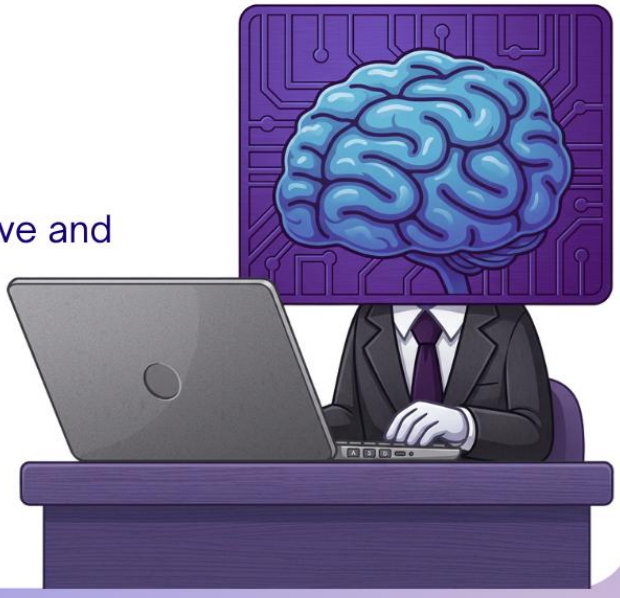
European Commission

Digital Skills & Jobs Platform

Vision Paper

WORKFORCE READINESS FOR CLOUD, DATA & AI TRANSFORMATION

A capability perspective and practical roadmap for organisations



A collaborative work by the members of the Squad 2026

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Table of contents

About this vision paper

This paper is a collaborative contribution developed by DIGITALEUROPE, 28Digital, Experis, University of Trento and the University of Burgos, in the context of Squad 2026, organised by the Digital Skills and Jobs Platform.

The paper examines how organisations can build the capabilities, governance and practical conditions needed to make effective use of **Cloud Data and AI.** Rather than viewing digital transformation as a matter of adopting individual technologies or delivering isolated training programmes, it considers what organisations need to understand, decide and put in place to turn digital technologies into sustainable organisational value.

The analysis brings together perspectives on technology choices, organisational readiness, workforce capabilities, data and AI literacy, governance, leadership, risk and implementation. It explores both the capabilities required across different roles and the practical steps leaders can take to move from identifying an opportunity to testing, scaling and continuously reviewing a digital initiative.

A central message of the paper is that successful digital transformation depends not only on access to technology, but on the organisation's ability to **understand its needs, assess its readiness, develop the right capabilities, govern technology responsibly and learn from implementation**. The paper therefore combines a capability perspective with a practical roadmap for organisational decision-makers.

The work reflects the collaborative nature of Squad 2026: individual chapters have been developed with designated lead organisations and contributions from other participating organisations. This approach brings together complementary expertise and perspectives while recognising that the challenges of digital transformation are interconnected and cannot be addressed through a single organisational or technological lens.

1. Why workforce readiness is now a strategic issue

Chapter lead: Bruno Crispo (University of Trento)

1.1 Executive summary

Workforce readiness has become a strategic issue because technology is no longer a support layer around the business. In many small and medium-sized enterprises (SMEs), cloud applications, data flows, digital platforms and automated decisions now shape how products are designed, customers are served, prices are set, suppliers are coordinated and risks are controlled. **A technology choice can therefore alter the business model**, not merely the Information Technology (IT) environment.

The strategic problem is not that every enterprise needs more technical detail. It is that more people must be able to understand the consequences of technical choices. Decisions about platforms, data, integration and Artificial Intelligence (AI) involve trade-offs among speed, flexibility, cost, security, dependence, accountability and future options. If these trade-offs are understood only by suppliers or isolated specialists, management loses the ability to connect technology to enterprise purpose and risk.

AI intensifies the problem. It accelerates experimentation and changes tasks rapidly, while introducing systems whose outputs may be probabilistic, context-sensitive and difficult to explain. AI also creates new dependencies on data quality, external models, cloud infrastructure and changing provider conditions. Readiness must therefore include the capacity to challenge outputs, verify performance, recognise limits and redesign processes as experience accumulates.

This opening chapter defines the problem rather than prescribing a competence model or a migration response. **Workforce readiness** is used here to mean an **SME's collective ability to understand how technological change affects business processes, risks and future options, and to recognise when existing knowledge, coordination or oversight is insufficient.**

1.2 Technology capability has become business capability

Digital technology once supported relatively bounded administrative functions. Cloud services now connect sales, finance, production, logistics, human resources and customer interaction through shared identities, data and workflows. **The boundary between a business process and its technical implementation has consequently weakened.** Changing a customer platform may alter the sales process; changing an analytics service may alter management information; changing an identity provider may affect access to most of the enterprise.

A poor technology choice can create direct commercial and operational effects: an unsuitable platform can constrain a product, an incomplete data model can distort decisions, an integration failure can interrupt fulfilment, and an opaque pricing structure can undermine expected savings. These outcomes are not corrected by technical competence alone. They require understanding of the business process, the architecture that supports it and the conditions under which the service remains viable.

The strategic significance of a choice also increases when it is difficult to reverse. Data formats, interfaces, identity configurations, embedded workflows and accumulated user practices can make nominally replaceable services costly to leave. If reversibility is considered only after adoption, the enterprise may discover that a technical purchasing decision has already constrained its future business options.

Management can consequently no longer treat technology understanding as a concern confined to the IT function. It does not need to master every technical detail, but it must recognise when a choice changes the economics, control, continuity or future direction of the business. Delegating implementation is different from delegating understanding of the consequences.

This also **changes the meaning of digital literacy**. Basic tool use may be enough to perform a bounded task, but it does not show whether an enterprise understands which assumptions may fail or which questions require specialist judgement. The strategic issue is the widening distance between operating a technology and understanding what dependence on it means for the business.

1.3 What is changing

Cloud services can **simplify individual technical components while making the overall system more relational**. An enterprise may operate fewer servers but depend on more interfaces, providers, identities, data exchanges and contractual conditions. Failures may emerge at the boundaries between services: inconsistent permissions, incompatible data definitions, hidden dependencies or unclear responsibility during an incident. The management problem is therefore no longer confined to the reliability of separate components; it concerns how changes and failures propagate through the business.

Data is no longer only an input to reporting. It drives automation, personalisation, forecasting, fraud detection, product improvement and AI. Its quality, provenance, accessibility and permitted use influence operational performance. Employees who create, interpret and act on data therefore affect the reliability of the enterprise's digital processes even when they do not hold a data-specific job title.

The shift also changes the meaning of **continuity.** Recovering an application is insufficient if the enterprise cannot reconstruct the data, metadata, permissions, prompts, model versions and interfaces on which the process depends. A failure anywhere in that chain can prevent the business from reproducing or explaining an operational outcome even when the individual application remains available.

AI lowers the effort needed to create content, analyse information, generate code and automate parts of a workflow**.** This can shorten the distance between an idea and operational use, sometimes bypassing the review stages through which conventional systems were introduced. Adoption is visibly accelerating: in 2025, 20.0% of EU enterprises with at least 10 employees used AI technologies, compared with 13.5% in 2024, an increase of 6.5 percentage points in one year (Eurostat, 2025).

Speed creates a governance asymmetry. A tool can be deployed in hours, while understanding its data exposure, error patterns, contractual conditions and effects on work may take much longer. AI outputs can appear fluent even when the underlying reasoning is unreliable. The NIST AI Risk Management Framework therefore treats validity, reliability, safety, security, resilience, accountability, transparency, explainability, privacy and fairness as connected characteristics that must be considered across the AI lifecycle (NIST, 2023).

AI also makes technological dependency less visible. A business process may depend on a model selected by a software supplier, on training data the SME cannot inspect, or on provider updates that change behaviour without a traditional software release. If the enterprise cannot detect these dependencies, operational reliance may deepen faster than its ability to evaluate the resulting business consequences.

As processes become interconnected, incidents can move quickly from a technical fault to a business interruption or data problem. In 2024, 22% of EU businesses reported Information and Communications Technology (ICT) security incidents causing effects such as service unavailability, data destruction or corruption, or disclosure of confidential data (Eurostat, 2026). In the same year, 36% had documented ICT-security measures, practices or procedures, and 22% had defined or reviewed such documents within the preceding year (Eurostat, 2026). These figures do not measure workforce readiness directly, but they illustrate the gap between using technology and maintaining an organisational capability to govern it.

1.4 Why traditional education and training are under pressure

University programmes, professional courses and certification schemes need time to define content, prepare instructors, teach, assess and update material. Cloud platforms and related services can change during that cycle. Training organised mainly around current interfaces and product features therefore risks ageing before learners have accumulated enough experience to apply it. The problem is not that technical detail has no value, but **that detail alone has a short period of transferability.**

Experience develops even more slowly. Judgement about technology-dependent business decisions, data quality, incidents or assurance comes from seeing systems behave under real constraints, including incomplete requirements, competing priorities and organisational resistance. Short courses can transmit concepts, but they cannot by themselves reproduce the feedback loops through which professionals learn which assumptions fail and which consequences matter.

Eurostat reports that 22% of EU businesses provided training to develop or enhance staff ICT skills in 2024 (Eurostat, 2025). The share was 21% among SMEs and 73% among large businesses (Eurostat, 2025). The difference matters because smaller enterprises have fewer opportunities to create internal learning pathways, rotate staff across projects or absorb the cost of training whose benefits emerge gradually.

A further pressure comes from fragmentation. Much technology knowledge is organised around particular products, interfaces and certification paths that change independently and at different speeds. Such knowledge may be immediately useful, but it can become difficult to combine across functions or to transfer when the technological environment changes. An enterprise can therefore accumulate numerous individual qualifications without developing a shared understanding of the business problem or of the dependencies created by its choices.

AI makes competence still harder to infer from task performance. It can assist with activities such as drafting code, analysing information or suggesting configurations, so producing an apparently competent output no longer demonstrates that the user understands the assumptions, limitations or consequences involved. At the same time, verifying AI-assisted work may require greater contextual knowledge than producing a first result. **The distinction between performing a task and exercising informed judgement consequently becomes more important.**

Traditional assessments often ask whether a person possesses a skill. Strategic readiness asks whether the enterprise can recognise a change, assemble the necessary perspectives, make a justified choice, implement it safely and learn from the result. An organisation may employ certified individuals and still fail if decisions are fragmented, ownership is unclear or lessons remain local. Readiness is therefore partly a property of coordination, documentation and decision rights.

1.5 Why readiness is an organisational problem

Workforce readiness is often treated as the sum of the skills possessed by individual employees. That view is too narrow for technology-dependent enterprises. Readiness also depends on whether knowledge reaches the point where a decision is made, whether responsibilities are clear, whether different functions can interpret one another's concerns and whether the organisation can recognise when it lacks sufficient understanding.

No single role can see the whole problem. Business owners know priorities and process exceptions; technical professionals understand implementation and failure modes; data owners understand meaning and quality; legal and security functions interpret obligations and risk; users reveal how work is actually performed. Weakness may arise not because all these perspectives are absent, but because they remain separated or are consulted too late.

Cloud providers add another asymmetry. They may understand their services better than the customer, but they do not determine the enterprise's purpose, risk tolerance or acceptable business consequences. When an SME cannot formulate its own questions or evaluate the significance of the answers, technical dependence becomes a loss of decision autonomy. The problem is therefore not simply access to expertise, but the enterprise's **ability to use expertise without surrendering judgement.**

Organisational memory is equally important. Decisions about systems and data accumulate assumptions that may not remain visible after staff changes, supplier changes or rapid experimentation. When the reasoning behind a choice is lost, the enterprise may continue to depend on a system without knowing which conditions justified it or which changes would make it unacceptable. Readiness consequently changes over time even if the formal list of employee qualifications does not.

Technology adoption also changes work itself. Tasks may be redistributed between employees, software and external providers; review stages may disappear; responsibility may become unclear when an automated recommendation influences a human decision. Employees who understand day-to-day exceptions may see risks that are invisible in a technical specification. A readiness problem can therefore appear as poor work design, weak participation or ambiguous accountability rather than as **an identifiable shortage of technical skill.**

1.6 Why the consequences are strategically material

The consequences of insufficient readiness are not confined to inefficient use of software. A poorly understood technology decision can alter costs, interrupt operations, expose confidential information, weaken compliance, reduce customer trust or constrain future products. Because processes and data are interconnected, an error in one technical component may propagate into several business functions before the original cause is recognised.

The impact also increases with time. Data structures, interfaces, automated rules and working practices become embedded in normal operations. Reversal may then require not only changing a supplier or application, but reconstructing information, redesigning processes and retraining users. A decision that initially appears inexpensive can therefore create **a long-lived restriction** on the enterprise's future options.

Dependency on external Cloud services adds uncertainty to this accumulation. Behaviour may change through service updates, cloud provider modifications or new patterns of use, while the system may continue to produce plausible outputs. The enterprise can therefore remain operational while the reliability or meaning of part of its decision process changes. This makes readiness relevant not only at adoption, but throughout the period in which the business depends on the technology.

The scale of expected workforce change reinforces the strategic significance of the problem. The World Economic Forum's 2025 global employer survey found that respondents expected 39% of workers' existing skill sets to be transformed or become outdated by 2030, while 63% identified skills gaps as a major barrier to business transformation (World Economic Forum , 2025). The survey covered more than 1,000 employers representing over 14 million workers across 55 economies, so these figures are global expectations rather than a direct measure of European SMEs (World Economic Forum , 2025).

Readiness is thus a strategic concern before a visible shortage, failed project or major incident occurs. Once a system is embedded, the enterprise may have fewer alternatives and less time to learn. The underlying question is whether the organisation can understand technological change rapidly enough to preserve informed control over decisions that affect its operations and future direction.

1.7 Unresolved questions for research and policy

The first unresolved issue is **measurement.** Digital-intensity indicators, occupational statistics, certification counts and training participation describe important aspects of adoption and labour supply, but they do not show whether an SME can recognise and revise a flawed technology-dependent decision. No single widely adopted SME-specific measure captures the combined effects of individual knowledge, coordination, organisational memory and decision autonomy.

A second issue is the **mismatch between the pace of technological change and the time needed to develop judgement**. Education and professional training must be stable enough to teach coherent knowledge, while the platforms and practices to which that knowledge is applied may change during the learning cycle. It remains difficult to determine which knowledge will remain transferable and which must be renewed frequently.

A third issue is the **experience paradox**. Many consequential decisions require judgement developed through responsibility for real systems, incidents and organisational constraints. Yet employers often seek this judgement before giving a person such responsibility. The resulting gap cannot be described adequately through qualifications alone because exposure to a technology is not equivalent to experience of its business consequences.

Finally, **readiness cannot be understood independently of context.** The consequence of an error, sensitivity of the data, tolerance for interruption, regulatory environment and ability to supervise outputs differ across sectors and processes. A general account of workforce readiness must therefore explain common structural pressures without implying that the same level or form of knowledge is appropriate for every SME.

1.8 Conclusions

Workforce readiness is strategic because cloud, data and AI now shape the core operation and future options of SMEs. Technology can make processes faster, richer, more flexible and less expensive, but it can also embed

dependencies, amplify errors and make change difficult to reverse. Understanding technology is therefore part of understanding the business.

What is changing is not simply the number of digital tools. The speed of adoption is increasing, systems are becoming more interconnected, data are becoming part of operational infrastructure and AI is making some dependencies and failure modes less transparent. At the same time, the time needed to build experience, organisational memory and accountable judgement has not shortened to the same extent.

2. Cloud, data and AI adoption is driven by tangible business value

Chapter lead: Bruno Baruque Zanon (University of Burgos)

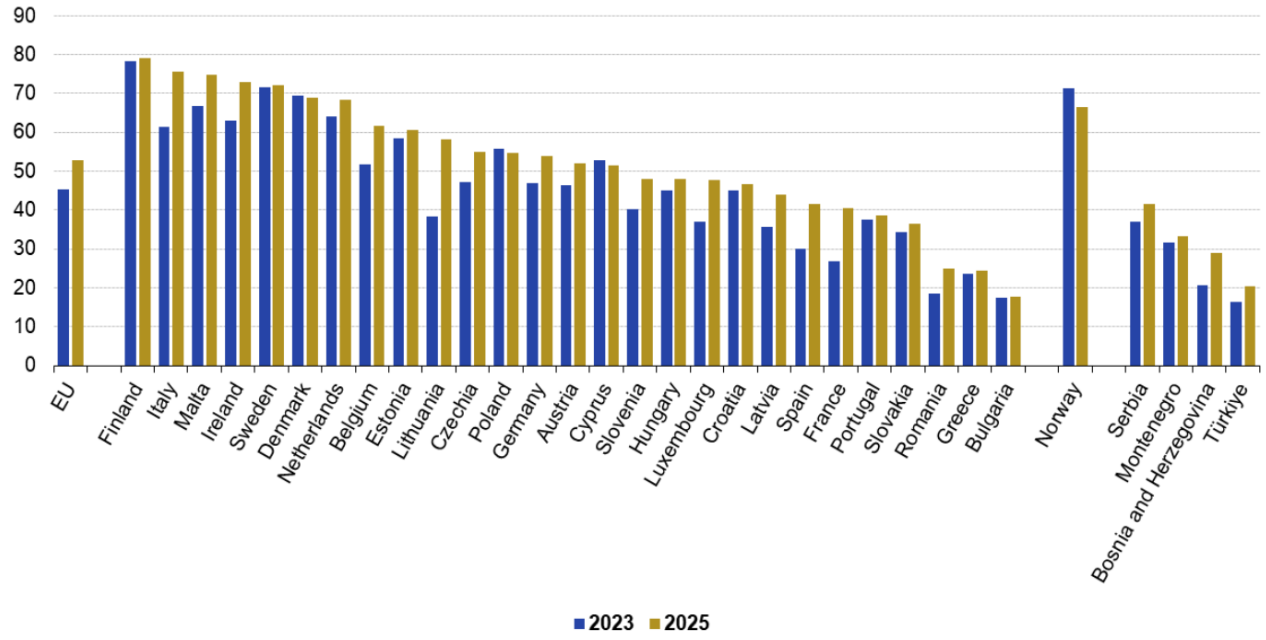
2.1 Cloud as an enabler of business digitalisation

Cloud computing gives organisations flexible, on-demand access to computing power, storage, software and data processing, and it underpins much of business digitalisation (M. Draghi, 2024). It removes much of the upfront cost of building and running on-premises infrastructure, so organisations can adopt advanced digital capabilities without heavy capital or in-house specialism. They can add or shed resources as demand changes, ship faster, and use technologies that would otherwise be too expensive or complex to run themselves. Smaller firms, startups and public bodies gain the most here, since they often lack the money, infrastructure or specialist staff to build these capabilities in-house.

Cloud does more than cut costs. It opens capabilities that were previously out of reach: faster experimentation, shorter time to market, better continuity and resilience, and easier collaboration across sites and organisational lines. It also puts analytics and AI services within reach, helps firms absorb demand spikes, and keeps them on a steady stream of updated tools.

Europe is taking it up. In 2025, 52.74% of EU enterprises reported using paid cloud services, up 7.42 percentage points from 45.32% in 2023 (Eurostat, 2025).

Figure 1 Enterprises using paid cloud computing services, 2023 and 2025 (% of enterprises)



Source: Eurostat (online data code: isoc_cicce_use)

eurostat

2.2 Cloud and data as the foundations of AI adoption

AI is not a standalone trend. Most enterprise AI applications sit on top of a wider digital base: scalable compute, reliable and representative data, secure pipelines, interoperable systems and sound governance (Stanford Institute for Human Centered Artificial Intelligence , 2026). Cloud and edge infrastructure is what makes AI usable at scale, not simply another technology purchase.

The European Commission (EC) treats cloud and edge as a single continuum and pushes for infrastructure that is secure, sustainable and interoperable (European Commission, 2020). That reframing changes how we judge AI readiness. Rather than asking whether a company has deployed a model, we should ask whether its technology, data and governance are mature enough to support AI and deliver value.

AI adoption is climbing alongside cloud. In 2025, 19.95% of EU enterprises with at least ten employees used AI, up from 13.5% in 2024. Size still divides the field sharply: about 55% of large enterprises have adopted AI, against 30.36% of medium and 17% of small ones (Eurostat, 2026).

Dimension	Evidence	Year	Source
AI adoption	20.0% of EU enterprises	2025	Eurostat
Cloud adoption	52.7%	2025	Eurostat
ICT specialists	10.45m / 5% employment	2025	Eurostat
ICT recruitment difficulty	57.5%	2023	Eurostat
Generative AI use among surveyed SMEs	31%	2024 survey	OECD

Table 1 Key indicators of digital & AI adoption and digital skills challenges across EU

Data adoption shows a similarly important distinction between access and internal capability. In 2025, 39.85% of EU enterprises performed data analytics with their own employees or through an external provider, while 33.02% performed analytics with their own employees. Own-staff analytics ranged from 27.86% in small enterprises to 78.84% in large enterprises (Eurostat , 2026).This gap matters because internal capability determines how quickly organisations can formulate questions, validate results, retain data knowledge and connect analytics to operational decisions; external providers can accelerate adoption, but they do not remove the need for accountable data ownership and analytical literacy inside the organisation.

Owning AI tools, though, is not the same as using them well. Adoption has to be measured across a spectrum: mere access, active use, integration into workflows, and finally outcomes that show up on the balance sheet. **The gains appear when an organisation pairs the technology with the right data, skills and governance, not when it buys the licence alone.**

2.3 Adoption and business value are unevenly distributed

2.3.1 Differences by enterprise size

Cloud, data analytics and AI adoption is **uneven across Europe**. Large enterprises report higher uptake than SMEs, and the gap is about more than money. It also reflects the organisational capability needed to implement, integrate and scale these technologies.

Large enterprises can staff digital-transformation projects because they have dedicated IT, cloud, cybersecurity and data-management teams. They have budgets for migration, organisational change and experimentation, plus established governance, legal and compliance functions and more leverage with vendors. They can also absorb failed pilots, long rollouts and delayed returns. SMEs gain more from cloud because shared infrastructure cuts upfront cost and opens capabilities they could not build themselves. They still hit more barriers: tight budgets, unclear business cases, scarce specialist talent, limited management attention, legacy-system integration, cybersecurity, compliance, vendor dependence, and poor access to clean, structured data.

The size gap shows up clearly in AI use. In 2025, about 55% of large EU enterprises used AI, against 30.4% of medium and 17% of small ones (European Commission, 2026) (Eurostat, 2026). Adoption, then, depends on more than access to the technology; it depends on the financial, organisational and human capacity to embed AI in real processes and scale it.

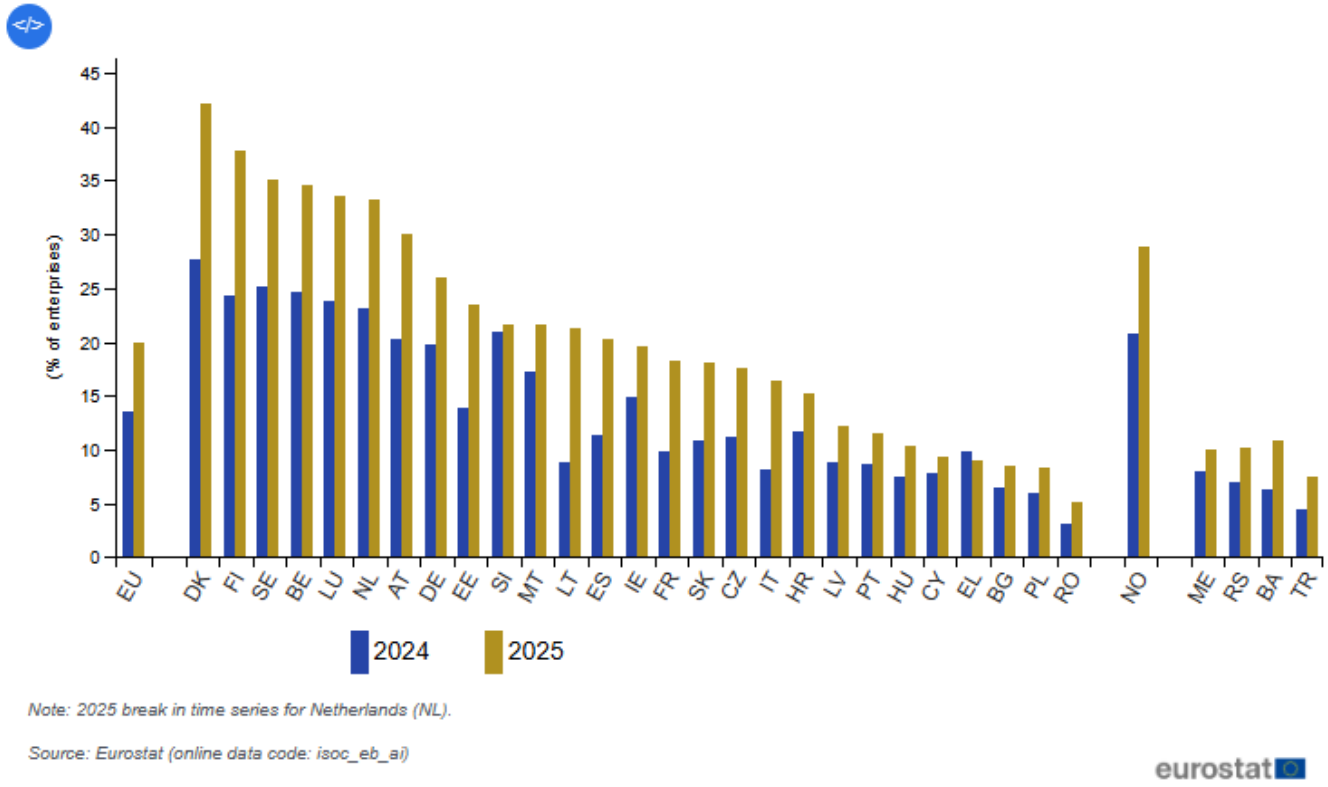


Figure 2 Enterprises using AI technologies, 2024 and 2025

This matters for policy. The European Commission's Digital Decade 2025 study on business digitalisation (European Commission, 2025) points to SME digitalisation, data analytics, AI and cloud uptake, cybersecurity readiness, national support measures, and the role of European Digital Innovation Hubs (European Commission). The evidence is consistent: giving organisations technology is not enough. They also need the financial, technical, organisational and human capability to turn it into measurable value.

The same size effect is visible in workforce development. In 2024, only 22% of EU businesses provided training to develop or improve employees' ICT skills; 73% of large businesses did so, compared with 21% of SMEs (Eurostat, 2025). The organisations that already have fewer specialists and less internal digital capacity are therefore also less likely to invest systematically in developing those capabilities. This helps explain why technology-access measures alone may not close adoption gaps: workforce learning capacity is itself part of the digitalisation divide.

2.3.2 Sectoral differences

Adoption also differs by sector, because sectors face different incentives, opportunities and constraints.

The most digitalised, data-intensive sectors adopt earliest. The information and communication sector reports the highest enterprise AI use. Construction sits at the other end with historically low uptake. In some industries, cloud and AI fit neatly into process optimisation, predictive analytics, automation and decision support. In others, implementation is harder: less standardised operations, unstructured data, or technologies that resist integration into existing workflows. Adoption therefore tracks each sector's conditions and requirements.

The sharpest contrasts appear in regulated or safety-critical sectors: healthcare, finance, transport, energy and public administration. There, organisations must weigh innovation against safety, accountability, privacy and public trust. Deploying cloud and AI often means heavier auditing and assurance, tighter data controls, sector-specific standards, and more explainability, traceability and human oversight.

Low adoption in these sectors should not be read as resistance or lack of ambition. It usually reflects harder implementation, higher compliance cost, and the need to manage operational, legal and societal risk with care. In 2024, 48.7% of EU enterprises in information and communication used AI, compared with 30.5% in professional, scientific and technical activities and about 6.1% in accommodation and construction. Every other sector stayed below 16% (Eurostat, 2025). The pace and shape of digital transformation follow sectoral structure, regulation and priorities, so **adoption strategy has to fit the context.**

2.3.3 Differences across member states and regions

Adoption varies widely across member states and regions too. The drivers are structural and institutional: digital-infrastructure availability, the shape of local business ecosystems, access to finance, digital-skill levels, and the strength of innovation-support networks. Public-sector demand, regional industrial specialisation and the maturity of national digital strategies all shift the pace of adoption.

The result is a **fragmented European map**. Some countries have built digital ecosystems that spread cloud and AI use; others still struggle with infrastructure gaps, skills shortages, thin investment capacity or weak support mechanisms. These gaps shape not just whether firms can reach the technology, but whether they can convert it into productivity and competitive edge.

The spread is starkest in AI. In 2025, enterprise AI use ranged from 42% in Denmark to 5.2% in Romania (Eurostat, 2025). That range shows that access to technology does not by itself produce transformation; the capacity to use it depends on economic, institutional and human factors that differ place to place. Policy and ecosystem support close some of that distance. European Digital Innovation Hubs, digital-skills programmes, test-before-invest facilities, targeted funding, sectoral partnerships and strategic public procurement all help firms adopt cloud and AI. They connect EU policy goals to on-the-ground implementation by supplying expertise, infrastructure, room to experiment and funding.

2.4 Cloud and AI transform tasks, workflows and organisational processes

AI and digitalisation do not improve productivity by themselves. Adding AI tools to unchanged processes rarely moves performance if the underlying structures, workflows and management practices stay the same. Past technology waves show the same pattern: the biggest gains come when adoption is paired with broader organisational change.

Organisations therefore have to rethink how work is designed and coordinated. New tools shift who produces information, who checks it and who decides. That often means adjusting decision rights, reporting lines and accountability so AI supports operations instead of complicating them (Cedefop, 2025). Governance and quality assurance matter just as much. Sound cloud, data and AI deployment usually needs new quality-control procedures, revised performance metrics and ways to monitor outcomes and manage risk. Employee involvement also matters. Workers hold operational knowledge that helps spot where technology fits, anticipate problems and improve the result. Organisations that bring employees into the design and rollout tend to land more durable, accepted change (Cedefop, 2025).

This points to the idea of **organisational complementarities:** technology pays off most when it comes with complementary investment in processes, skills, management and governance. Cloud, data analytics and AI are part of one organisational system, not standalone purchases. Their value depends on how well they fit into operations and on the capabilities of the people using them. Digital transformation is as much an organisational task as a technical one.

2.5 Interoperability, governance and technological sovereignty as conditions for business value

Value from cloud, data and AI depends not just on adopting the technology but on the organisational conditions that let it be integrated, governed and scaled.

Interoperability and governance are what make **technological sovereignty** possible: they give organisations more choice, control and resilience. Interoperability is both an operational and an economic capability. It links data across systems, joins cloud and on-premises environments, supports data and application portability, and lets organisations collaborate across their own boundaries and those of their supply chain. Governance backs this up. Good governance supplies the structures, responsibilities and controls needed to run cloud, data and AI safely and at scale. It settles who can access and use data, keeps quality and security up, tracks and monitors risk, and fixes accountability for decisions and outcomes. Governance matters most for sensitive data, critical operations and high-impact decisions.

Recent European measures, including the Data Act (European Parliament, 2023), push these goals by promoting portability, interoperability between data-processing services and easier switching between cloud providers. The intent is to cut lock-in and make data easier to access, share and use.

For an organisation, sovereignty means keeping real choice and not depending too heavily on a few providers, infrastructures or proprietary ecosystems. It means moving data and applications between environments, keeping critical operations running, knowing where the supply chain dependencies sit, and retaining enough in-house expertise to make informed technology decisions.More sovereignty can sharpen competition, strengthen buying power, lower switching risk and build confidence in digital transformation, particularly in regulated and data-sensitive sectors.

2.6 The skills implication: from technical expertise to distributed organisational capability

2.6.1 Data literacy as a foundational capability

Value from cloud, data analytics and AI depends on data being available, usable and used well. Evidence increasingly points to data literacy as the base of successful digital transformation. Organisations cannot get full benefit from cloud, analytics or AI if employees cannot understand, interpret and use data in their daily work. As these tools spread through business processes, data literacy is becoming a core workforce skill on a par with digital literacy (Cedefop, 2025).

It matters because AI output depends on the data the system is trained and run on. Inaccurate, incomplete, outdated or biased data produces unreliable outputs, flawed recommendations and poor decisions. Organisations need not only specialists who build models and run infrastructure, but also employees who understand how data are collected, assessed, interpreted and used. **Trustworthy AI starts with trustworthy data.** Data work is no longer just for specialists: people across functions now use dashboards, predictive models, automated recommendations and AI-assisted decision support (OECD, 2025).

The EU employed 10.45 million ICT specialists in 2025, 5.0% of total employment, but digital readiness is still uneven. That same year, 60% of EU residents aged 16–74 had at least basic digital skills. That is up from 56% in 2023 but still 20 points below the EU's 2030 Digital Decade target of 80% (European Commission, 2025). Around

one in three European workers already used or interacted with AI tools at work, and four in ten saw a need to build their AI skills further; yet only about 15% had received AI training (Cedefop, 2025).
Recruitment evidence adds a further constraint. Among EU enterprises that recruited or tried to recruit ICT specialists in 2023, 57.5% reported difficulties in filling those vacancies (Eurostat , 2026).The available talent pool is also narrower than it could be: women represented only 19.5% of EU ICT specialists in 2025 (Eurostat , 2026).Together, these indicators show that **workforce readiness cannot be built on external hiring alone;** persistent recruitment friction and under-representation reinforce the need to develop existing staff, widen participation and create internal mobility pathways.

OECD evidence also clarifies the scale and depth of AI-related reskilling. Fewer than 1% of workers are likely to require advanced AI-specific skills such as programming or model development, while a much larger share will need stronger digital skills, data interpretation, problem-solving, creativity and managerial judgement (OECD, 2026). The evidence therefore supports differentiated learning pathways: broad AI literacy and critical use across many roles, with deep engineering and assurance capability concentrated where organisations actually build, integrate or govern AI systems.

More workers therefore need enough data literacy to read metrics correctly, judge reliability and understand what algorithmic outputs can and cannot tell them. Cloud lets organisations collect, store, share and analyse far more data, but wider access does not by itself improve decisions. Employees need the knowledge and critical-thinking skills to turn data into insight and to tell correlation from causation and from misleading results. Without that, organisations produce more information without better decisions or performance.

Data literacy also underpins governance, cybersecurity and compliance. As organisations share data across cloud environments, supply chains and digital ecosystems, employees must understand data quality, confidentiality, privacy and responsible use. Building that distributed capability across the workforce is what lets cloud, data and AI take hold.

The shortage is particularly visible in data-intensive roles. The European Data Market Monitoring Tool forecast a gap of approximately 535,000 data professionals in the EU27 in 2025, equivalent to 5.8% of demand (Directorate-General for Communications Networks, Content and Technology, IDC, The Lisbon Council, 2025).This reinforces the case for treating **data competence as a distributed organisational capacity** rather than a narrow specialist function: scarce experts need to be complemented by employees who can define data needs, assess quality, interpret outputs and collaborate effectively with data teams.

2.6.2 Developing capabilities through Europe's skills ecosystem

Companies adopting cloud, data and AI need different kinds of learning at different stages. For long-term specialist capacity, they can recruit from or partner with higher education institutions and vocational training providers in fields such as cloud architecture, data engineering, AI and cybersecurity. Closer partnerships, applied projects, internships, traineeships, research collaboration and curriculum input help build a talent pipeline matched to operational needs. This effort is scaling up: **by the end of 2025, more than 61,000 people had received advanced digital-skills training funded through the Digital Europe Programme** (Eurostat, 2025).

Erasmus+ and the Digital Europe Programme give education providers and businesses channels to build that cooperation. The Erasmus+ Digital Opportunity Traineeships initiative shows the reach possible: over 52,000 participants had completed a digital traineeship, around 45,000 of them from higher education (European Commission, Directorate -General for Education and Youth, n.d.).

Recruiting alone will not match the scale or speed of demand, though. Companies also have to develop their existing workforce **through flexible, continuous learning**. Micro-credentials can build targeted skills, data literacy, cloud security, interoperability, AI governance, without requiring a full degree, and can be strung into progressive pathways for different roles. The European approach to micro-credentials sets common principles for quality, comparability and recognition across providers, sectors and countries. In 2022, 46.6% of EU adults aged 25–64 took part in formal or non-formal education or training in the prior 12 months; of those, 86% did only non-formal learning, which shows how much happens outside degree programmes (Eurostat , 2026).

When companies are unsure which capabilities or technologies they need, training should attach to a **concrete adoption project**. European Digital Innovation Hubs help firms, especially SMEs, assess needs, reach specialist expertise, train staff and test technologies before committing money. The model works: a 2025 Joint Research Centre (JRC) analysis of assessments from more than 10,000 SMEs found that 90% raised their digital-maturity level after EDIH support, with AI-adoption and automation scores rising by up to 35%. By May 2025 the network had delivered over 44,000 services, 87% to SMEs (Carpentier, D'Add , Nepelski, & Stake , 2025). Digital Skills Academies offer specialised training ecosystems in strategic fields such as AI, cybersecurity and high-performance computing, while AI Factories and EuroHPC initiatives (European Commission, 2026) support more advanced experimentation that needs computing infrastructure and technical expertise. Companies can pair learning with hands-on testing and use the results to judge feasibility, find skills gaps and decide whether to build capabilities in-house, buy them, or develop them through partners.

The practical task is to combine these options into one coherent development pathway. The Digital Skills and Jobs Platform helps locate courses, learning pathways, self-assessment tools and funding; the Pact for Skills (European Commission, 2026) connects businesses with education providers, public authorities and sectoral partners facing the same workforce problems. Vendor and private certifications add useful platform-specific expertise, but companies should balance them with open standards, interoperability, governance and multi-cloud knowledge, so they do not end up with narrow skills or locked into one vendor. The aim is an **integrated learning strategy that ties workforce development to real business use cases, organisational change and measurable value.** Upskilling, reskilling and AI literacy should be treated as standing business requirements, not one-off reactions to shortages.

3. Challenges

Chapter leads: Giulia Grasso, Dorina Stamou (DIGITALEUROPE)

Europe's challenge is shifting from **access to technology to organisational readiness**. Cloud and AI adoption is growing, but SMEs continue to lag significantly behind large enterprises, and many organisations remain at the stage of basic use or isolated pilots.

The main barriers are not only skills shortages, but also limited resources, poor data quality, fragmented governance, legacy systems, security concerns and regulatory uncertainty. These challenges vary across SMEs, large enterprises and public administrations.

The key issue is therefore the gap between experimentation and sustained adoption. Organisations need the skills, data, governance and internal capacity to integrate technologies into everyday operations and scale successful pilots. Europe's priority should be to build these organisational capabilities alongside technology adoption.

3.1 The challenge: adoption requires organisational readiness

Europe's difficulty lies in adopting cloud, data and AI, and in building the organisational conditions needed to use them well. Adoption remains uneven across sectors and company sizes, and many organisations struggle to move beyond basic services or isolated pilots. Skills shortages are part of the problem, but so are weak coordination, limited resources, poor data quality, fragmented governance, security concerns and uncertainty about how responsibilities should be shared. These barriers take different forms in SMEs, large enterprises and public administrations, reflecting their different capacities, obligations and operating environments.

3.2 Cloud and AI adoption has grown, but large enterprises remain well ahead of SMEs

In 2025, 52.7% of EU enterprises with at least ten people employed bought cloud computing services, while 20.0% used artificial intelligence technologies. The difference by enterprise size was substantial: 85% of large enterprises bought cloud services, compared with 52% of SMEs, while 55% of large enterprises used AI, compared with 19% of SMEs. These figures exclude micro-enterprises with fewer than ten people, where constraints may be even greater (Eurostat, 2026). However, adoption figures alone do not show how deeply organisations use these technologies. Among enterprises buying cloud services in 2025, the most common uses were email, office software and file storage. By comparison, 28.2% bought computing power to run their own software, and 26.1% used cloud platforms for application development, testing or deployment. Using a standard online service requires less organisational change than moving important systems to the cloud, developing data-based services or integrating AI into routine operations (Eurostat, 2026). The main challenge is now **implementation:** many organisations already use cloud services and experiment with AI, but fewer have the skills, data foundations and internal structures needed to use them across the organisation. AI still depends on computing capacity, secure infrastructure, accessible and reliable data, and clear responsibility for decisions. The 2026 State of the Digital Decade identifies wider adoption as an implementation challenge, particularly for SMEs and for organisations where gaps in skills, infrastructure, investment and data management overlap (European Commission, 2026).

3.3 The skills problem goes beyond recruitment

The EU employed 10.45 million ICT specialists in 2025, equivalent to 5.0% of total employment. Women accounted for only 19.5% of this workforce. In the same year, around 40% of people aged 16–74 lacked at least basic digital skills. These indicators measure different groups and levels of knowledge, but they point to two connected needs: Europe requires more advanced specialists, and the wider workforce also needs enough digital competence to work effectively with new systems (Eurostat , 2026).

On the one hand, organisations clearly need cloud architects, data engineers, cybersecurity professionals and AI specialists; on the other hand, employees in non-technical roles must also understand how digital tools affect their tasks and where human judgement remains necessary. The JRC's DigComp 3.0 reflects this broader understanding of digital competence. It combines data literacy, safety, problem-solving, critical judgement and the ability to use AI responsibly, without treating AI as a separate technical subject (European Commission, Joint Research Center, 2025). **The problem is not only a shortage of skills but also a failure to identify and use the skills already present.**

3.4 Different organisations face different constraints

The OECD's 2026 survey of more than 2,000 SMEs in 12 countries found that skills gaps, limited time and the cost of implementation and maintenance continued to restrict digital and AI adoption. The survey was not representative of the entire EU business population, so its results should be treated as evidence of recurring barriers rather than as an EU-wide estimate (OECD, 2026).

What emerges is that external support is often necessary, but dependence creates its own risks. A firm may be able to buy a service without having the internal knowledge to assess whether it meets its needs, protects its data or can be replaced later. SMEs therefore need more than isolated training or general guidance. European Digital Innovation Hubs follow this model through **"test before invest"** services, technical assistance and skills support, although the practical value of such mechanisms depends on whether firms can find and access the right support at the right stage.

Large enterprises have more resources and much higher adoption rates, but scale creates other problems. Data may sit in separate business units, countries or older systems. Teams may buy overlapping tools or follow different rules. A pilot can work in one unit but prove difficult to extend across the organisation. OECD analysis notes that data-intensive technologies require investment to bring together data held in separate systems and to change organisational processes. Large firms therefore need common standards, clear ownership and deliberate choices about which skills to keep in-house (OECD, 2024).

The work of public-sector organisations often depends on cooperation between departments and levels of government, which makes interoperability and shared data governance particularly important. The OECD's 2026 Digital Government Outlook finds that many governments have established digital infrastructure and data frameworks but still struggle to use them consistently. Fragmented responsibilities, legacy systems, data-quality problems, rigid procurement arrangements and limited workforce planning continue to restrict implementation (OECD, 2026).

3.5 Why pilots do not become normal practice

The main barriers rarely appear in isolation: poor data quality delays technical work; unclear ownership slows decisions; security and legal questions emerge late; staff receive general training but have no role in redesigning the process. A supplier delivers a working pilot, yet the organisation does not acquire the knowledge needed to

operate or improve it. A pilot may succeed with extra funding, a small dataset or unusually committed staff without proving that it can work under normal conditions. Recent JRC case studies of European public administrations also distinguish between the problems faced during initial adoption and those that arise once systems become operational (Tangi, Rodriguez Müller, & Van Noordt, 2026).

Data weaknesses often lie at the centre of these difficulties. Such weaknesses affect AI, but they also limit cloud migration, analytics and ordinary service integration. Rather than being just technical faults, they reflect unclear responsibilities and weak coordination between the people who create and manage information. In the public sector, the OECD found that data strategies are widespread, while data-quality management, reuse and measurement remain less developed (OECD, 2026).

Moreover, regulatory requirements can delay adoption when organisations are unsure how they apply in practice. In an OECD survey published in 2025, 54.1% of SMEs not using generative AI cited copyright, legal or regulatory concerns as a barrier. Among SMEs already using it, only 35.6% had researched these issues and 28.6% had introduced guidelines for staff. The OECD therefore points to a need for more structured support, particularly through training, information and business mentoring (OECD, 2025).The challenge is often one of implementation: organisations must translate legal requirements into procurement decisions, data and security controls, internal guidance and clear responsibilities (OECD, 2025).

3.6 Conclusions

These barriers show that Europe's challenge is not simply to increase the uptake of cloud, data and AI, but to create the conditions for their effective and sustained use. Public administrations, SMEs and large enterprises start from different positions and face different constraints, yet the same underlying issue remains: technology produces limited value when skills, data, governance, leadership and implementation capacity do not develop alongside it. The gap between experimentation and wider adoption therefore reflects an organisational readiness problem as much as a technical one. Addressing it will require more than access to tools or isolated training; **organisations need the capacity to make informed choices, manage risk, redesign work and retain the knowledge required to operate and improve these systems over time.**

4. Capabilities

Chapter lead: Cosmo Poul Colonna (Experis)

Cloud, Data and AI readiness depend on building practical organisational capabilities, not simply completing training. This section outlines the key capabilities required across Cloud, Data and AI, supported by cross-cutting skills, governance, leadership and measurement practices. The focus is on developing capabilities that are role-based, embedded in delivery and demonstrable through measurable outcomes.

4.1 Capabilities should be layered, role-based and measurable

Organisations should treat Cloud, Data and AI readiness as an **operating capability** rather than as a catalogue of isolated courses. A practical model has three layers: universal literacy for all employees; role-based practice for people applying digital technologies in business processes; and specialist and governance depth for engineers, architects, security, risk and leaders. DigComp 3.0 provides a European baseline for digital competence, while e-CF and ECSF provide common European languages for professional ICT and cybersecurity competences and proficiency. (European Commission, Joint Research Center, 2025) (European Commission, ESCO, 2026) (ENISA, 2022)

4.1.1 Cloud capabilities

- **Strategy, architecture and workload placement.** Translate business outcomes, risk and regulatory constraints into cloud, edge and hybrid architectures; select service and deployment models; document shared responsibilities and workload-placement decisions; and retain enough architectural knowledge to avoid opaque dependency on providers. (European Commission, ESCO, 2026) (European Parliament and Council of the European Union, 2022).

- **Platform engineering and automation.** Provide repeatable foundations for identity, networking, policy, infrastructure-as-code, CI/CD, containers and self-service deployment. Evidence can include reusable platform patterns, automation coverage, deployment lead time and configuration exceptions. (European Commission, ESCO, 2026).

- **Security, reliability and resilience.** Embed cybersecurity, observability, backup, recovery, incident handling, business continuity and supply-chain controls into the service lifecycle. NIS2 links governance with management training and requires technical, operational and organisational risk-management measures. (ENISA, 2022) (European Parliament and Council of the European Union, 2022).

- **Portability, interoperability and provider exit.** Design for data and application portability, open interfaces, documented dependencies and tested switching or exit procedures. The EU Data Act makes switching and interoperability between data-processing services a concrete operational consideration. (European Parliament, 2023).

4.1.2 Data capabilities

- **Data literacy and decision quality.** Employees who consume dashboards, analytics or AI outputs need to frame questions, interpret metrics, recognise uncertainty and bias, and challenge unsupported conclusions. This workforce-wide capability aligns with the information and data-literacy dimension of DigComp 3.0. (European Commission, Joint Research Center, 2025).

- **Governance, ownership and stewardship.** Assign accountable data owners and stewards and establish workable rules for access, privacy, quality, metadata, lineage, retention and permitted use. Governance must be executable in everyday processes rather than existing only as policy documentation. (Data Spaces Support Center, 2026).

- **Data engineering and interoperability.** Build reliable ingestion, transformation and serving pipelines, common semantics and APIs, and controls for quality and traceability. Organisations participating in data ecosystems also need the ability to exchange data under shared governance and interoperability arrangements. (European Parliament and Council of the European Union, 2022) (Data Spaces Support Center, 2026).

- **Analytics and data-product management.** Combine BI, statistical analysis, experimentation and data science with reproducibility, lifecycle ownership and service expectations for priority data products. The objective is faster, better-evidenced decisions and reusable data assets linked to business outcomes. (European Commission, ESCO, 2026) (Data Spaces Support Center, 2026).

4.1.3 AI capabilities

- **AI literacy and responsible use.** People using or operating AI systems should understand capabilities and limitations, protect confidential information, verify material outputs and know when human judgement or escalation is required. Current Commission guidance treats AI literacy as an organisational capability adapted to people's knowledge, experience and use context. (European Commission , 2026).

- **Use-case and AI product management.** Select use cases by business value, data readiness, feasibility and risk, then define acceptance criteria, human oversight and workflow redesign before scaling.

- **AI engineering and lifecycle operations.** Integrate, evaluate, deploy and monitor models and generative-AI components across their lifecycle, including data, prompts, retrieval, versions, quality, cost and rollback. Build deep specialist capability where use cases justify it. (ENISA, 2023).

- **AI assurance, security and governance.** Maintain an AI inventory, document relevant models and datasets, test robustness and security, and establish monitoring and incident processes. ENISA supports a lifecycle approach in which cybersecurity is considered from design through operation. (ENISA, 2023).

- **Human-AI collaboration and change.** Redesign tasks, decision rights and review points so that AI augments work without obscuring accountability. Managers need enough AI literacy to judge evidence, involve employees and distinguish productivity gains from simple tool usage. (ENISA, 2023) (European Commission, Joint Research Center, 2025).

4.1.4 Cross-cutting organisational capabilities

- **Skills intelligence and workforce planning.** Maintain a role taxonomy and proficiency baseline, identify priority gaps, and decide when to build, recruit, borrow or partner for skills. DigComp, e-CF and ECSF provide reusable European reference points for role and competence mapping. (European Commission, Joint Research Center, 2025) (European Commission, ESCO, 2026) (ENISA, 2022).

- **Learning embedded in delivery.** Combine protected learning time with labs, sandboxes, mentoring, communities of practice and project-based application. Tie learning to real Cloud, Data and AI use cases so proficiency is demonstrated in delivery rather than inferred from attendance.

- **Leadership, governance and culture.** Give named leaders accountability for capability outcomes, decision rights, investment guardrails and risk acceptance. Incentivise reuse, knowledge sharing, worker participation and continuous improvement, while making security and responsible use part of normal management practice. (European Parliament and Council of the European Union, 2022).

- **Measurement principle.** Track five linked dimensions: role coverage and assessed proficiency; adoption and workflow change; delivery performance; business or public value; and risk, trust and inclusion. Training completion is an input metric, not the primary evidence that capability exists.

5. Practical Roadmp

Chapter leads: Dorina Stamou and Giulia Grasso (DIGITALEUROPE)

5.1 What should executives do first? What are the phases?

One conclusion that emerges from the analysis above is that organisations should approach cloud, data and AI adoption as a sequence of decisions and not as a technology purchase. This is reflected in the European Digital Innovation Hub model, which combines needs assessment, technical testing, skills development and investment support through its “test before invest” approach, as mentioned above[i]. Recent JRC guidance follows the same logic, recommending that organisations start from real needs, build the capabilities required for implementation and monitor benefits and risks throughout the process (Tangi, et al., 2026)

The five phases below translate these principles into practical decisions for organisational leaders. It may be worth to clarify that such phases are connected, but they are not a rigid sequence. For example, a pilot may expose weaknesses in data, security, workforce capability, governance or the definition of the original use case (Tangi, Rodriguez Müller, & Van Noordt, 2026). When such weaknesses emerge, leaders should return to an earlier phase before committing further resources. This is a practical application of the OECD’s recommendation to use staged investment, evaluation and feedback to redirect resources when digital initiatives do not produce sufficient evidence of value (OECD, 2026).

The phases answer five practical questions:

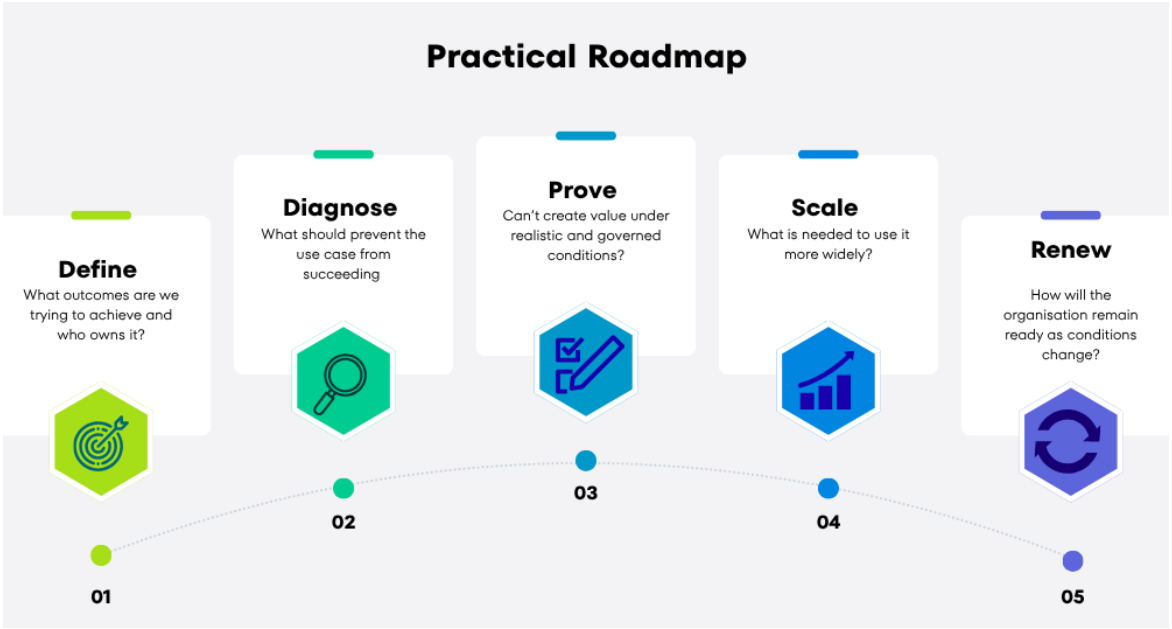


Figure 3 Phases of the practical roadmap

5.1.1 Frame: define the outcome, scope and ownership

Instead of starting from a particular technology, leaders should start with a clear organisational need, defining a business or operational outcome that is valuable enough to justify investment but focused enough to test (European Commission, Last updated 2025) (Tangi, et al., 2026)[l].
This also means looking beyond the system itself to understand who will use it, whose work will change, who controls the data and who may be affected by its outputs (OECD, 2026). Since adoption also involves organisational and cultural change, it cannot be treated as a purely technical exercise (Tangi, Rodriguez Müller, & Van Noordt, Exploring challenges for artificial intelligence adoption and implementation in EU public administration: Results from a case study analysis, 2026) . Leaders should therefore agree from the outset what evidence would justify continuing, adjusting or stopping the initiative, especially as many governments still do not systematically assess whether digital projects achieve their intended results (OECD, 2026).

The output of this phase should be **a short value case**, a defined scope, a named executive owner and agreed decision criteria.

5.1.2 Diagnose: establish the readiness baseline

The diagnosis shouldn't focus on the organisation's overall level of digital maturity, but on what the selected use case actually requires. The EDIH Digital Maturity Assessment offers a useful reference, covering strategy, digital readiness, skills, data management, automation and intelligent technologies, while the public-sector version also addresses human-centred digitalisation, data security and interoperability (European Commission, 2024) (European Commission , 2023).Organisations can therefore use these areas selectively, concentrating on the conditions that are most relevant to the project and to the decision on whether to proceed.

In practice, this means looking at four connected areas: data, technology, suppliers and workforce. The organisation should confirm that the necessary data are available, reliable, lawful to use and clearly owned, recognising that public bodies may face additional difficulties when information is spread across departments or levels of government (OECD, 2026). It should also assess whether its infrastructure, cybersecurity, system integration and continuity arrangements can support the proposed use (ENISA, 2025). Workforce readiness should be considered in relation to the tasks people will perform, including their ability to use data securely, interpret system outputs and respond to errors or risks (European Commission, Joint Research Center, 2025).

The purpose of this phase is to distinguish between critical barriers, such as unlawful data access or serious security weaknesses, and smaller gaps that can be addressed during a controlled pilot. It should end with a **concise readiness baseline**, **a prioritised list of actions and a decision to proceed, proceed with conditions or pause.**

5.1.3 Prove: implement a governed use case and build capability

A pilot should test the solution in real working conditions, showing not only whether the technology works but whether the organisation can use, govern and support it effectively. JRC analysis of eight European public-sector AI cases found that the challenges emerging during implementation and operation often differed from those identified at the initial adoption stage, which is why the pilot should involve the people responsible for the process, technology, data and main risks (Tangi, Rodriguez Müller, & Van Noordt, 2026).

The pilot should also be used to build the skills employees need in practice: organisation should assess whether the system is actually used, improves the intended outcome, creates additional risks or work, and remains affordable to operate. The pilot should conclude with evidence of value and use, documented lessons and governance decisions, and a clear decision to stop, adjust, repeat or scale (OECD, 2026).

The phase should end with **evidence of operational value and actual use, a record of learning and knowledge transfer, documented governance decisions and a decision to stop, adjust, repeat or scale.**

5.1.4 Scale: institutionalise what has been shown to work

Scaling should build on the pilot without assuming that the same approach will work everywhere. Different teams, services and locations may use different systems, data and working practices, so leaders need to decide which elements should become common standards and which should remain flexible (OECD, 2026) (OECD, 2026).

This also requires a longer-term view of workforce capability. As adoption expands, organisations need to decide which skills and responsibilities should remain internal, which can be sourced externally and how roles and learning needs will change. Although many governments assess digital skills needs, relatively few have a dedicated strategy for developing and retaining digital talent, increasing the risk of weak internal capability and dependence on suppliers (OECD, 2026).

The way this is managed will vary by organisation. SMEs may need to expand gradually and continue relying on external expertise, while retaining enough internal knowledge to assess quality, risk and supplier performance. Large enterprises may need to reduce duplication and establish common rules across business units, while public organisations may need to place greater emphasis on interoperability, accessibility, accountability and continuity of services (OECD, 2026) (OECD, 2026).

The output should be a **scaling plan, an agreed operating model, reusable controls and standards, a workforce and learning plan and measures covering adoption, value, cost and risk.**

5.1.5 Renew: maintain organisational and workforce readiness

Readiness needs to be maintained after deployment, as changes in technology and infrastructure, workforce roles, and regulatory requirements may all change over time. This is why JRC and ENISA guidance treat monitoring, risk management, business continuity and staff capability as ongoing organisational responsibilities (Tangi, et al., 2026) (ENISA, 2025).

Organisations should review the system at intervals that reflect its level of risk, considering operational results, incidents, data quality, employee use, learning needs, supplier dependence and relevant legal or technical developments. Systems that influence decisions about people or public services require closer oversight than limited administrative tools (Tangi, et al., 2026).

The findings should then be considered by a body with the authority to act. Leaders should be able to continue, redesign, renegotiate, expand or retire the system, and adjust investment and workforce plans accordingly. This reflects the OECD's recommendation to strengthen evaluation and use staged investment so that resources can be redirected when digital initiatives do not deliver the intended results (OECD, 2026)

This phase should result in a **regular review cycle, a clear decision-making forum, a small set of monitored indicators and updated actions for investment, skills, supplier management and risk.**

Taken together, the roadmap provides a practical sequence: define the outcome, assess readiness, test the use case, scale what works and continue reviewing whether the organisation remains in control.

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