

Innovation and Technology Diffusion: Recommendations for the G20 Process

Economic Policy Research Organization of Turkey & Economic Policy Forum

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Background and Importance of Innovation within the G20 Framework

In recent decades, science and technology-driven transformations have been reshaping global production and value chains. Developments in technology and innovation have become key for enhancing productivity and competitiveness of both countries and companies. Hence, innovation enhancement and technology diffusion are key to meet the additional 2.1% global growth target set by the G20 Leaders at the Brisbane summit in Australia.

Despite the sustainable growth potential that could be unlocked through an international innovation framework, the topic has been on the sidelines of the G20 agenda so far. Up until recently, the creation of an unofficial Innovation-20 group in Australia that organized a conference focusing on sustainable growth and biotechnology around the G20 leaders' summit, has been the only significant effort to incorporate innovation into the G20 agenda.

In 2015, the Turkish G20 presidency declared technology and innovation as one of its key priorities, emphasizing its importance in shaping the future agenda of the G20 to address global challenges and achieve sustainable and inclusive growth.

Given the crucial role innovation has come to play, it is thus fittingly part of the Turkish Presidency's agenda of "Inclusiveness, Implementation and Investment," and the G20's commitment to promoting strong, sustainable and balanced growth. The B20 established a task force on SMEs and entrepreneurship, which prioritized recommendations on innovation ecosystem. Next year, China is expected to start a task force on innovation and employment.

Key Findings

- **A high cross-sectoral, cross-border relevance given.** Innovation is a cross-cutting issue that affects a multitude of challenges and proclaimed aims currently on the G20 agenda, i.e. providing employment through growth, creating opportunities for high-quality jobs,

developing strategies for adequate skilling, life-long-learning, knowledge transfer and mobility, and responding to increasing inequality, social disruptions and disparities.

- **Policy direction matters.** Innovation is a crucial aspect in finding solutions to global civilizational challenges of our time, such as food safety and security, climate change adaptation and mitigation, as well as healthcare. Innovation as such, however, does not follow a given civilizational or social impetus and might also raise important security, safety or ethical concerns. The governments of G20 have a role to play in providing policy direction and transparency on desired societal impacts.
- **Holistic, cross-border policy approach matters.** Governments play a key role in providing consistency, clarity and certainty, and thus leveraging the inevitable risks involved. Policy frameworks at the same time need to offer flexibility for fast changes in the innovation and technology environment. Therefore, policies for innovation require a “whole-of-a-government” approach. Different aspects of facilitating innovation and technology diffusion need to be embedded across ministries in a coherent manner, and be taken forward over time in a multi-year fashion within the G20. Policies could also be better coordinated on regional and global levels in order to be successful in providing clarity to investors, in globalizing innovation and maximizing spillovers.
- **Innovation requires investments in capital, strong institutional and legal environments, and a market-driven approach.** Investments in tangible (equipment, machinery) and intangible knowledge-based capital (software, skill and organizational) need to be complemented by strong legal and regulatory framework as well as infrastructure and financing mechanisms. At the same time, policy-induced R&D activities alone are unlikely to result in relevant innovations and economic growth. – The development of products for specific markets (and their demands) are essential drivers of innovation. It is of therefore of high importance that government agencies cooperate hand-in-hand with SMEs, large companies, universities, research centers and incubators.

Key Recommendations

A G20 innovation framework should focus on improved policy frameworks to enable more technology innovation and faster spillovers, thus creating robust regional and global value chains. Today’s opportunities for leveraging on innovation for a higher standard of living globally abound.

A G20 innovation framework should also focus on tangible and practical policy options. It should be developed through engagement and consultation of T20, B20 as well as other engagement groups and multilateral organizations that work on innovation, -- incorporating the perspectives of entrepreneurs, investors, and technologists – doers in this area. Once adopted, it should be actively communicated to business, societal and other stakeholders. A G20 innovation framework should also identify areas that warrant further research as innovation and technology diffusion should be a multi-year topic area.

This section summarizes specific recommendations discussed in the Berlin meeting to be considered by the G20. It thus provides the basis and an opportunity for mobilizing political attention to the highest level behind this important agenda. Specifically:

- A G20 innovation framework should consider the specific opportunities in different countries, across sectors and technologies. This would **enable better benchmarking and cross-country alignment of innovative policy** approaches. A G20 innovation framework could improve transparency about national incentives for and barriers that hinder innovation and investment:
 - Installing Innovation Information Units in each G20 country, in order to facilitate information and advice about societal, cultural and legal aspects relevant for innovative services and products for interested investors/importers. Such units could also report about issues to be tackled by the national policy actors.
 - Establishing knowledge-sharing platforms and measures that allow benchmarking of innovation policies among G20 countries and beyond.

- A G20 innovation framework should encourage and **support the development of regional cross-border, cross-sectoral, cross-technology value chains**, so that global frameworks can become a leverage for rather than a constraint on regional innovation.
 - The framework could help encourage and support the development of regional value chains that allow for the development and diffusion of technology-intense products, capitalizing on regional capabilities.
 - The G20 could develop a platform to develop and diffuse renewable and bio-based technologies in industrial value chains in the context of reducing carbon emissions for sustainable green growth. Policy tools for accelerating the diffusion of such products and technologies need to be devised.
 - The framework could particularly support SMEs for their compliance with labor, environmental, social, and quality international standards needed to access and/or upgrade their participation in GVCs through relevant global platform;

- Following the previous point, the G20 innovation framework should **take into consideration needs where innovative start-up entrepreneurs and SMEs** that often lack access to credit, public matching funds and market information. Concretely:
 - Support B20's recommendation to assist SMEs to comply with information requirements that meet the standards of investors and lenders;
 - Support B20's recommendation to assist Facilitating the matching process between SMEs and providers of external sources of funding.
 - Support B20's recommendation to endorse mechanism for early stage and growth funding (e.g. seed and VC funds, funds of funds, angel funding).
 - Support a G20 multinational start-up visa program for entrepreneurs and SMEs' employees, in both high- and low-tech industries could be initiated

- A G20 innovation framework should provide direction and benchmarks for the development of innovative national and **cross-country systems for comprehensive and differentiated**

skilling programs that encourage technology literacy and the matching of skills with labor market demands in a global digital economy. The G20 can consider the following:

- Work toward setting an ambitious target for universal access to computer skills
 - Promote the inclusion of technological literacy in G20 countries' employment plans
 - Coordinate with the G20 Employment Working Group and IOS to Increase incentives, visibility and attractiveness of hybrid education (training on the job and vocational educational training).
 - Work towards the establishment of a global framework for the accreditation and certification of productivity enhancing skills
- The G20 – also in line with the Turkish 2015 presidency – should **support the establishment of a global R&D platform and fund**, in order to use and coordinate technology and innovation solutions for global challenges such as health epidemics that have cross-border implications. Such a platform would:
 - Coordinate publicly available R&D outputs of specialized research centers in G20 countries to identify pathogens and develop potential pathogen sub-types/strains.
 - Create a catalogue of these studies in order to identify research complementarities among G20 countries and develop strategies for joint R&D projects to be supported by the fund.