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Future proofing Talent Supply in the Irish ICT Start-up and Scaling Sector

Contents

Executive Summary

Indigenous tech start-ups and scaling companies have been targeted as a key area for national growth. This report highlights that while Ireland's indigenous tech sector is experiencing significant growth driven by digital transformation, challenges persist in developing a sustainable talent pipeline to meet current and future skill demands.

While it is difficult to formally define and scope the size and output of the indigenous start-up and scaling tech sector, we identify some indicators. TechIreland estimates that there have been 4,165 new companies formed on the island of Ireland in the sector between 2015 and 2025. The sector is estimated to employ just under 40,000 people as of 2025. Of the 4,165 new companies in the sector, almost 10% (393) are female founded and over 50% are located outside the greater Dublin area. These companies operate across sectors but enterprise solutions, ICT, healthtech and fintech are the largest sub-sectors of activity. Enterprise Ireland, as the prominent investor in these young companies, estimates that over 23,000 people in 2024 are employed in digital technology companies supported by that agency and estimated total added value of these companies is almost 2.4bn, or €124,000 per person employed.

Proposals and Recommendations

- Ireland performs admirably on several global comparisons of talent competitiveness. Illustratively, Ireland was ranked 17th on the 2024 IMD World Digital Competitiveness Ranking. Key strengths include employer training, higher education achievement and females with degree education. However, concerns include a ranking of 62nd globally in overall investment in education and 43rd for total investment in R&D. Similarly, Ireland ranked 12th in INSEAD's Global Talent Index. Ireland excelled in its ability to attract talent, ranking 5th and in terms of openness to diversity and empowerment of women. However, concerns included the development of vocational and technical skills (23rd) and mid-level skill development (46th).

- The wider ICT sector, including indigenous tech and scaling firms, in Ireland has experienced considerable growth in recent years. This sector is to the fore of the AI revolution in Ireland with high levels of deployment of AI. Employment in the sector is robust and growing, with some 182,900 employed in Q4 2024. The sector is highly reliant on migration to meet skills demands, with 40% of employees non-Irish nationals. Additionally the sector has a low level of female employees with women making up only 25% of the workforce.

Current Skills Demands

While Ireland performs admirably on several international indicators of talent competitiveness, our analysis also identifies several areas of concern. The ICT sector faces acute skill shortages in areas including software development, AI, cybersecurity, DevOps, and data analytics. There is also strong demand for transversal skills such as leadership, problem-solving, adaptability, and analytical thinking. Smaller businesses (SMEs) particularly struggle to compete for skilled ICT professionals.

Future Skills Needs

To maintain competitiveness organisations need to proactively plan for emerging skill demands. Our baseline analysis of growth projections predicts an additional 89,590 positions in ICT by 2030. This will result in significant challenges from a supply perspective. However, the skills profile is also likely to change with significant additional demand for AI and machine learning skills, and network, cybersecurity and technological literacy also expected to see significant growth in demand. Demand for AI and machine learning specialists is expected to increase significantly. Furthermore, regulatory and ethical compliance in AI and digital policies will require specialized professionals. The importance of transversal skills is also a key consideration.

Talent Supply Challenges

Despite Ireland's strong performance in delivering ICT graduates compared to EU norms, we expect that current supply will be insufficient to meet demand projections over the coming years. We identify several key actions that are recommended to meet the emerging talent requirements of the indigenous tech start-up and scaling sector.

- Traditional labour market forecasting, which relies on historical data, is no longer sufficient in the face of rapid technological advancements. Modelling needs to incorporate external data, sectoral and organisational data to provide nuanced insights. This modelling should be dynamic and regularly updated. Firms should incorporate external data in their modelling.

- Reskilling and upskilling of employees is likely to be critical. As skills evolve some skills will reduce in importance while others will emerge or become more valuable. Organisations must invest in continuous learning, upskilling and reskilling to meet emerging skills needs. A key risk is that SMEs including indigenous tech start-ups and scaling companies are less likely to have a talent development strategy in place. Sectoral level initiatives will be critical to upskilling and bodies such as Skillnet Ireland are likely to play a key role in this regard.

- It is unlikely that third level institutions alone will provide sufficient supply to meet the growing skills demands of the ICT sector. We recommend a greater focus on other routes to entry to the labour market such as apprenticeships. However, to date there has been a slow update of apprenticeships in the ICT sector. SOLAS will play a key role here.

- Migration has been critical to meet skills needs in the wider ICT sector with non-Irish nationals accounting for some 33% of ICT employees. Thus, the ongoing role of migration is critical to skills supply in the future. We note a fall in the number of employment permits issued in 2023 as a concern. We point to the importance of targeted global messaging about employment opportunities and the importance of an efficient employment permit system is critical. Barriers to international migration include high

personal tax rates, cost of living, personal safety, and infrastructure particularly housing and transport.

- Finally we also see significant potential in growing the diversity of employment in the ICT sector. Notwithstanding indicators of a strong commitment to inclusion and the empowerment of women, female employment in ICT remains relatively low.

  Initiatives aimed at increasing female participation and increased employment of other underrepresented groups offer a key means of increasing talent supply.

1. Introduction

The growth and development of indigenous tech start-up and scaling information and communication technology (ICT) companies is central to achieving the ambitions set out in the Government's White Paper on Enterprise, the National Digital Strategy, and also Ireland's contribution to the EU's digital ambitions as set out in the State of the Digital Decade Report. Illustratively, the National Digital Roadmap proposes that at least 35% of state funding for start-ups and early-stage companies is directed to innovative digital businesses, with the ambition of nurturing potential tech unicorns.

The focus is also turning to the sector at a European level. The recent Draghi report has focussed on the comparative advantage enjoyed by the US start-up sector through ready access to capital compared to their European counterparts. The Draghi report focuses particularly on the difficulties encountered by European companies in scaling to size. This broadly corresponds with the challenge identified by the White Paper on Enterprise of securing funding rounds in the €3-10m space. In response, the European Union has commenced consultation on the development of a new start-up and scaling policy. The recent Savings and Investment Union initiative is one measure being proposed to tackle the issue at a European level.[1] In Ireland, following the publication of the Finance for Scaling Group report by the Department of Enterprise, Trade and Employment work is underway at addressing the issue at an Irish level.[2] The recently published Enterprise Ireland five year strategy confirms the Government's

[1] https://finance.ec.europa.eu/regulation-and-supervision/savings-and-investments-union_en

[2] https://enterprise.gov.ie/en/publications/finance-as-catalyst-to-develop-scaling-ecosystem.html#:~:text=This%20report%20provides%20recommendations%20for,Finance%20for%20Scaling%20Working%20Group.

ambitions for the sector.[3] The agency proposes to support 1,000 new startups, many of which will come from the tech sector, between 2025 and 2029. The recent increase in the Enterprise Seed and Venture Capital Scheme fund - from €175m over five years to €250m is further evidence of the Government's policy intention.

Ensuring a supply of talent to meet the demands of these growth ambitions is critical to deliver on this ambition. This report commissioned by Scale Ireland examines Ireland's current talent landscape, focusing on skills supply and demand within the indigenous tech sector. Comprising start-ups and scaling companies, this sector has been identified by the Government and State agencies as a key area for growth and development, complementing Ireland's successful foreign direct investment (FDI) strategy. In compiling this report it was not always possible to isolate figures for the indigenous tech start-up and scaling sector. In such instances we relied on figures from the wider ICT sector. We recognise that this may miss some nuances of sectors such as medtech within indigenous tech start-up and scaling companies.

The growth in scale and pace of change in the wider ICT sector poses several challenges in creating a sufficient pool of qualified talent nationally to support the growth ambitions of the sector. This is especially the case for smaller indigenous enterprises which are competing for talent in a crowded market and working to retain and upskill current employees.

Additionally, third level institutions are themselves under pressure to develop the necessary talent pools to meet future demands. Of critical importance is how indigenous companies can ensure access to, and retention of the required skills and retain expertise that is essential for success in this sector.

This is a critical question, as current estimates suggest that 59 percent of the global workforce will require training by 2030. Of these, some 29 percent of workers could be upskilled within their current roles, while 19 percent could be retrained and redeployed elsewhere within their

[3] https://www.enterprise-ireland.com/documents/strategy-2025-2029-en-151544.pdf

organisations. However, the future employment of 11 percent of employees is more uncertain and they may not receive the necessary reskilling or upskilling, putting their employment prospects at risk.[4] Reflective of the experience of higher income economies, the anticipated skills disruption in Ireland falls to 37% of the workforce, still a significant figure for an open market economy in an increasingly competitive environment. These challenges highlight the complex and multifaceted nature of tech competitiveness, necessitating strategic interventions in skills development, policy frameworks, and investment in digital infrastructure. In light of these evolving demands, reskilling and upskilling strategies are critical in all organisations to ensure the workforce remains agile and equipped for the future.

Our report highlights several positive developments in building the skills ecosystem in Ireland and in many areas, the metrics indicate strong performance. Encouragingly, significant progress has been made through the launch of policy initiatives and enhanced third level course provision. However, the reality is more nuanced and complex. Although Ireland excels in the provision of highly skilled ICT graduates at 8.6%, over double the EU average of 3.9%, further increases are required to ensure that our workforce is well-equipped to face the continuous rapid changes brought about by global digitalisation.[5] We caution against complacency and identify several areas where policy and organisational responses can contribute to ensuring the indigenous tech sector maintains its competitiveness globally. This report was written at a time of considerable uncertainty around global trade owing to the trade policies being pursued by the current US Administration, which in itself brings some uncertainty to our analysis.

2. Context

We begin by considering the wider context of Ireland's talent competitiveness from a global perspective. There are several positive indicators of performance in this regard. However, these global comparisons also point to some areas of concern which should inform skills strategy

[4] https://www.weforum.org/publications/the-future-of-jobs-report-2025/infographics-94b6214b36/

[5] https://digital-skills-jobs.europa.eu/en/actions/national-initiatives/national-strategies/ireland-national-digital-decade-strategic-roadmap

moving forward. In the wider EU context, Europe's tech talent pool has scaled significantly over the past decade, growing sevenfold. In 2024 the tech workforce stood at 3.5 million, the vast majority of these employees having joined in the previous ten years.[6] However, labour and skills shortages have been highlighted as a constraint on the EU's future competitiveness, hindering progress in developing emerging technologies, achieving green and digital transitions, and the growth of businesses in strategic sectors. Indications from Ireland are broadly similar. Scale Ireland's State of Start-ups for 2025 indicated that 48.5% of founders regarded skills shortages as a major issue. The inability to recruit appropriately skilled workers is identified as a major obstacle to long-term investment for many organisations.[7] Comparatively, Ireland performs relatively well in terms of digital competitiveness. Recent years point to an upward trajectory in this regard. Ireland was ranked 17th in the 2024 IMD World Digital Competitiveness Ranking, (Figure 1) an improvement from 21st in 2023.[8] This follows a continuing steady rise over the previous five years and highlights Ireland's growing strength in adopting and leveraging digital technologies across business, government, and society.

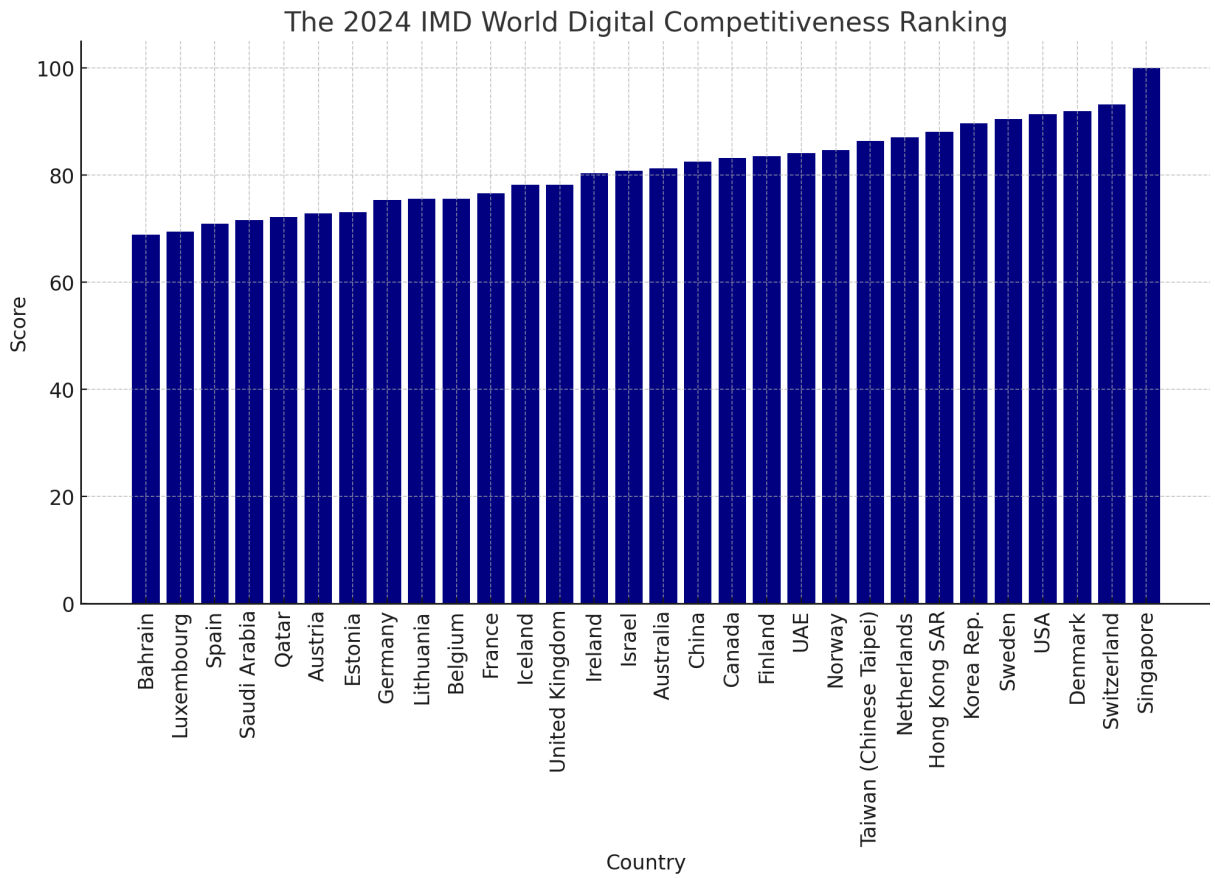
Key strengths identified by the IMD ranking include employer training and higher education achievement, along with attractiveness to international talent and the proportion of women educated to degree level. However, this is against a backdrop of rankings of 62nd globally for total investment in education and 43rd for total investment in R&D, flagging potential risks should these issues not be addressed.

Figure 1 IMD World Digital Competitiveness Ranking 2024

[6] State of European Tech 2024 Atomico Consulting https://atomico.com/

[7] The Draghi Report on EU Competitiveness https://commission.europa.eu/topics/eu-competitiveness/draghi-report_en

[8] https://www.imd.org/centers/wcc/world-competitiveness-center/rankings/world-digital-competitiveness-ranking/



More broadly, INSEAD's 2024 Global Talent Index ranks Ireland 12th of 134 countries, maintaining its position as one of the world's top-performing nations in talent competitiveness. This marks an improvement from the previous year, highlighting the country's continued efforts in attracting and developing talent. Ireland's key strength relative to other countries, lies in its ability to attract talent, where it is ranked 5th globally. The country's openness to diversity, including a strong commitment to minority inclusion and the empowerment of women, also contributes significantly to this high ranking. This openness to diversity may be a particular opportunity given the current adverse climate toward equality, diversity and inclusion (EDI), and more restrictive immigration policies in the US and elsewhere.

However, the Global Talent Index also highlights areas of concern, particularly Ireland's relatively weaker performance in vocational and technical skills, where it ranks 23rd globally. Specifically, mid-level skills development (ranked 46th) remains an area requiring

improvement.[9] This may not be surprising given the mission drift in the former Institute of Technology sector and cultural preferences for higher education over vocational training. Nevertheless, there are some indicators of progress. SOLAS reported an increase in demand in the further education and training sector over recent years with the learner base growing by some 17% from 2022 to 2023 and further growth reported in 2024. They report that one in ten adults in Ireland –around 425,000 people – has engaged in FET (further education training) activity in 2023 and 2024 combined.[10] Disappointingly, only 4.4 percent of these enrolments were classified as ICT, highlighting some concern for the sector[11]. These trends potentially reflect the pace of change in skills demand over recent years and SOLAS is likely to play a critical role in the development of vocational education and skills moving forward.

The Digital Skills Jobs Europa report[12] also provides evidence of positive developments in terms of the digital skills of the Irish population, with 72.9% of the Irish population having at least a basic level of digital skills, standing well above the EU average of 55.6%. A similar trend is observed for women with at least basic digital skills (72.6% compared to the EU average of 59%).[13] The country also scores higher than the EU average for individuals with above basic digital skills (40% in Ireland versus 26% in the EU). The EU's Digital Economy and Society Index (DESI) for 2023 illustrates continued progress across the digital agenda in Ireland, whilst also highlighting areas where progress could be accelerated. For example, while Ireland holds a leading position in the EU on several enterprise, skills, connectivity and public services indicators, there is also some work to do to reach our targets meeting the demand for high quality digital (Figure 2) and STEM skills across the economy.[14]

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[9] https://www.insead.edu/global-talent-competitiveness-index

[10] https://a.storyblok.com/f/70398/x/fee53f0bba/solas-fet-strategy-public-consultation-document-english.pdf

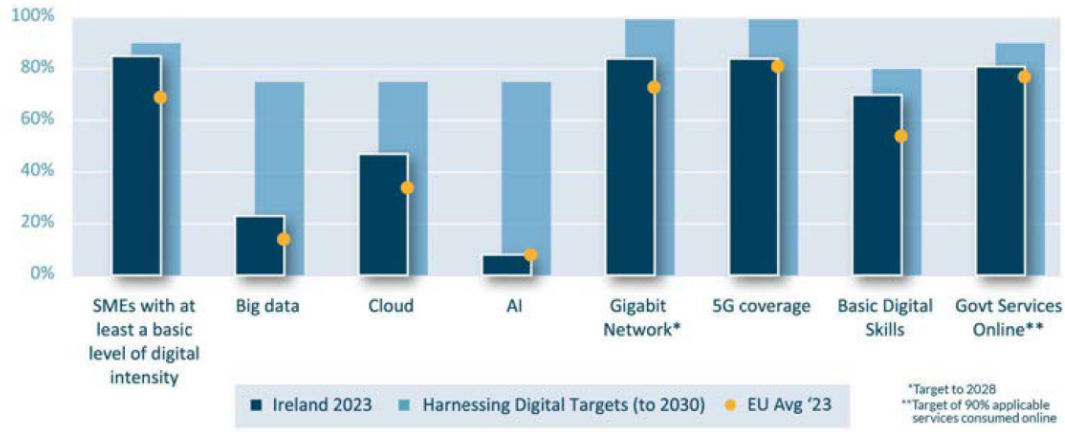
[11] https://a.storyblok.com/f/70398/x/c9cbdd6929/solas-facts-report-2023.pdf

[12]https://digital-skills-jobs.europa.eu/en/actions/national-initiatives/national-strategies/ireland-national-digital-decade-strategic-roadmap

[13] https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20210413-1

[14] https://www.oecd.org/en/publications/oecd-skills-strategy-ireland_d7b8b40b-en/full-report.html

Figure 2 Ireland's progress against Harnessing Digital Targets as measured by DESI 2023



Source: Harnessing Digital The Digital Ireland Framework 2023 Progress Report

2.1. The SME Sector in Ireland

While much of the analysis on industry and competitiveness nationally is either generic across industries or focused on larger firms, it is important to recognise that small and medium-sized enterprises (SMEs) are the backbone of Ireland's economy, representing 99.8% of all active enterprises. Much of the tech start-up and scaling companies that Scale Ireland represent would meet this classification in terms of scale.

Collectively, SMEs generate over 40% of the total turnover in the economy and employ over 60% of the workforce.[15] This reinforces the critical importance of SMEs to the overall Irish economy and highlights the need to continually support this cohort to innovate and prosper. Through bodies such as Enterprise Ireland, initiatives like the Regional Technology Clustering Fund have been established to foster collaboration among SMEs, enhancing innovation and competitiveness. In addition, programs aimed at upskilling the workforce and improving management capabilities are in place to help SMEs adapt to evolving market demands. Therefore, the SME sector in Ireland is poised for continued growth, driven by innovation,

[15] Central Statistics Office (2022) Business in Ireland, 2020. Available at: Business in Ireland 2020 - CSO - Central Statistics Office.

export potential, and supportive government policies. Ongoing investments in technology, infrastructure, and skills development are expected to further enhance the competitiveness and resilience of Irish SMEs on the global stage.

2.2. The Tech Sector in Ireland

The indigenous tech sector, consisting of both start-up and scaling companies, has been identified by Government and State agencies as a priority for growth and development to complement the State's successful FDI strategy. The ICT services sector in Ireland has grown significantly in size and importance over recent years representing 60% of overall service exports in 2021 (Figure 3). The sector is buoyant with strong performance indicators. Indigenous tech companies have made significant inroads into international markets. Computer services exports (including multi-nationals) increased from €204.9 billion in 2022 to €228.2 billion in 2023. This was the largest export category in that year accounting for 57.2% of total services exports[16]. The top three geographic export regions within the export of Computer Services in 2023, are outlined in Table 1.

[16] https://www.cso.ie/en/releasesandpublications/ep/p-its/internationaltradeinservices2023/

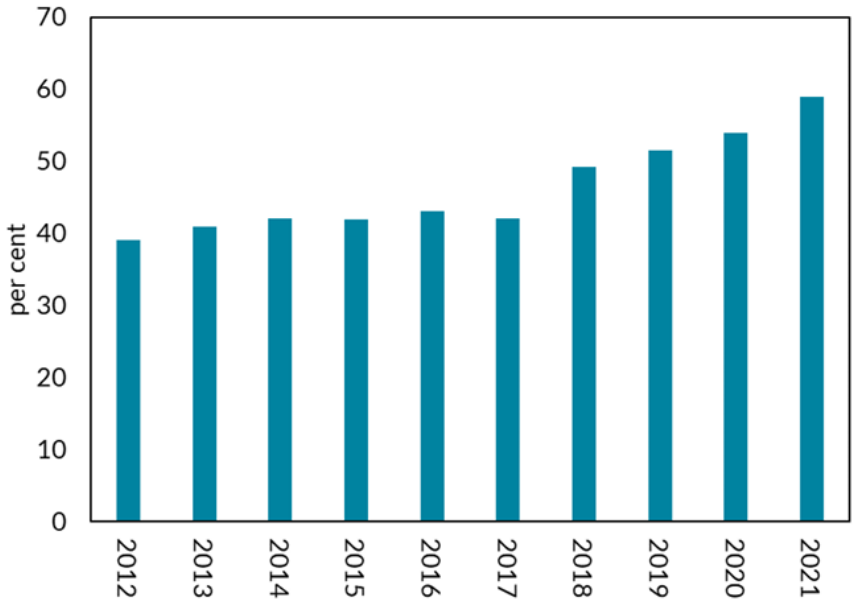
Table 1. Top Geographic Export Regions Computer Services 2023

	€ Million	%
Europe	**110,279**	**48.3%**
Asia	**63,124**	**27.7%**
North America	**19,002**	**8.3%**

Source: https://www.cso.ie/en/releasesandpublications/ep/p-its/internationaltradeinservices2023/

This growth is facilitated by a robust support system, including funding, advisory services, and international networking opportunities provided by Enterprise Ireland. We highlight the trade policies being pursued by the current US administration as bringing some uncertainty to these markets, although at the time of writing the outcomes of these policies were not yet apparent.

Figure 3: Computer services exports as a proportion of overall services exports



Source: Central Bank: The Role of the Irish ICT March 2023

This sector is also at the forefront of the AI revolution with research indicating that 87% of start-ups and scaling companies are deploying or preparing to deploy AI, and 87% of these firms believe AI will have a positive impact on their business. Over half (55%) expect AI to boost productivity, and 21% see it driving market growth.[17] This points to the potential for future growth and opportunity in this sector and a much higher level of AI deployment than the wider SME sector.

This sector within Ireland's SME landscape is particularly dynamic with employment almost doubling since 2010. Data curated by TechIreland shows that tech funding rounds make up the majority of deals on the island. In 2024, 307 companies fundraised, totaling €978 million, representing a 15% increase on the previous year.[18] The Irish Venture Capital Association also noted that AI alone attracted over €100 million in investment, highlighting Ireland's ability to

[17] State of Start-ups Survey 2025 Scale Ireland

[18] TechIreland - Irish Startup Funding Trends 2024

create and scale world-class tech firms. The fourth quarter of 2024 saw a record €535 million in funding—a162% increase from the same period in the previous year. [19] This success increases the demands on talent and the requirement for ensuring relevant skills are available for this continued growth trajectory.

Employment in wider ICT occupations is robust and growing. The sector, both FDI and indigenous, grew by some 50,000 workers, or 9.8% between 2018-2023 representing the strongest growth in annual average employment growth over that time[20]. As of Q4 2024 employment in the sector amounted to 182,900 positions reflecting year on year growth of 14,000 positions or 8.3% [21]. While most of this growth is directly in the ICT sector, it is important to note that the digitalisation of other industries means that there is strong demand for ICT skills across other sectors too.

The education and training system provides a strong supply of graduates, with approximately 8,000 students completing ICT programs at the third level each year, a 33% increase since 2018. However, we found little evidence of the system's capacity to scale to meet the demand reflected in the growth predictions we outline below. We also note the relative underinvestment in education as a factor which limits the potential of increased capacity in the future. Supply issues are amplified by gender imbalance in the sector, with women making up only a quarter of the workforce. Increasing female participation presents a significant opportunity to expand the labour supply. A further distinctive element of the sector is the heavy reliance on migration, with almost 40 percent of those employed being non-Irish citizens which has traditionally supplemented domestic supply. This is the highest percentage of all occupational groups in the National Skills Survey. This group also had the second highest number of employment permits

[19] Irish Venture Capital Association (IVCA) VenturePulse report in association with William Fry. February 2025

[20] https://www.solas.ie/f/70398/x/be80f7ad0c/national-skills-bulletin-2024.pdf

[21] https://www.cso.ie/en/releasesandpublications/ep/p-lfs/labourforcesurveyquarter42024/employment/

issued in 2023[22]. All scenarios point to ongoing demand increases which require an ongoing focus on supply in ICT skills.

A key implication of the analysis in this report, is the need for proactive planning to address future shifts in skills demand and the continued investment in research to ensure up to date knowledge on future trends in ICT. This will ensure that the indigenous ICT sector can effectively adapt to emerging needs, maintaining competitiveness and supporting long-term growth.

[22] https://www.solas.ie/f/70398/x/be80f7ad0c/national-skills-bulletin-2024.pdf

3. The shifting skills landscape

It is widely recognised that there are several interrelated factors driving changes in skills demand within organisations through to 2030. Critical drivers include technological change - including the increasing impact of AI, robotics and automation, geoeconomic fragmentation, economic uncertainty, demographic shifts and the green transition.[23] The rapid evolution of skills is challenging traditional approaches to talent development and acquisition. In this section, we examine two critical areas: current skills demands and future skills needs.

3.1 Current skills demands

Organisations are facing significant challenges in meeting current skills demands, with multiple indicators highlighting widespread talent shortages across various sectors. According to the 2025 PwC CEO Pulse Survey, 61% of respondents identified the lack of skilled workers as a key risk to their businesses.[24]

The SOLAS analysis of difficult-to-fill vacancies further illustrates the scale of the issue. 41% of employers report difficulties in hiring for roles in science, technology, and engineering, with acute shortages in areas such as software development, engineering (networking, DevOps,

[23] https://reports.weforum.org/docs/WEF_Future_of_Jobs_Report_2025.pdf

[24] https://www.pwc.ie/reports/ceo-survey/risk-landscape.html

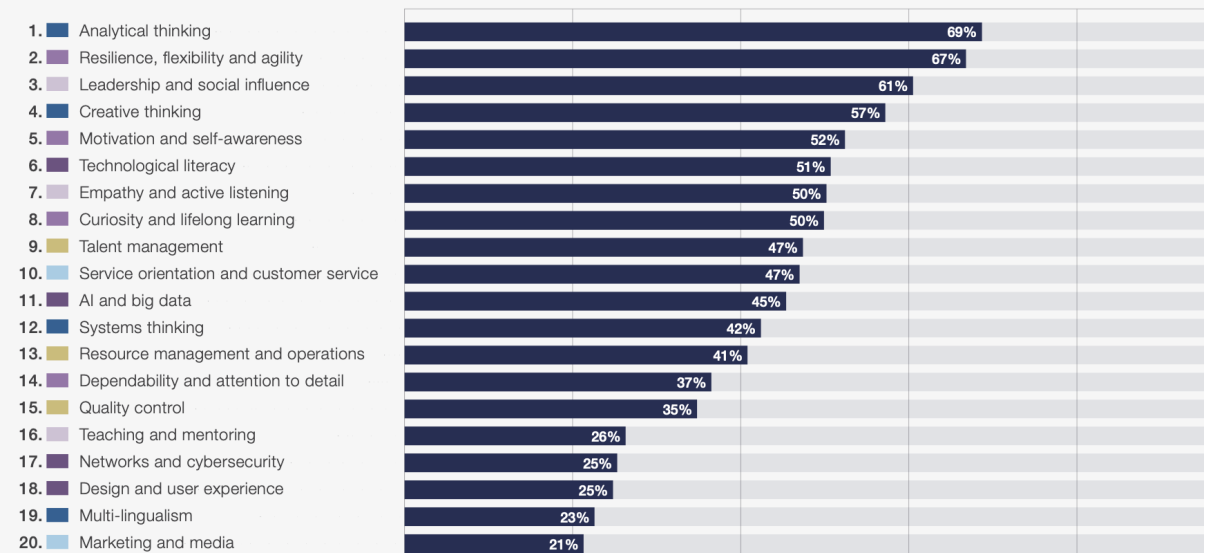
security, AI, machine learning), data analytics (analysts, scientists, engineers), solutions architecture, and technical support.[25] Notably, nearly half (47%) of difficult-to-fill vacancies were classified by employers as either very difficult or too difficult to fill, highlighting the strain on organisations. These workforce challenges are further exacerbated by a labour market that is operating close to full employment, making it even harder to attract and retain talent.

While much of the focus in policy is on technical skills, it is important to highlight the importance of transversal skills. Transversal skills are defined by their potential applicability in a variety of situations or work settings and are sometimes referred to as soft skills. An ESRI analysis identified approximately 20–30 per cent of skills required by employers as transversal, with 50–60 per cent technical, and 20 per cent business skills such as management, operations or sales[26]. Other data suggests an even heavier focus on transversal skills. For example, nine of the 10 core workforce skills identified by the World Economic Forum's 2025 *Future of Jobs Report* can be classified as transversal rather than technical skills (see figure 4). These include analytical thinking, resilience, creative thinking, leadership with only technological literacy making the top 10 from a technical viewpoint. AI and big data, networks and security and design and user experience do appear in the top 20 skills however. While the balance will obviously vary across industries and firms, this analysis does highlight the ongoing importance of transversal skills.

Figure 4 Core Workforce Skills in 2025

[25] https://www.solas.ie/research-lp/skills-labour-market-research-slmru/research/

[26] https://www.esri.ie/publications/skill-requirements-for-emerging-technologies-in-ireland



Source WEF, 2025 Future of Jobs Report

There is some temporary respite in some areas however, as talent availability data reveals that cybersecurity talent availability has increased, largely due to layoffs and reduced hiring in the tech sector. This, along with the conclusion of several projects, has intensified competition among candidates for contract roles. This heightened supply of skilled candidates has created a more competitive landscape, with contract daily rates experiencing a slight decline compared to previous years. Despite this, the steady influx of new job opportunities each month indicates sustained demand for technology professionals[27]. Importantly, it also demonstrates the fluidity of talent pools in the tech sector where ebbs and flows in supply can change over time.

3.2 Future skills demands

Given the substantial challenges organisations face in meeting current talent demands, there is a real risk that future skills needs may be overlooked. To maintain long-term competitiveness, organisations must proactively plan for emerging skill requirements and begin preparing their workforces today. Talent planning and skills development have become strategic imperatives,

[27]Morgan McKinlay 2025 Talent insights

and failing to prioritise them could pose a significant risk to business growth. This is particularly important for scaling-up businesses. Given these challenges, it is crucial to assess future workforce needs with a data-driven approach, particularly in high-demand sectors such as ICT, where projected growth scenarios highlight the scale of talent required in the coming years.

At a minimum we expect continued growth in demand for ICT skills. Based on Q4 2024 data, there are currently 182,900 positions in ICT nationally. To predict future demand in terms of the number of employees required through to 2030, and to meet the targets set out in the Enterprise Ireland five year strategy, we consider three basic scenarios in terms of growth. In calculating these growth figures we have not incorporated the potential that some work will be automated by AI potentially reducing employment, as we assume that any efficiencies will be supplemented by higher growth overall. Indeed, while we have witnessed some disruption in the labour market with some job reductions attributed to improved productivity in the context of AI, in line with broader reports and historical trends, our analysis assumes this will level out in the relatively short term.[28] While some are predicting major job losses associated with AI[29], the historical evidence suggests that all major technological shifts (the industrial revolution, internet etc.) produce significant labour market disruption in the short term, but in the longer term, more jobs are created than are destroyed. Some job categories are certainly impacted but new industries and new job categories are also created. At a baseline rate of 8.3% reflecting growth in the past 12 months, the compound growth would be 272,490 positions by 2030. A more conservative 5% growth rate would result in an average of additional 10,106 positions per year totalling some 233,430 positions. While a high growth rate of 10% would mean 294,560 positions by 2030 and an average of over 22,332 positions per year.

Table 2. Predicted growth of ICT Employment in Ireland To 2030

[28] PWC AI Jobs Barometer 2025 https://www.pwc.ie/reports/ai-jobs-barometer.html

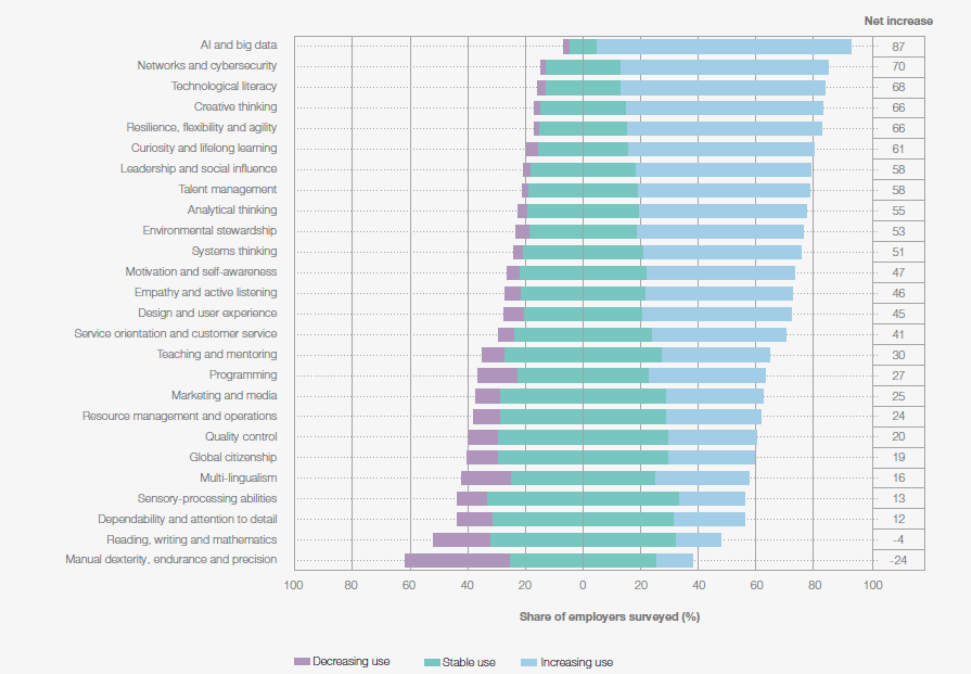
[29] https://www.gov.ie/en/department-of-finance/publications/artificial-intelligence-friend-or-foe/

Predicted average growth rate*	New positions added	Average number of new positions per year	Total employment
Baseline (8.3%)	89,590	17,918	272,490
Conservative (5%)	50,530	10,106	233,430
High growth (10%)	111,660	22,332	294,560

*compound rate, figures rounded.

The WEF Future of Jobs Report 2025 provides some useful indicators in terms of key areas of expected growth in skills demands (figure 5). Unsurprisingly, AI and big data is the area with the biggest expected increase in demand with an increased demand of 87% predicted between 2025 and 2030. Networks and cybersecurity and technological literacy display the next highest growth at 70 and 68 percent respectively. While we do see an increased focus on technological skills, transversal skills are expected to continue dominating the top 10 with creative thinking, resilience, flexibility and agility, and curiosity and lifelong learning all having predicted growth above 60 percent.

Figure 5 Skills on the Rise 2025-2030



Source WEF Future of Jobs Report 2025

By international comparison, Ireland is relatively well positioned regarding its AI 'readiness', ranking 20th out of 193 countries.[30] Importantly, according to Eurostat data, Ireland recorded the highest share of enterprises in Europe using AI in 2020, at around 23 per cent suggesting that it was well prepared for the AI revolution over recent years. [31] A recent ESRI study predicted that in the medium-term the labour market demand for new entrants in automation, AI and blockchain jobs in Ireland will be met by supply projections pointing to a relatively positive outlook.

Employer views on these supply projections were however somewhat more measured and they emphasised the high levels of uncertainty regarding the development and adoption of AI which they feared could result in levels of demand exceeding those predicted by the ESRI's modelling. Employers are equally apprehensive about labour market demands driven by the evolving

[30] Oxford Insight's Government AI Readiness Index 2023 (Oxford Insights, 2023)

[31] Eurostat (2021). Artificial intelligence in EU enterprises,https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20210413-1.

regulatory landscape, such as the recently approved European Artificial Intelligence Act, which is expected to have a significant impact. They highlight the need for policy development to support organisations in navigating nationwide changes across multiple dimensions of AI implementation. Additionally, they highlighted the high level of uncertainty surrounding AI development and adoption, which could lead to demand surpassing current projections[32]. Employers have also expressed concerns around the preparedness of graduates for AI roles with fewer than 40% of multinational organisations believing that third-level graduates are adequately prepared for such roles.[33]

Positive indicators in relation to Ireland are reflective of the prioritisation of automation, artificial intelligence (AI), and blockchain-related jobs as key areas of emerging technology with significant strategic importance for the Irish labour market.[34] These technologies have the potential to be applied across multiple industrial sectors, driving future employment growth. Their importance aligns with the Department of Further and Higher Education, Research, Innovation, and Science's priority skill development policies. It is therefore imperative to continue to monitor trends in terms of demand in these skills and carefully model supply on an ongoing basis. This ensures that workforce growth in emerging technologies is not hindered by skill mismatches.

The continued emergence of the importance of transversal skills is apparent in the data. Complementing technology-related skills, skills such as creative thinking, resilience, flexibility and agility, along with curiosity and lifelong learning, are also expected to continue to rise in importance over the 2025-2030 period.[35] What is clear from all analyses of skills demand is that transversal skills are likely to continue to be highly valuable in the future. As digitalisation

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[32] https://www.esri.ie/publications/skill-requirements-for-emerging-technologies-in-ireland

[33] https://www.tcd.ie/media/tcd/business/pdfs/research/Microsoft-Report.pdf

[34] Skill requirements for emerging technologies in Ireland ESRI September 2024

[35] https://www.weforum.org/publications/the-future-of-jobs-report-2025/infographics-94b6214b36/

transforms industries, there will be an increased demand for skills that are complementary to automation and cross-functional competencies such as problem-solving, adaptability, and leadership.

Technology leaders increasingly recognise human capabilities as critical to tech talent development. When asked to identify the skills that will be most critical to their technology function in the next two years, tech leaders ranked leadership as most critical, followed by problem-solving, relationship skills, and creativity and imagination.[36] The demand for transversal and management skills was also highlighted by the 2024 National Skills Bulletin which identified persistent demand across the economy for skills, including communication, teamwork and leadership, cross sectoral or cross occupational skills, such as sales, marketing, talent management, project management, data analysis[37]. A potential gap in this area has been highlighted by industry leaders who have called on third level institutions to integrate soft skills and leadership skills into technology focused degrees. [38]

3.3 The SME Perspective

It is important to note that SMEs in Ireland including the indigenous tech start-ups and scaling companies face unique challenges in talent acquisition and development. Despite 49% of SMEs rating their economic strength as very strong, skills shortages remain a major risk to their growth and competitiveness. Addressing these gaps through sector-specific training and tailored upskilling programs will be key to maintaining Ireland's competitive edge in the digital economy. However, despite the investment and support provided for upskilling the SME sector, of which there are many, research suggests limited progress with 46% citing existing time commitments as barriers to upskilling, and 29% considering programmes too costly and 18% are

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[36] Deloitte's 2023 Global Technology Leadership Study

[37] https://www.solas.ie/f/70398/x/be80f7ad0c/national-skills-bulletin-2024.pdf

[38] Leading European Advanced Digital Skills" (LEADS project) Final Guidelines Report June 2024

unsure of the programmes available.[39] Simpler ways of communicating the range of upskilling support available to SMEs in order to create a greater awareness of the enterprise-driven supports that are available could be beneficial.

4. Recommendations

Based on our analysis of emerging trends in talent demand and supply over the coming five years, we propose several initiatives that we view as critical to ensure the skills needs of indigenous tech start-up and scaling companies are met in a timely way. The overarching implication of our analysis is that what got us here won't get us there in terms of the future competitiveness of the indigenous tech start-up and scaling sector. While we did identify several positive indicators, we also highlighted several risk factors which need to be addressed. We begin by considering policy interventions, before moving to sectoral level initiatives and finally consider firm level actions.

A key implication of our analysis is that the demand for ICT skills has been one of the fastest areas of growth in the Irish labour market over recent years. Should current rates of growth continue over the next five years we predict in excess of 270,000 additional positions by 2030. Data from the World Economic Forum and elsewhere point to the pace of change in the skills likely to be in demand for ICT roles as a challenge. Indeed, this pace of change is a key reason why traditional forms of demand modelling may be insufficient in the future.

[39] https://www.skillnetireland.ie/insights/irelands-talent-landscape-2024

Thus, we highlight the importance of systematic demand modelling at industry, sectoral and organisational level. Traditional labour market forecasting, which relies on historical data, is no longer sufficient in the face of rapid technological advancements. Modelling needs to incorporate external data, sectoral and organisational level data to provide nuanced insights into the demands of indigenous tech start-up and scaling companies. Rather than a once off process this should be considered a dynamic process and should be regularly updated to capture changes. At the firm level, macro analysis should feed into internal demand modelling. Given the continued growth of the sector and changing demand landscape in terms of specific skills, we expect multiple pathways to filling skills needs. It is imperative to balance the development of technical, managerial and transversal skills in meeting emerging skills needs.

Firstly, reskilling and upskilling of employees is likely to be critical. As skills evolve some skills are likely to reduce in importance while others will emerge or become more valuable. It is critical that organisations invest in continuous learning and upskilling and reskilling of employees to help meet emerging skills needs. However, a key risk is that 56% of SMEs do not have a talent development strategy in place and do not plan to implement one in the next 12 months posing a risk for indigenous tech start-up and scaling companies.[40] While SMEs acknowledge the importance of lifelong learning, continued support is crucial—particularly for the 21% of SMEs that have not provided any upskilling opportunities for employees in the past year. Thus, we point to the importance of sectoral level initiatives to support reskilling initiatives. Organisations such as Skillnet Ireland, and representative bodies such as Scale Ireland are likely to play an important role in supporting these initiatives.

Secondly, traditional third level educational programmes are unlikely to meet all of our future skills needs. Most projections are for a relatively constant output of approximately 8,000 ICT graduates per annum over the coming five years[41]. While it is important to work with the higher education sector to ensure talent supply is aligned with demand, the sector will need to build

[40] Skillsnet_IrelandsTalentLandscape2024.pdf

[41] https://www.solas.ie/f/70398/x/be80f7ad0c/national-skills-bulletin-2024.pdf

alternative pathways to meet talent demand. We recommend a greater focus on other routes to entry such as apprenticeships and other FET routes. This is an area where progress has been relatively slow to date, with only six apprenticeship programmes in ICT nationally by 2022[42]. Apprenticeship provision is currently highly concentrated in traditional craft apprenticeships in Ireland.[43] We do note the increased awareness of apprenticeships through initiatives such as FIT, an organisation dedicated to addressing the skills requirements of Ireland's increasingly digitalised economy, focusing on creating broader pipelines of tech talent[44]. However, the apprenticeship model offers a very strong potential route to entry to ICT roles, with the 'learn when you earn' model offering the opportunity for socioeconomic cohorts that may not have the opportunity to pursue traditional third level to enter the profession therefore offering DEI benefits too. For example, FIT has created female targeted apprenticeships, an underrepresented group in tech talent.

Thirdly, the ICT sector has been heavily reliant on international migration to meet skills demands over recent years. Non-Irish nationals comprised 33 per cent of ICT employment in 2022, compared to an average of 18 per cent across all sectors. The increasing net inward migration to the sector is also evident from the rise in employment permits granted for ICT workers. Between 2020 and 2022, ICT accounted for 28 per cent of total (72,650) employment permits issued across all sectors. One indicator of concern is that the number of overall employment permits issued in 2023 decreased by 29% from 2022, albeit the almost 31,000 issued is still relatively high. Ensuring the work permit programme is as efficient and effective as possible is critical to ensuring appropriate talent flows. Further, there is a critical need to maintain and enhance Ireland's attractiveness to international talent.[45] This requires targeted global messaging about

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[42] Apprenticeships Trends and Profiles D/Pendr Analytical note 2024. Government of Ireland Publicationshttps://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://assets.gov.ie/294548/30162cf5-d05e-4a32-a074-77d4fbafa2b6.pdf&ved=2ahUKEwjzzpv9roaMAxW-WEEAHc5NEfUQFnoECA4QAQ&usg=AOvVaw1HEv5PXwVqxz1JlkjeqpIa

[43] https://www.gov.ie/en/publication/055810-education-statistics/#education-indicators

[44] www.FIT.ie

[45] https://enterprise.gov.ie/en/publications/white-paper-on-enterprise-2022-2030.html

employment opportunities and an efficient employment permits and visa regime focused on high-skilled, in-demand workers. Ensuring the critical skills designations of The Expert Group on Future Skills Needs (EGFSN) keep pace with the changing demands of the sector will be key. Continued flexibility in the work permit system such as an increasing role of employment agencies is likely to be helpful in meeting skills needs.[46]

However, while Ireland ranks highly in terms of attractiveness as a location for international talent, there are also several barriers to the attraction of international talent which may restrict the flow of international talent. Challenges include high personal tax rates, cost of living, personal safety, and robust infrastructure—especially housing and education. Indeed, the higher cost of living and limited availability of accommodation remains as major barriers when attracting and retaining international talent, especially for vacancies which are proving most difficult to fill. To ensure Ireland remains competitive in the global talent market, these areas must remain a policy priority, as they play a crucial role in supporting economic growth and workforce sustainability.

We also see significant opportunities for expanding the ICT workforce through expanding the overall diversity of the workforce. While Ireland's openness to diversity, including a strong commitment to minority inclusion and the empowerment of women contributes significantly to its high ranking on the INSEAD Global Talent Competitiveness Report, participation rates amongst females and other underrepresented groups are mixed at best[47]. This is not a problem unique to Ireland with only 20% of the 10 million ICT professionals in Europe are female by some estimates.[48] More broadly, other cohorts of the workforce feel like they are being left behind in the increasingly digitalised workforce. Illustratively, these 'Hidden Worker(s)' have been highlighted in a 2020 Accenture survey which reveals disenfranchised groups who feel

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[46] https://www.irishexaminer.com/business/companies/arid-41470300.html check this ref Dloitttes

[47] https://www.insead.edu/global-talent-competitiveness-index

[48] https://advancedskills.eu/wp-content/uploads/2023/10/LeADS_D1.3_V1.0.pdf

excluded from upskilling.[49] These represent a broad cross section of society which includes disaffected people at both ends of the age spectrum, including low-income groups, and people with disabilities.

It is encouraging that the government's Pathways to Work Strategy 2021-2025[50] identifies measures to support greater workforce participation among underrepresented groups. These initiatives will focus on reducing barriers to employment, such as the full implementation of policies to improve childcare accessibility, sustained support for flexible work practices, and financial incentives to encourage workforce participation. Increasing the engagement of female and other underrepresented demographics offers significant opportunities to expand talent supply. Initiatives should include the continued engagement of diverse groups in ICT and STEM from school level, through to increasing participation in higher education and FET. Apprenticeships have also been shown to increase the diversity of employees in technology related roles. By fostering a more inclusive workforce and ensuring that all individuals have access to the skills needed for the digital economy, Ireland can strengthen its talent pipeline, drive innovation, and maintain its competitive edge in the global market.

5. Conclusion

This report set out to examine Ireland's current talent landscape, focusing on skills supply and demand within the indigenous tech sector. Our analysis highlights several positive developments in building the skills ecosystem in Ireland and in many areas, the metrics indicate strong performance. Encouragingly, significant progress has been made through the launch of policy

[49] https://fit.ie/wp-content/uploads/2021/03/Talent-for-Tomorrow-Accenture-Ireland-Skills-Report-002.pdf

[50] https://www.gov.ie/en/publication/1feaf-pathways-to-work-2021/

initiatives and enhanced third level course provision. However, the reality is more nuanced and complex. Although Ireland excels in the provision of highly skilled ICT graduates at 8.6%, over double the EU average of 3.9%, further increases are required to ensure that our workforce is well-equipped to face the continuous rapid changes brought about by global digitalisation.[51] We caution against complacency and identify several areas where policy and organisational responses can contribute to ensuring the indigenous tech sector maintains its competitiveness globally.

[51] https://digital-skills-jobs.europa.eu/en/actions/national-initiatives/national-strategies/ireland-national-digital-decade-strategic-roadmap

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