

Executive Summary

An ecosystem of interdependent digital technologies is advancing fast, driving major economic and societal changes. Data feed this ecosystem, creating immense value but also risks for privacy and safety on line. Some of these technologies are already an integral part of daily life, while others remain on the horizon. The *OECD Digital Economy Outlook 2024 (Volume 1)* provides new insights on key technologies that underpin digital transformation and their impacts.

Using big data and machine-learning techniques, *Volume 1* provides new estimates of the growth rate of the ecosystem's core – the information and communications technology (ICT) sector. It then looks toward the technology frontier with perspectives on the future of artificial intelligence (AI) and how it can be shaped into a positive force. *Volume 1* also analyses how people, firms and governments are adopting digital technologies, offering insights into the scale and scope of digital divides and how to boost equal opportunity and inclusion. To that end, it looks at the critical need for next generation wireless networks to provide unlimited connectivity everywhere. Moving beyond the hype of immersive technologies, *Volume 1* examines the proven ability of virtual reality (VR) to scale, while identifying its opportunities and risks. Finally, it shines a spotlight on mental health in digital environments, including those most at risk.

Key findings

The ICT sector continues to outperform the total economy

While the “digital economy” is no longer strictly confined to the ICT sector, this sector remains at its heart, underpinning digital innovation. Yet there is a lack of timely data on the performance of this vital sector, which limits the visibility of policy makers. Using a novel nowcasting model that leverages big data and machine-learning techniques, *Volume 1* provides up-to-date and comparable data on the economic growth of the ICT sector. Estimates indicate that in the past decade, the ICT sector grew about three times faster than the total economy in OECD countries. In 2023, the ICT sector reached new heights, growing 7.6% on average in the OECD.

AI actors must collaborate to unleash innovation responsibly and ensure its benefits are widely shared

Technological leaps in AI are prompting people to reconsider the future of work, leisure and society. The future of AI may yield tremendous benefits, including enhanced productivity gains, accelerated scientific progress and solutions for helping to address climate change. However, AI advances also present risks, including those related to trust, fairness, privacy, safety and accountability. Since 2022, media reports of AI-related incidents – i.e. an event involving an AI system that directly or indirectly leads to harm – and hazards grew significantly, led mainly by incidents related to generative AI. Building a shared understanding of the key opportunities and risks will be critical to ensure AI is trustworthy and used to benefit humanity and the planet. Toward this end, countries are developing national AI strategies and other AI policy initiatives at a record pace.

Next generation wireless networks are key to unlimited connectivity everywhere

The proliferation of emerging technologies goes hand-in-hand with the generation of enormous amounts of data, leading to increased demand for higher bandwidth and more data processing. Many new applications also rely on improved broadband performance, including higher speeds and lower network response times (latency). Almost all OECD countries have deployed 5G networks and are starting to shift to “beyond 5G” or “6G” research. They are also harnessing satellites and other aerial technologies, which are expanding worldwide. These technologies are beginning to provide quality connectivity, particularly in rural and underserved areas, helping to reduce connectivity

divides. In the future, the integration of terrestrial and non-terrestrial wireless technologies will expand the connectivity ecosystem and make it more resilient.

Digital technology diffusion and the skills to use them effectively are uneven, limiting equal opportunity and inclusion

Technologies such as cloud computing and Internet of Things devices have diffused widely. In contrast, adoption of data-dependent technologies like AI remains low and is concentrated in certain sectors. Creating a level playing field among firms in access to key inputs – including data – can accelerate technology diffusion. Stronger technology diffusion and investments in skills can help close divides in Internet use, which are pronounced by age, education and income and put equal opportunity and inclusion at risk. To encourage more people and firms to use online services, governments should provide user-centric, inclusive online services and invest in skills, while supporting those most at risk of being left behind.

Immersive technologies like VR enable extraordinary experiences, but safety on and off line is key

The rise of three-dimensional technologies is accelerating, raising questions about their opportunities and risks. VR is the one immersive medium that has proven its ability to scale in a range of areas. Body tracking facilitates “presence” and sets VR apart from other immersive environments. VR can be self-contained, social or industrial, comprising a cycle of tracking, rendering and display – a continuous process that occurs in real time. VR is best for experiences that are otherwise dangerous, impossible, counterproductive or expensive. Given no one can opt out or go “incognito” in VR, new approaches beyond traditional consent-based models will be needed to protect privacy. Mental and physical safety in VR must be carefully considered, especially for children and in moving vehicles.

Negative behaviours in digital environments are rising and disproportionately affect girls

Anonymity, disembodiment and disinhibition help explain why people communicate and interact differently on line than off line, and they can lead to negative behaviours. Since 2017, the overall rate of young people reporting difficulties in everyday functioning and feeling unhappy because of social media use increased by 49%, with the share of girls increasing more than twice as much as boys. Cyberbullying is also becoming more common among young people, with girls experiencing higher rates than boys on average. Cyberbullying victimisation rose by 26% between 2017 and 2022. While research shows that moderate use of digital technologies tends to be beneficial, “overuse” may be detrimental. Countries and regions with a higher prevalence of problematic social media users have higher percentages of intensive users of instant messaging, social networks, e-mail and other forms of online communication.



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