



YEPA Workshop 4
**New era of youth entrepreneurship: AI and rapid
technology innovations**
Discussion note | 12 September 2024 | Group 3

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New era of youth entrepreneurship - AI and rapid technology innovations

How are artificial intelligence and rapid technology innovations changing youth entrepreneurship policy?

Artificial intelligence (AI) is transforming business operations and entrepreneurship, particularly among those operated by young people who are actively embracing technological innovations faster than adults (Box 1). The continued development and integration of AI technologies into the labour market will likely significantly impact the way people work. Evidence suggests that companies that are leveraging digital tools grow faster than those who are not currently using them. For example, companies using more than eight digital tools (e.g. social media, business website, accounting/financial software, payment platforms, e-commerce system, cloud services, etc.) were twice as likely to report revenue growth and three times as likely to report workforce growth compared to companies using less than three digital tools (Intuit QuickBooks Small Business Index Annual Report, 2023). In the same survey, young entrepreneurs and those with more advanced educational backgrounds were more likely to be using digital tools for their businesses.

While the overall impact of AI technologies on the labour market is expected to be positive (e.g. improved productivity and well-being), concerns remain on the future of work with the adoption of AI and the resulting reorganisation of tasks and changing demand for skills (Green, 2024). It will be important to ensure inclusion for all individuals including those from under-represented and disadvantaged population groups, such as young people and particularly those who are not in education or employment (NEETs). Due to the potential impact that AI and digital technology innovations will have on the labour market, the development and integration of AI and other digital technology innovations occupies an important space in entrepreneurship policy as more AI-based start-ups are created and as more businesses integrate these technologies into their business models.

Box 1. Defining an AI system

Defining AI is challenging due to the nature of the technology and the general public's understanding or lack thereof on what constitutes as AI technologies. For example, some technologies that were once considered AI are generally no longer deemed to be AI (e.g. optical character recognition). Moreover, it is also difficult to distinguish between AI and non-AI machine-based systems. In response to the fluidity of AI, OECD.AI has defined an AI System in 2023 as it is a more tangible and actionable concept, notably for policy making:

An AI system is a machine-based system that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments. Different AI systems vary in their levels of autonomy and adaptiveness after deployment.

AI systems tend to be built by combining different models that are based on machine and/or human inputs. These models are developed manually or automatically, meaning the models are designed with reasoning and decision-making algorithms. The two primary approaches are machine learning and symbolic systems:

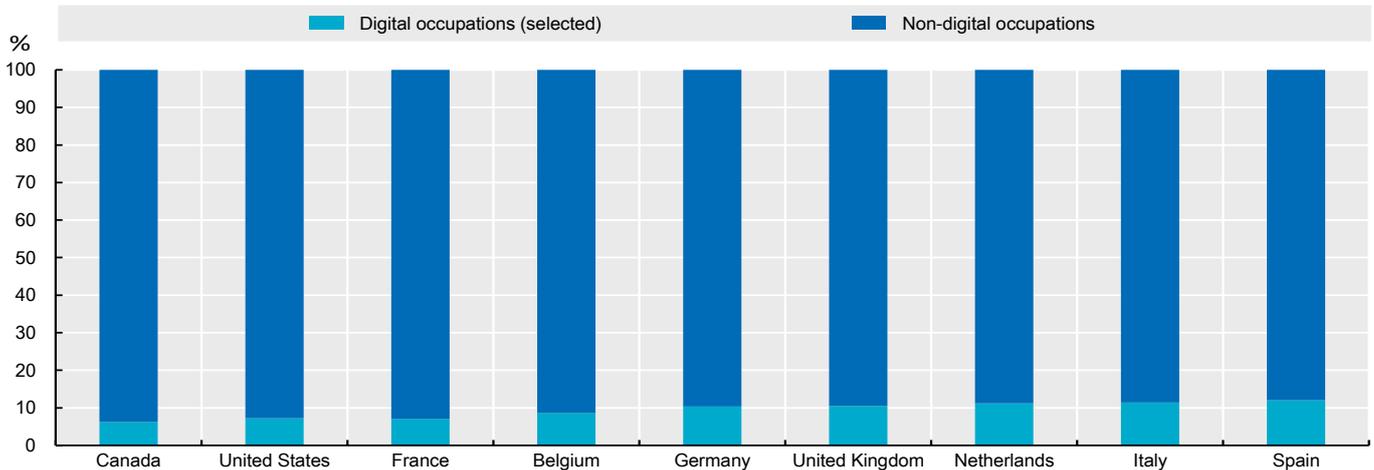
- **Machine learning** is a set of techniques that allows machines to improve their performance and generate models in an automated manner. The process of improving a system's performance using machine learning techniques is known as "training". This happens through exposure to training data, which can help identify patterns and regularities, rather than through explicit instructions from a human.
- **Symbolic or knowledge-based AI systems** tends to use logic-based and/or probabilistic representations, which can be either human-generated or machine-generated. These representations rely on explicit descriptions of variables and of their interrelations.

Source: (Grobelnik, M., Perset, K. and Russel, S., 2024)

AI and other rapid technology innovations are increasingly being used more widely by the general public and by businesses. The adoption of such technologies opens new and often more flexible career paths for young people, including innovative and AI-based entrepreneurship. It also presents new opportunities for young entrepreneurs to grow their businesses in different ways, such as lower start-up costs, larger market reach, and the ability to scale a business more easily. However, one of the core challenges for policy makers in understanding the impact of AI and rapid technology innovations on business creation and on the labour market

more broadly is measuring AI exposure, including among young people. One way to assess the impact of AI on the labour market is to measure the changing skill demands by occupation using online job vacancies or digital occupations as a proxy (Green, 2024). Across EU Member States, digital occupations had been trending significantly upwards since before the COVID-19 pandemic (OECD, 2022). However, following the COVID-19 crisis, a mixed picture emerges as the demand for some digital occupations have grown significantly while others have not recovered to pre-pandemic levels. The proportion of online job posting that are for digital occupations represent a significant share of labour market demand that appears online. In the period 2018-21, Spain had the highest share of online job postings for digital occupations at 12% followed by Germany, Italy* and the Netherlands (11% each) (Figure 1).

Figure 1. The demand for digital occupations represents a growing share of total labour market demand
Share of total postings (%), average for all years



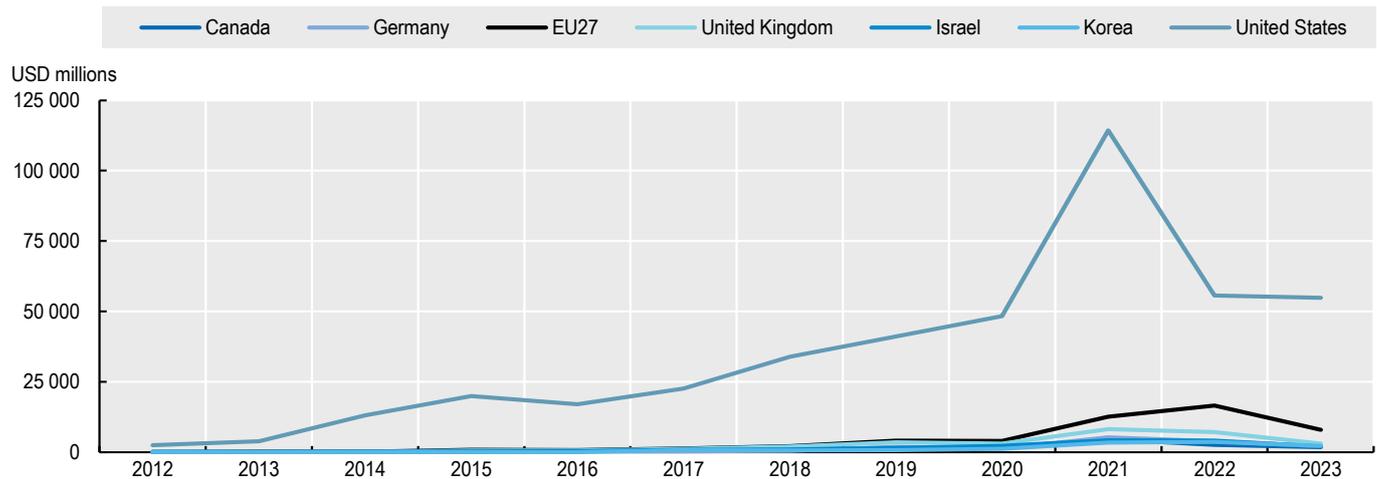
Note: The shares are calculated as the average share over the selected time period: 2012-18 for Canada, the United Kingdom and the United States, 2014-21 for Italy, and 2018-21 for Belgium, France, Germany, the Netherlands and Spain.

Source: OECD calculations based on Lightcast data in (OECD, 2022).

Interest and investment in AI have increased in recent years. Venture capital investment trends reflect the overall interest in AI technologies across the world as well as the confidence in the potential of AI technologies for innovation and economic growth. Global investment in AI technologies markedly increased following the COVID-19 pandemic as people looked to innovative solutions to navigate unprecedented challenges. The global AI market was valued at over EUR 130 billion¹ in 2023 and is expected to grow to nearly EUR 1.9 trillion by 2030 (Madiaga and Ilnicki, 2024). Between 2018 and the third quarter of 2023, about EUR 32.5 billion was invested in AI companies across the EU, compared to EUR 120 billion in the United States. Private investment remains the primary source of funding for AI development and AI start-ups. Venture capital funding peaked in 2021 with the United States investing about USD 114 billion, representing 56% of the global value of VC investments in AI in 2021, while investments in the EU represented 6% (Figure 2). However, VC investment in AI increased in the EU in 2022 and 2023 with a total investment of USD 24.5 billion. Following this pandemic-induced surge, investment levels have returned to more sustainable growth.

¹ An exchange rate of 0.93 USD/EUR was applied in March 2024 as the original currency was USD.

Figure 2. Venture capital investment in AI has increased in recent years
Sum of investments (USD millions)



Source: [OECD.AI \(2024\)](#), visualisations powered by JSI using data from Preqin, accessed on 4 March 2024

What challenges are presented by AI and rapid technology innovations?

Young entrepreneurs working in AI and other innovative technology fields face many of the same challenges as young entrepreneurs who are pursuing business creation in non-technology based sectors, such as access to finance and limited professional networks. However, they often face more and heightened challenges to business creation due to the complex nature of AI systems and the often resource-intensive nature of AI-based start-ups.

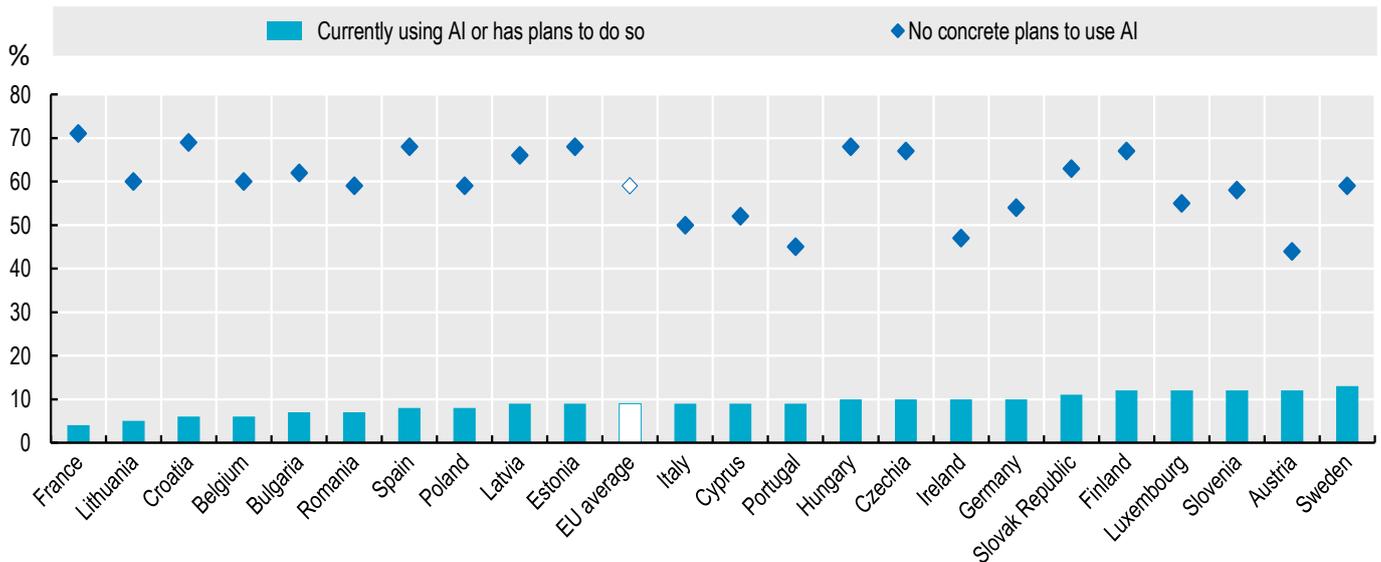
New and different skills are needed to start and operate AI-based and innovative start-ups

While many young entrepreneurs lack the needed skills and knowledge to start a business, additional skills are needed to develop and interact with AI systems, including specialised AI and data science skills as well as cognitive skills (i.e. critical thinking, problem solving, judgment and decision-making) (OECD, 2024). Technical skills include knowledge of coding and understanding of machine learning among other digital and data skills. These skills can be difficult to acquire as they are often not included in traditional education and entrepreneurship training programmes. Moreover, the skills needed continue to evolve with the development of AI and innovative technologies. As AI and other digital technologies are increasingly able to perform routine and cognitive tasks similarly to human performance, they will have a large impact on the way services are delivered, products are manufactured, and innovation is created (Autor, Levy and Murnane, 2003). This rapidly evolving technology will require upskilling and reskilling of not only young entrepreneurs but also the overall labour force as (young) people transition to different sectors and occupations as machine learning and AI advances.

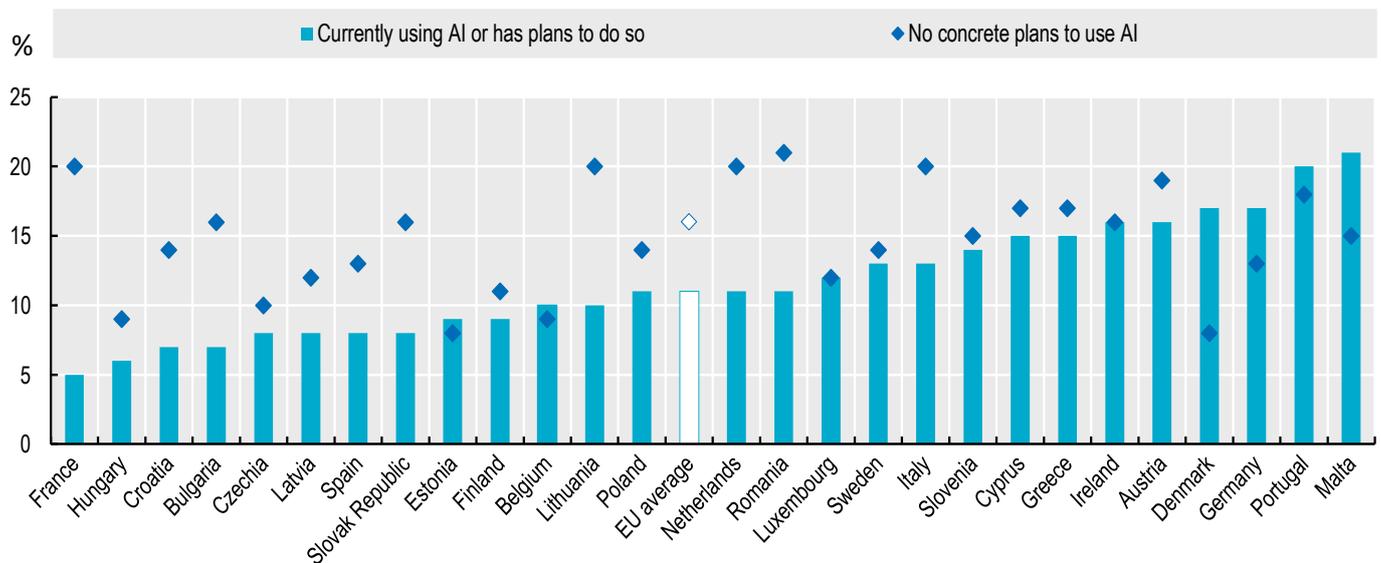
In a recent Flash Eurobarometer report, more than half of individuals across the European Union reported that they are currently not using AI and do not have concrete plans to introduce AI into their business (Figure 3). Moreover, about 59% of these individuals do not expect that AI will have a significant impact on their company's skill needs. Those who do not engage with AI technology may underestimate the need to acquire new skills, which is likely due to a lack of awareness regarding the opportunities created by AI and its potential impact on the future of work. It is important that governments prepare for the digital transition and the increased use of AI, by fostering awareness and building an AI-skilled work force through training and education. Moreover, young people must be able to access resources (e.g. training, toolkits, financing, etc.) to help them use emerging technologies and harness the power of AI when starting and growing their businesses.

Figure 3. Expectations for reskilling and/or upskilling vary depending on the current use of AI in a company

a. No expectations for AI to have a significant impact on company's skill needs



b. Anticipates reskilling and upskilling due to AI



Source: Flash Eurobarometer #537 (2023)

Access to finance remains limited

All entrepreneurs face difficulties in securing finance for their businesses, yet young entrepreneurs tend to face greater challenges. Young entrepreneurs tend to face barriers in accessing finance from traditional lending sources due to their age, limited work experience and lack of personal savings, collateral and credit history (OECD, 2020). According to a recent survey in the EU, the most common source of start-up financing for young people is their own personal savings (European Commission, 2023). Other research suggests that young entrepreneurs tend to use private investment, such as venture capital, and government financing less frequently than their own resources and support from family and friends (Daniels et al., 2016). This is due to a variety of reasons, including lack of awareness of existing public grants and financing opportunities, mismatch in eligibility criteria of the programmes as well as administrative burden of completing the application process. This is particularly true for AI-based start-ups who are often not eligible for public support schemes and lack the collateral to obtain financing through banks and other financial institutions. This leads some AI and innovative young entrepreneurs to search for private investment. Venture capital (VC) funding provides opportunities for young entrepreneurs to access the needed finance to start and scale their businesses. However, despite growing VC investment in AI, young people face challenges in identifying potential investors due to a perceived lack of credibility and small

networks. Moreover, the VC market is highly competitive and young people will often face intense competition from more experienced entrepreneurs.

What are governments doing?

Governments across the world have developed frameworks, declarations and principles that aim to guide the development of AI. Many seek to support the development of trustworthy AI systems and tools that uphold safety, transparency, privacy and accountability. Across EU and OECD countries, many have implemented policy actions to foster a greater understanding of innovative technology, including AI, and the potential opportunities these technologies provide to entrepreneurs and business owners. They also have introduced measures to address skills gaps, particularly skills that will be needed as AI adoption increases.

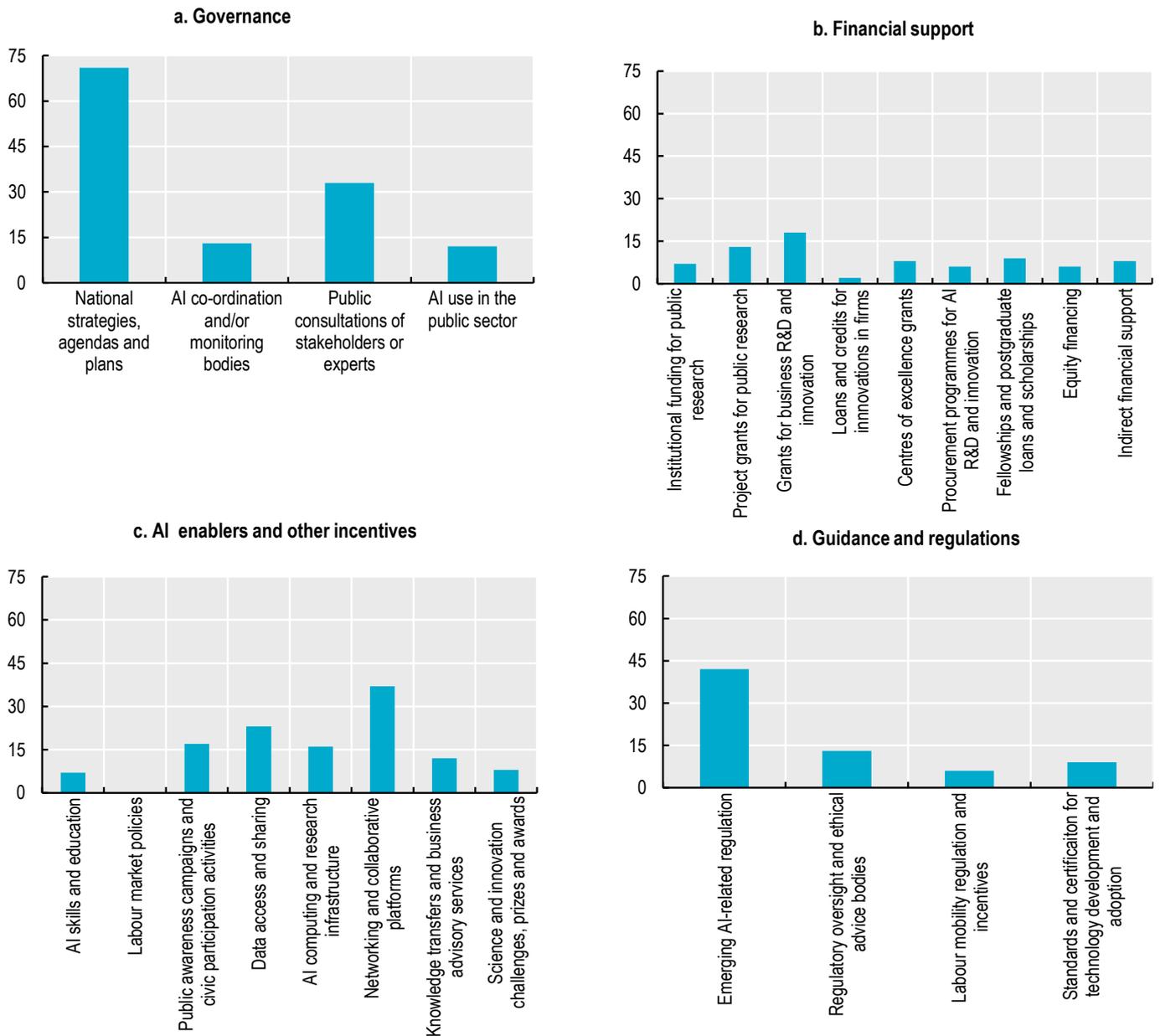
AI strategies and action plans

Many countries also offer entrepreneurship focused AI policy with the most common being the introduction of national strategies, agendas and plans. There are more than 300 strategies related to AI that have been implemented across the world and six AI strategies are related to youth in Colombia, Kenya, Ireland, Thailand, Türkiye and the United Kingdom (OECD.AI, 2021) (Figure 4). While most public AI initiatives are not dedicated or tailored to youth, the top three AI-initiatives that address youth globally are supports for AI skills and education (7 initiatives worldwide) followed by national strategies, agendas and plans as well as regulatory oversight and ethical advice bodies (6 initiatives each).

Some countries, such as Ireland ([AI – Here for Good: A National Artificial Intelligence Strategy for Ireland](#)), have integrated awareness raising campaigns into their AI strategies, while others have developed independent action plans to inform the public of AI and its uses. It is important to address popular assumptions and misunderstandings about AI so that people understand the opportunities that AI presents as well as its limitations. AI awareness raising campaigns should be transparent about AI's impact in the short- and long-term. It is important that AI awareness campaigns are appropriately tailored to young people and that policy makers employ dedicated outreach methods to ensure engagement with the target audience.

Other common approaches for AI focused entrepreneurship policies are AI-related regulations (42 initiatives), including laws, rules, directives or other policies related to the development or use of new technologies like AI. In 2020, Lithuania introduced AI regulation to support the development of more inclusive AI technologies. The guidelines were developed to assist AI developers and C-level managers in assuring their AI products are unbiased and do not discriminate against certain target population groups, notably women and people with disabilities. Networking initiatives (37 initiatives) are also frequently used by policy makers to foster and stimulate AI discussion and development, notably through collaborative platforms. For example, the [AI Coalition of Hungary](#) has developed a networking and collaborative platform for business innovation and AI technology in 2019 that aims to increase awareness of AI technologies, connect developers and foster collaboration. The self-service website also features case studies of success projects. In Colombia, the government launched the entrepreneurship and innovation ecosystem hub [CEmprendre](#) to foster the development of AI entrepreneurship and innovation by facilitating connection between researchers, academics, private and public sector stakeholders. However, few of these initiatives specifically target youth.

Figure 4. Governments are using a wide range of policy initiatives to develop AI
 Number of policy initiatives related to supporting entrepreneurship



Source: (OECD.AI, 2022)

AI skill development

Governments are also investing in the development of AI skills and education, notably for young people. For example, the Croatian Academic and Research Network in collaboration with the Ministry of Science, Education and Youth launched the [BrAIIn project](#) that focuses on digital technologies and AI in education. The programme will run from September 2023 to August 2029 with the aim to increase the digital skills of students and teachers. Through this project, an AI curriculum for primary and secondary schools has been developed and will be implemented in the 2024/25 school year. The curriculum seeks to help students learn about AI and other emerging technologies as well as develop critical thinking about the impact and use of AI.

At the higher education level, many countries are identifying (potential) skills gaps that will need to be addressed as AI continues to be developed in the coming years. Moreover, policy actions are encouraging higher education institutions to deliver AI education and training to equip young people with the needed digital and AI skills to successfully enter the labour market. There are many AI initiatives that are tailored to PhD students as well as undergraduate and masters students, who have the potential to become young entrepreneurs. For example, the Czech Ministry of Industry and Trade have launched a project for AI university spin-outs in collaboration with the European Investment Fund (EIF). The EUR 55 million fund of funds aims to provide equity financing for early-stage Czech start-ups and spin-offs that are developing digital technologies.

Governments can also support the development of AI and digital skills for young entrepreneurs into common entrepreneurship supports such as entrepreneurship training, coaching and mentoring initiatives, and incubation and acceleration services (Box 2). For example, [Teens in AI](#) offers AI youth-dedicated programmes online to help young people develop businesses that address a UN Sustainable Development Goal through AI and digital technology. Their programmes include online AI courses aimed for young people aged 12-19 years old; a global techathon for teens aged 12-18 years old that focuses on using AI and data science for the social good; and a 5-day boot camp focused on climate-related entrepreneurship through the AI4Good Incubator programme. In 2023, 70 teens participated in the bootcamp with more than half of participants aged 12 to 18 years old being women or non-binary (63%). The programme aims to teach the basic principles of AI and how it can be applied to human-centric entrepreneurial projects as well as developing skills needed for AI business creation.

AI-dedicated incubation and acceleration

Another approach is to provide a suite of related business and technical supports through dedicated incubation and acceleration programmes for young AI entrepreneurs. Young entrepreneurs tend to benefit more than adult entrepreneurs from business incubation programmes as they often lack experience and have small networks and participating in incubation programmes help to build their skills, experience and networks (Albort-Morant and Oghazi, 2016). AI dedicated incubation and acceleration programmes could help young people refine their technical skills and connect them to the larger entrepreneurial ecosystem with other AI and innovative entrepreneurs who can serve as role models, mentors and potential partners. However, many AI incubation and acceleration programmes are not currently tailored to young people. For example, the [Zagreb Innovation Centre](#) offers incubation and acceleration services for high-tech start-ups, including AI start-ups, in the early- and growth-stages. In the Czech Republic, the Ministry of Industry and Trade is financially supporting incubation for innovative start-ups through programmes with the [CzechInvest](#) agency, including an AI Hub. The Advanced Tech and Materials Hub provides support for the creation and development of tech start-ups, including AI start-ups, through workshops, seminars, coaching and business consultancy as well as incubation services for up to 2 years. Start-ups also receive financial support for the development of their innovative start-ups, including direct support of about EUR 180 000 (CZK 4 500 000) and indirect support of about EUR 20 000 (CZK 500 000).

Box 2. Incubation and acceleration services

Incubation

Business incubation programmes typically combine training programmes with other integrated support services, such as networking opportunities, consultancy, mentoring, coaching, workspace, and introductions to investors. Support is often provided over the course of several years and may include pre-incubation as well as post-incubation support once young entrepreneurs have completed the programme. Incubation programmes can also provide some post-incubation support.

Acceleration

Acceleration programmes differ from incubation in a number of ways. Accelerators are shorter-term supports that usually last between 3 to 12 months. They focus on speeding up the business creation process and managing accelerated growth. Moreover, many accelerator programmes take ownership stakes in the companies that use their services, whereas this is not the case with business incubation services.

See "Improving the effectiveness of inclusive and social entrepreneurship training schemes" (OECD/European Commission, 2023) for more information.

Governments can directly support the implementation of these types of AI-dedicated services by providing the initial funds to establish incubator facilities (i.e. designing and launching dedicated AI incubation or acceleration programmes for young entrepreneurs), subsidies to ongoing incubation/acceleration services to help them expand their services to include AI in their programming as well as improving access to mainstream AI incubator and accelerator programmes for young entrepreneurs (e.g. quotas, dedicated outreach campaigns, adaptations to the format to better address the needs of young people).

Questions for discussion

- In what ways can policy makers, support providers and educators empower young entrepreneurs to innovate and launch AI-based businesses?
- How can policies and schemes be designed to ensure that young entrepreneurs are equipped to adopt AI technologies into their business models and practices?
- Where should governments start when looking to leverage AI in delivering support to young entrepreneurs?
- What steps should governments take to minimise stereotypes and bias in AI?

Further reading

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About the OECD-EU Youth Entrepreneurship Policy Academy

The OECD-EU Youth Entrepreneurship Policy Academy (YEPA) is a peer-learning network that seeks to strengthen youth entrepreneurship policies in the European Union (EU). This new initiative aims to strengthen youth entrepreneurship policies and programmes by raising knowledge about the barriers faced by young people in entrepreneurship and facilitating exchanges between policy makers, experts and young entrepreneurs on “what works” in youth entrepreneurship policy. This new initiative builds on an existing collaboration on inclusive entrepreneurship and social entrepreneurship undertaken by the European Commission and the OECD, which includes the award-winning report series The Missing Entrepreneurs.

About the OECD Centre for Entrepreneurship, SMEs, Regions and Cities

The OECD Centre for Entrepreneurship, SMEs, Regions and Cities provides comparative statistics, analysis and capacity building for local and national actors to work together to unleash the potential of entrepreneurs and small and medium-sized enterprises, promote inclusive and sustainable regions and cities, boost local job creation, and support sound tourism policies.

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About the European Union’s Directorate-General for Employment, Social Affairs and Inclusion

DG Employment, Social Affairs and Inclusion develops and carries out the European Commission's policies on employment and social affairs, education and training. This includes, for example, support for more and better jobs through the European Employment Strategy, free movement of workers and coordination of social security schemes and supporting social inclusion by supporting efforts to combat poverty and social exclusion, reform social protection systems, assess new demographic and social developments.

https://ec.europa.eu/info/departments/employment-social-affairs-and-inclusion_en | [@EU_Social](#) | <https://www.linkedin.com/showcase/eu-skills> | [Facebook Social Europe](#)

See also information on social entrepreneurship : https://social-economy-gateway.ec.europa.eu/index_en