and the EU-28 average), by ICT level required, age group, and education level.

- approximately **four fifths required either basic or moderate ICT skills** to do their jobs (compared to 71% across the EU-28)
- just **8% stated that no ICT was required** to do their job, compared to nearly twice that share (15%) across the EU-28 countries, on average.
- The need for **moderate and advanced ICT skills increases with higher levels of education attainment,** both in Ireland and across the EU 28. Of those working in Ireland, almost one fifth of third level graduates reported requiring **advanced ICT skills** to do their job, three times higher than the share of those with lower secondary education (6%). Compared to their EU counterparts, **the share of workers in Ireland with low education attainment who stated they required at least some level of ICT skills is considerably greater (82% for Ireland compared to 65% in the EU).**

[1] The great divide: digitalisation and digital skill gaps in the EU workforce, #ESJsurvey Insights, No 9, Thessaloniki: Greece.

- The youngest age cohorts have the largest shares requiring advanced ICT skills, and the smallest shares requiring basic ICT skills. The older workers in Ireland had a higher share who perceived that they required moderate/advanced digital skill compared to EU (69% compared to 60%).

Figure 1. Perceived digital skills needed for work by ICT skill level used, age group, and education level



Source: SLMRU analysis of CEDEFOP (ESJ Survey) data

Figure 2 shows workers' perceived need for ICT skills (Ireland and the EU-28 average), by occupation and sector. Of the workers surveyed in Ireland,

- 31% of workers in sales, accommodation/food and other social and personal services stated that basic ICT skills were necessary for their jobs (compared to 27% in the EU 28), while 13% of those in the agriculture, industry & construction sector stated that ICT skills were not required (compared to 19% for the EU 28)
- approximately two thirds of those working in high and medium (non-manual) occupations required moderate ICT skills (higher than the 60% and 59% for the EU 28)
- more than one half of lower skilled workers required at least basic ICT skills (compared to approximately one quarter in the EU 28 average). **In Ireland, the share of people working in low skilled and medium skilled occupations who need digital skills (any level) is greater than the EU average.**

Figure 2. Perceived digital skills needed for work by selected sectoral groups and occupation groups

Source: SLMRU analysis of CEDEFOP (ESJ Survey) data
Please see the Appendix for sectors included in each sectoral group (excludes other category)

Compared to the EU 28 average, the need for ICT skills in general is higher in Ireland. The share reporting a **need for moderate ICT skills was higher than across the EU 28 average**, irrespective of age, education, sector and occupation. In Ireland, the share of people with low education attainment or in low skilled occupations who reported needing ICT skills (any level) to do their jobs is considerably greater than their EU counterparts.

3. Changes in workplace technologies

The ESJ Survey asks respondents to state whether in the last five years changes to the technologies (e.g. machinery, ICT systems) used in the workplace had taken place. At 54%, workers in Ireland report a higher incidence of changes in workplace technologies compared to the average across EU 28 countries (Figure 3). Depending on the level of ICT skill required for the job, the share of workers in Ireland who observed changes ranged from 29% for those where ICT skills were not necessary to 64% for those requiring advanced ICT skills.

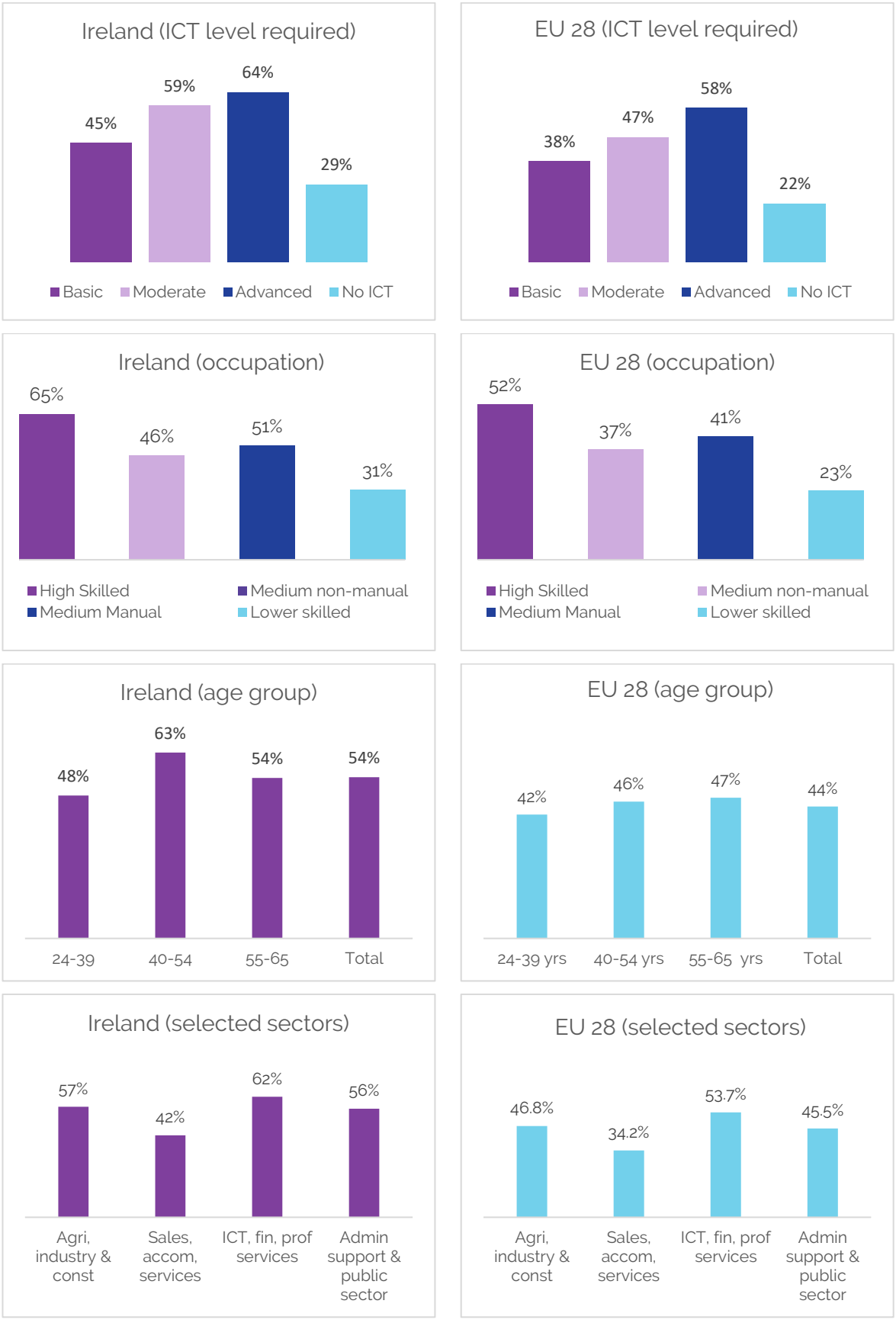
Age group: almost two thirds of those aged between 40 to 54 years of age experienced a change in the technology used at work, which is the highest of each of the age groups. This compares to the EU 28 average of less than a half.

Selected sectoral group (see Appendix for detailed activities in each sectoral group): at 62%, the ICT, finance & professional services sectoral group observed the highest percentage of respondents in Ireland experiencing technological change in the workplace in the past five years. Regardless of the sectoral group, the share of workers in Ireland experiencing technological change in the workplace was higher than for the EU 28 on average

Occupational group: the share of workers experiencing changes in workplace technologies also varied by occupational group. **The workplace of almost two thirds those working in high skilled occupations (managers, professionals and associate professionals) in Ireland had undergone technological changes** (this compares to over a half in the EU 28). Less than a third of those in low skilled occupations in Ireland observed technological changes compared to less than a quarter across the EU 28 countries on average.

More than half of workers in Ireland reported changes in workplace technologies; the shares were higher for those working in high skilled occupations, those whose jobs required them to use advanced ICT skills, those working in the ICT, finance and professional services sectors, and for workers aged between 40 and 54 years.

Figure 3. Share of workers with changes in workplace technologies (last five years) by digital skill level and broad occupational group



SLMRU analysis of CEDEFOP (ESJ Survey) data

4. Digital Skills Gap

The ESJ survey asks respondents to describe their level of ICT skills in relation to what is required to do their job, thereby measuring the extent of digital skills mismatches in the workforce[2]. In Ireland, it is estimated over a quarter of the workforce reported a digital skills gap, broadly in line with the EU 28 average (Figure 4). However, there were variations, depending on the ICT level required, occupation and sector.

Level of ICT required: workers requiring basic ICT skills to do their jobs reported the largest digital skills gap at 40% in Ireland (and 33% in the EU 28).

Occupational groups: digital gaps also varied by occupational group. In Ireland, the digital skills gap is highest for those working in medium skilled manual occupations (e.g. craft workers, skilled construction workers etc) and lowest for those working in high skilled occupations (e.g. professionals (such as teachers, nurses), associate professionals (technicians) or managers). This is broadly in line with the EU 28 average. (For lower skilled workers, the number of observations in the Ireland data is very small, and therefore this data should be interpreted with caution).

Sectoral groups: the digital skills gap was largest for those working in low paid sectors (i.e. for sales, accommodation and personal/social services) and is higher for Ireland than the EU 28 average. The gap is smallest for ICT, finance and professional services, which are generally high-paid sectors.

Age group (not depicted in graph): in both Ireland and across the EU 28 average, **the share of workers reporting a digital skills gap increased with age:** Over a fifth of workers in Ireland aged 25-39 years reported a digital skills gap, compared to over a third (36%) for those aged 55-64 years. The reported digital skills gap amongst workers in Ireland was below the EU average for those aged 25-39 years, but above the EU average 40-54 years and 55-64 years.

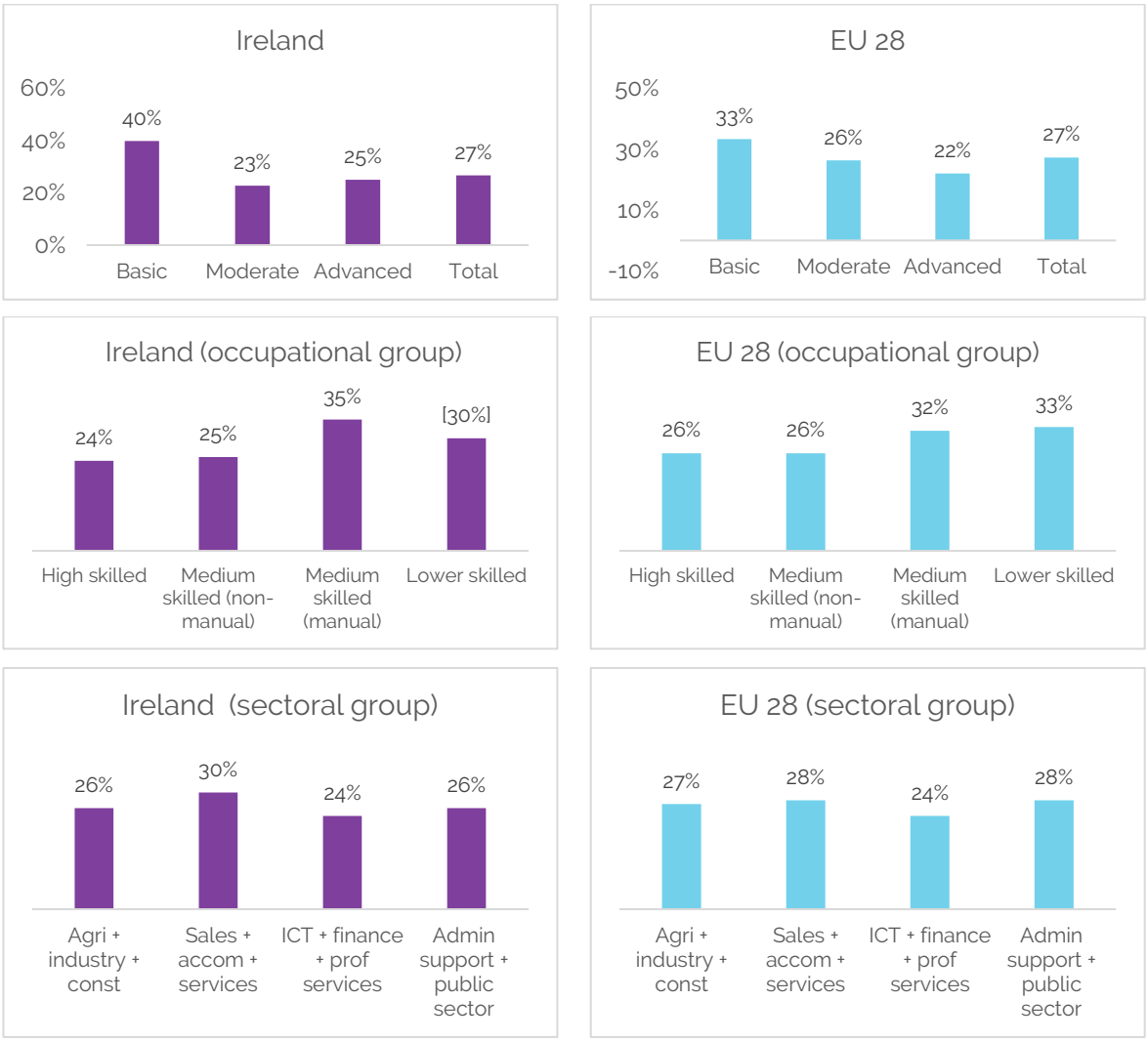
Education level: in Ireland, as across the EU 28 average, the share of workers reporting a digital skills gap declined with greater levels of education attainment. At 23%, the digital skills gap amongst workers in Ireland was below the EU average (25%) for third level graduates, but above the EU average for those with, at most, lower secondary education (46% for Ireland compared to 37% for the EU average).

The cohorts with the largest digital skills gaps (low education attainment, older age cohorts, working in lower skilled occupations and low paid sectors) are also the ones with the lowest levels of participation in lifelong learning activities.[3]

[2] Comparing digital skills gaps amongst countries is a complex task, because the gap reflects both the ICT levels of countries' workforces but also the ICT requirements of their countries' labour markets. Therefore, a low skills gap could be due to a lack of demand for ICT skills in the labour market, or alternatively a high level of ICT skills amongst the population. Please see CEDEFOP (2016) for a more detailed analysis at EU level.

[3] See, for example, Lifelong Learning amongst Adults in Ireland (SOLAS: 2019) https://www.solas.ie/f/70398/x/d773e39d8a/lifelonglearning2019.pdf

Figure 4. Digital Skills Gaps by ICT level required for job by occupational and selected sectoral groups



Source: SLMRU analysis of CEDEFOP (ESJ Survey) data

[ ] Based on a small number of observations and should be interpreted with caution.

5. Conclusion

The shift towards digitalisation means that new roles are continuously emerging, and skills requirements, including digital skills, are constantly changing. Such workplace changes underline the importance of continued engagement in lifelong learning at regular and frequent intervals throughout a person's working life in order to avoid and address skills gaps and for workers to remain employable. Yet, workers with the highest digital skills gaps, tend to be the same cohorts as those who have the lowest lifelong learning participation rates.

The analysis in this report and additional work by CEDEFOP provide evidence to support the continued interventions targeted at addressing the digital skills needs of workers. Approaches to skills development within Ireland's workforce are already in place to address this need. Programmes delivered by Education and Training Boards (e.g. Skills to Advance), the Department of Education and Skills (e.g. Explore Programme), third level institutions (e.g. Springboard+) and Skillnets all strive to deliver training specifically designed to address the needs of employees.

Finally, the data for this survey was gathered in 2014, at a time when Ireland and many other countries in the EU were still recovering from the Great Recession. It will therefore be of particular interest to establish the nature and extent to which the digital skills of Ireland's workforce will have evolved by the time of the next ESJ Survey, due to take place in 2021.

Appendix: ICT skill categories; sectoral and occupational categories

ICT Skill Level Categories identified in the European Skills for Jobs Survey are

- **Basic**: use a PC, tablet or mobile device for emailing or internet browsing
- **Moderate**: use word-processor or create documents and/or spreadsheets
- **Advanced**: develop software, applications; use computer syntax or statistical packages
- **No ICT skills**: where ICT skills were perceived as not required

The ESJ Survey for Ireland is based on a sample of approximately 1,000 individuals. Therefore, to avoid reporting data based on a small (<20) number of observations, it has been necessary to group sectors and occupations into smaller groups, as outlined below. Sector groups reported in this paper are comprised of the following activities

- **Agri, industry, const.:** Agriculture, industry (inc. manufacturing), and construction, representing approx. 23% of employment in Ireland (as measured by the Labour Force Survey) at the time of the survey
- **Sales, accom, services:** Wholesale/retail sales, accommodation/food services, and social/personal services, representing approximately 22% of employment in Ireland at the time of the survey
- **ICT, fin, prof services:** ICT, finance, and professional services activities, representing 17% of employment in Ireland at the time of the survey
- **Admin support & public sector**: Admin & support activities, public admin & defence, and education & health services, representing 29% of total employment in Ireland at the time of the survey

The analysis excludes other sectoral activities, which comprise Transport, cultural activities, and other activities, representing less than 10% of employment in Ireland at the time of the survey.

Occupational groups can be divided into four categories (e.g. as used by ILO, CEDEFOP, etc) as follows:

- **High skilled occupations**: managers, professionals and associate professionals
- **Medium skilled occupations (non-manual):** clerical support workers, service workers and shop and market sales workers
- **Medium skilled occupations (manual):** Craft and related trades, Skilled agricultural and fishery workers, Plant and machine operators and assemblers
- **Lower skilled occupations:** elementary workers (e.g. cleaners).

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