



TechConnect

Human Tech Index

Assessing and strengthening human-tech collaboration

TechConnect Industry Landscape Report 2026: Building Human-Tech Skill Complementarity

INDUSTRY LANDSCAPE REPORT YEAR 2

Deliverable 1.2

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TechConnect
Human Tech Index

INDUSTRY LANDSCAPE REPORT YEAR 2

Deliverable 1.2

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Abstract	The Industry Landscape Report Year 2 provides a comprehensive landscape analysis, highlighting changes and trends in new technologies, as well as in the Human-Tech Skill Complementarity. This is the second report as part of the longitudinal reports produced consecutively in M6, M18 and M29.
Keywords	Industry landscape; advanced technology usage; ADS skills investment; human-tech skill complementarity.

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- * *R: Document, report (excluding the periodic and final reports)*
- DEM: Demonstrator, pilot, prototype, plan designs*
- DEC: Websites, patent filing, press & media actions, videos, etc.*
- DATA: Data sets, microdata, etc*
- DMP: Data management plan*
- ETHICS: Deliverables related to ethics issues.*
- SECURITY: Deliverables related to security issues*
- OTHER: Software, technical diagram, algorithms, models, etc.*

EXECUTIVE SUMMARY

This Industry Landscape Report Year 2 (D1.2), produced as part of Work Package 1 in the **TechConnect** project, presents a comprehensive overview of how advanced digital technologies (ADTs) are shaping the nature of work, workforce capabilities, and skill development across sectors. Rooted in the concept of Human–Tech Skill Complementarity, the report highlights the evolving relationship between human and digital skills and the organisational challenges arising from this transformation.

The findings draw on both quantitative and qualitative analysis of the results from an industry survey, completed by both employees and managers with over 1200 respondents. All workers shared their firsthand experiences of using digital technologies at work. Managers additionally reported on workforce digitalisation and upskilling efforts. To ensure broader relevance, the analysis includes a comparison between EU and non-EU respondents, across both employee and managerial perspectives. Additionally, insights are benchmarked against key European studies and policy frameworks to contextualise the findings within the broader digital transformation landscape.

Key findings include:

Consistent with the Year 1 survey findings, the results continue to highlight several key patterns in the evolving relationship between advanced digital technologies (ADTs) and workforce skills, including:

- **The widespread use of ADTs across roles, sectors, and regions.** Technologies are applied in diverse and expanding ways, from task automation to decision support and collaboration enhancement.
- **The growing recognition of complementarity between human and digital skills.** Rather than replacing human input, ADTs are creating new demands for human skills such as problem-solving, creativity and interpersonal skills, reinforcing the need for integrated skill strategies.
- **Organisations are encountering significant challenges in managing this shift.** Challenges include aligning digital investments with workforce readiness, addressing uneven access to training, and adapting leadership and HR practices to a more digital-ready workplace.

Building on these earlier insights, the Year 2 survey reveals several emerging trends. With a substantially larger and more diverse sample, the findings indicate further growth in the use of AI, cloud computing, and data-driven technologies in everyday work practices, alongside a stronger emphasis on strategic investment in both digital and human skills to support effective human–technology collaboration.

The report concludes with practical recommendations for business leaders, HR professionals, employees, education and training providers, and policymakers. These focus on advancing workforce strategies that integrate human and digital skill development, fostering cross-functional collaboration, strengthening data use and evaluation practices, and promoting inclusive, future-oriented learning ecosystems.

Serving as the empirical foundation of the TechConnect project, this report continuously underpins the practical activities in Work Package 2 (Observational Case Studies) and Work Package 3 (Interventional Pilot Studies). It provides an evidence-based snapshot of current practices and challenges. In addition, it is a strategic resource to guide organisational decision-making, shape policy interventions, and inform the design of responsive, high-impact education and workforce development initiatives for the accelerated and inclusive digital transformation.

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ABBREVIATIONS

Abbreviation	Full Term
AI	Artificial Intelligence
ADT / ADTs	Advanced Digital Technologies
CTF	Communications Task Force
DoA	Description of Action
EU	European Union
HR	Human Resources
ICT	Information and Communication Technology
IoT	Internet of Things
IT	Information Technology
R&D	Research and Development
RPA	Robotic Process Automation
WP	Work Package

ABOUT TECHCONNECT

TechConnect, a €3 million initiative funded by the European Union, under the Horizon Europe framework with a consortium of 9 partners, Trinity College Dublin (TCD), Mälardalen University (MDU), Technical University of Madrid (UPM), Universiteit Utrecht (UU), BluSpecs, Tallaght University Hospital (TUH), Västerås Hospital (RV), Hospital Ramon y Cajal (FIBIRYCIS) and University Medical Center Utrecht (UMCU).

The TechConnect project aims to deepen the understanding of how ADTs impact human skills by focusing on Human-Tech Skill Complementarity. Through desk research, industry surveys, and case studies in healthcare, TechConnect explores how human skills and technology interact in real-world contexts. The project develops a systemic framework to address the gap between intended and actual technology use, offering practical guidelines for technology procurement, development, and training. By providing tools to enhance human-tech integration, TechConnect ambition is to boost productivity and employment across industries, driving greater alignment between technology and human skills.

1 Introduction

The rapid adoption of advanced digital technologies (ADTs), such as artificial intelligence (AI) and automation is reshaping work across industries. As organizations integrate more ADTs into their operations, the demand for new skills, both technical and human, continues to evolve. Not only must employees adapt to new tools and systems, but organizations also face the ongoing task of aligning workforce capabilities with emerging technologies. This shift brings opportunities for increased productivity, creativity, and job satisfaction, but also poses risks of skill mismatches, job displacement, and unequal access to training (Brunello & Wruuck, 2021).

In this context, understanding the dynamic interplay between human and technological skills is crucial. The purpose of this document is to provide a comprehensive landscape analysis of the evolving relationship between ADTs and human skills, with a particular focus on Human-Tech Skill Complementarity. As part of Work Package 1 (WP1: Conceptual Framework Development and Landscape Analysis) of the TechConnect project, this report aims to:

- **Present empirical findings** from annual cross-sectoral industry surveys, serving as the foundation for subsequent work packages.
- **Identify key trends, drivers, and barriers** in technology adoption and skills development.
- **Inform stakeholders:** including employees, employers, policymakers, and education providers: about current and future skill needs, training practices, and the implications for workforce development and organizational competitiveness.
- **Provide evidence-based recommendations** to guide policy, practice, and educational program design, supporting human-tech skill complementarity in the digital era.

This document thus serves as both a theoretical cornerstone and a practical resource, underpinning the TechConnect project's broader objectives to strengthen Human-Tech Skill Complementarity and to enhance the quality of employment in the context of digital transformation.

The target audience include:

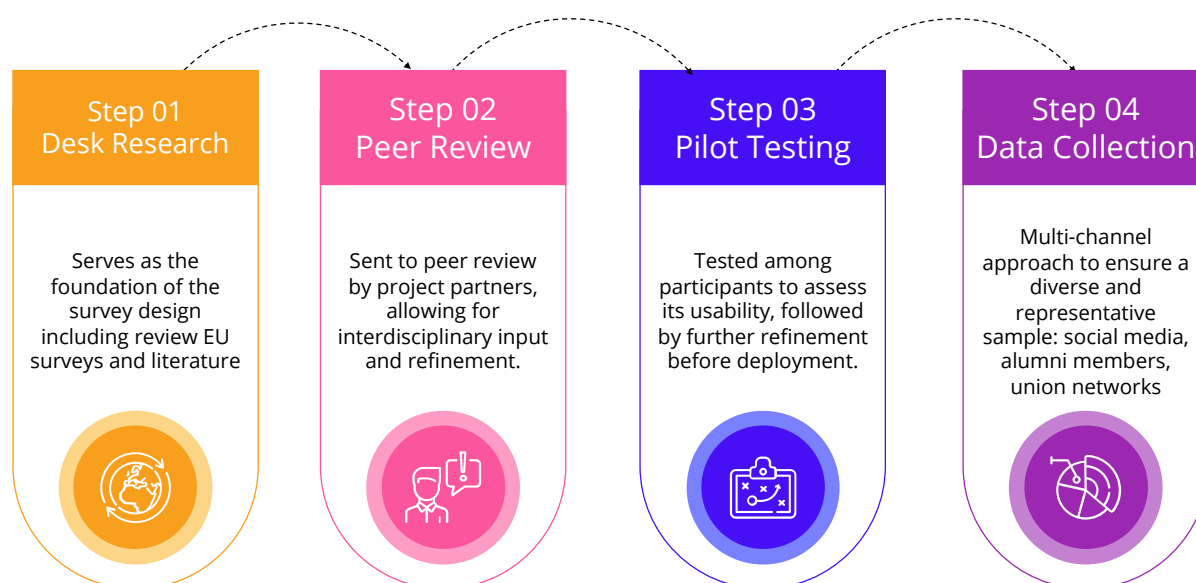
- **Employees and Employers:** Drawing on survey and qualitative comments data from both employees and managers, the report identifies key trends in digital upskilling. It helps employees understand their current and future training needs, while supporting employers in developing strategies to strengthen their digital competitiveness.
- **Business Leaders and HR Professionals:** The report provides practical insights into how ADS initiatives are being implemented across industries. It will assist business and HR leaders in aligning workforce strategies with technological change, making informed investment decisions, and designing more targeted talent development approaches.
- **Education and Training Providers:** By outlining current skills gaps and workplace needs, the report supports the design and delivery of responsive, future-oriented curricula. Providers can use these insights to tailor programmes that meet the needs of both learners and the evolving labour market.

- **Policy Makers:** The report highlights systemic drivers and barriers that affect organisational readiness for ADS. It provides a comprehensive evidence base to inform national and EU-level policy decisions, including the design of scalable interventions to accelerate digital skills adoption.
- **Funding Agencies:** As investors in digital transformation and workforce development, funding agencies will find this report useful in evaluating the impact of current programmes and identifying areas for future investment. The findings can support strategic alignment with EU digital goals and optimise funding for maximum societal benefit.
- **General Public:** The report increases public awareness of how digital technologies are reshaping work. It underscores the importance of accessible digital education for employability, social inclusion, and economic resilience, offering a clearer view of how organisations and individuals are adapting to this transformation.
- **Researchers:** The report provides empirical insights into the evolving relationship between advanced digital technologies and workforce skills. It contributes to ongoing academic debates on digital transformation, skills development, and human–technology complementarity, and can inform future research in this area.

2 Methodology

This study follows a four-stage research design, comprising literature review, instrument development, data collection, and data analysis, as illustrated in Figure 2.1. This structured approach is commonly adopted in survey-based research to ensure the validity, reliability, and robustness of the findings.

Figure 2.1 Survey Instrument Development and Data Collection Process



2.1 Literature Review and Desk Research

A targeted literature review and desk research were conducted to inform the design of the survey instrument. The review focused on three main areas: (1) the adoption and use of advanced digital technologies (ADTs) in the workplace, (2) workforce skills development in the context of digital transformation, and (3) the concept of human–technology skill complementarity. The research team reviewed relevant academic literature, including the conceptual framework developed in Deliverable D1.1, as well as key EU-level surveys, such as the OECD AI Survey (Lane et al., 2023), Cedefop's second European Skills and Jobs Survey (Cedefop, 2022), and the LEADS ADS Survey. In addition, recent industry reports, including Deloitte Global Workforce Trends 2024 (Deloitte, 2024), were examined to capture current practices and emerging trends. This review enabled the identification of key themes, variables, and measurement approaches, which informed the development of the survey instrument and ensured alignment with both academic research and real-world developments.

2.2 Instrument Development

The development of the survey instrument followed a structured and collaborative process, consistent with established practices in survey design, to ensure validity and relevance. Key topics, including the adoption of ADTs, skill needs, training experiences, job satisfaction, and organisational systems, were identified and incorporated into the initial draft of the survey. This

draft was reviewed by project partners and academic experts, allowing for interdisciplinary input and refinement. In addition, the survey was pilot tested with a small group of industry practitioners to assess its clarity, usability, and relevance. Feedback from these stakeholders, including researchers and practitioners, was used to improve the wording, face validity, and comprehensiveness of the survey items. Finally, the instrument underwent further pilot testing to identify any remaining ambiguities or areas for improvement before full deployment. This development process ensured that the survey captured the key dimensions of Human–Tech Skill Complementarity in the digital workplace.

In the final survey instrument (Annex I), all respondents were asked to fill in the **employee survey** which covers the topics around ADTs in the workplace and their experience. A question about their role (frontline employee without managerial responsibilities vs managers) was asked. When participants indicated that they were managers and had managerial responsibilities, they would be asked to fill in an additional part, so called **manager survey**, about their organisations' development of employee ADS. The manager survey part provides invaluable insights about the current and future plan in ADS development.

The Year 2 (2026) TechConnect Survey built on Year 1 (2025) survey and added a few additional open questions on the human and technological/digital skills investment and development strategy. Doing so will enable researchers and practitioners to better understand the industry landscape on how to reskill and upskill their workforce to complement with the advancement of technologies.

2.3 Data Collection

Based on the experience with relatively low response numbers in the 2025 survey (307 responses), the research team decided to expand the data collection strategy to increase participation and improve the diversity of the sample. In addition to the public distribution channels used in Year 1, the Year 2 survey also recruited participants through the Prolific online research platform. The majority of responses were collected through Prolific (93%, $n = 1039$), while the remaining responses were obtained through public channels (7%, $n = 78$), including social media outreach and professional networks.

2.4 Data Analyses

The data were analysed using the Statistical Package for the Social Sciences (SPSS, Version 25). Quantitative data were analysed using descriptive statistics, including frequencies and means, to summarise key patterns in the responses. Qualitative comments provided by respondents were analysed using a thematic analysis approach. Responses were systematically reviewed, coded, and grouped into key themes to identify recurring patterns and insights related to the adoption of advanced digital technologies and skill development.

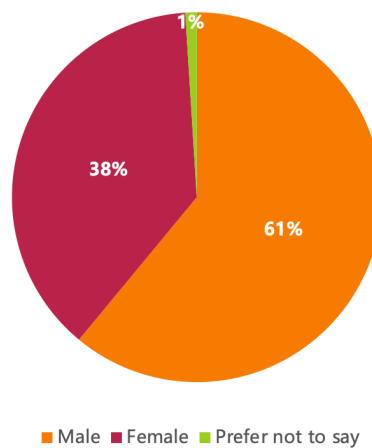
3 Sample Profile

In total, 1223 responses were received. After deleting incomplete and invalid responses, a total of 1117 usable questionnaires were retained for analysis. The removal of invalid responses ensures the quality of the data in the analysis. Most invalid responses were cases where the questionnaire was submitted without being completed. The proportion was comparable to existing research using random sample via online surveys (e.g. Conway et al., 2016).

Below is a detailed overview of the survey sample's characteristics.

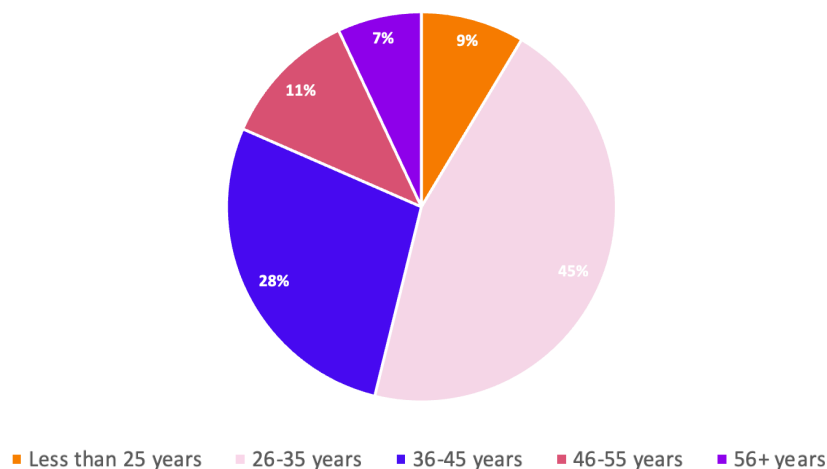
- **Gender:** Over half (61%) of respondents identified themselves as men, 38% as women, and 1% of respondents were non-binary or preferred not to say, as shown in Figure 3.1.

Figure 3.1 Participant Distribution by Gender



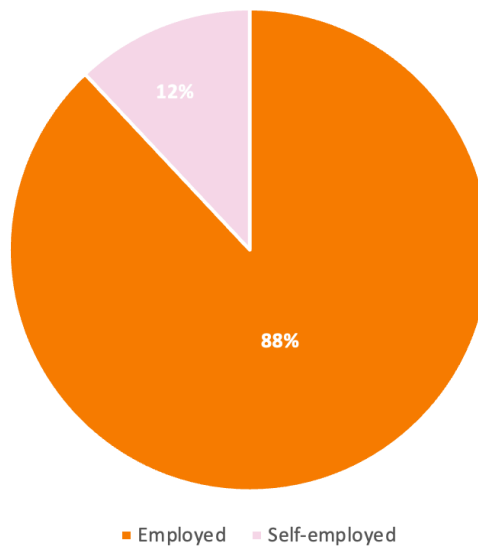
- **Age:** The average age was 37 years old (SD: 10). Almost half (45%) were aged 26–35, with another 28% in the 36–45 bracket. Younger adults (<25) represented 9%, while people aged 46 and above together account for roughly 18%, as shown in Figure 3.2.

Figure 3.2 Participant Distribution by Age



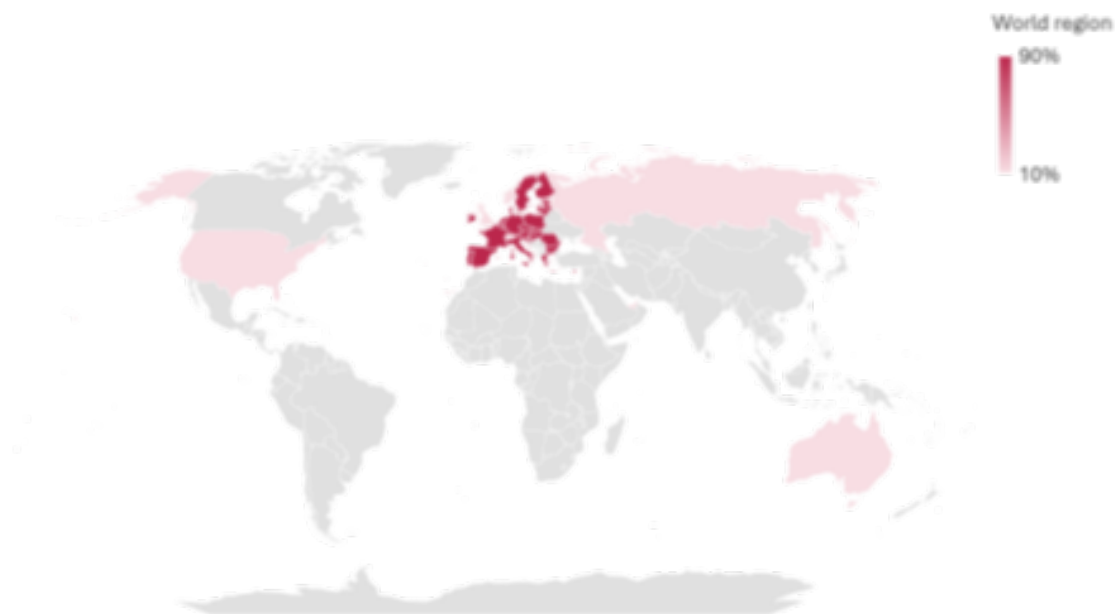
- **Employment status:** Majority (88%) were employees, whereas 12% were self-employed, confirming that standard paid employment dominates the cohort, as shown in Figure 3.3.

Figure 3.3 Participant Distribution by Employment Status



- **World region:** Majority (90%) lived in EU member states; the remaining 10% were located across other European countries (e.g., Norway, Switzerland, and the UK), North America (USA), Asia (e.g., Singapore), the Middle East (United Arab Emirates), Australia, and Russia, giving the survey international outreach.

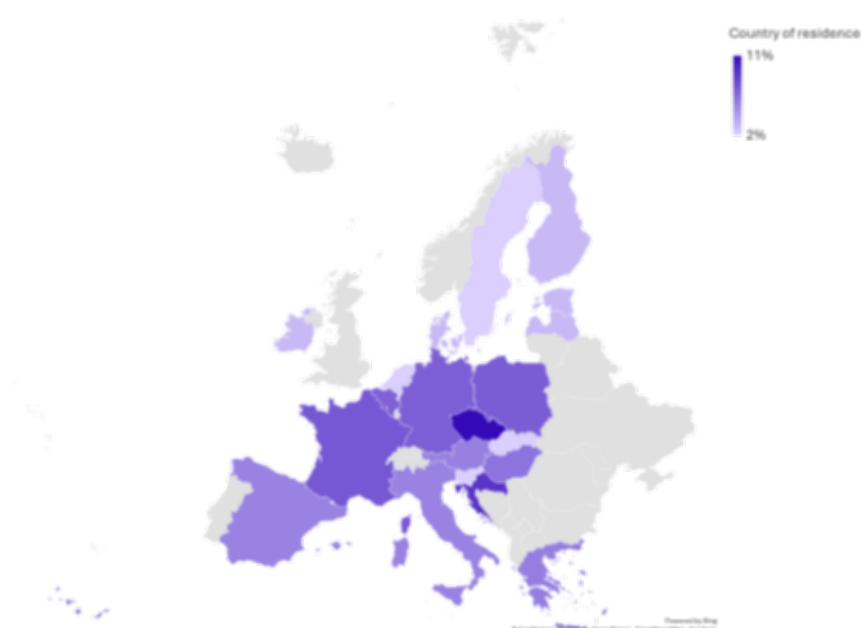
Figure 3.4 Participants' Countries



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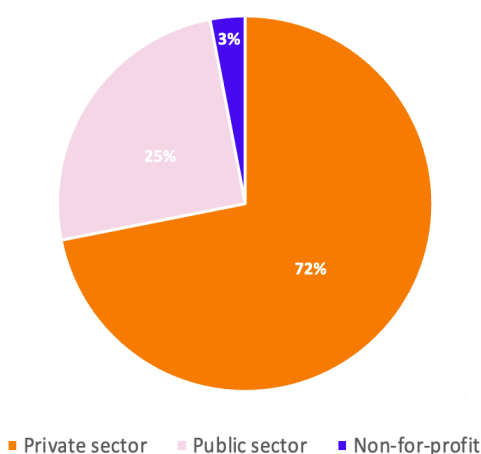
- **Country of residence (EU subsample):** Respondents from 18 EU countries participated in the survey. Within the EU subsample, France (7.4%), Poland (7.2%), Germany and Portugal (both 7.1%) represented the largest shares, followed by Hungary (6.2%), Greece (5.7%), Austria (5.6%), and Italy and Spain (both 5.5%). Participants were also recruited from Belgium, Croatia, Czech Republic, Denmark, Estonia, Finland, Ireland, Latvia, the Netherlands, Slovakia, Slovenia, and Sweden, each contributing between 2% and 5% of the EU sample. Figure 3.5 present information about these countries where participants are located.

Figure 3.5 Participants' Countries in Europe



- **Sector:** 72% worked in the private sector, 25% in the public sector and 3% in non-profits, as shown in Figure 3.6.

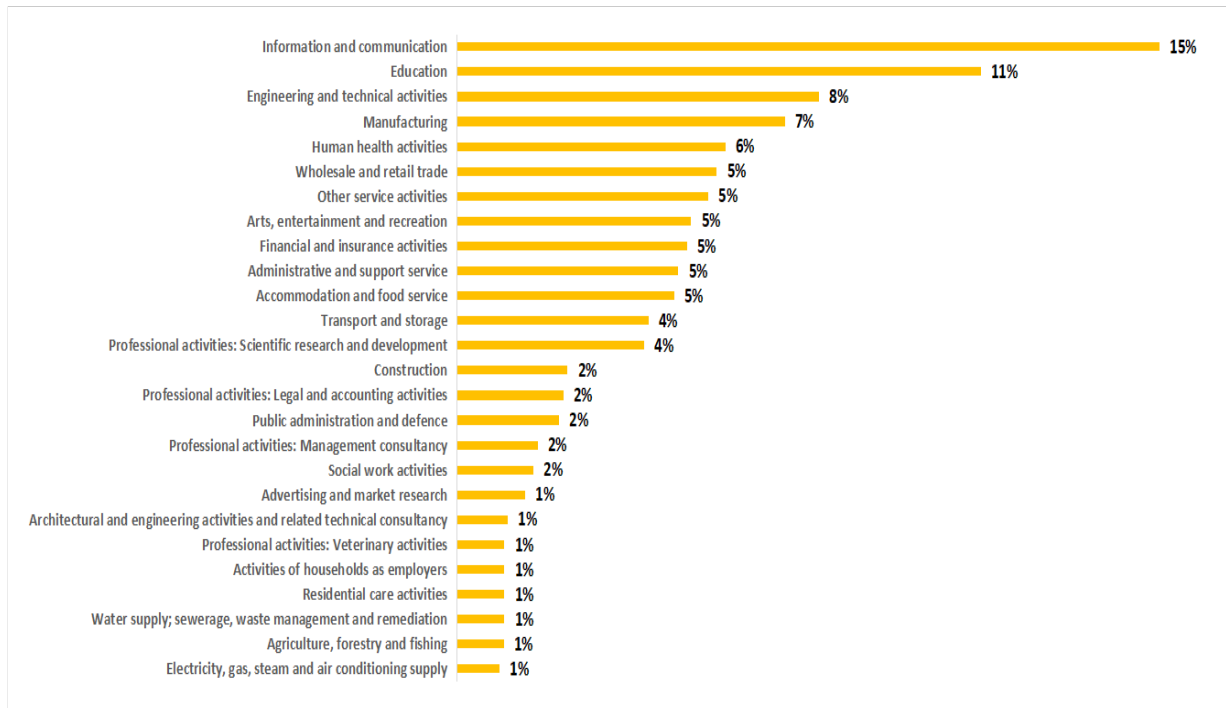
Figure 3.6 Participant Distribution by Sectors



- **Industry:** Information and communication activities represented the largest share (15%), followed by education (11%) and engineering and technical activities (8%). Manufacturing

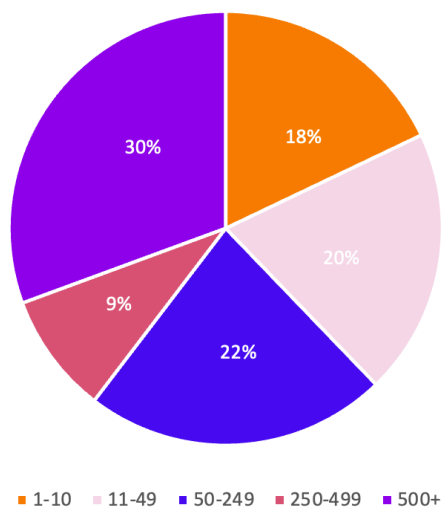
accounted for 7%, while human health activities comprised 6%. Financial and insurance activities (5%), scientific research and development (4%), and management consultancy (2%) together contributed a further 11%, indicating a predominantly knowledge-intensive profile, as shown in Figure 3.7.

Figure 3.7 Participant Distribution by Industry



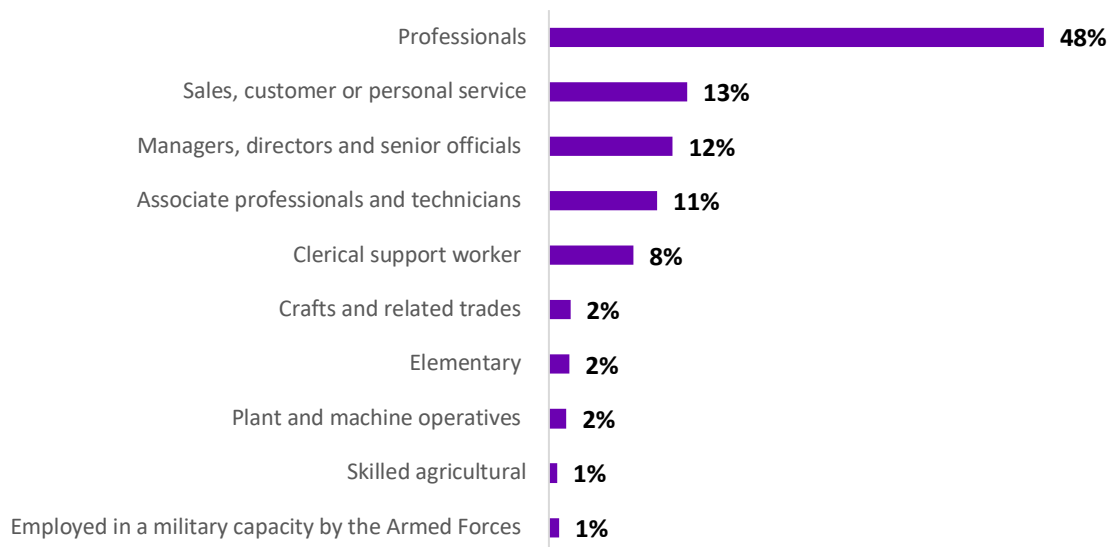
- Firm size:** Over a third of respondents (39%) worked in large organisations (250+ employees). One fifth worked (22%) in the medium-sized firms (50–249). 20% worked in small firms (11–49) and 18% worked in micro businesses (1–10), as shown in Figure 3.8.

Figure 3.8 Participant Distribution by Firm Size



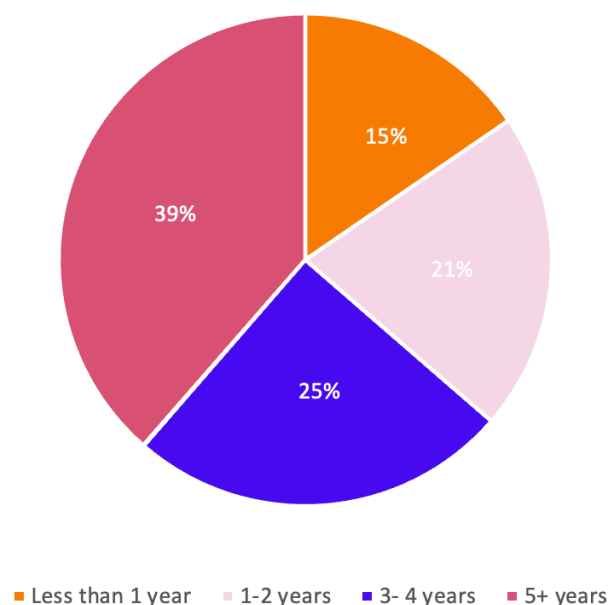
- **Occupational group:** “Professionals” dominated the sample at 48%, followed by managers, directors and senior officials (12%). Associate professionals and technicians accounted for 11%, while clerical support workers represented 8% and sales, customer or personal service roles 13%. The remaining occupational categories each comprised 1–2%, indicating a workforce that is strongly skewed toward high-skill and professional positions, as shown in Figure 3.8.

Figure 3.9 Participant Distribution by Occupational Group



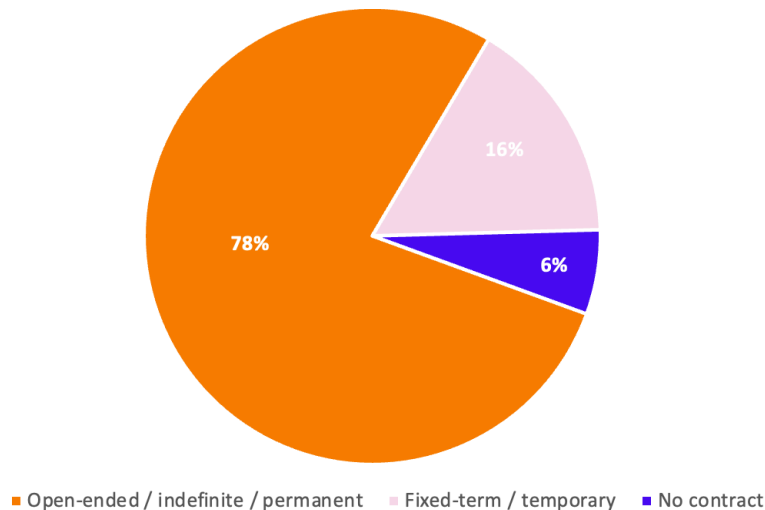
- **Length of service:** Over one third (39%) had at least five years’ tenure in their current organisation. Another 46% have 1-4 years, while 15% were newcomers with less than a year’s service, as shown in Figure 3.10.

Figure 3.10 Participant Distribution by Length of Service (Tenure)



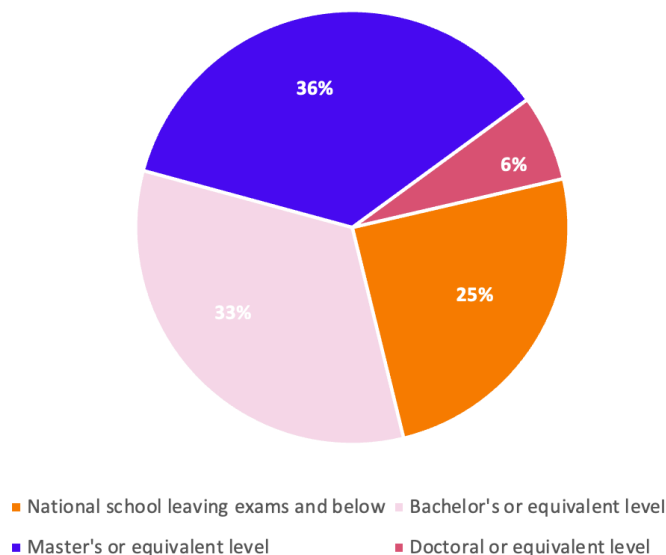
- **Contract type:** Permanent or open-ended contracts were the norm for 78% of participants; fixed-term arrangements cover 16%. A small minority reported working without a contract (6%) or under other atypical forms, as shown in Figure 3.11.

Figure 3.11 Participant Distribution by Contract Type



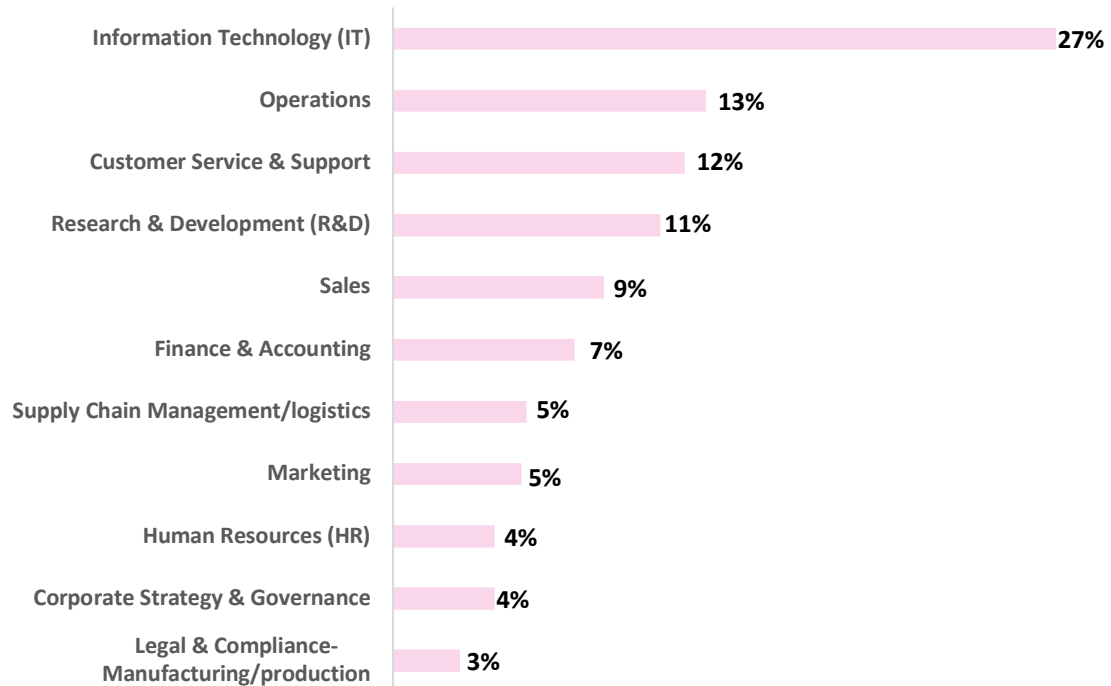
- **Education level:** The sample was highly educated: 36% held a master's degree and 6% a doctorate, meaning that 42% possessed postgraduate qualifications. A further 33% held a bachelor's degree or equivalent, while 25% had national school leaving qualifications or below. As shown in Figure 3.12.

Figure 3.12 Participant Distribution by Education Level



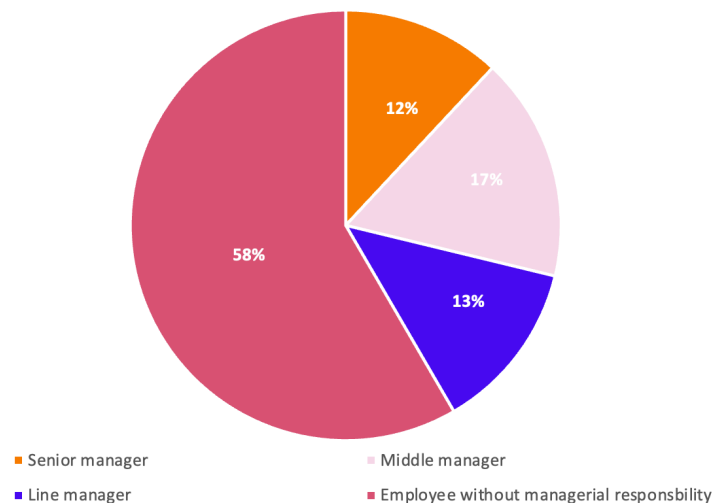
- **Functional area:** Information Technology (IT) was the most common function (27%), followed by operations (13%), customer service and support (12%), and research and development (11%). Sales accounted for 9%, while finance and accounting represented 7%. Supply chain management/logistics and marketing each comprised 5%, with human resources and corporate strategy and governance both at 4%, as shown in Figure 3.13.

Figure 3.13 Participant Distribution by Functional Area



- **Managerial levels:** Half (58%) held non-managerial positions, while senior managers (12%) and middle managers (17%) together gave the dataset a strong leadership perspective. Line managers added 13%, as shown in Figure 3.14.

Figure 3.14 Participant Distribution by Managerial Levels



4 Survey Findings

4.1 Employee Survey Findings

This section presents key findings from the employee survey, structured around three core themes. First, it examines employees' perspectives on ADTs in the workplace, including the technologies of use, motivations for ADT adoption, perceived impacts of ADTs on employee outcomes, and the barriers that hinder ADT adoption. Then, it explores the concept of human-tech skill complementarity from the employee viewpoint, focusing on reported levels of human skills, digital skills, and employee perceptions of how the two compare in importance. Finally, it assesses reskilling and upskilling activities to support this complementarity, including identified skill needs and access to training and development opportunities. Together, these insights highlight how employees are engaging with technology-driven change and what support they receive in adapting to it.

4.1.1 ADTs in the workplace: Employee's perspective

4.1.1.1 Employee ADTs usage

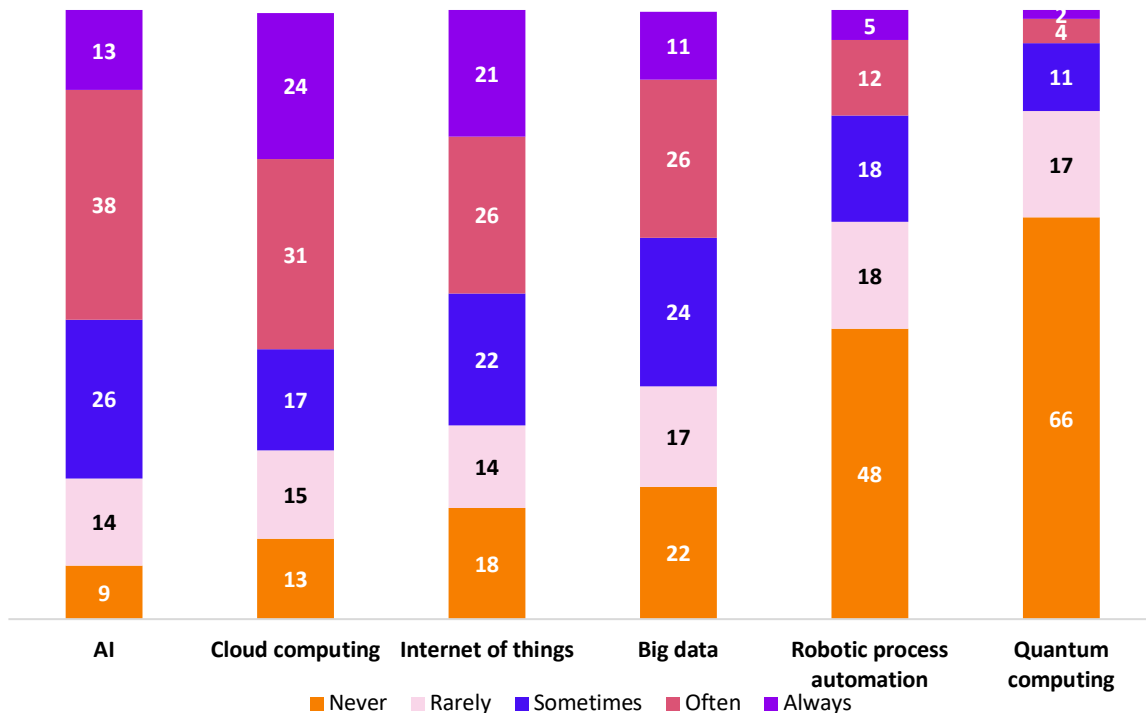
ADT usage means using abstract data types (like stacks, queues, or lists) in a program by calling their standard operations, without worrying about how they work inside (Payton, 2010). Overall, employees' self-reported use of six ADTs falls into distinct tiers: AI and cloud computing, with over half of employees using them often or always; robotic process automation and quantum computing remain in early stages, with nearly half or more employees rarely or never using them; big data and the Internet of Things (IoT) sit in the middle, with around 40% of employees engaging often or always. The results are shown in Figure 4.1.

- **Artificial Intelligence (AI):** AI tools were also widely adopted (91% overall, compared with 82% in 2025). Just over half of respondents (51%) used AI frequently (38% often and 13% always). Around one quarter (26%) reported occasional use, while 9% indicated no use.
- **Cloud computing:** Cloud services appear strongly embedded in everyday work practices (87% overall, compared with 78% in 2025). Over half of employees (55%) reported frequent use (31% often and 24% always). A further 17% used them sometimes, while 13% indicated no use.
- **Internet of Things (IoT):** IoT technologies showed strong uptake (82%, compared with 69% in 2025). Nearly half of employees (47%) used them regularly (26% often and 21% always). A further 22% reported occasional use, while 18% used them never.
- **Big data:** Regular engagement with big data tools was reported by 78% (compared with 62% in 2025). In particular, 37% indicated often (26%) and always (11%) use of big data. Almost one quarter (24%) used them sometimes, whereas 39% indicated rare (17%) or no use (22%).
- **Robotic process automation (RPA):** The use of RPA was less widespread across employees compared to other technologies, with 52% reporting some level of use. Only 17% reported frequent use (12% often and 5% always), while 18% used it occasionally and a majority (66%) reported rare or no use. This pattern likely reflects the task-specific nature

of RPA, which is typically applied to routine and process-based activities and therefore not used uniformly across all roles.

- **Quantum computing:** Engagement with quantum computing was minimal. Only 6% reported frequent use (4% often and 2% always), 11% used it sometimes, and a substantial majority (66%) reported no use. This pattern likely reflects the limited applicability of quantum computing in most day-to-day work contexts and its current use in highly specialised domains.

Figure 4.1 Employee ADTs Usage



4.1.1.2 Employee motivation for using ADTs

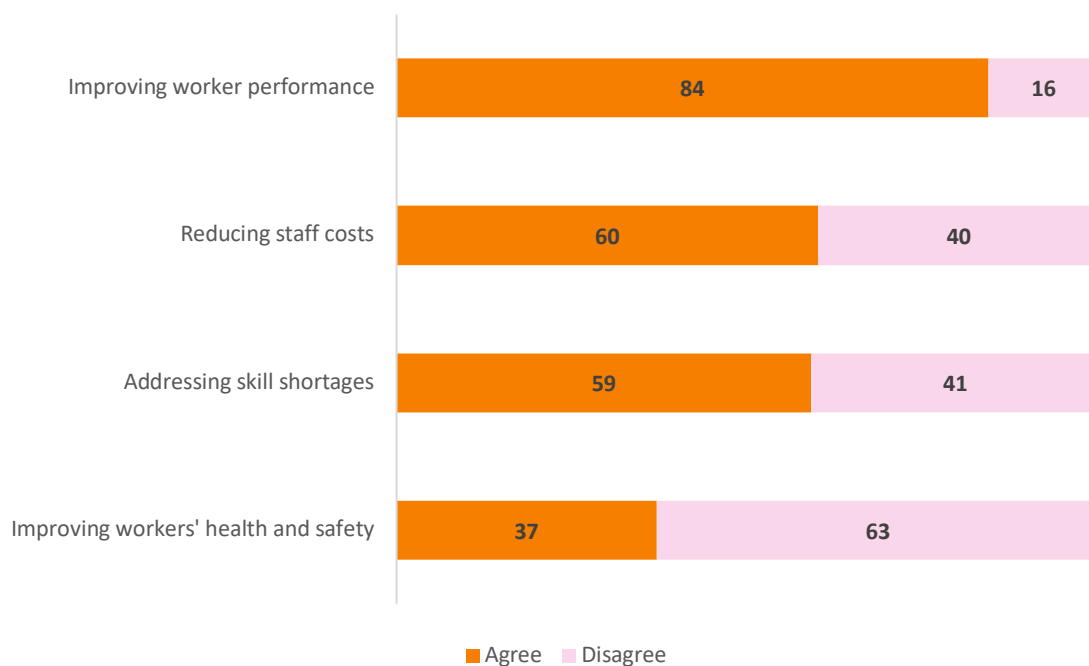
Respondents rated four potential motivations for adopting ADTs. Overall, improving worker performance emerged as the strongest driver, while improving workers' health and safety received the least support. The results are shown in Figure 4.2. Detailed findings are as follows:

- **Improving worker performance:** This was the most widely endorsed motivation for adopting ADTs. A substantial majority (84%) agreed that performance enhancement drives adoption, while only 16% disagreed, indicating broad consensus around productivity gains as a key rationale.
- **Reducing staff costs:** Cost efficiency was also an important driver. Sixty percent of respondents agreed that ADTs are adopted to reduce staffing costs, whereas 40% disagreed, suggesting some reservations regarding the financial justification for technology investments.

- **Addressing skill shortages:** A similar share (59%) agreed that ADTs help address skill shortages, while 41% disagreed. Although more than half perceived technology as a response to workforce capability gaps, a sizeable minority remained unconvinced.
- **Improving workers' health and safety:** This was the least supported motivation. Only 37% agreed that health and safety considerations drive ADT adoption, while a clear majority (63%) disagreed, indicating that wellbeing is not widely perceived as a primary factor in technology decisions.

Compared to 2025, the findings in 2026 are broadly consistent, with improving worker performance remaining the most frequently cited motivation for adopting ADTs (84% in 2026 compared with 88% in 2025). Reducing staff costs (60% vs. 65%) and addressing skill shortages (59% vs. 70%) also continued to be important drivers, although both motivations show a slight decrease compared with the previous year. Similarly, improving workers' health and safety remained the least cited motivation, declining from 44% in 2025 to 37% in 2026.

Figure 4.2 Employee Motivation for Using ADTs



4.1.1.3 Impact of ADTs on employees' outcomes

This survey asked respondents about the impact of ADTs in three aspects:

- The impact of ADTs on tasks (from 1 strongly disagree to 4 strongly agree)
- The impact of ADTs on jobs (from 1 not at all to 4 great extent)
- The impact of ADTs on employee outcomes (Positive/Negative/No Impact)

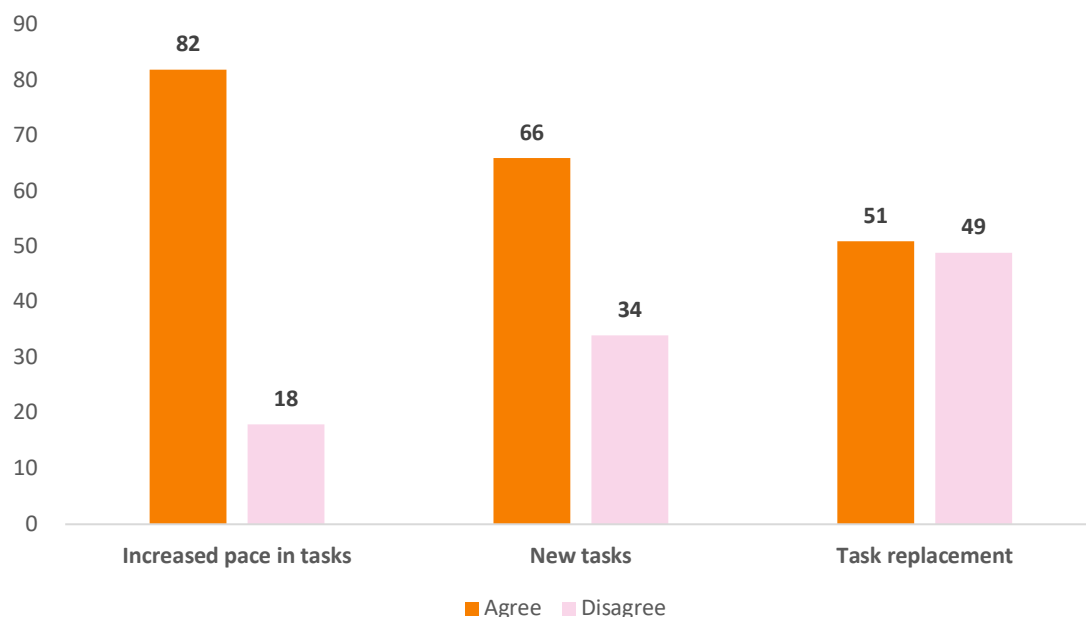
4.1.1.3.1 ADTs and tasks

Respondents were asked how ADTs have altered the nature and pace of their tasks by indicating their agreement with three statements. The results are shown in Figure 4.3.

- **Increased pace in tasks:** A large majority (82%) reported performing some of their tasks at a faster pace than before, including 52% who agreed and 30% who strongly agreed. In contrast, 18% disagreed, comprising 12% who disagreed and 6% who strongly disagreed.
- **New tasks:** 66% indicated that they now perform different or new tasks, including 53% who agreed and 13% who strongly agreed. Meanwhile, 34% disagreed, with 24% disagreeing and 10% strongly disagreeing.
- **Task replacement:** 51% reported that they no longer perform some tasks they previously did, including 45% who agreed and 7% who strongly agreed. Conversely, 49% disagreed, including 35% who disagreed and 14% who strongly disagreed.

Compared to 2025, the findings remain broadly consistent in 2026. A large majority of employees reported performing tasks at a faster pace due to ADTs (82% in 2026 compared with 84% in 2025). Similarly, the proportion of employees reporting the emergence of new tasks remained stable (66% vs. 67%). However, the perception that ADTs replace part of employees' tasks declined slightly, from 57% in 2025 to 51% in 2026.

Figure 4.3 Employee ADT Adoption and Changes in Tasks



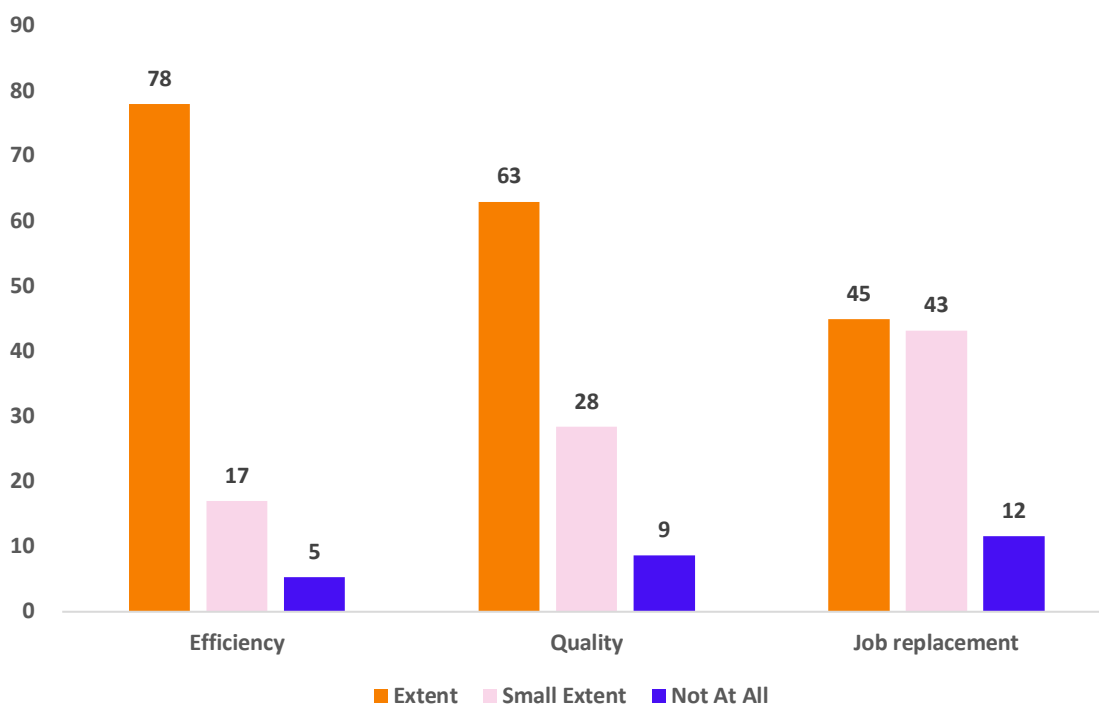
4.1.1.3.2 ADTs and jobs

Respondents were asked to what extent ADTs affected their job-related outcomes, including the extent to which ADTs replace part or all of their main job tasks (job replacement), improve work efficiency, and enhance work quality. The results are shown in Figure 4.4. While this analysis focuses on individual job-related outcomes, it does not explicitly capture the effects of ADTs on collaborative work or team interactions, which may be an important area for future research.

- **Efficiency:** A substantial majority (77%) of respondents reported that ADTs had improved their work efficiency to at least a moderate extent, including 34% to a great extent and 43% to a moderate extent. Meanwhile, 17% reported improvement only to a small extent, and 5% indicated no improvement at all.
- **Quality:** Similarly, 63% of respondents believed that ADTs had enhanced the quality of their work to a great or moderate extent (19% to a great extent and 44% to a moderate extent). In contrast, 28% reported improvement only to a small extent, and 9% saw no improvement at all.
- **Job replacement:** Nearly half (45%) indicated that ADTs could or would replace part or all of their main job tasks to a great or moderate extent (11% to a great extent and 34% to a moderate extent). However, 43% believed this would occur only to a small extent, and 12% saw no potential for job replacement.

Compared to 2025, employees in 2026 reported a less pronounced impact of ADTs on work outcomes. While majorities still perceived improvements in efficiency (77%) and quality (63%), these figures are lower than those reported in 2025 (92% and 88%). Likewise, the perceived extent of job replacement declined from 70% in 2025 to 45% in 2026.

Figure 4.4 Employee ADT Adoption and Changes in Jobs



4.1.1.3.3 ADTs and employee outcomes

In relation the direct impact of ADTs in the workplace, respondents' perceptions of how ADTs affect various aspects of their daily work are overwhelmingly positive for productivity, job satisfaction and creativity, but considerably more mixed for health & safety, managerial oversight, and overall employment. The results are shown in Figure 4.5.

- **Productivity:** A large majority (80%) reported that ADTs had a positive impact on their productivity. Eighteen percent observed no change, while 2% perceived a negative impact.
- **Job satisfaction:** More than half (57%) indicated that ADTs positively affected their job satisfaction. In contrast, 37% reported no impact, and 6% experienced a negative effect.
- **Creativity:** Half of the respondents (50%) felt that ADTs enhanced their creativity. Meanwhile, 40% saw no impact, and 10% reported a negative effect.
- **Overall employment in the organisation:** Forty-eight percent believed ADTs had a positive impact on overall employment levels, 42% observed no impact, and 10% perceived a negative effect.
- **Managers' ability to manage performance:** Forty-four percent reported a positive impact on managers' ability to manage performance, while half of respondents (50%) saw no impact and 6% viewed the effect as negative.
- **Health and safety:** Only 31% indicated that ADTs positively influenced health and safety. A majority (66%) reported no impact, and 3% experienced a negative effect.

Compared to the 2025 findings, the results remain broadly consistent, whereby the top three outcomes influenced by ADT adoption continue to be productivity, job satisfaction, and creativity. In 2026, 80% of respondents reported a positive impact on productivity, compared with 82% in 2025. This was followed by job satisfaction (57% vs. 67%) and creativity (50% vs. 61%). The perceived impact on overall employment remained stable at 48% in both years, while the perceived positive impact on managers' ability to manage performance increased slightly (44% vs. 38%). Health and safety continued to receive the lowest positive ratings (31% vs. 36%).

Figure 4.5 Employee ADT Adoption and Changes in Outcomes

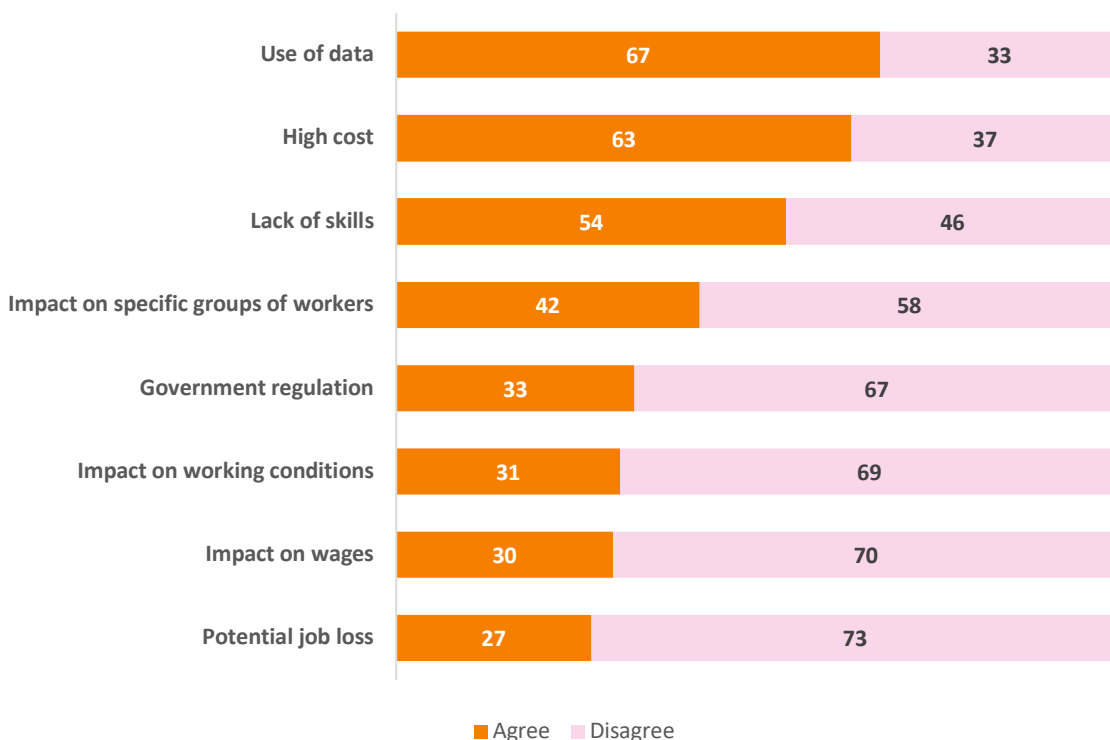


4.1.1.4 Barriers for adopting ADTs

Respondents' perceptions of barriers to adopting ADTs vary considerably. High cost and skill shortages emerge as the most widely cited obstacles, whereas concerns such as potential job loss and regulatory constraints receive more mixed support. The results are shown in Figure 4.6.

- **Use of data:** Concerns related to data use emerged as the most significant barrier, with 67% of employees agreeing that it represents an obstacle (49% agree; 19% strongly agree). In contrast, 33% disagreed.
- **High cost:** Financial cost was the second most frequently cited barrier, with 63% expressing concern (46% agree; 17% strongly agree). Meanwhile, 37% disagreed.
- **Lack of skills:** A majority (54%) agreed that insufficient skills constitute a barrier (45% agree; 9% strongly agree), while 46% disagreed.
- **Impact on specific groups of workers:** Forty-two percent agreed that ADTs may negatively affect certain groups of workers, whereas 58% disagreed, indicating that most respondents do not perceive disproportionate group-level risks.
- **Government regulation:** One-third (33%) viewed government regulation as a barrier, while a clear majority (67%) disagreed.
- **Impact on working conditions:** Only 31% believed ADTs could negatively affect working conditions, whereas 69% disagreed.

Figure 4.6 Perceived Barriers to Adopting ADTs



- **Impact on wages:** Thirty percent expressed concern about potential negative impacts on wages, while 70% disagreed.

- **Potential job loss:** Concern about job displacement was relatively limited, with 27% agreeing that ADTs may lead to job loss, compared to 73% who disagreed.

4.1.2 Human-tech skill complementarity: Employee's perspective

Human-tech skill complementarity refers to the synergistic relationship between employees and technology within an organization. It describes the dynamic interplay, collaboration, and integration between employees (skills, knowledge and abilities) and technological tools, systems. High human-tech complementarity means that employees leverage technology, and technology empowers employees to be more productive, creative, and effective (see D1.1). This concept emphasizes that neither human talent nor technology alone can maximize value: optimal outcomes arise when both complement each other (Guo et al., 2023).

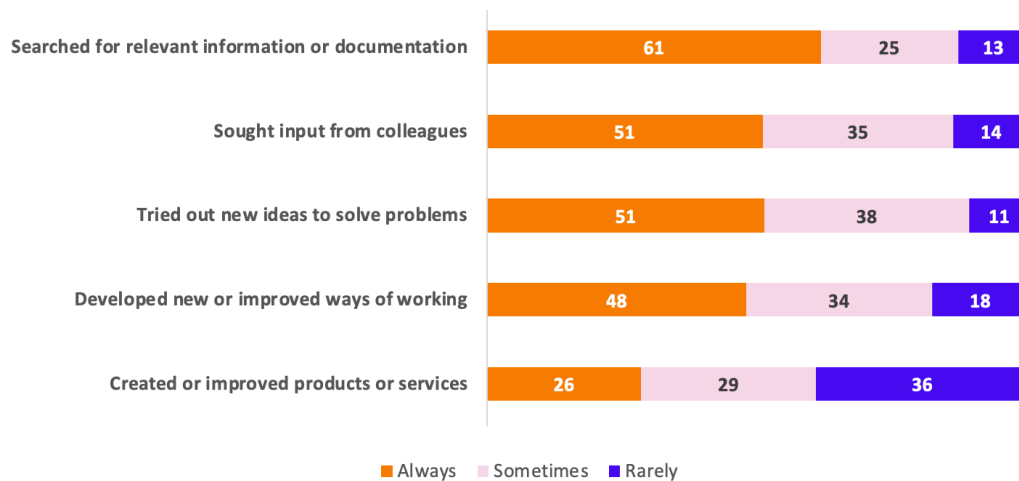
4.1.2.1 Employee human skills

4.1.2.1.1 *Problem-solving and creativity skills*

Problem-solving and creativity skill refers to an individual's ability to effectively identify, analyze, and resolve complex or novel problems by generating original and practical solutions. This skill set encompasses logical reasoning, critical thinking, flexibility, and the capacity to apply innovative approaches when confronted with challenges. Problem-solving and creativity are recognized as essential 21st-century competencies for academic, professional, and everyday success (Mumford et al., 2017). Employees self-reported how frequently they engage in various problem-solving and creative behaviors. Across all five activities, a clear majority perform them at least sometimes, with "often" and "always" accounting for well over half of responses in most cases (see Figure 4.7).

- **Searched for relevant information or documentation:** A majority (61%) engaged in problem-solving through information retrieval, with 18% always and 43% often searching for resources such as books or online materials. Another 25% did so occasionally, while 9% rarely did, and 4% reported never doing so.
- **Sought input from colleagues:** Collaboration (51%) played a key role in problem-solving, with 12% always and 39% often seeking help from others. Over a third (35%) did so occasionally, while fewer engaged rarely (10%) or not at all (4%).
- **Tried out new ideas to solve problems:** Most employees (51%) took an experimental approach to challenges: 12% always and 39% often tried new ideas. Another 38% did so occasionally, with relatively few reporting rare (9%) or no engagement (2%).
- **Developed new or improved ways of working:** Improvements to workflows were reported by 48% on a frequent basis, with 11% always and 37% often seeking better ways of doing their work. Another 34% did this sometimes, while a minority rarely (14%) or never (4%) did so.
- **Created or improved products or services:** Innovative contributions were less common. Eight percent always and 28% often tried to develop or enhance products or services (36% in total), while 29% did so occasionally. However, 20% rarely and 16% never engaged in this type of activity.

Figure 4.7 Human Skills: Self-Rated Problem-Solving and Creativity Skills



4.1.2.1.2 Interpersonal skills

Interpersonal job-skill refers to the abilities that enable individuals to interact effectively and harmoniously with others in the workplace. These skills include communication, teamwork, conflict resolution, empathy, active listening, and relationship-building. Strong interpersonal job-skills are essential for collaborating with colleagues, managing workplace dynamics, and contributing positively to organizational goals (Robles, 2012). In the context of increasing adoption of advanced digital technologies (ADTs), these skills play a critical role in enabling effective human-technology collaboration. As digital tools become more integrated into work processes, interpersonal skills support coordination, communication, and the successful implementation of technology in team-based and organisational settings. Respondents rated how frequently they perform a range of interpersonal tasks at work. Overall, team-based activities and customer interactions are very common, while persuasive and support-oriented tasks occur less often. The results are shown in Figure 4.8.

Figure 4.8 Human Skills: Self-Rated Interpersonal Job Skills



- **Worked in a team:** Teamwork was highly prevalent, with 24% always and 38% often collaborating with others to achieve shared objectives. A further 25% did so sometimes, while a minority rarely (10%) or never (3%) worked in teams.
- **Provided advice or counselling:** This was also common, with 14% always and 36% often offering guidance or support to others. Thirty-one percent did so occasionally, while 14% rarely and 6% never took on this role.
- **Interacted with external stakeholders:** Engaging with people outside their organisation, such as clients or customers, was moderately common: 21% always and 24% often. Twenty-four percent did so sometimes, while 17% rarely and 15% never had such interactions.
- **Presented products, services, or ideas:** Just under a third (32%) reported doing this regularly: 8% always and 24% often. Twenty-nine percent did so occasionally, while 23% rarely and 16% never engaged in presentations.
- **Taught or trained others:** Ten percent always and 20% often took part in teaching or training. Thirty percent did this occasionally, while 24% rarely and 16% never engaged in these activities.
- **Provided emotional support or personal care:** This was less frequent: only 8% always and 21% often offered such support. Twenty-six percent did so occasionally, while 26% rarely and 19% never provided it.
- **Tried to convince others to do or buy something:** This was the least common activity. Only 6% always and 14% often attempted persuasion. Twenty-two percent did so sometimes, while a clear majority reported doing so rarely (23%) or never (35%).

4.1.2.2 Employee digital skills

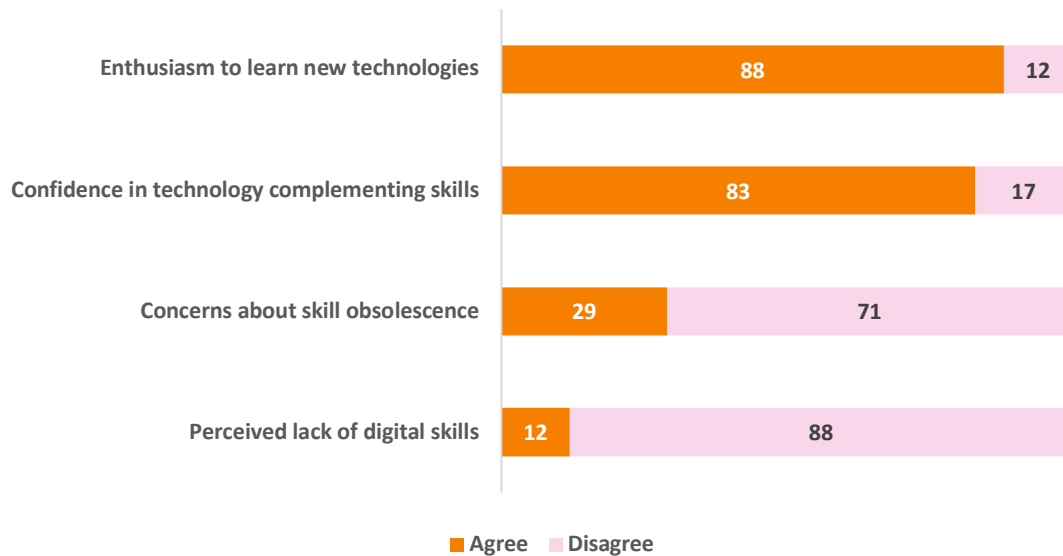
4.1.2.2.1 Employee experience with ADT adoption in the workplace

Employees were asked to indicate their agreement with four statements measuring how ADTs complement their skills. Overall, respondents express strong enthusiasm and confidence that ADTs enhance their capabilities, and only a minority believe these technologies devalue their skills or that they lack the necessary skills to work with them. These findings may, however, reflect a degree of self-selection bias, as individuals with a stronger interest in or more positive attitudes towards digital technologies may have been more likely to participate in the survey. The results are shown in Figure 4.10.

- **Enthusiasm to learn new technologies:** The overwhelming majority (88%) expressed eagerness to learn how to work with new technologies: 55.9% agreed and 32.4% strongly agreed. Only 11.7% disagreed, including 9.9% who disagreed and 1.8% who strongly disagreed, reflecting a broadly positive mindset toward digital upskilling.
- **Confidence in technology complementing skills:** A strong majority (83%) felt confident that new technologies would complement their existing skills: 62.1% agreed and 21% strongly agreed. Meanwhile, 17% expressed doubt, including 14.3% who disagreed and 2.6% who

strongly disagreed, suggesting widespread optimism about technology enhancing rather than replacing capabilities.

Figure 4.9 Digital Skills: Employee Experience with ADT Adoption



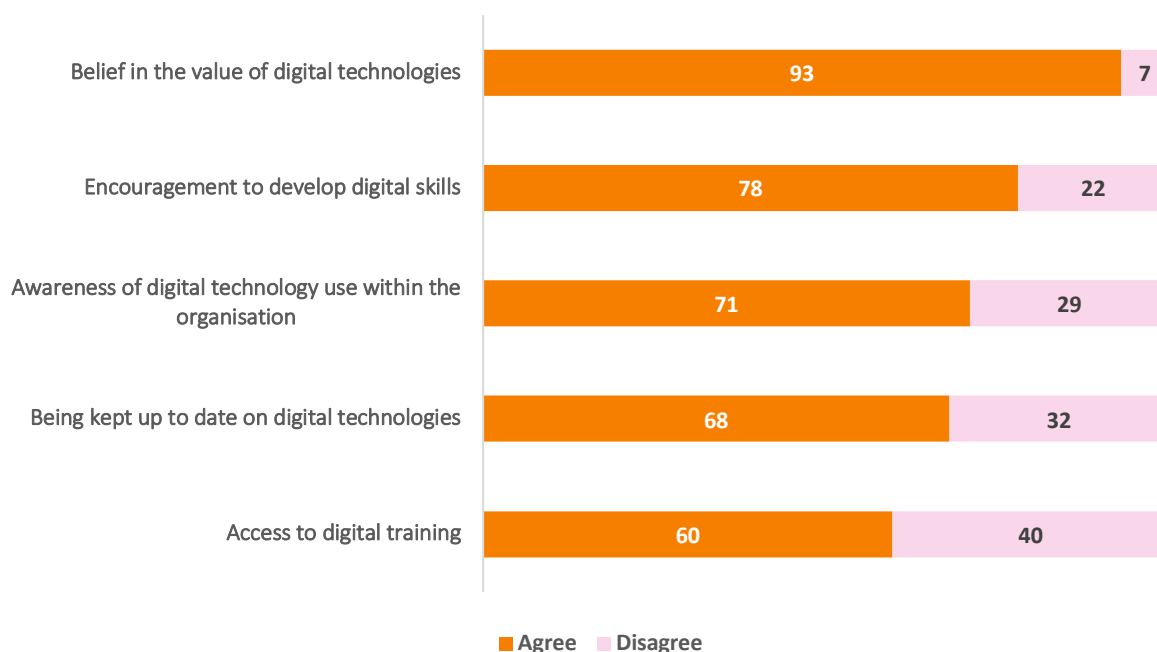
- **Concerns about skill obsolescence:** Twenty-nine percent agreed that new technologies could make their current skills less valuable (23.7% agreed and 5% strongly agreed). In contrast, 71% disagreed, including 50.9% who disagreed and 20.4% who strongly disagreed, indicating generally high confidence in the continued relevance of existing expertise.
- **Perceived lack of digital skills:** Only 12% believed they lacked the skills to work with new technologies (10.9% agreed and 1.1% strongly agreed). A strong majority (88%) disagreed, including 46.6% who disagreed and 41.5% who strongly disagreed, indicating broad self-assurance in digital readiness.

4.1.2.2.2 Employee experience with ADT implementation in the workplace

Respondents' views on how well their organizations support the actual deployment of ADTs are mixed. While most employees feel encouraged to build their digital skills and receive at least some training, a majority remain unconvinced of ADT's intrinsic value, and a substantial minority report inadequate communication about how these tools are used in practice. The results are shown in Figure 4.9.

- **Belief in the value of digital technologies:** An overwhelming majority (93%) expressed belief in the value of adopting digital technologies. Only 7% disagreed, indicating very strong overall support for digital transformation.
- **Encouragement to develop digital skills:** The majority (78%) felt encouraged to build new digital skills. However, 22% did not feel the same, suggesting some variation in organisational support.

Figure 4.10 Digital Skills: Employee Experience with ADTs Implementation



- **Awareness of digital technology use within the organisation:** A majority (71%) agreed they were aware of how digital technologies were being used in their organisation. Still, 29% disagreed, pointing to possible gaps in visibility or internal communication.
- **Being kept informed on digital developments:** More than two thirds (68%) reported being kept up to date on important digital issues, while 32% disagreed, highlighting room for improvement in internal updates and transparency.
- **Access to digital training:** Sixty percent agreed they had access to training to stay current with technological developments, whereas 40% disagreed, indicating that access to upskilling opportunities may be uneven or insufficient in some areas.

The findings suggest a gap between the adoption of ADTs and their effective implementation in practice, highlighting the importance of organisational support, communication, and training in realising the full benefits of digital technologies.

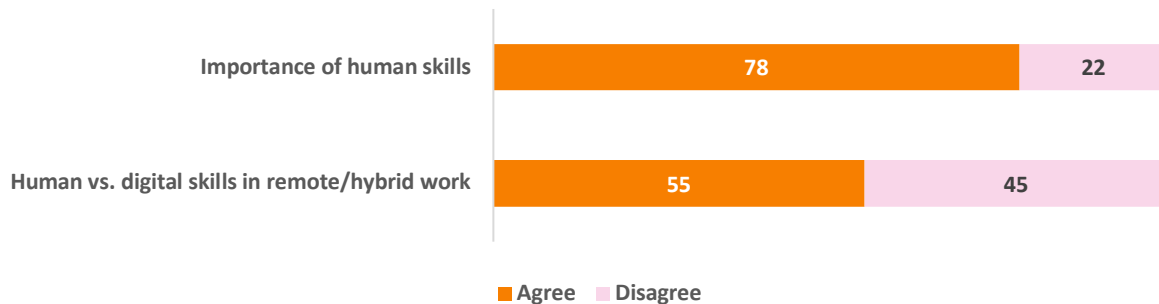
4.1.2.3 Human versus digital skills: Employee's perspective

Employees' agreement with their organization's systems for technology reveals strong support for both human and digital skill development and hybrid work options, alongside divided views on the relative importance of human versus digital skills in remote settings. The results are shown in Figure 4.11.

- **Importance of human skills:** A strong majority (78%) agreed that human skills were becoming increasingly important: 54% agreed and 24% strongly agreed. Only 22% disagreed, and none strongly disagreed, reflecting widespread recognition of the enduring value of interpersonal and cognitive abilities.
- **Human vs. digital skills in remote/hybrid work:** Over half (55%) of respondents believed that human skills were more essential than digital skills in remote or hybrid work contexts.

However, 45% disagreed, suggesting that many employees perceive both human and digital skills as equally important in flexible work environments.

Figure 4.11 Employee Experience with Human versus Digital Skills

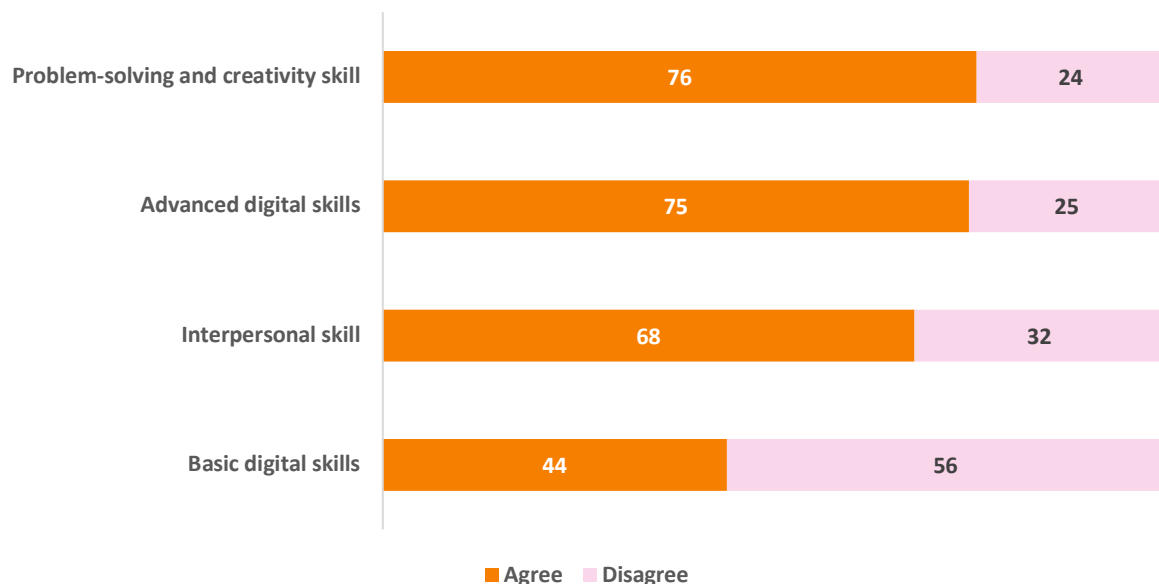


4.1.3 Employee reskilling and upskilling for complementarity

4.1.3.1 Employee human and digital skill needs

Employees were asked to identify which skills they believed would be most important for their future work. Respondents rated their agreement with the need for advanced digital skills, basic digital skills, interpersonal skills, problem-solving and creativity skills. The results are shown in Figure 4.12.

Figure 4.12 Employee Identified Future Skill Needs



- **Problem-solving and creativity skills:** The vast majority (76%) agreed that creative problem-solving would become increasingly important: 59% agreed and 17% strongly agreed. Only 24% disagreed (20% disagree; 4% strongly disagree), suggesting a strong consensus around the value of these capabilities in the evolving workplace.
- **Advanced digital skills:** A large majority (75%) believed that advanced digital competencies would be essential in the future: 49% agreed and 26% strongly agreed. Twenty-five

percent disagreed (17% disagree; 8% strongly disagree), indicating widespread recognition of the growing demand for high-level technical expertise.

- **Interpersonal skills:** A majority (68%) agreed that interpersonal skills would remain important: 50% agreed and 18% strongly agreed. However, 32% disagreed (27% disagree; 5% strongly disagree), suggesting that while widely valued, these skills are viewed by some as less critical in increasingly digital contexts.
- **Basic digital skills:** Only 44% agreed that basic digital skills would be important going forward: 34% agreed and 10% strongly agreed. In contrast, 56% disagreed (34% disagree; 22% strongly disagree), signalling that foundational digital literacy may no longer be seen as a key differentiator in the future job market.

4.1.3.2 Employee human and digital skill development

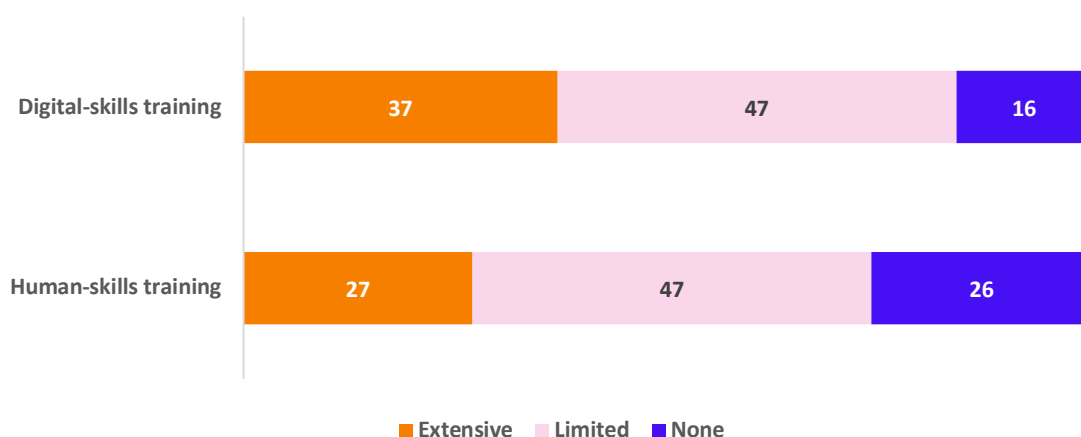
Skills development refers to the process of improving, enhancing, or acquiring new abilities, competencies, and knowledge that are necessary for effective performance in current or future jobs. This process can occur through formal education, training programs, on-the-job learning, self-directed study, or experiential learning. Skills development is essential for individual career advancement, organizational growth, and adapting to changes in the labour market or technology (McGrath, 2002).

4.1.3.2.1 Employee training content: Focused on human versus digital skills

Employees were asked to assess the scope of training opportunities offered in their organisations, distinguishing between human-skills and digital-skills programs. As shown in Figure 4.13, digital-skills training was reported as both more widely available and more comprehensive than training focused on human skills.

- **Digital-skills training:** Thirty-seven percent viewed digital-skills training as extensive, 47% described it as limited, and 16% reported having no access to digital-skills training.
- **Human-skills training:** Only 27% of respondents characterised human-skills training as extensive. A further 47% described it as limited in scope, while 26% stated that no such programmes were offered.

Figure 4.13 Employee Identified Training Content Focused on Human vs. Digital Skills



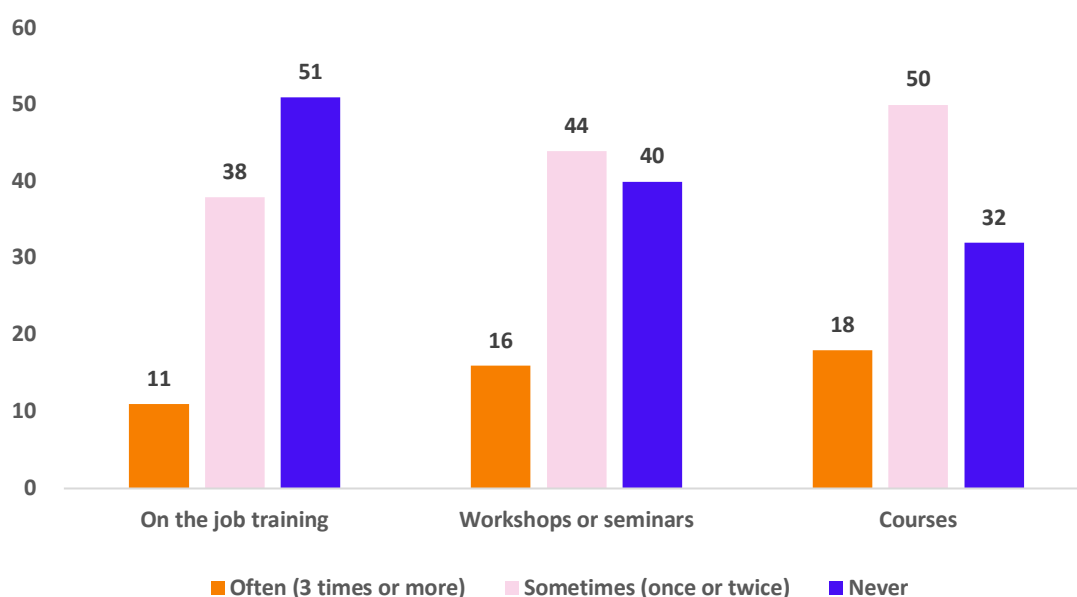
When compared with last year's findings where 76% of employees emphasised the importance of problem-solving and creativity skills and 68% highlighted the value of interpersonal skills, the current data show that access to human-skills training remains uneven. Although 74% report at least some access to such training, only 27% consider it extensive, suggesting a moderate gap between perceived importance and depth of provision. Similarly, while digital skills were also considered essential last year (75% for advanced digital skills and 44% for basic digital skills), 84% now report at least some access to digital-skills training. However, with fewer than four in ten (37%) describing this training as extensive, the data indicate that although provision is relatively widespread, its intensity may still fall short of strategic workforce development needs.

4.1.3.2.2 *Employee digital skills training modalities*

Most employees participated in some form of digital-skills training over the past year, though the frequency and delivery methods varied. As shown in Figure 4.14, short-form learning formats such as courses and workshops were more common, while structured, on-the-job training remained less prevalent.

- **Courses (e.g., online or classroom-based):** Half of respondents (50%) enrolled once or twice, while 18% completed three or more courses. However, nearly one-third (32%) had not taken any formal courses.
- **Workshops or seminars:** Forty-four percent attended one or two sessions, while 16% participated three or more times. A substantial proportion (40%) reported no participation at all.
- **On-the-job training:** This was the least common format. Over half (51%) reported never receiving such training, 38% did so once or twice, and only 11% engaged three or more times.

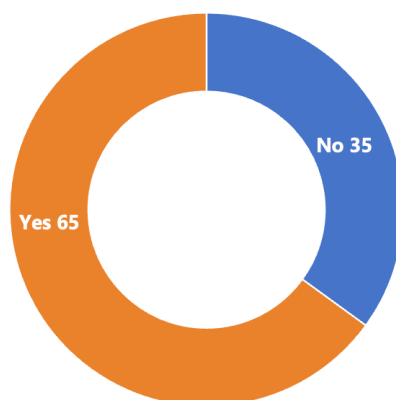
Figure 4.14 Employee Digital Skills Training Modalities (Last 12 Months)



4.1.3.2.3 *Employee perceived training offers: Employer Sponsorship*

Employees were asked whether at least one of their digital-skills training activities in the past 12 months was either fully or partially funded by their employer or conducted during paid working time. The results are shown in Figure 4.15.

Figure 4.15 Employee-Reported Employer Sponsorship in Training



- **Yes:** Majority (65%) respondents reported that at least one training activity was employer-sponsored or took place during paid working hours.
- **No:** The rest (35%) indicated that none of their training was funded by the employer or conducted during paid time.

4.2 Manager Survey Findings

This section presents the key findings from the manager survey, organised into three main subsections. First, it presents the findings on how managers perceive the role of ADTs in the workplace, including their impact on firm outcomes, the resulting shifts in skill demands, and how organisations are responding to address emerging skill gaps. Then, it explores the dynamics of human-tech skill complementarity from a managerial perspective, providing an overview of current human and digital skill needs and managers' views on their relative importance. Finally, it focuses on how organisations are approaching reskilling and upskilling to support this complementarity, including strategies for human and digital skill development. Together, these findings offer a comprehensive view of how leaders are navigating talent, technology, and transformation.

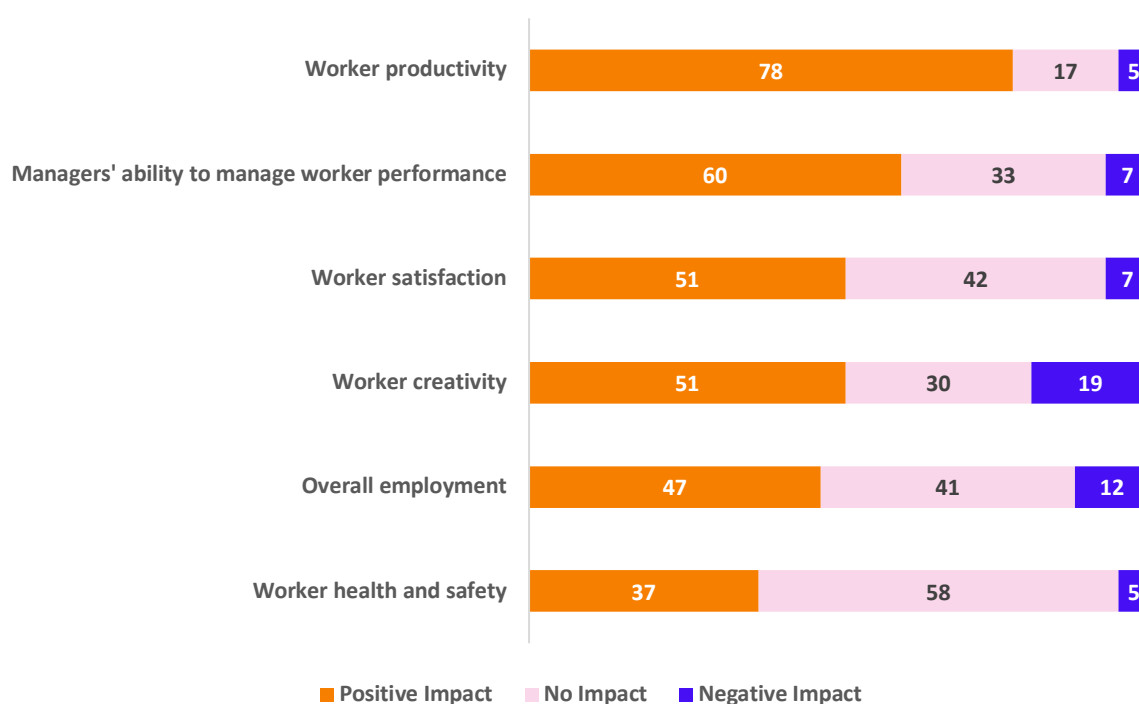
4.2.1 ADTs in the workplace: Manager's perspective

4.2.1.1 Impact of ADTs on firms' outcomes

Managers were asked to report the effects of ADTs on key workforce metrics. The results are shown in Figure 4.16.

- **Worker productivity:** Majority of managers (78%) report that ADTs increase productivity, 17% see no effect, and 5% perceive a negative impact.
- **Managers' ability to manage worker performance:** 60% of respondents believe ADTs improve managerial oversight, 33% report no change, and 7% perceive a negative effect.

Figure 4.16 Manager-Reported Impact of ADTs on Firm's Outcomes



- **Worker satisfaction:** 51% of managers indicate that ADTs boost employee satisfaction, 42% observe no change, and 7% report a decline.
- **Worker creativity:** 51% of managers perceive a positive effect of ADTs on creativity, 30% see no impact, and 19% note a negative impact.
- **Overall employment in the organisation:** 47% of managers report a positive impact of ADTs on employment levels, 41% see no effect, and 12% observe a negative impact.
- **Worker health and safety:** 37% of managers see a positive impact of ADTs on health and safety, 58% report no impact, and 5% note a negative effect.

4.2.1.2 ADTs and skills shift

In addition, managers were asked whether ADTs have changed skill requirements in their company. The results are shown in Figure 4.17.

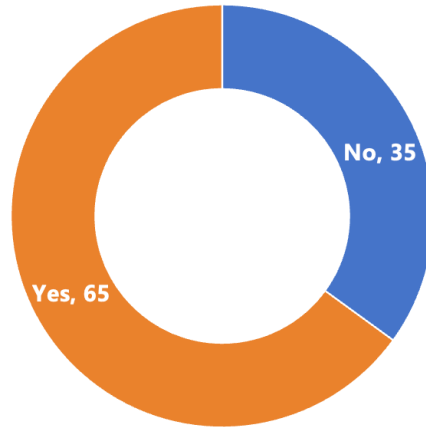
- **Yes:** 65% of managers believe that ADTs have altered the skills their workforce needs.
- **No:** 35% of managers report no noticeable change in required skills.

These findings reveal that nearly two-thirds of firms (65%) recognize a tangible shift in competencies driven by digital adoption. In practice, managers in the "Yes" group often cite growing demand for data-analysis capabilities, AI and automation literacy, and proficiency with new software platforms. They also emphasize the rising importance of meta-skills, adaptability, continuous learning, and cross-functional collaboration, to integrate these technologies effectively into day-to-day operations.

By contrast, the 35% of managers reporting no change tend to work in sectors where ADTs have been used primarily to optimize existing routines rather than transform job content. While they

may have deployed new tools, the underlying tasks and skill sets remain largely intact. However, as digital technologies continue to evolve rapidly, these organizations risk being caught unprepared — what appears as stability today may become a critical skills gap tomorrow.

Figure 4.17 Manager-Reported Influence of ADTs on Shifting Skill Requirements

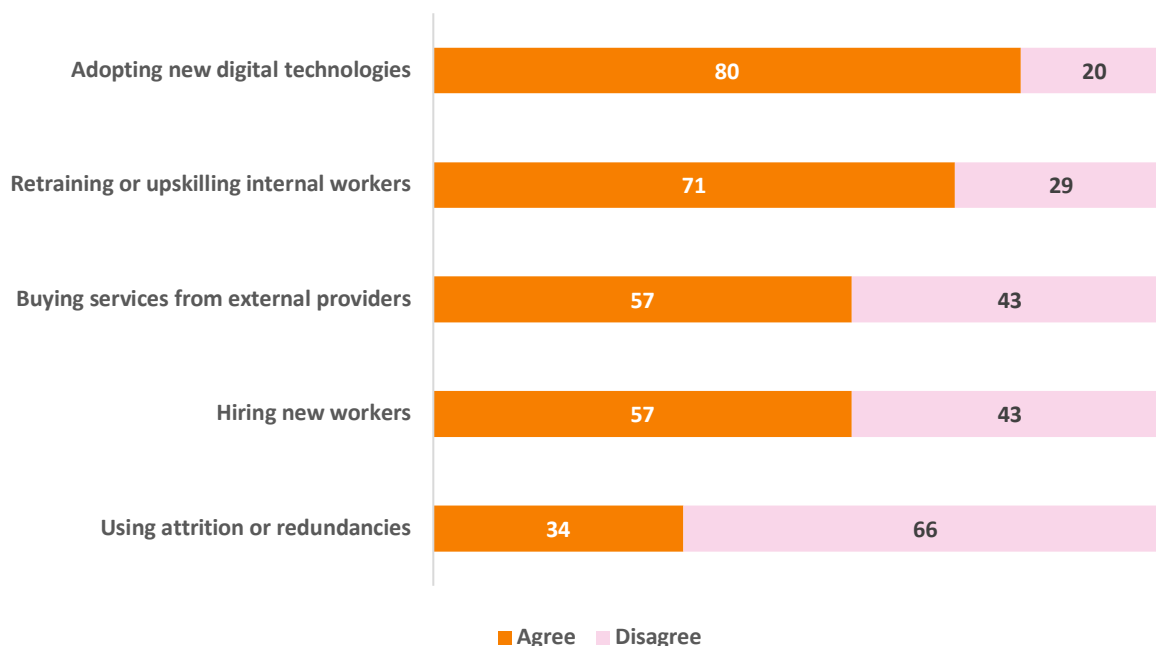


4.2.1.3 Organisation's responses to address skill shifts and gaps

Managers were asked how their organisations responded to emerging skill gaps, using strategies ranging from digital investments to staffing adjustments. As shown in Figure 4.18, adopting new technologies and retraining internal staff emerged as the most common approaches, while reducing headcount was the least preferred.

- Adopting new digital technologies:** A strong majority (80%) reported that their organisations were responding to skill needs by rolling out new digital tools: 55% agreed and 25% strongly agreed. Twenty percent disagreed, including 15% who disagreed and 5% who strongly disagreed.
- Retraining or upskilling internal workers:** Seventy-one percent indicated that their companies prioritised internal development: 56% agreed and 15% strongly agreed. Twenty-nine percent disagreed, including 21% who disagreed and 8% who strongly disagreed.
- Buying services from external providers:** Fifty-seven percent noted that their organisations brought in external expertise to meet specific skill needs: 42% agreed and 15% strongly agreed. Meanwhile, 43% disagreed (32% disagree; 11% strongly disagree).
- Hiring new workers:** Fifty-seven percent said that recruiting new talent was used to close skill gaps: 45% agreed and 12% strongly agreed. Forty-three percent disagreed, including 33% who disagreed and 10% who strongly disagreed.
- Using attrition or redundancies:** Thirty-four percent supported workforce reductions as a response to skill shifts: 30% agreed and 4% strongly agreed. A clear majority (66%) disagreed, including 52% who disagreed and 14% who strongly disagreed, making it the least supported option.

Figure 4.18 Manager-Reported Methods Used to Address Skill Gaps



4.2.2 Human-tech skill complementarity: Manager's perspective

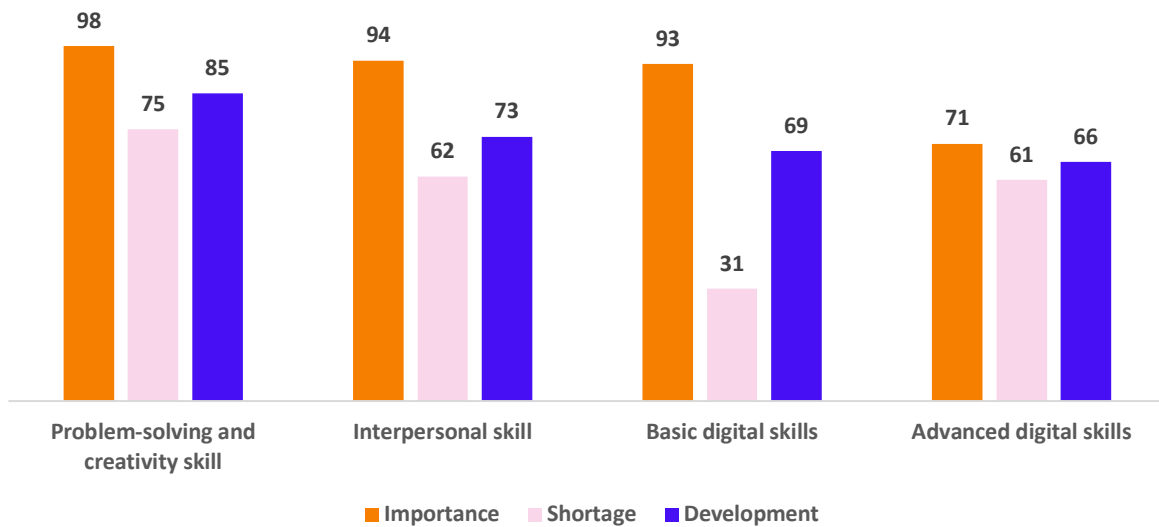
4.2.2.1 Human and digital skills: Overview

Managers were asked to evaluate both human and digital skills across three dimensions: their importance in recruitment, the extent of skill shortages, and future plans for development. This section first provides an overview of how these skill categories compare across the three dimensions, followed by a more detailed breakdown of each dimension.

Figure 4.19 provides an overview of how managers assessed four key skill categories: two human (problem-solving and creativity; and interpersonal skills) and two digital (basic and advanced digital skills) across importance in recruitment, reported shortages, and development plans.

- For **human skills**, there was **strong alignment**: both problem-solving & creativity and interpersonal skills were rated highly in importance (98% and 94%), seen as facing significant shortages (75% and 62%), and were the focus of substantial development efforts (85% and 73%). This indicates a broadly coherent and proactive approach to addressing human skill needs, although perceived shortages in interpersonal skills were somewhat lower than previously reported.
- In contrast, **digital skills showed more divergence**. Basic digital skills were considered highly important (93%) but showed a relatively low level of perceived shortage (31%) and moderate development focus (69%). Advanced digital skills revealed a clearer imbalance: although 71% rated them as important, 61% reported shortages, while only 66% indicated development efforts in this area. This suggests that, compared to human skills, digital capability development—particularly at the advanced level—may not yet be fully aligned with perceived skill gaps.

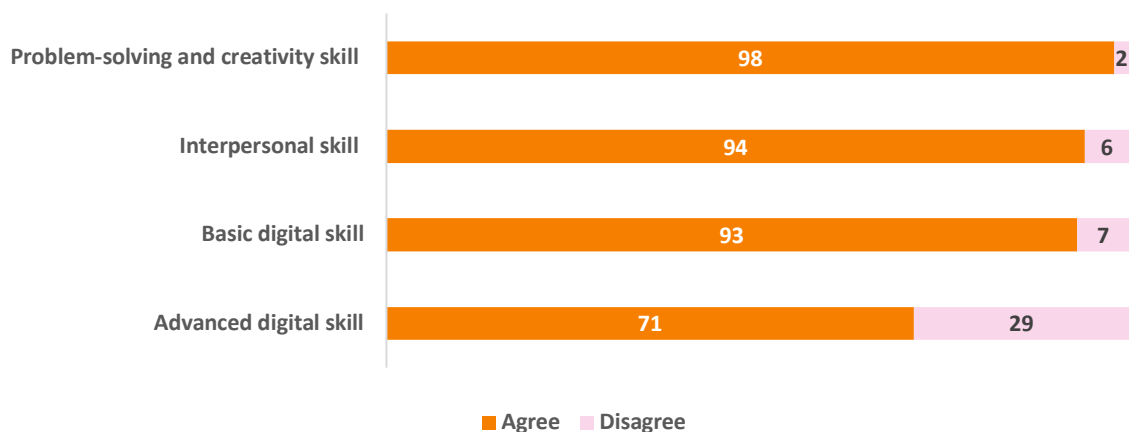
Figure 4.19 Manager-Reported Human and Digital Skills: Importance, Shortage and Development



4.2.2.1.1 Human and digital skill importance

Managers were asked to assess the importance of various skill categories when recruiting new employees. As shown in Figure 4.20, higher-order cognitive and interpersonal skills topped the list, with strong support also expressed for basic digital capabilities. Advanced digital skills, while still valued, received comparatively lower emphasis.

Figure 4.20 Manager-Reported Human and Digital Skills Importance in Recruitment



- **Problem-solving and creativity skill:** These skills were also highly valued, with 98% agreement: 54% strongly and 44% moderately. Just 2% expressed disagreement.
- **Interpersonal skills:** Nearly all managers (94%) rated interpersonal abilities as important for recruitment, with 43% strongly agreeing and 51% agreeing. Only 6% disagreed.
- **Basic digital skills:** Similarly, 93% viewed basic digital literacy as essential, including 50% who strongly agreed and 43% who agreed. Just 7% disagreed.

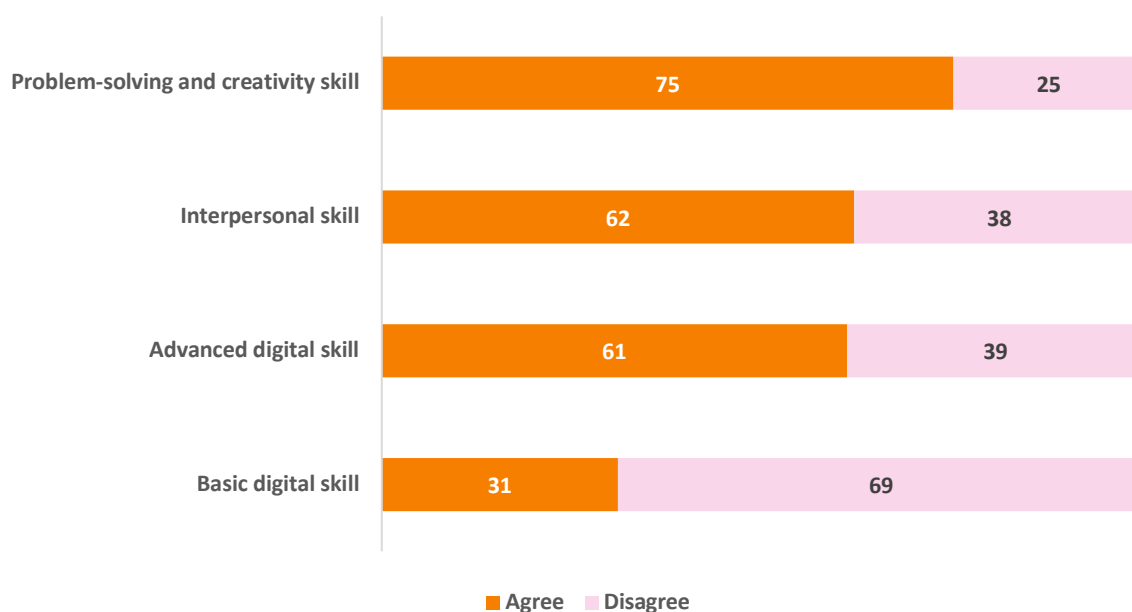
- **Advanced digital skills:** While still recognised, 71% considered advanced digital competencies important: 21% strongly agreed and 50% agreed. Twenty-nine percent disagreed, indicating a more divided view compared to other skill categories.

4.2.2.1.2 Human and digital skill shortage

Managers were then asked to identify perceived shortages in the same skill areas. Skill shortages can occur due to rapid technological change, shifts in labour market demand, inadequate education or training systems, or demographic factors. These shortages can hinder productivity, innovation, and economic growth (Brunello, & Wruuck, 2021). As shown in Figure 4.21, the largest gaps were reported for problem-solving and creativity skill and advanced digital skill, while shortages in interpersonal abilities were moderate and basic digital literacy was seen as largely sufficient.

- **Problem-solving and creativity skill:** Three in four managers (75%) believed candidates lacked these skills: 29% strongly agreed and 46% agreed. A quarter (25%) disagreed (23% disagree; 2% strongly disagree).
- **Interpersonal skills:** Sixty-two percent noted gaps in interpersonal abilities (18% strongly agreed; 44% agreed), while 38% disagreed (35% disagree; 3% strongly disagree).
- **Advanced digital skills:** A similar concern emerged here, with 61% reporting a shortage: 22% strongly agreed and 39% agreed, while 39% disagreed (33% disagree; 6% strongly disagree).
- **Basic digital skills:** Only 31% identified a shortage in basic digital literacy (11% strongly agreed; 20% agreed). A clear majority (69%) disagreed, including 46% who disagreed and 23% who strongly disagreed, suggesting this is not a pressing concern.

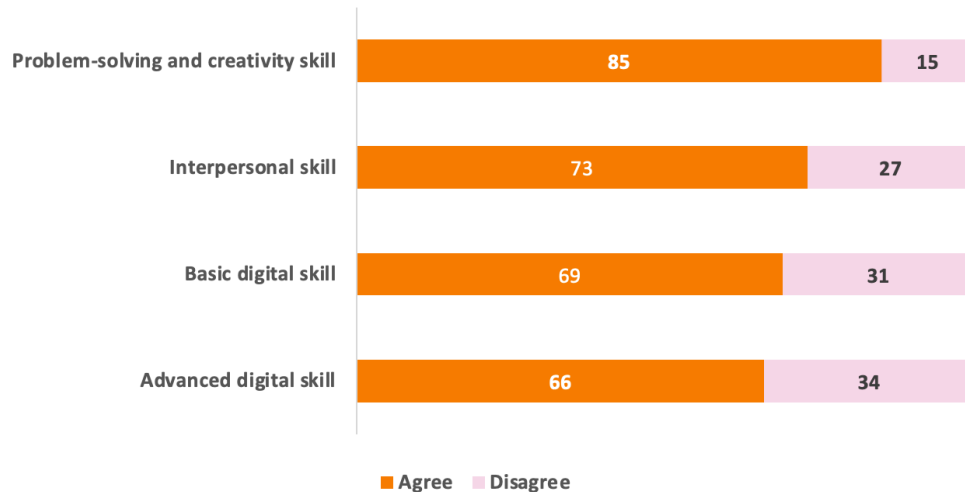
Figure 4.21 Manager-Reported Human and Digital Skills Shortage in Recruitment



4.2.2.1.3 Human and digital skill future development

Managers also indicated which skill categories were prioritised in their training and development plans. Figure 4.22 shows a strong focus on human skill development, particularly problem-solving and interpersonal competencies. Basic digital skills received moderate attention, while advanced digital skills saw the lowest level of planned investment.

Figure 4.22 Manager-Reported Human and Digital Skills Future Development

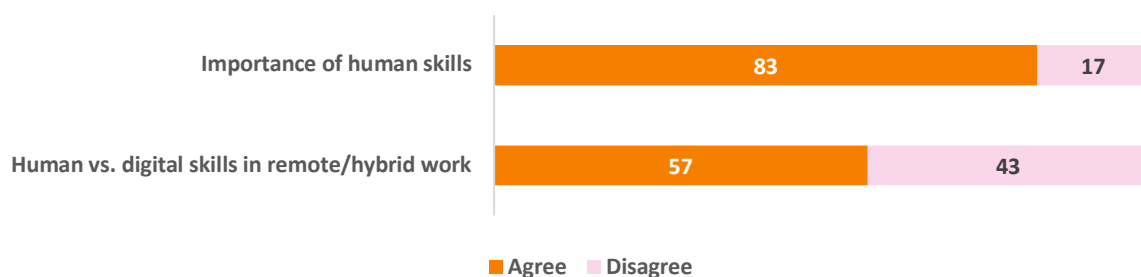


- **Problem-solving and creativity:** This was the top training priority, with 85% of managers including it in development plans: 51% agreed and 34% strongly agreed.
- **Interpersonal skills:** Seventy-three percent said their training programmes emphasised communication and teamwork, with 25% expressing strong agreement and 48% agreeing.
- **Basic digital skills:** These were included in training plans by 69% of managers, with 45% agreeing and 24% strongly agreeing.
- **Advanced digital skills:** Sixty-six percent reported development plans for advanced digital competencies: 35% agreed and 31% strongly agreed. Thirty-four percent expressed disagreement.

4.2.2.2 Human versus digital skills: Manager's perspective

Managers were asked to compare the importance of human and digital skills within organisational contexts. As shown in Figure 4.23, most acknowledged the growing value of human capabilities, though digital skills were viewed as more critical in remote and hybrid work settings.

Figure 4.23 Manager Experience with Human versus Digital Skills



- **Importance of human skills:** A large majority (83%) of managers agreed that interpersonal and soft skills are rising in importance: 50% agreed and 33% strongly agreed. Seventeen percent disagreed (16% disagree; 1% strongly disagree).
- **Human vs. digital skills in remote/hybrid work:** Fifty-seven percent of respondents believed that human skills are less essential than digital skills in remote or hybrid work contexts: 36% agreed and 21% strongly agreed. However, 43% disagreed (39% disagree; 4% strongly disagree), suggesting a notable divide in how managers perceive the relative value of soft versus technical skills in flexible work environments.

4.2.3 Organisational reskilling and upskilling for complementarity

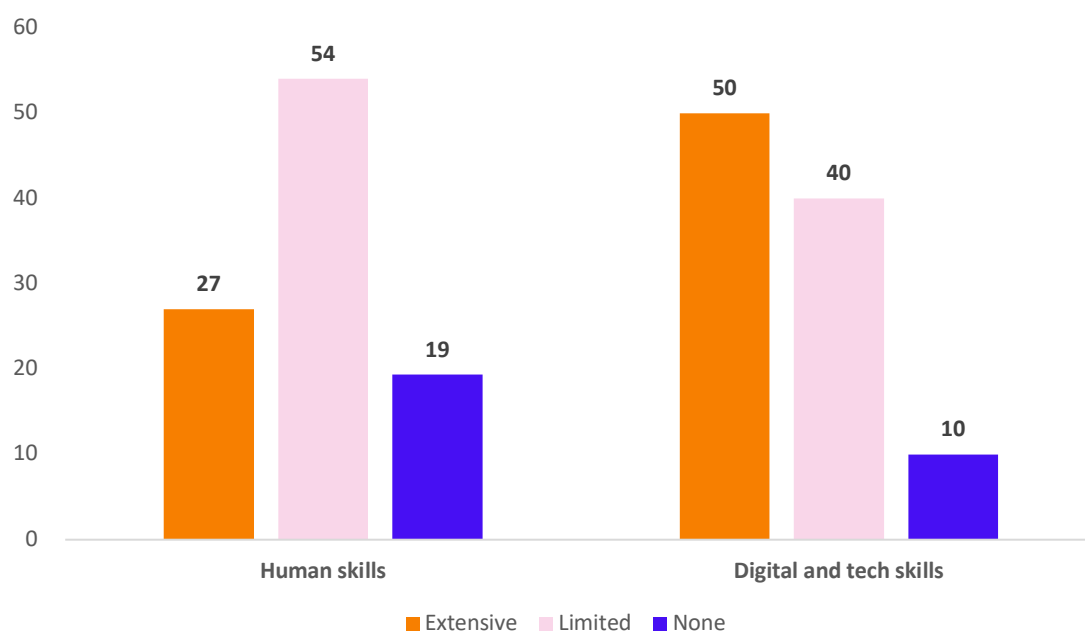
4.2.3.1 Organisational human and digital skill development

4.2.3.1.1 Organisational training content: Focused on human versus digital skills

Managers were asked to assess the focus of their organisations' training programmes in two key areas: human skills and digital or technology-related skills. As shown in Figure 4.24, digital-skills training was more commonly described as extensive, while human-skills training was often limited in scope or entirely absent.

- **Digital and technology skills:** Almost half (50%) described their digital training as extensive, covering advanced tools, platforms, and practical application. Over one third (40%) offered limited programmes. Finally, 10% indicated no formal training in this area.
- **Human skills:** Over one quarter (27%) of organisations offered comprehensive training in human skills such as communication, teamwork, and leadership. A majority (54%) provided only limited training. Nineteen percent reported no formal human-skills training at all.

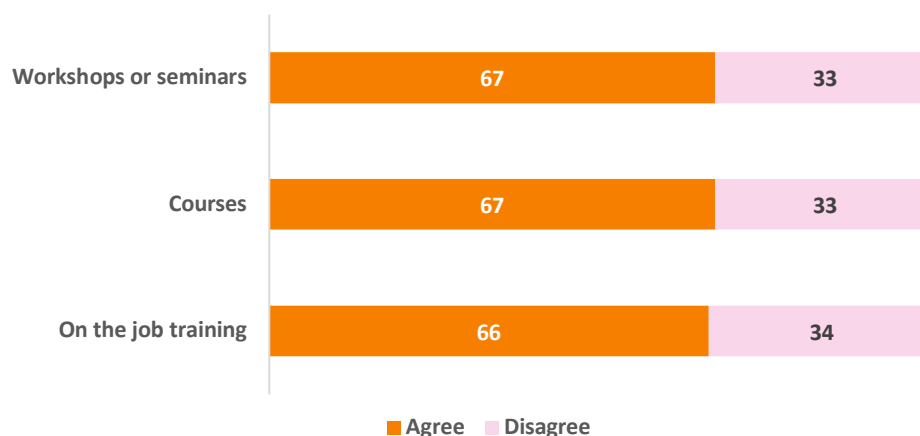
Figure 4.24 Manager Identified Training Content Focused on Human vs. Digital Skills



4.2.3.1.2 Organisational digital skills training modalities

Managers were asked which types of digital-skills training their organisations had offered or funded over the past year. As shown in Figure 4.25, formal courses and workshops were the most common formats, while structured on-the-job training was less widespread.

Figure 4.25 Manager-Reported Digital Skills Training Modalities (Last 12 Months)



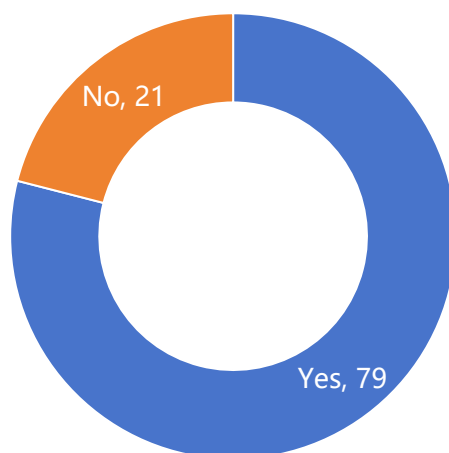
- **Workshops or seminars:** A majority (67%) reported offering short-form sessions: 40% agreed and 27% strongly agreed. Thirty-three percent disagreed (23% disagree; 10% strongly disagree), making this one of the most commonly adopted training formats.
- **Courses (e.g. online or classroom-based):** Sixty-seven percent indicated that formal courses were provided: 34% agreed and 33% strongly agreed. Thirty-three percent disagreed (22% disagree; 11% strongly disagree).
- **On-the-job training with a designated trainer:** Sixty-six percent said their organisations offered this format: 37% agreed and 29% strongly agreed. Thirty-four percent disagreed (22% disagree; 12% strongly disagree), suggesting a moderate but not universal use of hands-on, coach-led training in the workplace.

4.2.3.1.3 Employer training offers: Employer Sponsorship

Managers were asked whether their organisations planned to expand or invest further in advanced digital-skills training. As shown in Figure 4.26, most firms indicated an intent to increase future provision.

- **Yes:** Majority (79%) of managers stated that their companies planned to provide or fund more advanced digital-skills training, signalling broad recognition of the growing demands of digital transformation.
- **No:** The rest (21%) reported no intention to expand training in this area. This group may include firms with limited digital exposure, constrained resources, or confidence in existing programmes.

Figure 4.26 Manager-Reported Employer Sponsorship in Training



4.3 Comparison Analyses

This section presents a series of comparative analyses designed to deepen understanding of regional and role-based differences in digital transformation and skills development. It is structured around three core comparisons: (1) between EU and non-EU respondents: both employees and managers, (2) between employee and manager survey results, and (3) against external benchmark survey data.

The first two subsections explore similarities and differences in the employee and manager data between EU member states and non-EU regions, focusing on key areas such as ADT usage in the workplace, human-tech skill complementarity, and reskilling and upskilling. By examining percentage distributions and mean values (for selected integrated indicators), the analysis aims to identify context-specific patterns that may reflect geographic, institutional, or policy-related influences on the adoption of ADTs and the development of relevant skills. The third subsection compares employee and manager perspectives on shared indicators: specifically contrasting employee expectations and anticipations with employer-side reports on offerings and support. Topics include workplace use of ADTs (e.g. perceived impact), skill complementarity, and organisational reskilling strategies. Finally, the fourth subsection situates these findings within the broader evidence base by comparing selected results with TechConnect (2025).

Together, these analyses offer a more nuanced and comparative view of digital readiness, helping to inform targeted policy responses and workforce development strategies across different regional and organisational contexts.

4.3.1 Employee survey results comparison: EU and non-EU employees

Table 4.1 presents the percentage scores of key survey variables for employees in EU and non-EU regions. These percentages reflect the relative position of mean scores within each variable's original scale range (e.g., 1-3 or 1-4), allowing for standardized comparison. Overall, the results

indicate both similarities and notable differences between the two groups across several dimensions.

4.3.1.1 Employee reported ADTs usage in the workplace

- **ADT usage and motivation:** Adoption of ADTs is moderate across both EU and non-EU respondents, with 43% of EU and 45% of non-EU employees reporting use. Motivation to engage with these technologies was somewhat higher: 55% in both the EU and outside the EU. These results reflect moderate levels of digital engagement, with a modest lead in adoption in non-EU contexts, while motivation levels are equivalent across regions.
- **Perceived impact of ADTs:** Positive impacts were broadly reported. At the task level, 58% (EU) and 57% (non-EU) cited improvements. Job-level effects were even more prominent, with 91% of EU and 90% of non-EU respondents reporting impacts. Broader outcomes were acknowledged by 73% (EU) and 73% (non-EU), suggesting widespread recognition of the impact of ADTs across both regions, with largely similar patterns between the EU and non-EU contexts.
- **Barriers to adoption:** While all respondents faced challenges, the nature and intensity of concerns varied slightly. non-EU employees were more likely to cite certain regulatory and distributional barriers: 49% identified government regulation (vs. 40% in the EU), 40% noted wage impacts (vs. 38%), and 38% expressed concerns over job loss (vs. 37%). They also reported slightly higher concern regarding use of data (62% vs. 59%) and impact on specific groups (47% vs. 44%). Conversely, EU respondents reported marginally greater concern about lack of skills (51% vs. 49%), while perceptions of high costs were very similar (58% vs. 57%). These findings indicate broadly comparable perceived risks of digitalisation across regions, with only modest regional variation in emphasis.

4.3.1.2 Employee reported human-tech skill complementarity

- **Human skills broadly valued:** Both EU and non-EU employees emphasised the importance of human-centric capabilities. A majority of respondents acknowledged the value of problem-solving and creativity (59% EU, 61% non-EU) as well as interpersonal skills (50% EU, 54% non-EU), reinforcing a shared belief in the continued relevance of human strengths across regions.
- **Digital skills still limited:** ADT-related digital capabilities were moderate. Reported experience in adoption was 62% in both the EU and non-EU, and implementation familiarity was 50% (EU) and 51% (non-EU). These figures suggest that while digital capabilities are developing, they remain less prominent than the perceived importance of broader human skills.
- **Human vs. digital balance:** non-EU respondents demonstrated a somewhat stronger appreciation for human skills. A larger proportion rated human skills as important (72% non-EU vs. 67% EU) and emphasised the role of human skills in hybrid work contexts (60% non-EU vs. 55% EU). This suggests a modestly stronger emphasis in non-EU regions on the complementarity between human and digital strengths.

Table 4.1 Comparison of Key Variables between EU and non-EU Employees

Employee survey data			2026	
			EU	non-EU
ADTs in the workplace	Employee ADTs usage		43%	45%
	Motivation for using ADTs		55%	55%
	Impact of ADTs on employee outcomes	Tasks	58%	57%
		Jobs	91%	90%
		Other outcomes	73%	73%
	Barriers for adopting ADTs*	Use of data	59%	62%
		High cost	58%	57%
		Lack of skills	51%	49%
		Impact on specific working groups	44%	47%
		Government regulation	40%	49%
		Impact on working conditions	39%	40%
		Impact on wages	38%	40%
		Potential job loss	37%	38%
Human-tech skill complementarity	Human skills	Problem-solving and creativity skill	59%	61%
		Interpersonal skill	50%	54%
	Digital skills	ADT adoption	62%	62%
		ADT implementation	50%	51%
	Human vs. digital skills*	Importance of human skills	67%	72%
		Human vs. digital skills	55%	60%
Employee reskilling and upskilling for complementarity	Skill needs	Human skills	61%	63%
		Digital skills	54%	55%
	Skill development	Human skills	49%	55%
		Digital skills	61%	60%
	Skill development modalities*	Workshops or seminars	42%	41%
		Courses	46%	46%
		On-the-job training	32%	30%
	Employer sponsorship on training*		64%	72%

Note: The percentages indicate where each variable's mean value falls within its respective scale range (e.g., 1-3 or 1-4) allowing for easier comparison across different scales. Those with * indicates that the actual percentage is used.

4.3.1.3 Employee reported reskills and upskilling for complementarity

- Skill needs and training focus:** Most employees identified the need for both human and digital skills: human skills (74% EU, 78% non-EU); digital skills (67% EU, 72% non-EU). When asked where training efforts were concentrated, digital skill development led in both regions: 62% (EU) and 62% (non-EU), followed by human skills: 50% (EU) and 51% (non-EU). These patterns indicate attention to both human and digital capabilities in practice, although reported training intensity appears more moderate than previously indicated and broadly similar across regions.
- Training formats and support:** Differences between regions were relatively limited. In overall reported participation, levels were comparable across the EU and non-EU contexts. However, EU respondents reported slightly higher concern regarding lack of

skills (51% vs. 49%), while non-EU respondents reported marginally higher figures in several other dimensions, suggesting only modest regional variation in perceived training needs and support structures.

4.3.2 Manager survey results comparison: EU and non-EU managers

Table 4.2 presents the percentage scores of key managerial variables for both EU and non-EU respondents. These percentages reflect where each variable's mean value falls within its respective scale range, allowing for a more standardized comparison across groups. The results reveal both general similarities and distinct differences in managerial perceptions and practices between EU and non-EU regions.

4.3.2.1 Manager reported ADTs usage in the workplace

- **ADT impact and skills shifts:** Managers across both regions reported strong perceived benefits of ADTs, though the sentiment was markedly higher in non-EU contexts. 72% of non-EU managers cited positive organisational outcomes from ADT use, compared to 73% in the EU. Similarly, 62% of non-EU managers recognised ADT-driven skills shifts versus 66% in the EU, indicating broader awareness of technology's workforce implications outside the EU.
- **Organisational responses to skills gaps:** In response to shifting skill demands, non-EU organisations were more active across most dimensions: adopting new technologies (68% vs. 67%), retraining existing staff (57% vs. 60%), and hiring new workers (54% vs. 53%). Notably, non-EU firms were also twice as likely to report redundancies as a response mechanism (46% vs. 41%). EU organisations, by contrast, showed a slightly higher reliance on external service procurement (52% vs. 63%).

4.3.2.2 Manager reported human-tech skill complementarity

- **Skills importance and shortages:** Managers in both regions emphasised the importance of human and digital skills. Human capabilities were prioritised slightly more outside the EU (83% non-EU vs. 81% EU), while digital skills were rated at 72% (non-EU) and 71% (EU). However, EU managers reported greater shortages in human skills (64% EU vs. 59% non-EU), whereas digital skill shortages were nearly equal (48% EU, 49% non-EU).
- **Skill development priorities:** non-EU managers reported more active development in both human (71%) and digital (62%) skills, compared to 68% and 63% respectively in the EU.
- **Balancing human and digital skills:** Recognition of the value of human skills was notably stronger among non-EU managers, with 70% emphasising their importance (vs. 71% EU). Similarly, 63% of non-EU respondents stressed the need to balance human and digital skills in hybrid work, compared to 58% in the EU.

Table 4.2 Comparison of Key Variables between EU and non-EU Managers

Manager survey data		Region	
		EU	non-EU
	Impact of ADTs on firm outcomes	73%	72%

ADTs in the workplace	ADTs and skills shifts*		66%	62%
	Organisational responses to skills shifts and gaps*	Adopt new tech	67%	68%
		Retraining or upskills internal workers	60%	57%
		Hiring new workers	53%	54%
		Buying external services	52%	63%
		Redundancies	41%	46%
Human-tech skill complementarity	Skills importance	Human skills	81%	83%
		Digital skills	71%	72%
	Skill shortage	Human skills	64%	59%
		Digital skills	48%	49%
	Skill development	Human skills	68%	71%
		Digital skills	63%	62%
	Human versus digital skills	Importance of human skills	71%	70%
		Human vs. digital skills in hybrid work	58%	63%
Organisational reskilling and upskilling for complementarity	Skill development focus*	Human skills	54%	56%
		Digital skills	70%	69%
	Skill development modalities*	Workshops or seminars	62%	52%
		Courses	64%	56%
		On-the-job training	61%	58%
	Employer sponsorship on training*		66%	62%

Note: The percentages indicate where each variable's mean value falls within its respective scale range (e.g., 1-3 or 1-4) allowing for easier comparison across different scales. Those with * indicates that the actual percentage is used.

4.3.2.3 Manager reported reskills and upskilling for complementarity

- **Development focus and modalities:** Non-EU organisations reported significantly higher levels of investment in both human skills (56% vs. 54%) and digital skills (69% vs. 70%). A wider range of training formats was also noted: on-the-job training (58% non-EU vs. 61% EU), workshops/seminars (52% vs. 62%), and courses (56% vs. 64%).
- **Training sponsorship:** Employer-sponsored training was widespread in both contexts, with slightly higher uptake in the EU (66%) compared to non-EU (62%). Despite this, the broader reach and variety of training formats in non-EU firms suggest a more comprehensive approach to workforce development.

4.3.3 Employee and manager survey results comparison: Employees and employers

Table 4.3 presents a comparative analysis of key perceptions reported by managers and employees, based on specific employee and manager questionnaire items. Mean scores were converted into percentages (from a 3 or 4-point scale) to support a clearer interpretation.

4.3.3.1 ADTs in the workplace

- **Shared views on key benefits:** Both employees and employers agreed strongly on the positive impact of ADTs on productivity (90% employees, 87% employers). There was also close alignment in perceptions of creativity (71% employees, 67% employers) and worker

health and safety (64% employees, 67% employers), indicating shared recognition of core operational gains from ADT adoption.

- **Diverging perceptions on broader outcomes:** Perceptions varied more widely on other outcomes. Employers viewed ADTs as similarly beneficial for overall employment (68% vs. 69%). Employees, meanwhile, reported higher satisfaction (76% vs. 72%), suggesting a more positive personal experience with ADT-enhanced environments. Conversely, employers rated improvements in management effectiveness more highly (77%) than employees (70%).

4.3.3.2 Human-tech skill complementarity

- **Strong consensus on human skill importance:** There was clear agreement on the continued importance of human skills, with 68% of employees and 64% of employers affirming their critical role in the digital workplace.
- **Slight divergence on hybrid skill balance:** When it came to balancing or complementing human and digital skills in hybrid or remote settings, a difference emerged: 79% of employers emphasised the need for balance, compared to 56% of employees.

4.3.3.3 Reskilling and upskilling skill complementarity

- **Broad support for both human and digital skilling:** Both employees and employers reported emphasis on the development of human and digital skills. Training in digital skills was prioritised by 61% of employees and 70% of employers, while human skills training was also supported (50% employees, 55% employers).
- **Training modalities show close alignment:** Similar patterns emerged in training delivery methods. Workshops or seminars were reported by 42% of employees and 61% of employers, while formal courses were used by 46% and 63%, respectively. On-the-job training showed more variation, with 61% of employers versus 32% of employees reporting its use.
- **Gap in perceptions of employer sponsorship:** A modest difference emerged regarding employer sponsorship: 65% of employees reported employer-sponsored training, compared to 61% of employers.

Table 4.3 Comparison of Key Variables between Managers and Employees

Employee and employer survey data			Employee	Employer
ADTs in the workplace	Impact of ADTs on outcomes	Productivity	90%	87%
		Overall employment	69%	68%
		Creativity	71%	67%
		Satisfaction	76%	72%
		Management	70%	77%
		Worker health & safety	64%	67%
Human-tech skill complementarity	Human versus digital skills	Importance of human skills	68%	64%
		Human vs. digital skills in hybrid work	56%	79%
		Human skills	50%	55%

Reskilling and upskilling for complementarity	Skill development focus	Digital skills	61%	70%
	Skill development modes	Workshops or seminars	42%	61%
		Courses	46%	63%
		On-the-job training	32%	61%
	Employer sponsorship on training		65%	61%

Note: The actual percentages are reported.

4.3.4 Comparison with TechConnect (2025) survey results

This section presents the comparative analysis for some shared variables between the current report (TechConnect Survey 2026) with the findings from the TechConnect (2025) Survey. The results are shown in Table 4.4.

A broad set of variables was examined during the comparative exercise, this section focuses on three key dimensions, barriers to ADT adoption, skills importance, and organisational responses to skill needs, as they reveal the most significant shifts in perceptions and practices. These selected comparisons offer critical insights into how workforce attitudes and organisational strategies have evolved in the context of accelerating digital transformation.

It is important to recognise the temporal gap between the TechConnect (2026) findings and earlier datasets from TechConnect (2025). This time difference is not merely chronological, but reflects a rapidly evolving digital landscape in which organisational practices, workforce expectations, and technological capabilities continue to shift at pace. As ADT adoption accelerates, perceptions of barriers, skill priorities, and training investments may change significantly within a relatively short period. Therefore, observed differences between the two waves should be interpreted in light of broader contextual developments, including technological advancements, policy initiatives, labour market dynamics, and accumulated organisational learning. The 2026 findings may capture a more mature stage of digital integration, where initial experimentation has given way to more structured implementation and strategic workforce planning. At the same time, persistent gaps or emerging tensions identified across the datasets can provide valuable longitudinal insights into how human-tech skill complementarity evolves over time.

4.3.4.1 ADTs usage in the workplace

- **Decline in ADT use and performance-driven motivations in 2026:** TechConnect (2026) reported higher ADT (AI) usage (91%) compared to TechConnect (2025) (82%). Performance motivations also declined, with improving performance cited by 88% in 2025 versus 66% in 2026. Similarly, respondents more frequently cited reducing staff costs (65% vs. 57%) and addressing skill shortages (70% vs. 54%) in 2025 than in 2026. Health and safety improvements remained relatively stable (44% vs. 43%).
- **Shifts in perceived impact of ADTs on tasks and jobs:** Across several task and job outcomes, reported impacts changed notably between reports. Increased pace in tasks declined from 84% (2025) to 48% (2026), and new task creation fell from 67% to 56%. Job efficiency improvements also decreased from 92% to 69%. In contrast, job quality perceptions increased from 88% to 91%, and job replacement perceptions rose from 70%

to 82%. Productivity was reported by 82% in 2025 and increased to 90% in 2026, while satisfaction rose from 67% to 76%, management from 38% to 70%, and health & safety from 36% to 64%.

- **Cost and skill gaps as adoption barriers remain prominent:** Barriers remained significant in both reports, though somewhat reduced in 2026. High cost was cited by 72% in 2025 compared to 58% in 2026. Skill shortages declined from 65% to 51%, and concerns over government regulation decreased slightly from 43% to 41%. However, concerns over potential job loss increased from 23% in 2025 to 37% in 2026. ADTs and skills shifts were reported by 75% in 2025 and 65% in 2026.

4.3.4.2 Human-tech skill complementarity

- **Changes in both human and digital domains:** The survey findings show shifts in the perceived importance of both human and digital skills between 2025 and 2026. Problem-solving and creativity were rated as essential by 69% in 2025 and 63% in 2026, while interpersonal skills declined slightly from 63% to 60%. Digital competence, measured by ADT adoption and implementation, remained relatively stable, with adoption at 65% (2025) and 64% (2026) and implementation increasing slightly from 41% to 45%. Human versus digital skill balance was reported at 60% in 2025 and 56% in 2026.

4.3.4.3 Reskilling and upskilling skill complementarity

- **Changes in training access across reports:** Survey respondents reported reduced access to several skill development opportunities in 2026 compared to 2025. Workshops declined from 76% to 28%, formal courses from 73% to 28%, and on-the-job training from 57% to 24%. Employer sponsorship on training also decreased from 70% in 2025 to 52% in 2026, signalling potential concerns around sustained training investment.

Table 4.4 Comparison of TechConnect (2026) Survey Results with TechConnect (2025) Survey

TechConnect (2025) and TechConnect (2026) survey data			TechConnect (2025)	TechConnect (2026)
ADTs in the workplace	Usage of AI		82%	91%
	Motivation for using ADTs	Improve performance	88%	66%
		Reduce staff costs	65%	57%
		Address skill shortages	70%	54%
		Improve health & safety	44%	43%
	Impact of ADTs on outcomes	Productivity	82%	90%
		Satisfaction	67%	76%
		Management	38%	70%
		Health & safety	36%	64%
	Impact of ADTs on tasks	Increased pace in tasks	84%	48%
		New tasks	67%	56%
		Task replacement	57%	68%
	Impact of ADTs on jobs	Job efficiency	92%	69%
		Job quality	88%	91%
		Job replacement	70%	82%

	Barriers for adopting ADTs	High cost	72%	58%
		Lack of skills	65%	51%
		Government regulation	43%	41%
		Potential job loss	23%	37%
	ADTs and skills shifts		75%	65%
Human-tech skill complementarity	Human skills	Problem-solving & creativity skill	69%	63%
		Interpersonal skill	63%	60%
	Digital skills	ADT adoption	65%	64%
		ADT implementation	41%	45%
	Human versus digital skills		60%	56%
Reskilling and upskilling for complementarity	Skill development modes	Workshops or seminars	76%	28%
		Courses	73%	28%
		On-the-job training	57%	24%
	Employer sponsorship on training		70%	52%

4.4 Summary of key survey findings

This section summarizes the main findings from the employee and manager surveys, focusing on three core themes: the adoption and impact of ADTs, the evolving relationship between human and digital skills, and organisational strategies for reskilling and upskilling for complementarity.

4.4.1 ADTs in the workplace

- **Prevalence of ADT adoption:** AI (91%) and Cloud computing (87%) emerged as the most commonly used ADTs in employee-reported workplaces. IoT followed (82%), while engagement with big data tools was moderate (78%). Adoption of robotic process automation (RPA) (52%) and quantum computing (34%) was less widespread across employees. However, this reflects different underlying dynamics: while quantum computing remains limited in everyday work contexts, the use of RPA is more task-specific and therefore not uniformly applicable across all roles.
- **Drivers of ADT implementation:** Improving worker performance was the dominant motivation (84%), ahead of reducing staff costs (60%) and addressing skill shortages (59%). Enhancing health and safety (37%) received comparatively lower support, suggesting performance considerations remain the primary driver.
- **Perceived positive impact on employee outcomes:** Employees reported significant gains in productivity (80%), followed by job satisfaction (57%) and creativity (50%). Perceptions were more mixed regarding ADTs' effects on employment levels (48%), managerial effectiveness (44%), and health and safety (31%), where a large proportion reported no impact.
- **Complementarity vs. replacement:** A strong majority of employees reported improved efficiency (77%) and improved quality (63%) as a result of ADTs. While 45% indicated that ADTs may replace part of their job to a moderate or great extent, only 27% expressed concern about potential job loss as a barrier, suggesting complementarity remains the dominant perception.

- **Adoption barriers:** Major concerns hindering broader ADT deployment included data governance and use (67%), high implementation costs (63%), and lack of digital skills among staff (54%). Regulatory concerns (33%) and job loss risks (27%) were comparatively less prominent.
- **Manager alignment:** Managers largely echoed these insights, with 78% highlighting productivity improvements and 65% acknowledging significant shifts in workforce skill requirements.
- **Manager alignment:** Managers were more optimistic than employees about managerial effectiveness (60% vs. 44%) and worker satisfaction (51% vs. 57% employees reporting positive impact), while perceptions of employment effects were broadly similar (47% managers vs. 48% employees reporting positive impact).
- **Employers prioritise upskilling over redundancies:** Managers leaned toward adopting new technologies (80%) and retraining staff (71%), with less emphasis on redundancies (34%), reinforcing a preference for capability-building over workforce reduction.
- **Regional differences in engagement:** ADT usage levels were broadly comparable between EU (43%) and non-EU (45%) employees. Non-EU respondents reported slightly higher concern regarding regulation (49% vs. 40%) and wage impacts (40% vs. 38%), while EU respondents reported marginally higher concern regarding skills shortages (51% vs. 49%).
- **Temporal perspective:** Compared to TechConnect (2025), TechConnect (2026) data indicate stronger reported productivity effects and more widespread task-level transformation, suggesting continued acceleration of digital workplace integration.

4.4.2 Human-tech skill complementarity

- **Strong employee confidence and enthusiasm:** Most employees felt enthusiastic about learning new technologies (88%) and confident that ADTs complement their skills (83%). A large majority (93%) viewed digital technologies as valuable, and 78% felt encouraged to build digital skills.
- **High valuation of core human skills:** Problem-solving and creativity (76%) and interpersonal skills (68%) were highlighted by employees as essential for future work. Managers similarly rated problem-solving and creativity (98%) and interpersonal skills (94%) as highly important in recruitment.
- **Shared emphasis across groups:** Both employees and managers agreed on the growing importance of human skills (78% employees; 83% managers), reinforcing a shared recognition of human-tech complementarity.
- **Recruitment priorities and shortages:** Managers prioritised problem-solving and creativity (98%), interpersonal skills (94%), and basic digital literacy (93%) in hiring, yet flagged persistent shortages, especially in problem-solving and creativity (75%) and advanced digital skills (61%).
- **Training delivery gap:** While human skills were widely valued, only 27% of employees and 27% of managers reported extensive human-skills training, indicating a shortfall in practical support relative to perceived importance.

- **Employee–manager contrast in shortages:** Employees reported high confidence in their digital readiness (only 12% felt they lacked necessary digital skills), whereas managers identified significant shortages in advanced digital skills (61%), pointing to a perceptual mismatch.
- **Regional patterns:** Non-EU respondents showed slightly higher emphasis on the importance of human skills (72% vs. 67% EU) and human skills in hybrid contexts (60% vs. 55% EU), though overall digital adoption levels were similar.
- **Time-based changes:** Compared to TechConnect (2025), the TechConnect (2026) results indicate lower participation in structured training formats and reduced employer sponsorship, suggesting a decline in formal reskilling engagement over time.

4.4.3 Reskilling and upskilling for complementarity

- **Persistent human skills training gap:** Although 76% of employees highlighted the importance of problem-solving and creativity skills and 68% emphasised interpersonal skills, only 27% reported extensive human-skills training, while 26% reported no such training.
- **Uneven digital skills training:** While digital skills were widely prioritised (75% advanced digital skills), only 37% of employees reported extensive digital-skills training, with 16% reporting no access. Manager data indicated somewhat higher provision (50% extensive; 10% none), suggesting a perception gap.
- **Shared but limited training formats:** Courses (50% once/twice; 18% three or more times) and workshops (44% once/twice; 16% three or more times) were the most common formats. On-the-job training was less prevalent, with 51% of employees reporting no participation.
- **Mismatch in perceived support:** While 79% of managers indicated plans to expand digital-skills training and 71% reported retraining internal staff, only 65% of employees reported receiving employer-sponsored training in the past 12 months, indicating a perception–implementation gap.
- **Regional differences in training investment:** Employer sponsorship was reported more frequently by non-EU employees (72%) than EU employees (64%), while overall training participation levels were broadly comparable.
- **Shift over time:** Compared to TechConnect (2025), participants in TechConnect (2026) reported substantially lower participation in structured courses and workshops, indicating a decline in formal reskilling activities over time.

5 Qualitative Comments Analysis

The open-ended questions in this survey were designed to allow respondents to share their perspectives, practical experiences, and concrete suggestions regarding digital transformation, skills development, and the evolving workplace. Unlike closed-ended items, these open-text responses provide nuanced, context-rich insights that deepen our understanding of organisational realities and workforce expectations.

Across a range of open-ended items, participants reflected on how their organisations are responding to challenges, their views on technological advancement, the importance of different skills, and anticipated trends in digital training and talent development. Both employees and managers provided valuable, detailed input, ensuring a well-rounded qualitative perspective. Through careful review and coding, the main themes, frequently raised concerns, and representative suggestions have been synthesised below. These qualitative findings not only complement the quantitative survey results but also highlight practical opportunities for further improvement in digital skills and organisational support. The following sections present a summary of the main insights for the open-ended questions on both the opportunities and challenges for ADT adoption.

5.1 Opportunities and benefits of ADT adoption

Analysis of open-ended survey responses reveals a wealth of positive perceptions regarding the role of ADTs in the workplace. Five distinct themes stand out in the positive comments, as detailed below. Table 5.1 presents some illustrative quotes to each theme.

Technology as an efficiency booster: Many respondents describe digital tools as improving efficiency, speed, and productivity. Several participants emphasise enhanced data processing, improved workflows, and stronger performance outcomes. At the individual level, respondents highlight that digital tools help them complete tasks more efficiently and manage complex information more effectively. At the team and organisational levels, these improvements are associated with smoother workflows, better coordination, and enhanced operational performance. In addition, some respondents point to personal benefits, such as improved work performance and increased opportunities for career development. Overall, these comments indicate that ADTs are perceived to enhance productivity and effectiveness across multiple levels, from individual task performance to broader organisational outcomes.

- **Continuous upskilling:** A strong theme across responses is the recognition that technological change requires ongoing learning and skill development. Respondents acknowledge that AI has reshaped required competencies. As one participant explained: "AI has reshaped our skill needs we now seek a hybrid of advanced digital expertise and strong human creativity problem solving and leadership." Another respondent stated: "New technologies have shifted many tasks toward automation, increased the need for digital skills, and changed how our team works and collaborates." There are also explicit calls for structured learning initiatives, such as: "Create seminars and courses for the people." These responses demonstrate awareness that continuous upskilling is necessary

to adapt to digital transformation. These responses demonstrate awareness that continuous upskilling is necessary to adapt to digital transformation. In addition, some responses suggest an emerging recognition of the need for critical engagement with advanced digital technologies, including understanding how AI systems generate outputs and the ability to assess their reliability and limitations.

- AI and automation support human work:** Many respondents view AI and automation as supportive tools rather than replacements for human labour. One participant reflected: "I liked a quote I heard somewhere that AI will not replace you, but someone who knows how to use AI will." Others emphasised complementarity between digital and human capabilities. For example: "Human and digital skills complement each other in my work and shape the way tasks are carried out." Similarly, another respondent noted: "Digital skills help me handle tools, data, and project systems more efficiently, while human skills, like communication, teamwork, and problem-solving, make the collaboration and decision-making side run smoothly." These responses indicate that many employees perceive AI as enhancing, rather than eliminating, human contribution. However, this perception may also reflect expectations about the potential of ADTs, rather than their current use in everyday work. This suggests a possible gap between how ADTs are imagined to function and how they are actually experienced in practice.

Table 5.1 Opportunities for Adopting ADTs

Theme	Illustrative Quotes
Technology as an efficiency booster	<p>"We have to look through a lot of data and enhanced digital skills are helping me to handle this data much more effectively."</p> <p>"Society is benefitting from new technology every day."</p> <p>"I think that more performance equals more opportunities to get better pay."</p>
Continuous upskilling	<p>"AI has reshaped our skill needs we now seek a hybrid of advanced digital expertise and strong human creativity problem solving and leadership."</p> <p>"New technologies have shifted many tasks toward automation, increased the need for digital skills, and changed how our team works and collaborates."</p> <p>"Create seminars and courses for the people."</p>
AI and automation support human work	<p>"I liked a quote I heard somewhere that AI will not replace you, but someone who knows how to use AI will."</p> <p>"Human and digital skills complement each other in my work and shape the way tasks are carried out."</p>

	<p>"Digital skills help me handle tools, data, and project systems more efficiently, while human skills, like communication, teamwork, and problem-solving, make the collaboration and decision-making side run smoothly."</p>
Simplification of repetitive tasks	<p>"They help streamline routine tasks and free up time for more meaningful, higher-level work."</p> <p>"We can create faster and deeper with many variations."</p> <p>"Digital skills make daily processes faster and more efficient."</p>
Importance of human-tech skill complementarity	<p>"I work with people, with children to be exact. So everything I do is about human skills."</p> <p>"Both are needed, and they pretty much balance each other out."</p> <p>"Human skills are still vital for the role to work with stakeholders (politicians, residents, other experts)."</p>

- Simplification of repetitive tasks:** Several responses explicitly mention automation and efficiency gains in handling routine tasks. One participant observed that digital skills "help streamline routine tasks and free up time for more meaningful, higher-level work." Another respondent described creative productivity improvements: "We can create faster and deeper with many variations." These comments highlight how ADTs reduce manual burden and enable more value-added work.
- Importance of human-tech skill complementarity:** Many respondents stress that while digital skills are increasingly important, human skills remain essential. One participant stated: "I work with people, with children to be exact. So everything I do is about human skills." Another emphasised balance, explaining: "Both are needed, and they pretty much balance each other out." Even respondents working in data-intensive roles underline interpersonal requirements: "Human skills are still vital for the role to work with stakeholders (politicians, residents, other experts)." These comments reinforce the view that successful digital transformation depends on integrating technological expertise with communication, collaboration, and critical thinking skills.

In summary, 2026's qualitative responses suggest that employees generally perceive ADT adoption as beneficial for productivity, workflow optimisation, and skill development, while emphasising the importance of maintaining strong human capabilities alongside digital advancement.

5.2 Challenges for ADT Adoption

While many respondents expressed positive attitudes towards the adoption of ADTs, the open-ended comments also reveal a number of recurring concerns and challenges. Five key themes emerged from the analysis of negative comments, each shedding light on different aspects of employee apprehension about digital transformation. Table 5.2 presents some illustrative quotes to each theme.

- Inequality and job security concerns:** Some respondents explicitly mention potential job displacement. For example: “Potential job loss is specified in our area because machine can do our job as well.” Another participant questioned the future role of employees: “What role AI will play, are the people still needed or what extent?” Concerns about overdependence also appear, such as: “Humankind becoming too dependent on AI.” These responses reflect uncertainty about long-term employment implications and the broader social impact of automation.
- Management and resource limitations:** Some participants highlight a lack of organisational clarity or structured digital strategy. One respondent commented: “There is no clear policy yet.” Another stated: “I have no idea what their policy is.” Others expressed concerns about insufficient engagement or action, noting: “My company isn’t really working to address the lack of skills problem.” These responses suggest that leadership commitment and structured implementation remain important factors in successful ADT adoption.

Table 5.2 Challenges for Adopting ADTs

Theme	Original Quotes
Inequality & job security concerns	“Potential job loss is specified in our area because machine can do our job as well.” “What role AI will play, are the people still needed or what extent?” “Humankind becoming too dependent on AI.”
Management & resource limitations	“There is no clear policy yet.” “I have no idea what their policy is.” “My company isn’t really working to address the lack of skills problem.”
Data security, privacy & ethical concerns	“We need to advance employees education and training in terms of human centric issues and impact like biases, stereotyping et cetera.” “As long as there’s education and regulation there’s positive impact.” “It’s generally positive, except when people overuse it or use it in wrong ways.”
Pressure to constantly adapt	“AI will not replace you, but someone who knows how to use AI will.” “As I said, the AI has changed everything.” “New technologies have shifted many tasks toward automation.”
Mixed or uncertain impact on work	“TRABAJAMOS EN LA AGRICULTURA... PUEDE HACER POCO AQUÍ LAS TECNOLOGÍA DIGITAL.” “Jobs can be performed without big data or AI as well.” “I work alone.”

- **Data security, privacy & ethical concerns:** Concerns related to responsible use and ethical implications also appear in the responses. One participant emphasised the need for awareness and safeguards: “We need to advance employees education and training in terms of human centric issues and impact like biases, stereotyping et cetera.” Another respondent added: “As long as there’s education and regulation there’s positive impact.” These comments indicate awareness that technological benefits must be accompanied by governance and ethical considerations.
- **Pressure to constantly adapt:** The rapid pace of technological change creates a sense of continuous adaptation for some respondents. As one participant stated: “As I said, the AI has changed everything.” The previously cited reflection — “AI will not replace you, but someone who knows how to use AI will” — also implies pressure to update skills in order to remain competitive. These responses suggest that adaptation demands can create uncertainty for employees.
- **Mixed or uncertain impact on work:** Finally, several respondents highlight that the impact of ADTs varies across sectors and roles. One participant observed: “Jobs can be performed without big data or AI as well.” These comments indicate that the relevance and impact of advanced digital technologies differ depending on occupational context.

Overall, this year’s qualitative findings indicate that while employees recognise the efficiency and development opportunities associated with ADTs, they also emphasise the need for inclusive training, clear organisational strategy, ethical governance, and balanced integration of human and digital skills to ensure sustainable digital transformation.

6 Recommendations

This year's analysis reveals continued and widespread support for digital transformation in the workplace, particularly among employees. Compared with the 2025 Industry Landscape Report, the 2026 findings indicate sustained momentum in ADT adoption and a deepening recognition of shifting skill requirements. Employees report high levels of engagement with digital technologies, and managers increasingly acknowledge the need for both advanced digital capabilities and strong human skills to navigate technological change.

However, strong support and growing awareness do not automatically translate into structural readiness. The comparison between the 2025 and 2026 reports highlights persistent challenges. While access to digital-skills training has expanded in many organisations, provision remains uneven in depth and consistency. Human skills, particularly creativity, problem-solving, and interpersonal competencies, continue to be widely recognised as important, yet training in these areas is often described as limited rather than extensive. In addition, qualitative feedback points to ongoing concerns regarding organisational alignment, clarity of digital strategy, and ethical governance of technology use.

These gaps constrain the development of genuine Human-Tech Skill Complementarity, which depends not only on technology adoption but also on coherent capability-building and organisational integration. Addressing these structural imbalances requires coordinated action across leadership, HR systems, education providers, and policy frameworks. The six evidence-based recommendations presented below are therefore designed to strengthen alignment between digital investment and workforce development, ensuring that technological advancement remains inclusive, ethical, and firmly grounded in human strengths.

6.1 Strengthening Human Skills as a Core Driver of Complementarity

The findings consistently show that problem-solving, creativity, and interpersonal skills are perceived as highly important by both employees and managers. Human skills are prioritised in recruitment decisions and development planning. However, training provision for human skills is frequently described as limited rather than extensive, indicating a potential gap between recognition and implementation.

Importantly, qualitative responses reinforce that employees view human and digital skills as complementary rather than substitutive. In digitally intensive environments, human capabilities such as critical thinking, collaboration, and stakeholder engagement remain essential for effective technology utilisation. This confirms that digital transformation strategies must not marginalise human skill development. In addition, the findings point to the importance of human capacities for critical reflection when engaging with advanced digital technologies. Employees not only need to use digital tools, but also to understand how these systems generate outputs, assess their reliability, and recognise their limitations. In this sense, human skills such as judgement, contextual understanding, and ethical awareness complement the computational capabilities of ADTs, which are primarily based on data processing and prediction.

Organisations should therefore reposition human skills as strategic assets that enhance the value of digital technologies rather than treating them as secondary competencies. Table 6.1 summarises key recommended actions for strengthening human skills development. These recommendations are derived from the qualitative findings and informed by the broader analysis presented in this report.

Table 6.1 Strengthening Human Skills Development

Stakeholders	Recommended Actions
Integrated Curriculum Design	Combine digital skill development with modules on problem-solving, creativity, and communication.
Applied Learning Models	Use project-based learning to embed human-tech collaboration in practice.
Leadership Role Modelling	Equip managers to model adaptive thinking and collaborative behaviours.
Organisational Culture	Foster cultures that encourage experimentation, learning, and constructive dialogue.

6.2 Aligning Investment in Advanced Digital Skills with Identified Shortages

The survey results indicate a clear structural imbalance regarding advanced digital skills. While the majority of managers report shortages in advanced digital competencies, and employees recognise their growing importance, development efforts do not fully match this demand. In contrast, basic digital skills show relatively low levels of shortage, suggesting that the challenge has shifted from foundational literacy to higher-order digital capability.

At the same time, employees report strong enthusiasm for learning new technologies and high confidence in their ability to work alongside digital tools. This presents a strategic opportunity: organisations can leverage this positive mindset to build deeper, more structured digital capability pipelines rather than relying on fragmented or short-term training interventions.

To address this imbalance, organisations should adopt more strategic approaches to workforce planning. Table 6.2 summarises key recommended actions for aligning investment in advanced digital skills. These recommendations are derived from the survey findings, particularly the qualitative responses, and are further informed by the overall analysis presented in this report.

Table 6.2 Aligning Investment in Advanced Digital Skills

Stakeholders	Recommended Actions
Strategic Workforce Planning	Conduct periodic digital capability assessments to identify advanced skill gaps (e.g., AI literacy, data analytics, automation integration).

Targeted Upskilling Pathways	Develop structured, progressive training tracks for advanced digital skills rather than relying solely on short-term workshops.
Internal Talent Mobility	Promote cross-functional digital projects to allow employees to build applied expertise.
Leadership Commitment	Embed advanced digital skill development targets into senior management accountability frameworks.

6.3 Close the Gap Between Organisational Intent and Employee Experience

Although managers report significant organisational responses to digital transformation — including retraining initiatives and new technology adoption — a substantial proportion of employees indicate limited access to training, uneven communication, or unclear policy frameworks. This suggests a perception gap between strategic intent at leadership level and lived experience at employee level.

Furthermore, qualitative responses highlight uncertainty regarding organisational digital policies and implementation transparency. Without alignment between leadership narratives and employee realities, digital transformation efforts risk reduced engagement and slower capability development.

Organisations must therefore strengthen internal communication, transparency, and participatory processes to ensure that workforce transformation strategies are understood and supported across all levels. Table 6.3 summarises key recommended actions for aligning organisational intent with employee experience. These recommendations are derived from the survey findings, particularly the qualitative responses highlighting gaps in communication, access to training, and policy clarity, and are further informed by the broader analysis presented in this report.

Table 6.3 Aligning Organisational Intent with Employee Experience

Stakeholders	Recommended Actions
Transparent Digital Roadmaps	Communicate clearly how ADTs will affect tasks, roles, and skill requirements.
Inclusive Access Policies	Ensure training opportunities are equitably distributed across functions and seniority levels.
Employee Voice Mechanisms	Introduce structured feedback channels on digital implementation.
Impact Monitoring	Regularly assess employee perceptions of digital readiness and support adequacy.

6.4 Addressing Ethical, Data, and Governance Concerns Proactively

Data-related concerns and governance issues emerge as key barriers to ADT adoption. Employees cite data use, privacy, and lack of clear policy as obstacles. While job displacement concerns are comparatively lower, uncertainty about ethical implications and transparency remains significant.

These findings indicate that successful digital transformation is not solely a technical or economic challenge but also a governance and trust issue. Organisations that fail to establish clear ethical frameworks may undermine employee confidence and limit the long-term effectiveness of digital initiatives.

Proactive governance structures are therefore essential to ensure responsible, transparent, and inclusive technology adoption. Table 6.4 summarises key recommended actions for ensuring ethical and responsible ADT adoption. These recommendations are derived from the survey findings, particularly the qualitative responses highlighting concerns around data use, transparency, and governance, and are further informed by the broader analysis presented in this report.

Table 6.4 Ensuring Ethical and Responsible ADT Adoption

Stakeholders	Recommended Actions
Policy Clarification	Develop and communicate clear AI and data governance policies.
Ethical Literacy Training	Provide structured training on responsible AI use, bias mitigation, and data protection.
Risk Auditing	Conduct periodic reviews of algorithmic impact and digital monitoring practices.
Trust Safeguards	Ensure digital systems enhance, rather than erode, employee autonomy and well-being.

6.5 Promoting Sustainable Learning Ecosystems to Reduce Adaptation Pressure

Employees demonstrate strong willingness to learn, yet qualitative findings reveal concerns about continuous adaptation pressure and uncertainty regarding policy direction. Digital transformation should not rely solely on individual initiative but must be supported through structured organisational learning systems.

Training participation patterns also show that while short-term courses are common, structured on-the-job learning remains less widespread. Sustainable learning ecosystems should integrate formal, informal, and experiential learning modalities.

By embedding continuous learning into everyday work processes, organisations can reduce stress associated with rapid technological change and support long-term skill resilience. Table 6.5 summarises key recommended actions for promoting sustainable learning ecosystems. These

recommendations are derived from the survey findings, particularly qualitative responses highlighting continuous learning needs, adaptation pressures, and gaps in structured training, and are further informed by the broader analysis presented in this report.

Table 6.5 Promoting Sustainable Learning Ecosystems

Stakeholders	Recommended Actions
Protected Learning Time	Allocate paid time for continuous skill development.
Blended Learning Models	Combine courses, workshops, and supervised on-the-job training.
Career Path Integration	Align digital upskilling with internal mobility and promotion systems.
Well-being Integration	Recognise psychological adaptation challenges in digital change programmes.

6.6 Fostering Cross-Sector Collaboration and Leverage EU-Level Support

The comparative analysis reveals broadly similar digital transformation patterns across EU and non-EU contexts, suggesting shared structural challenges. Addressing advanced skill shortages and promoting complementarity requires coordinated action beyond individual organisations.

Education providers, policymakers, and industry actors must collaborate to align curricula, certification systems, and workforce development initiatives with emerging digital and human skill needs. EU-funded programmes offer valuable resources for scaling such initiatives.

Stronger ecosystem-level coordination will enhance the scalability and inclusiveness of digital transformation efforts. Table 6.6 summarises key recommended actions for strengthening cross-sector collaboration and leveraging EU-level support. These recommendations are derived from the survey findings and comparative analysis, and reflect recurring themes related to coordination challenges, skills alignment, and the need for ecosystem-level approaches to digital transformation.

Table 6.6 Strengthening Education–Industry–Policy Collaboration

Stakeholders	Recommended Actions
Co-Designed Curriculum	Develop joint industry–education training programmes focused on advanced digital and human skills.
EU Programme Engagement	Increase participation in EU-funded digital skills and innovation initiatives.

Best Practice Exchange	Establish platforms for cross-sector knowledge sharing on ADT implementation.
SME Inclusion	Provide targeted support for SMEs to avoid widening digital capability gaps.

Overall, these six recommendations reflect the empirical evidence presented in this report. They emphasise that successful digital transformation requires balanced investment in advanced digital capabilities and human skills, transparent governance structures, sustainable learning systems, and multi-stakeholder collaboration. Strengthening Human–Tech Skill Complementarity is not a one-time intervention but an ongoing strategic process that demands organisational alignment, leadership commitment, and systemic coordination.

7 Conclusion

The Industry Landscape Report 2026 provides a comprehensive overview of how Advanced Digital Technologies (ADTs) are shaping work practices, skill requirements, and workforce development from both employee and managerial perspectives. Drawing on quantitative findings and qualitative insights, the report highlights the evolving dynamics of Human–Tech Skill Complementarity within contemporary organisations. Despite some minor variations compared with the 2025 findings, the overall patterns remain largely consistent, with a clear and growing recognition of the importance of human skills in complementing digital technologies in the workplace.

First, in terms of technology adoption, ADTs are now widely embedded across sectors and occupational groups, particularly in areas such as artificial intelligence and cloud computing. The findings show that employees largely perceive ADTs as enhancing efficiency, task speed, and work quality. More than three-quarters of employees report improved efficiency, and a strong majority of managers confirm positive impacts on productivity. These results suggest that digital technologies are no longer peripheral innovations but have become integral components of everyday organisational operations.

Second, the findings reinforce the central importance of Human–Tech Skill Complementarity. Both employees and managers strongly recognise the growing importance of problem-solving, creativity, and interpersonal skills in digitalised work environments. At the same time, demand for advanced digital skills continues to rise, with notable shortages reported in this area. While human skills show alignment across importance, shortage recognition, and development planning, advanced digital skills reveal a structural imbalance: although widely recognised as important, investment in their development does not yet fully match perceived gaps. This confirms that digital transformation is not characterised by substitution but by the need for strategic integration and co-development of human and digital capabilities.

Third, with regard to reskilling and upskilling, the data indicate that access to digital-skills training is relatively widespread, and most managers plan to increase investment in advanced digital training. However, the depth and consistency of provision vary. Human-skills training, while widely acknowledged as important, is often described as limited rather than extensive. Qualitative responses further reveal that employees appreciate gains in efficiency and creativity but also express concerns about continuous adaptation pressure, unclear organisational policies, and ethical implications.

Comparative analyses show broadly similar trends between EU and non-EU respondents in terms of technology use and skill perceptions, with some differences in emphasis on human skills. Differences between employee and managerial perspectives also emerge: managers focus more strongly on strategic workforce transformation, whereas employees emphasise practical training access and day-to-day support. These variations highlight the importance of aligning organisational strategy with employee experience in digital transformation processes.

Overall, the findings demonstrate that ADTs are reshaping work content and skill structures in profound ways. However, this transformation is not a linear process of technological replacement. Instead, it represents a dynamic process of complementarity, where competitive advantage increasingly depends on the effective integration of human capabilities and digital technologies.

As the empirical foundation of the TechConnect project, this report provides critical evidence to inform subsequent work packages. It offers a diagnostic snapshot of the current digital skills landscape while identifying priority areas for inclusive and sustainable digital transformation. Moving forward, organisations and policymakers must focus on strengthening systemic alignment between technology investment, workforce development, and ethical governance to fully realise the potential of Human–Tech Skill Complementarity.

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Annex I Survey Instrument

The survey has three sections: (1) demographic information for all participants; (2) worker experience for all participants (employee survey); and (3) organizational management for managers only (manager survey).

Section 1: Demographic Information

Variables	Survey questions	Survey answers	Source
Region	In which region is your usual place of residence?	List of the 27 EU member states Other country -> specify	Cedefop
Employment Status	What is your current employment status?	- I am employed - I am self-employed - I am currently not employed -> screen out	OECD
Firm sector	What sector do you work in?	- Private sector - Public sector - Non-for-profit - Other, please specify	Cedefop
Industry type	What industry do you work in?	- Agriculture forestry and fishing - Arts, entertainment, and other services - Construction - Distribution, transport, hotels and restaurants - Industry - Information and communication - Financial and insurance activities - Real estate activities - Professional, administration, and support services - Public administration, education and health	NACE Economic Activity Sector
Firm size	How many people work at your workplace? This includes part-time and full-time employees. Please provide your best estimate.	- 1-10 - 11-49 - 50-249 - 250-499 - 500+ - Don't know	Cedefop

Occupation	Which of the following categories best describes your current (main) job?	<ul style="list-style-type: none"> - Managers, directors and senior officials (ESCO 1) - Professionals (e.g., IT specialists, engineers, accountants, analysts, scientists, doctors, etc.) (ESCO 2) - Associate professionals and technicians (e.g., counsellors, paramedics, designers, QA technicians, etc.) (ESCO 3) - Elementary (e.g., porters, poster workers, kitchen and catering assistants, etc.) (ESCO 9) - Sales, customer or personal service (e.g. cooks, waiters, health care assistants, etc.) (ESCO 4) - Clerical support worker (e.g., administrative and secretarial) (ESCO 5) - Skilled agricultural (ESCO 6) - Crafts and related trades (ESCO 7) - Plant and machine operatives (ESCO 8) - Employed in a military capacity by the Armed Forces (ESCO 10) -> (screen out) 	Cedefop - ESCO
Age	Please indicate your birth year (yyyy):		
Gender	How would you describe yourself?	<ul style="list-style-type: none"> - Male - Female - Non-binary - Another option not listed (please specify): 	
Employee tenure	How long have you been working in your current company or organisation?	<ul style="list-style-type: none"> - Less than 1 year - 1-2 years - 3- 4 years - 5+ years 	
Contract	Which of the following best describes the duration of your employment contract in your main job?	<ul style="list-style-type: none"> - Open-ended / indefinite/ permanent - Fixed-term/temporary - No contract - Other (please specify): 	
Education	What is the highest level of education you have completed?	<ul style="list-style-type: none"> - No completed formal education or below primary education - Primary education (ISCED 1) - Lower secondary education (ISCED 2) (a) - Upper secondary education – general (ISCED 34) - Upper secondary education – vocational (ISCED 35) - Post-secondary non-tertiary education – general (ISCED 44) - Post-secondary non-tertiary education – vocational (ISCED 45) - Short-cycle tertiary education (ISCED 5) - Bachelor's or equivalent level (ISCED 6) 	Cedefop

		<ul style="list-style-type: none"> - Master's or equivalent level (ISCED 7) - Doctoral or equivalent level (ISCED 8) 	
Position/role	What position do you hold?	<ul style="list-style-type: none"> - Senior manager -> employee survey + manager survey - Middle manager -> employee survey + manager survey - Line manager -> employee survey + manager survey - Employee without managerial responsibility 	
Function	What business function are you working in?	<ul style="list-style-type: none"> - Corporate Strategy & Governance - Customer Service & Support - Finance & Accounting - Human Resources (HR) - Information Technology (IT) - Legal & Compliance- Manufacturing/production - Marketing - Operations - Research & Development (R&D) - Sales - Supply Chain Management/logistics 	LEADS

Section 2: Employee Survey

Variables	Survey Questions		Survey Answers	Scale	Source
ADTs in the workplace: Employee's perspective	ADT usage	To the best of your knowledge, does your company use following advanced technologies? Please think of all areas within your company as well as the area you work in.	AI Cloud computing Quantum computing Robotic process automation Big data Internet of things Other	1 = never to 5 = always	OECD AI Survey (revised)
	Motivation for using ADTs	To the best of your knowledge, were any of the following motivations for your company adopting advanced technologies?	To improve worker performance To reduce staff costs To address skill shortages To improve workers' health and safety	1 = SD to 4 = SA	OECD AI Survey

	Impact of ADTs on individual workers	Impact of ADTs on tasks: Change in job tasks: By adopting the advanced digital technologies	I now do not do some tasks I did before. I now do some different or new tasks I now do some of my tasks at a faster pace than before.	1 = SD to 4 = SA	Cedefop
		Impact of ADTs on jobs: To what extent do you think the advanced digital technologies:	can or will do part or all of my main job (job displacement) improve the speed of my work (job efficiency) improve the quality of my work (job quality)	1 = Not at all to 4 = Great extent	Cedefop
		Impact of ADTs on employee outcomes: What impact have these advanced technologies had on:	my productivity my creativity my satisfaction my health and safety my managers' ability to manage my performance overall employment in your organisation	1 = negative impact 2 = no impact 3 = positive impact	OECD AI Survey (revised)
	Barriers for adopting ADTs	What are the barriers for your company to adopt the advanced technologies?	High cost Lack of skills Government regulation Potential job loss Impact on wages Impact on working conditions Use of data Impact on specific groups of workers	1 = SD to 4 = SA	OECD AI Survey
		How is your company trying to address these challenges?	Open comment		New question
Human-tech skill complementarity: Employee's perspective	Human skill: Problem-solving and creativity skill	How often did you do any of the following activities as part of your main job in the last month?	searched for relevant information or documentation, for instance in books or on the web, to solve problems; got input from colleagues or others to solve problems; tried out new ideas to solve problems; tried to develop or create new or improved products or services; tried to develop new or improved ways of doing your work	1 = never to 5 = always	Cedefop

Human-tech skill complementarity: Employee's perspective	Human skill: Interpersonal job-skill	How often did you do any of the following activities as part of your main job in the last month?	provide advice or counselling to people; provide presentations of present, services or ideas linked to your work; deal with people who do not work in your company or organisation, for instance customers or clients; teach or train people; provide emotional support or personal care to others; try to convince people to do or buy something; work in a team i.e. together with a group of people who plan their work to achieve shared objectives.	1 = never to 5 = always	Cedefop
	Digital skill: Employee experience with ADT adoption	In your company, how were these advanced digital technologies were implemented?	I heard enough about how these digital technologies are used in my company. I was adequately kept up to date about important issues about digital technologies. I am encouraged to develop new digital skills. I receive training to keep me up to date with developments in technologies. I believe in the value of adopting digital technologies.	1 = SD to 4 = SA	VBBA & HR studies
	Digital skill: Employee experience with ADT implementation	Do you agree or disagree with the following statements?	I do not have the skills to work with new technologies. New technologies will make my existing skills less valuable. I feel confident that new technologies will complement my existing skills. I am enthusiastic to learn how to work with new technologies.	1 = SD to 4 = SA	OECD
	Human versus digital skills: Employee's perspective	To what extent do you agree with following statements? (2 questions)	Human skills are more essential than digital skills in a remote/hybrid work setting. Human skills are becoming increasingly important.	1 = SD to 4 = SA	Deloitte 2024 Global Workforce Trends OECD

Employee reskilling and upskilling for complementarity	Employee human and digital skill needs	Do you need to further develop following skills to do your main job even better?	Problem-solving and creativity skill Interpersonal skill Basic digital skills (e.g. use of computers; office software etc.) Advanced digital skills (e.g., using AI, big data etc.) Other, please specify _____	1 = SD to 4 = SA	New question
	Employee human and digital skill development	In the last 12 months, have you participated in any of the following education or training activities to learn new digital skills?	Courses Workshops or seminars On the job training with the support of a designated trainer.	1 = SD to 4 = SA	Cedefop
		Was at least one of these education or training activities fully or partly paid by your current employer or done during paid working time?		Yes/no	Cedefop
		For the training offered, how would you describe the extent of programs focused on:	Human skills Digital skills	1 = None, 2 = Limited, 3 = Extensive	Adapted from OECD
		In the future, how do you anticipate your education or training activities to learn new digital skills to be paid?	Sponsored by company Self-paid learning Attending free training offered by education providers on ADS Other, please specify:	1 = SD to 4 = SA	New question
Open questions	<p>What impacts do you expect technological advancements to have in the next 5 to 10 years?</p> <p>If you have any suggestions on how various stakeholders, policymakers, employers, tech providers, employees, and/or their associations can enhance human-technology interaction and integration, please share them in the space below.</p>				

Note: SD = strongly disagree; DA = strongly agree

Section 3: Manager Survey

Variables	Survey Questions		Survey Answers	Scale	Source
ADTs in the workplace: Manager's perspective	Impact of ADTs on firms' outcomes	What impact have these advanced technologies had on:	worker productivity worker creativity worker satisfaction worker health and safety managers' ability to manage worker performance overall employment	1 = negative impact 2 = no impact 3 = positive impact	OECD AI Survey (revised)
	Impact of ADTs on skills shift	Do you think that advanced digital technologies has changed skill needs in your company?		Yes/No	OECD
		Would you please elaborate a bit on your answer for the above question?		Open comment	
	Organisation's responses to skill development	Has your company addressed these changing skill needs in any of the following ways?	by retraining or upskilling internal workers by hiring new workers by buying services from external companies by attribution or redundancies by adopting new digital technologies	1 = SD to 4 = SA	ECS; OECD
Human-tech skill complementarity: Manager's perspective	Human and digital skill importance	When recruiting new employees, how important are the following four types of skills	Problem-solving and creativity skill Interpersonal skill Basic digital skills (e.g. use of computers; office software etc.) Advanced digital skills (e.g., using AI, big data etc.) Other, please specify _____	1 = SD to 4 = SA	New question
	Human and digital skill shortage	In the current market, do you find it more challenging to hire candidates with:	Problem-solving and creativity skill Interpersonal skill Basic digital skills (e.g. use of computers; office software etc.) Advanced digital skills (e.g., using AI, big data etc.) Other, please specify _____	1 = SD to 4 = SA	New question

Human-tech skill complementarity: Manager's perspective	Human and digital skill development	In your employee training plans, what skills will you be focusing on?	Problem-solving and creativity skill Interpersonal skill Basic digital skills (e.g. use of computers; office software etc.) Advanced digital skills (e.g., using AI, big data etc.) Other, please specify _____	1 = SD to 4 = SA	New question
	Human and digital skills: Manager's perspective	To what extent do you agree with following statements?	Human skills are more essential than digital skills in a remote/hybrid work setting. Human skills are becoming increasingly important.	1 = SD to 4 = SA	Deloitte 2024 Global Workforce Trends
Organisational reskilling and upskilling for complementarity	Organisational human and digital skill development	In the last 12 months, my company has provided the following education or training activities for employees to learn new digital skills.	Courses Workshops or seminars On the job training with the support of a designated trainer.	1 = SD to 4 = SA	Cedefop
		For the training offered, how would you describe the extent of programs focused on:	Human skills Digital skills	1 = None, 2 = Limited, 3 = Extensive	Adapted from OECD
		In the future, will your company provide or fund more training on the advanced digital skills?		Yes/no	New question
Open question	Please briefly indicate the trends and changes in new technologies and their impact on work, workforce, and workplace dynamics in your organisation.				

Note: SD = strongly disagree; DA = strongly agree