PORTUGAL

COUNTRY REPORT

Unlocking Portugal's AI Ambitions in the Digital Decade

Portuguese businesses and citizens strongly recognise the transformative potential of AI, and businesses are increasingly looking to expand their adoption of the technology.

This research, the first of its kind since the boom in the adoption of generative AI and large language models (LLMs), uncovers significant acceleration in the uptake of AI in 2023, but also notes that there are numerous barriers to overcome in order to maintain this growth.

This study, which builds on a 2022 report carried out by Public First and commissioned by AWS, surveys 1000 businesses and 1000 citizens in Portugal, notes that if the Portuguese government and businesses can invest in digital skills and address citizen concerns, they will be on track to meeting the ambitious targets of the European Commission's Digital Decade policy programme. These targets include 75% of businesses using AI and 80% of citizens with basic digital proficiency by 2030.

Key Statistics

- Businesses increased their digital technology investments by **61%** in the past year - ten percentage points more than the European average (51%).
- **35%** of Portuguese businesses had adopted AI in 2023, up from 28% in 2022. This is a growth rate of 25% in just one year.
- The increased rate of adoption of advanced digital technologies, especially AI, could unlock **€61 billion** for the Portuguese economy.
- **87%** of businesses have heard of AI technology before, and 35% have a deep understanding of these technologies.
- **71%** of businesses state that difficulties hiring staff with good digital skills is holding them back – compared to an average 44% across Europe.
- **A significant 60% of Portuguese citizens** believe AI can be instrumental in addressing global issues, such as climate change.

Digital Investment: Leading the Charge

Portuguese businesses, like many across Europe, are increasingly reliant on digital technologies. **The majority (81%) of businesses** report that they would struggle to function if their digital technologies failed.

Portugal's digital ambitions are underpinned by increased investments in digital technology. Portuguese businesses have outpaced their European counterparts, increasing their investment in digital advancements by **61%** in the past year - ten percentage points more than the European average of 51%.

Although Portuguese businesses plan a smaller increase next year, projecting a **49% increase in investment**, the spending plan nonetheless shows a continued commitment to digital investment by Portuguese businesses.

81% would **struggle to function** if their digital technologies failed.

In the past year, **investment** in digital advancements has increased by **61%**

77% report that digital technology plays an **important or essential role** in meeting their five-year growth targets.

There is clearly a growing awareness and excitement for the digital sphere in Portugal. **77% of Portuguese businesses** report that digital technology plays an important or essential role in meeting their five-year growth targets. These ambitious investment targets reflect Portugal's digital ambitions.

The Importance of Cloud

Cloud adoption among Portuguese businesses grew to 27% in 2023, up from only 24% in 2022.

Portuguese businesses demonstrate a broad awareness of cloud computing as a concept. A majority (**81%**) of businesses have heard of the technology before, just slightly below the European average of 85%. However, of the Portuguese businesses surveyed, only **26%** claimed they hold a good understanding of what the technology does, compared to 39% across Europe.

Despite this, the businesses in Portugal that employ cloud computing technologies have felt the benefits. These businesses report that the primary benefit is support with remote or flexible working practices – 60% of Portuguese businesses noted this particular benefit compared to 50% across Europe as a whole.

AI: Embracing the Future

Artificial intelligence isn't just a buzzword in Portugal; it's a reality.

Portuguese businesses are a leader for the utilisation of AI technology across Europe. **35%** of Portuguese businesses have adopted AI, up from **28%** in 2022. This represents a growth rate of **25%** in just one year.

28%
Of business currently use AI

35%
European average

Adoption rates are very high - and among the highest in Europe - among those businesses who are familiar with AI. 64% of Portuguese businesses currently use at least one AI technology on a consistent basis, whereas the European average stands at 59%. Portuguese businesses are also using AI technologies in increasingly advanced ways. **70%** of Portuguese AI adopters are using generative AI and LLMs.

Portuguese businesses which have adopted AI technology report a range of benefits. **100%** reported enhanced automation and an improved customer experience, while **70%** reported increased revenues.

AI adoption is also set to unlock significant economic value in Portugal. The accelerated rate of uptake of digital technologies, most notably AI, could unlock **€61 billion** for the Portuguese economy, if maintained.

Portugal's outlook on the transformative powers of AI mirrors that of their European counterparts. More than half (**64%**) of Portuguese businesses believe that AI will either completely or largely transform their industries.

Despite the impressive uptake of AI technology, barriers to adoption remain present in Portugal. Notably, the main concern expressed by half the participants was the restricted ability to switch between AI providers.

Furthermore, the adoption of AI and other technologies is also currently skewed towards larger companies. 45% of larger companies are using AI, compared to just 32% of micro-SMEs (small- and medium-sized enterprises).[1]

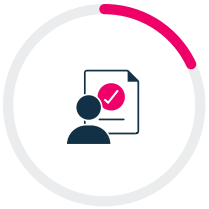
In December 2023, the EU reached a provisional agreement on the AI Act, forming a broad legal framework for regulating the use of AI. AWS supports government efforts to put in place effective risk-based legislation for AI that protects citizens and rights and encourages trust, while also allowing for continued innovation and practical application.

AWS encourages policymakers to continue pursuing an innovation-friendly and internationally coordinated approach. It is committed to collaborating with the EU and industry to support the safe, secure, and responsible development of AI technology.

The Digital Skills Gap

As Portuguese businesses continue to adopt digital technology, they face a pressing challenge: the digital skills gap.

Only a minority (19%) of businesses find it easy to recruit new staff with adequate digital skills. This challenge extends to internal training as well, with **only 19%** finding it easy to upskill their existing workforce, contrasting the European average (25%). Portuguese businesses are also the most likely across Europe to state that difficulties hiring staff with good digital skills are holding back their business. In Portugal, **71% of businesses** reported this, compared to an average 44% across Europe. Moreover, Portuguese businesses rank basic digital skills, such a sending an email or editing a document, as the most lacking within their organisations - highlighting the disparity between digital ambitions and the very real barriers that hinder businesses from achieving these goals.

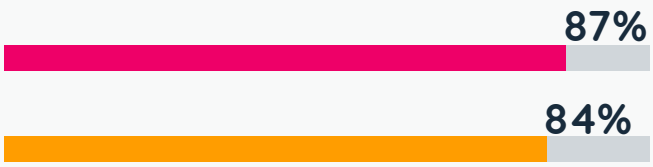


Only 19% of businesses find it easy to recruit new staff with adequate digital skills.

Similarly, **only 19%** find it easy to upskill their existing workforce.

71% stated that difficulties hiring staff with good digital skills are holding back their business

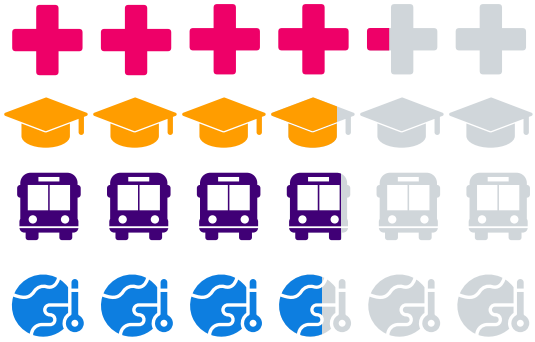
Looking to the future, Portuguese businesses display understanding of the increasing importance of digital skills with **74%** predicting that in just five years, digital skills will overshadow traditional university qualifications in importance for most roles. It is therefore unsurprising that over **one third (34%)** of working-age citizens feel their lack of digital skills is a barrier to job opportunities.



Recognising the skills gap, Portuguese businesses are trying to upskill their employees. **A significant majority (87%) of businesses** are investing in digital training for their employees, aligning with the European average. Moreover, Portuguese businesses have set the bar high by requiring new recruits to possess a minimum digital skill level — **84% have this requirement**, a figure significantly higher than the European average of 65%.

AWS is committed to providing training in cloud technology to 29 million people globally by 2025. In Portugal, AWS has education programmes for different audiences, such as AWS re/Start, AWS Academy and AWS Educate.

The Societal Perspective on AI and Digitalization



The optimism and challenges experienced by businesses also resonate with the broader Portuguese society.

Citizens envisage AI transforming multiple sectors, including **healthcare (72%), education (63%), and transportation (64%).**

Notably, Portuguese citizens are hopeful about AI's role in societal challenges, with **60% believing that AI will be instrumental in addressing global issues like climate change, surpassing the European average of 52%.**

Portuguese citizens express both excitement and concern about the potential impact of AI. **Over half (55%)** of Portuguese citizens are confident that AI will create more opportunities than risks in regard to job security and the future of work, compared with **24%** who think it will create more risks than opportunities.

However, they are also concerned about some elements of AI, with **82%** concerned to some extent about the development of AI. These concerns are largely fuelled by worries about AI causing job losses, **with close to half (47%) of Portuguese citizens** reporting this as a concern.

While citizens express worries about the effects of AI on jobs, emerging research indicates that AI can be used to promote job expansion. The 2023 World Economic Forum Future of Jobs Report estimates that the overall influence of digital technologies on employment will likely be positive in the coming five years. AI is anticipated to contribute to a 25.6% net increase in job opportunities over this period. Moreover, by automating routine tasks with AI, workers can concentrate on higher-value, innovative tasks.

Conclusion

With robust investments in digital and AI technologies, Portugal exemplifies a nation eager to embrace the Digital Decade policy programme. Yet, the challenge of digital skill acquisition remains. In order to overcome barriers to adoption, digital cooperation by businesses and governments is required, to boost digital skills among both tech and non-tech employees and to maintain a risk-based regulatory framework, which encourages innovation.

As businesses and citizens collectively navigate this digital journey and increase their adoption of more advanced technologies, such as cloud computing and AI, Portugal's commitment to technology and its foresight into the importance of digital skills paint a hopeful picture for the nation's digital future.

References:

1. Those with fewer than 10 employees.

CASE STUDY:

MTG

How Digital Technology Speeds and Improves Medical Research

The Portugal-based company MTG is a research and development lab that helps healthcare professionals conduct cutting-edge medical research. MTG develops analytic code and uses AWS cloud technologies to effectively speed up research processes, improve disease prevention, provide treatment plans, and advance the overall quality of healthcare.

Core Features:

- **Improved healthcare:** armed with large volumes of medical data, MTG is able to analyse health policies, treatment guidelines, and disease prevention more effectively than ever before. Using cloud technologies to speed up medical research, MTG allows healthcare professionals and researchers to deepen their focus on public health policies.
- **Data protection:** AWS services allows MTG to protect the data of patients and fully comply with data privacy regulations in Europe. By using cloud technologies, MTG is not reliant on any third-party entities, allowing patients to have control over their personal data and improving research times for disease prevention and treatment.
- **Detailed research:** MTG's adoption of cloud technologies provides a multi-dimensional approach towards analysing complex medical data. MTG is able to produce every aspect of the research phase, from start to finish.

Here's how MTG has been able to use cloud to raise its business ambitions:

- **Decreasing Research Time:** Using portable devices to run data analysis, MTG can support studies across multiple hospitals at the same time. By doing so, MTG has cut the average length of research projects in half, drastically decreasing from four months down to only two
- **Reducing IT costs:** MTG uses cloud computing technologies to analyse data and complete studies, lowering the IT costs for hospitals conducting research. These lowered costs allow hospitals to efficiently dedicate more funding into other departments.
- **Increasing Availability:** MTG's portable devices are easily set up in less than an hour, increasing access to the device for many healthcare professionals. Additionally, the results are typically available only a few hours after setup.
- **Streamlining Hospital Processes:** MTG's use of cloud and machine learning helps hospitals to analyse large volumes of data that might overload hospital hardware. Thus, MTG's analyses provide a low-cost solution to healthcare professionals without increasing the workload for IT departments.
- **Improved Insights:** adopting cloud technologies and analysing large volumes of research data, MTG is able to derive new insights into medical conditions, disease prevention, and treatment plans.

AWS has helped MTG to improve its services and grow its business:

Improved Healthcare, Faster Diagnostics: MTG is able to provide a better quality of healthcare. Using AWS cloud services to analyse patient data, MTG helps to implement more effective diagnoses and treatment plans, improving the quality of healthcare for patients.

Supporting Future Growth: MTG can work across multiple hospitals at the same time, and six institutions across Europe use MTG's solutions. This has allowed MTG to help as many patients as possible, without compromising the integrity or efficacy of the programme. MTG is looking to expand to more hospitals and will use AWS cloud to quickly scale and AWS Outposts to deliver vital infrastructure.

Increased Understanding: MTG is using AWS to build secure machine learning models, which combine research from multiple institutions, while maintaining data security and speeding medical research. This enables the company's employees to deepen studies and collaborate on impactful public health policies.