

Foreword

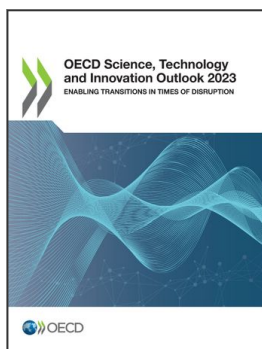
The *OECD Science, Technology and Innovation Outlook 2023* is the latest in a series that reviews key trends in science, technology, and innovation (STI) policy in OECD countries and several major partner economies. This edition focuses on longstanding trends – including climate change and growing geopolitical tensions – and recent disruptions, notably the COVID-19 pandemic, that have highlighted risk, uncertainty and resilience as conditions and concerns for STI policy. Taken together, these have contributed to a growing “securitisation” of STI policy.

As the pandemic has shown, STI is essential to building capacity for resiliency and adaptation to shocks. However, it can only perform this role effectively if it is well-prepared to respond to known risks and unknown uncertainties. Good preparation requires long-term investments in research and development, skills and infrastructures, but this alone is insufficient. It also needs strong relationships in “normal times” among those who should mobilise rapidly to deal with crisis situations, as well as a strong “strategic intelligence” capacity to identify, monitor and evaluate emerging risks and responses.

Ambitions to mobilise research and innovation systems to absorb, respond to, and recover from crises and societal challenges as they emerge represents a distinct break from the status quo. Novel and experimental configurations of actors, institutions, and practices are needed to improve the resilience of STI systems and the relevance of outputs to emerging crises, challenges, and the everyday lives of citizens. This is particularly so for the climate emergency, which requires nothing short of a total transformation of sociotechnical systems in areas such as energy, agrifood and mobility. STI systems have essential roles in these transformations, but governments must be more ambitious and act with greater urgency in their STI policies. They need to design policy portfolios that enable transformative innovation and new markets to emerge, challenge existing fossil-based systems, and create windows of opportunity for low-carbon technologies to break through. This calls for larger investments but also greater directionality in research and innovation, for example, through mission-oriented innovation policies, to help direct and compress the innovation cycle for low-carbon technologies.

International co-operation will also be essential, but rising geopolitical tensions, including strategic competition in key emerging technologies, could make this difficult. Growing policy efforts to reduce technology dependencies could disrupt integrated global value chains and the deep and extensive international science linkages that have built up over the last 30 years. Coupled with a growing emphasis on “shared values” in technology development and research, these developments could lead to a “decoupling” of STI activities at a time when global challenges, notably climate change, require global solutions underpinned by international STI co-operation. A major test for multilateralism will be to reconcile growing strategic competition with the need to address global challenges like climate change.

The six chapters in this edition of the STI Outlook explore these and other key trends and issues, including strategic competition and the governance of emerging technologies, mission-oriented innovation policies for net-zero, and lessons from the scientific response to the COVID-19 pandemic. Taken together, they highlight the need for greater urgency, ambition, and preparedness in STI policy to better equip governments with the tools and capacities to tackle global challenges and build resilience to future shocks.



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