Shared challenges, transformative actions

OECD Science and Technology Policy Ministerial

23-24 April 2024, OECD, Paris

Issues Brief

BETTER POLICIES FOR BETTER LIVES

The Role of Skills and Capabilities in STI for the Digital and Green Transitions:

Version: 19 April 2024

This document outlines several issues relevant to STI policy makers in their efforts to address technology-driven skills demands for the digital and green transitions as part of the OECD Science and Technology Policy Ministerial Meeting of 23-24 April 2024. The debate will take place as part of the Multistakeholder High-Level Dialogue on 23 April at the OECD Conference Centre in Paris, from 10H45 to 12:30 CEST. It will gather experts, academics, policy makers and business representatives to discuss how to nurture human capital amidst substantial investments aimed at propelling technological progress for digital and green transitions, and how to ensure that no one is left behind.

The Dialogue will inform the Ministerial Meeting on 23-24 April. This international gathering is set under the theme of "Shared challenges, transformative action" and aims to define internationally a transformative science, technology and innovation policy agenda focused on sustainability transitions, and how the OECD can best support countries. More information on the events can be found here: https://www.oecd-events.org/mm24/en

Relevant policy issues for discussion

1. **STI policy agendas for transitions must address skills and capability shortages for moonshot investments to succeed and inclusivity.**

   Failure to set skills and capabilities as a priority risk jeopardising countries' investments in key strategic technologies for transitions and exacerbating disparities. The shortages of skilled personnel challenge quick progress on ambitious moonshot investments in technologies. If only a small group in society has the skills needed to participate in transitions, then disparities are likely to widen, requiring efforts to integrate also underrepresented groups in STI, such as women and individuals from disadvantaged backgrounds.

2. **STI skills needed for transitions span different educational levels and stages of the innovation cycle.**

   While STEM (science, technology, engineering, mathematics) skills for the development of cutting-edge technologies are critical, skills required for transitions extend far beyond. They include skills such as business management, leadership, entrepreneurship, digital proficiency, commercial, communication and problem-solving skills given their role in implementing and diffusing new technologies. While reinforcing higher education in STEM fields is important, quality vocational training also matters to implement new technologies for transitions. Raising public awareness of technologies and innovation that can support transitions is also critical for public endorsement and behavioural changes that will make transitions happen.

3. **A regional policy focus on STI skills is vital due to varying regional impacts of transitions, requiring effective coordination between local and national governments.**

As some regions emerge as “winners” and “losers” of transitions, STI policies need to provide tailored responses to their specific needs, such as re-skilling programmes for the workforce in declining sectors in view of supporting new sectors. The involvement of local governments in national policies is consequently important.

4. **International partnerships provide opportunities for expanding the provision of skills in key technology areas across borders**.

   International partnerships of higher education and industry institutions aimed at providing STI skills required for transitions can help meet demand more effectively. This could involve promoting international mobility of students, joint research projects and the expansion of education offerings to help also developing and emerging countries match needs.

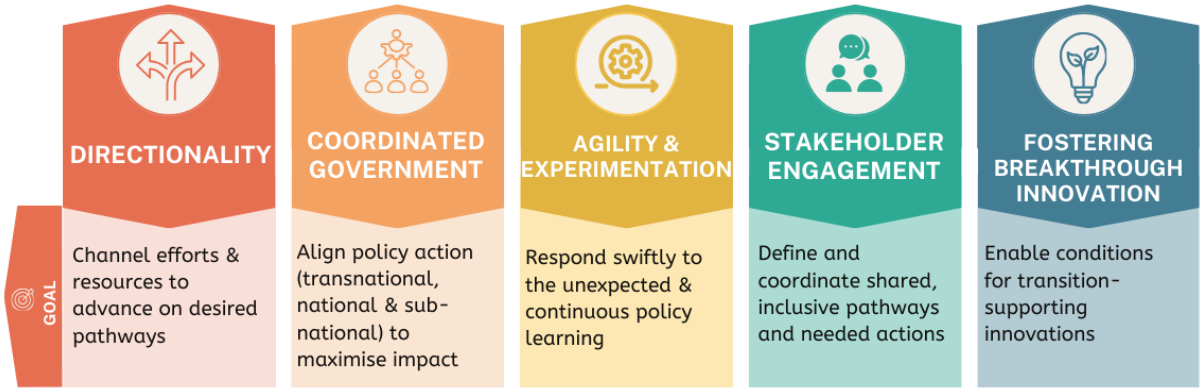
5. **Effective cross-government cooperation and collaboration with industry, research institutions, and education providers is crucial to ensure STI skills meet transition needs.**

   Addressing skills challenges requires effective co-operation across policy areas, including STI, education, labour market and regional development. Policy makers in charge of STI have a role to play in indicating the skills needed in emerging technology areas and in setting incentives for firms to invest in skills upgrading and offer capacity-building programmes.

   Agile collaboration among government, research institutions, higher education institutions and other education providers, business associations and civil society organisations is important to jointly identify priority areas for action.

These actions align with the policy framework summarised in Figure 1, which identifies key STI policy approaches and tools to advance on the ambitious goals of the green and digital transitions.

Figure 1. Five key STI policy approaches and tools for transitions



Source: Arnold, E., et al. (2023), "Navigating green and digital transitions: Five imperatives for effective STI policy", OECD Science, Technology and Industry Policy Papers, No. 162, OECD Publishing, Paris, https://doi.org/10.1787/dffb0747-en.

Potential OECD role in this area

The OECD could facilitate and contribute to international action in this area by:

1. **Facilitating international exchanges in innovative governance arrangements to tackle skills challenges for STI during transitions and support their implementation and monitoring.**

   This would involve organising peer learning exercises to exchange on innovative governance approaches (e.g. establishment of skills councils and dedicated agencies, innovative cross-department coordination mechanisms), and exploring what works best under which conditions. The OECD could also support countries in the process of designing, implementing and monitoring such initiatives.

2. **Exploring the range of STI policy tools to enhance skills for developing, diffusing and adopting new technologies for transitions across the economy.**

   This would involve exploring the range of relevant STI policy instruments, building on international examples. Emphasis would be placed on skills-related instruments to ensure everyone can engage in and benefit from STI for transitions.

3. **Analysing opportunities and threats of the digital and green transitions for the inclusivity of STI systems and implications for STI policy, especially regarding skills.**

   Understanding the dynamics that may support or negatively affect inclusiveness in STI systems in a context of systemic transformation is critical for policy to be able to act upon them, notably in the area of skills. The analysis would explore similarities and differences in implications of the green and digital transitions for the inclusiveness of STI systems.