# Harnessing the power of AI and emerging technologies

- Digital technologies are integrated in people's lives in both the physical and virtual worlds. Innovations providing immersive environments driven by artificial intelligence (AI) hold enormous promise for growth and well-being and governments are only just beginning to realise their true potential and understand their risks.
- As these technologies evolve, harnessing their potential and mitigating their risks requires forward-looking policies and international co-operation – to develop a common language, share good practices and build a strong evidence base.
- AI and emerging technologies rely on key enablers of data, machine learning models, connectivity and computational power. Policies for AI and emerging technologies should account for these necessary foundations.

AI is increasingly permeating all sectors of society – from chatbots to traffic navigation systems and scientific research – and this new technology holds both promises and perils. While still nascent, immersive environments, which combine features of physical and virtual environments, highlight both the opportunities and the risks. On one hand, they provide experiences that can simulate real-life settings for improved telemedicine or e-learning. On the other, their hyper-realism could exacerbate issues like online addiction, discrimination and harmful or illegal content. Policies must keep pace with developments in AI and emerging technologies to leverage their benefits while mitigating risks. The lessons learned from the OECD's policy work on trustworthy AI form a foundational reference point for policies for emerging technologies such as immersive environments.

OECD Framework for the classification of AI systems
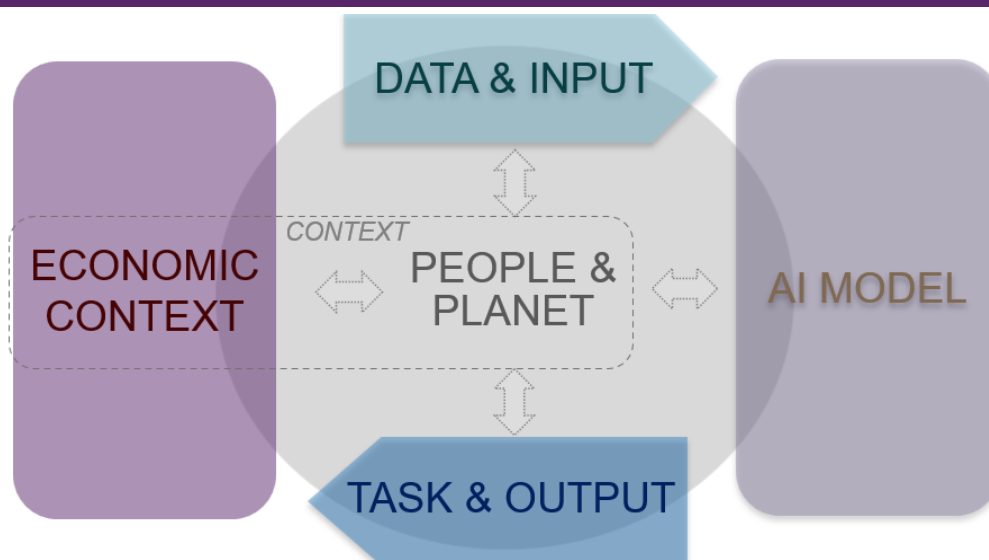
Source: OECD (2022), "OECD Framework for the Classification of AI systems", OECD Digital Economy Papers, No. 323, OECD Publishing, Paris, https://doi.org/10.1787/cb6d9eca-en

Enablers of AI and emerging technologies

AI and emerging technologies, and their growing economic and social effects, rely on four key enablers: machine learning models, data, connectivity and computational power. For example, breakthroughs in machine learning models and techniques enabled AI systems to "learn" in an automated manner through patterns and inferences rather than explicit instructions from a human.

Since such machine learning approaches often rely on the processing of vast quantities of data, enhancing access to and sharing of data is essential to make the most of this technology. Within countries, data are often locked in organisations, or even siloes within them, and policy makers face challenges in opening access to data while managing privacy and other risks. Common approaches, and aligning efforts across borders, can help foster responsible use of data and AI.

High-speed, responsive and reliable connectivity allows fast transfer of large volumes of data enabling rich and interactive applications, including augmented and virtual reality applications central to immersive environments. This connectivity is made possible by next-generation mobile networks and fixed fibre networks. More investment in these networks will be needed to face increasing demand and provide ubiquitous coverage.

Finally, computational power is critical to the development of AI and emerging technologies, particularly for increasingly large-scale machine learning systems. To do this, policy makers increasingly focus on investing in specialised AI computational resources, including hardware, software and infrastructure.

Fostering trustworthy AI and emerging technologies

Managing developments in AI and emerging technologies requires forward-looking policies that enhance benefits and mitigate risks. A common terminology and shared approaches to risk management are necessary. The OECD AI Principles, adopted in 2019, provide the international standard for trustworthy AI, including a definition of AI itself, while the OECD Classification Framework supports the development of interoperable risk-based governance approaches through analysis of AI applications by their technical characteristics.

As technologies evolve, further analysis of trends in science, business and policy making is needed to inform policy. The OECD AI Policy Observatory includes a database of national AI policies and strategies as well as housing continuously updated indicators on trends and developments in AI by country, over time and from a variety of vantage points, including jobs, skills,

investment, education and research. In addition, the OECD and other organisations are developing a tool to better understand the types, applications and characteristics of AI systems that have caused – or nearly caused – harm to people, societies or the environment. These include risks that materialised into "AI incidents". Together, these build an evidence base to inform AI policy making and share good practices for governance of AI and other technologies.

International co-operation is essential

Given their inherently borderless development and application – as well as their impact across sectors and policy areas – international, multi-stakeholder and multi-disciplinary collaboration is essential to harnessing the power of AI and emerging technologies. The OECD, with its convening power and evidence-based policy analysis, can support such collaboration and serve as a venue for exchange of good practices, cross-border co-operation, and the development of international frameworks to harness the power of AI and emerging technologies for growth and well-being.

Related ministerial sessions

- **The OECD AI Principles – impact on the global policy landscape**: 15:30-16:45, 14 December 2022
- **The future of simulated environments and immersive technologies**: 17:15-18:30, 14 December 2022

Further reading

OECD (2022), "Harnessing the power of AI and emerging technologies: Background paper for the CDEP Ministerial meeting", OECD Digital Economy Papers, No. 340, OECD Publishing, Paris.

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