

Age ain't nothing but a number: why microlearning isn't closing the digital skills gap, and what would

This paper is part of the Digital Skills & Jobs Platform's Digital Briefs series – in-depth deep-dive overviews of key topics in digital skills and technology, produced by some of Europe's leading experts in the field



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Summary

When you look at who participates in digital training across Europe, age jumps out. Older workers engage at lower rates: the pattern is consistent, the data is clear, and the instinct to respond to it is understandable.

But age is a red herring. It correlates with the factors that actually matter: qualification level, firm size, access to employer support. A 58-year-old in a large organisation with an HR team is not the same problem as a 58-year-old in a ten-person firm with no training budget. Treating them as the same because they share a birthday misses what is actually going on.

Microlearning was built to reach the workers traditional training couldn't. But the evidence shows it works best for those who are already motivated, supported, and digitally confident, not for the lower-qualified workers in smaller firms who need it most.

The right response is not more content. It is investment in the conditions, time, employer legitimacy, and guidance, that make content reachable in the first place.

Keywords

#Microlearning, #digital skills gap, #adult learning, #microcredentials, #participation infrastructure

About the author

Monica Adami is Director of Public Affairs at FTI Consulting, where she advises clients on European public policy and regulatory developments. She has over seven years of experience supporting the European Commission through policy analysis, evaluations, impact assessments, stakeholder consultations and strategic research, having previously worked with DG GROW via PwC and, as a consultant at Wavestone, on projects for several Directorates-General, including DG CNECT, DG HOME, DG TAXUD and DG MOVE.

Her background combines qualitative research, interviews, focus groups and policy reporting, with the coordination of complex multi-stakeholder projects at EU level. She is the author of several EU studies and peer-reviewed publications, including research published in *Disasters* and *Business Strategy and Development*.

Monica holds a Master's degree in International Peace and Security from King's College London and a Master's degree in International Economics and Business Management from KU Leuven.

Introduction

Across the EU, millions of adults need new digital skills to keep up with changes in their workplaces. Technologies are reshaping daily work in healthcare, administration, logistics, and education. Policy has responded with real ambition: frameworks, targets, and significant investment in microlearning - short, modular digital courses designed to fit around working life, completable in minutes, on a phone, without time away from work. The logic makes sense. But the evidence tells a more complicated story.

Research on adult learning consistently shows that the workers most at risk from digital disruption are the least likely to participate in training. It is not mainly about motivation. It is about the structural conditions in their working lives that make learning possible or, more often, impossible ([Boeren, 2017](#)).

The growing body of research on microlearning shows that it tends to work best for people who are already well supported, well qualified, and digitally confident ([Monib, Qazi and Apong, 2025](#), [Taylor and Hung, 2022](#)). The broader microcredentials literature, which encompasses microlearning as one delivery form, consistently finds that uptake is concentrated among those already engaged with formal education or employment-based training, not among the lower-skilled workers in smaller firms who need it most ([Pouliou, 2024](#)).

This brief asks what it would actually take to make microlearning work for those workers.

Why age is the wrong lens

Most Europeans who are now in their forties, fifties, or sixties were educated in a world where knowledge changed slowly. A qualification earned in your twenties could carry you through a career.

Taking stock of some key metrics for today and tomorrow

That world is gone. Technologies are reshaping daily work in healthcare, administration, logistics, and education. The definition of basic digital competence keeps moving: the [DigComp framework](#) has been revised three times in a decade, and skills considered advanced five years ago are now routine expectations.

So how do policymakers respond? Age is a natural starting point. The [Digital Decade Policy Programme](#) sets a target of 80% of adults with basic digital skills by 2030. The [2026 State of the Digital Decade report](#), published in June 2026, shows that just over 60% of EU adults currently meet that threshold, and the Commission's own projections suggest the figure will reach only around 68% by 2030 at current rates, with the 80% target not expected to be met before 2037 without further action. The largest pitfalls are concentrated among older individuals, those with low educational attainment, and people in rural areas – the groups also most likely to end up digitally excluded and suffer the highest economic and social cost as a result of this ([European Commission, 2026](#)).

Challenges with adult learning participation

[Eurostat](#) figures show that only 35.4% of workers aged 55 to 64 participated in any education or training in 2022, the lowest rate among all working-age groups, and that pattern is hard to ignore. This is just over halfway from the 2030 target under the [European Pillar of Social Rights Action Plan](#), in which at least 60% of all adults should be participating in training every year. But a low participation rate does not tell you why participation is low. Yet the headline figure describes the problem without explaining it: it says nothing about what actually keeps these workers out of training.

Age correlates strongly with other factors: lower qualifications, employment in smaller firms, and less access to employer-supported training. These are the things that actually drive the participation gap ([Boeren, 2017](#)). A 58-year-old with a degree, working for a large organisation with an HR team, is in a completely different position from a 58-year-old with lower qualifications in a ten-person firm. Treating them as the same problem because of their age misses the point.

[Boeren, 2017](#) argues that participation in learning is shaped by three interlocking layers: the individual, the workplace or training provider, and the wider policy environment. All three have to work together for participation to happen. If one layer is missing, participation becomes much harder. At the workplace level, larger firms tend to have dedicated training capacity and expansive learning environments, while smaller firms offer little or none of this. These conditions are not distributed by age. They are distributed by firm size and educational background.

Who actually gets left behind?

Think about a logistics coordinator in her late fifties. Her employer has just introduced a scheduling tool that automates routine data entry and flags anomalies for human review. Using it well means interrogating what it produces, spotting its errors, and knowing when to override it. These are not skills she has needed before. She has around nine years of working life ahead, and she is unlikely to switch sector. She needs to make this work where she is.

The EU workforce: state-of-play

This situation is not unusual. Europe's workforce is ageing. Pension ages are rising. Fewer early exit routes mean more people are working well into their sixties. For workers in their late fifties, adapting to rapid technological change is not a short transition. It could mean nearly a decade of keeping pace with a labour market where digital expectations will keep shifting.

But look at who actually participates in training. [Eurostat](#) data shows adults with degree-level qualifications participate at rates of 65.7%. Those without upper secondary qualifications participate at just 25.1%. Lower qualifications correlate with both weaker access to training and weaker confidence in one's ability to learn new technical skills. Workers in smaller firms face yet another layer of difficulty: their employers often lack the budget, the HR capacity, and the basic awareness of what training is available ([Boeren, 2017](#); [Sanchez Barrioluengo, Biagi and Di Pietro, 2025](#)).

These are not three separate problems. Older workers, lower-qualified workers, and workers in small firms overlap significantly. Together they are the people for whom digital transformation carries the most

serious consequences and for whom the existing upskilling infrastructure does the least. [Cedefop \(2026\)](#) estimates that nearly half of European workforce is employed in low-skilled jobs. What they share goes beyond age. It is the absence of the structural conditions that [Boeren \(2017\)](#) identifies as necessary for participation: someone telling them relevant training exists, an employer giving them the time and legitimacy to pursue it, and someone helping them connect what is available to what they actually need.

Reviewing European literature on microcredentials

The microcredentials literature sharpens this picture further. [Pouliou \(2024\)](#), reviewing VET-oriented (Vocational Education and Training) microcredential provision across Europe, identifies a fourfold typology of provision: supply-driven credentials within formal systems, labour-market-entry credentials, employer-driven demand-side credentials, and credentials specifically targeting vulnerable groups. The last category, which most closely maps onto the workers this brief is concerned with, remains the least developed and least quality-assured of the four. The workers who need structured, supported short-form learning the most are the ones for whom the least coherent provision currently exists.

That gap is not invisible to policymakers. The [Council Recommendation of 16 June 2022 on a European approach to micro-credentials for lifelong learning and employability](#) was an early and explicit response. It established a common European definition and standard elements for describing micro-credentials, and recommended that Member States embed them across education, training and labour-market policies. Two of its recommendations speak directly to the workers this brief is concerned with: that vocational education and training providers explore micro-credentials for the upskilling and reskilling of adults, and that information and advice on micro-credentials be built into lifelong learning guidance services, precisely the connective support identified above as missing. The [Commission's 2025 progress report on the implementation of the Recommendation](#), based on a survey of representatives of education and training systems in the 27 Member States and three associated countries, takes stock of how countries are introducing definitions, quality assurance, recognition and funding arrangements, and how micro-credentials are being embedded in national policies across higher education, VET and employment systems. Evidence of this kind is essential to understand whether micro-credentials are genuinely reshaping lifelong learning and employability, and reaching the learners they are meant to serve.

The Recommendation sits within a broader policy architecture pointing in the same direction. The [Digital Education Action Plan](#) (2021–2027) makes flexible, lifelong digital learning one of its guiding provisions, while the [European Skills Agenda](#) sets EU-level targets for adult participation in learning and, through the [Pact for Skills](#), mobilises companies, social partners and regional partnerships around concrete upskilling and reskilling pledges.

The [Union of Skills](#), launched by the European Commission in March 2025 with over €150 billion of investment across the current seven-year EU budget, goes considerably beyond a supply-side approach, making available over 800 micro-credential courses to address immediate skills gaps. It explicitly identifies low-skilled adults as a priority group, includes a Skills Guarantee pilot for workers at risk of unemployment, and an [Action Plan on Basic Skills](#) focused on reaching adults in settings where they feel comfortable.

[Individual Learning Accounts](#) reflect the same ambition: designed as more than a training voucher, the framework calls for career guidance, outreach to hard-to-reach groups, employer engagement, and integration with existing support structures. The ambition is real and the direction is right. What the

evidence in this brief suggests is that success will depend less on the instruments themselves than on whether the structural conditions at workplace level, i.e. time, legitimacy, guidance, can be put in place alongside them.

What microlearning can and cannot do

Microlearning was built, among other reasons, to solve the digital skills gaps for adults. Short, flexible, low-cost, available on a phone: it was supposed to reach the workers that traditional training formats had left behind. According to [Eurostat](#), 86% of all adult learners in 2022 were in non-formal learning only, the category that covers most microlearning. In that sense, microlearning has already won. It is the dominant mode of adult upskilling in Europe.

So, is the problem solved? Not quite.

[Monib, Qazi and Apong \(2025\)](#), reviewing 40 studies on microlearning published between 2020 and 2024, confirm that it has real positive effects on cognitive, behavioural, and affective outcomes across a wide range of settings. But look at the conditions under which it produces those effects. Effective microlearning needs clear objectives, content personalised to the learner's prior knowledge, institutional support, access to resources, and time. The authors group these as situational factors: the learning environment, time constraints, support systems, economic situation, and institutional policies that shape whether a learner can actually benefit. Strip those away and the positive effects diminish.

[Taylor and Hung \(2022\)](#) found something similar. Microlearning works best as part of a larger, supported learning programme. When it is the only format, learners tend to find the experience fragmented and report lower satisfaction. Its brevity, which is its main selling point for focused skills, also means it cannot build the structural understanding that genuinely new competences require.

The issue with low digital confidence

Workers with limited digital confidence do not just face a steeper learning curve when they open a microlearning platform. They face it alone, without the guidance that a colleague in a well-resourced organisation would get as a matter of course: a manager pointing to a relevant course, an HR system surfacing it automatically, a workplace culture that treats digital learning as normal. Where those conditions are absent, the flexibility of microlearning does not fix anything. It simply moves the obstacle ([Boeren, 2017](#)).

Low confidence is a further complication. Workers who do not believe they can learn new technology may not see digital training as something that applies to them at all, regardless of what is available. [Boeren \(2017\)](#) notes that people who struggled in compulsory education often carry that forward as low self-belief that suppresses engagement with learning long before access becomes a question. Time matters too. Workers on shifts or with caregiving responsibilities have little space for self-directed study. Even a free course has a real cost when time is what you do not have ([Monib, Qazi and Apong, 2025](#)).

Result-orientated: the building blocks of successful microlearning

Where microlearning has genuinely reached workers who need it, it has done so in employer-led programmes where learning was built into working hours, managers actively encouraged participation, and content was tied directly to the job ([Taylor and Hung, 2022](#), [Monib, Qazi and Apong, 2025](#)). The enabling conditions were employer mandate, paid time, active guidance, and a workplace culture that treated digital learning as normal. These are precisely the conditions that [Boeren \(2017\)](#) identifies as the missing layer for workers in smaller firms.

The VET microcredentials evidence points in the same direction. [Pouliou \(2024\)](#) finds that the cases where short-form credentials produce the strongest outcomes for vulnerable learners are those that combine audience-specific design, mentorship, practical placement, and employer involvement from the outset, as seen in the [Women4IT programme](#) in Latvia and the [Nearly Zero Energy Buildings upskilling courses](#) in Ireland.

Similar building blocks are appearing at EU, national and regional level. In Finland, the [Service Centre for Continuous Learning and Employment \(JOTPA\)](#) funds targeted provision with a strong focus on lifelong learning and the working-age population, including people approaching, but not yet eligible for, retirement. The [Girls Go STEM](#) initiative offers flexible online courses that build digital and entrepreneurial skills early, for girls aged 14 to 18. Ireland’s [MicroCreds project](#) has developed over 600 bite-sized, flexible university courses to help adults upskill, reskill or change careers, and has become a reference model for microcredential development. And across the Member States, the [National Coalitions for Digital Skills and Jobs](#), many connected to the Digital Skills and Jobs Platform, are developing microlearning of their own. Germany’s [media literacy courses for older people](#), designed around everyday digital life, is a case in point. What these initiatives share is that none of them stops at publishing content: they attach guidance, funding and institutional backing to it. Ultimately, they are microlearning as infrastructure.

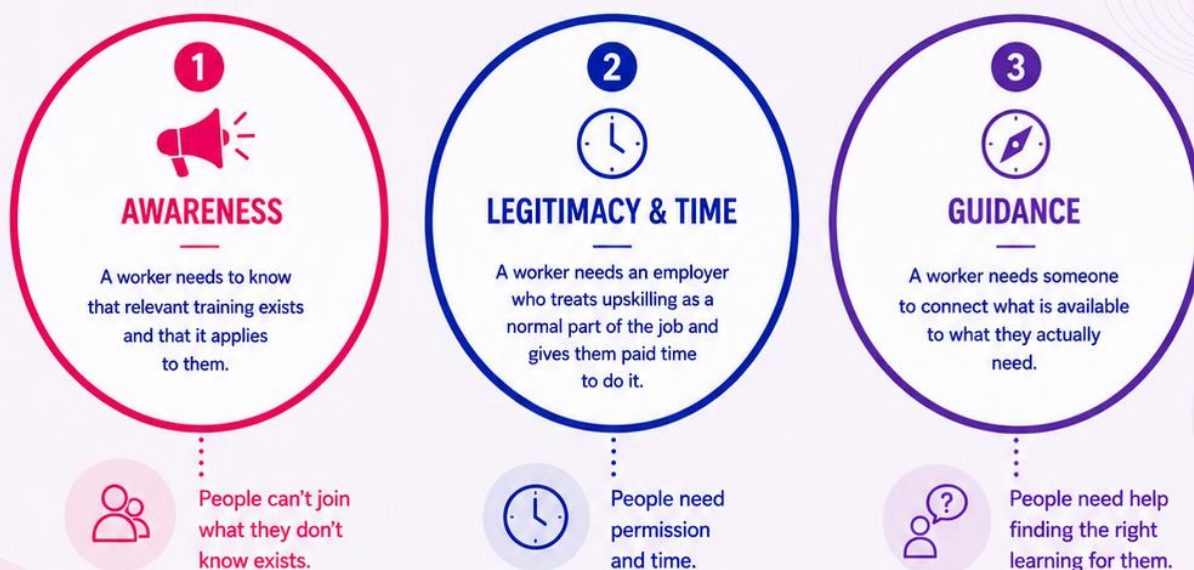
From diagnosis to direction

This brief opened by asking what it would actually take to make microlearning work for workers who lack the conditions for participation. The evidence points to a clear answer, though not a comfortable one.

For microlearning to reach lower-qualified workers in a small firm, three conditions need to be in place: 1) they **need to know relevant training exists and applies to them**; 2) they **need an employer who treats them with confidence and gives them enough time to do so**; and 3) they need **someone to connect what is available to what they actually need**. These are not design features that can be built into a platform. They are social and organisational conditions that either exist in a worker’s environment or do not. In large organisations they are provided routinely by HR teams, line managers, and internal systems. In a ten-person firm, none of that exists.

The numbers that matter

Three conditions determine whether microlearning reaches the people who need it.



	LARGE ORGANISATION	SMALL FIRM (UNDER 10 PEOPLE)
AWARENESS	HR systems surface relevant courses automatically.	Worker unlikely to hear about what exists.
LEGITIMACY & TIME	Manager encourages participation; learning is in working hours.	No dedicated training budget; learning happens in personal time, if at all.
GUIDANCE	Internal L&D team or line manager connects content to role.	No intermediary; worker navigates alone.
RESULT	Microlearning works.	Microlearning doesn't reach them.



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Figure 1. Conditions determining whether microlearning works

No proven model yet exists for changing this at scale. But the evidence does point toward what such a model would look like. [Taylor and Hung \(2022\)](#)^c and [Pouliou \(2024\)](#) converge on the same configuration: **learning that is employer-embedded, designed for a specific audience, and integrated with a credential that signals value to both worker and employer.** The [Women4IT programme](#) and the [Nearly Zero Energy Buildings upskilling courses](#) that [Pouliou \(2024\)](#) highlights may be small, but they are not outliers - they are proofs of concept. What they demonstrate is that the three conditions this brief identifies can be deliberately constructed, not just hoped for, when design starts from the worker's situation. The evidence base for scaling that approach remains thin, and that matters. But it is a different kind of "not yet" than having no direction at all.

Ultimately, investment needs to be directed not at content but at the conditions that make content reachable. The question is whether the ambition now being invested in European skills can bring those conditions within reach of workers whose employers cannot provide them.

That question does not yet have a confident answer. But it is the right question to ask, and the pace of change means the window of opportunity to ask it is getting smaller and smaller.

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