

Building Ecosystems for Innovation towards the SDG

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Background

As part of the 2030 Agenda and the STI4SDG roadmaps, action plans and working methods, the Guidebook presented in this Policy Brief aims to build dynamic capacities to strengthen and adapt ecosystems for innovation for achieving the SDGs.

Technological acceleration makes the future increasingly uncertain in all areas of human activity. It modifies the field of opportunities and risks for countries, governments, companies, academia and for society in general. It increasingly compromises the dynamic capabilities for adequate and timely adaptation to a changing environment and, therefore, for the achievement of the SDGs. In this context, the role of innovation is of growing strategic importance to navigate in an inclusive, sustainable and fair way, the great transition that is coming our way.

STI has offered advanced economies effective solutions to improve their geopolitical and economic competitiveness in a globalised and changing world. Successful innovation ecosystems have brought together public, business, financial, academic, and research stakeholders in virtuous cycles of sharing and collaboration. However, there is no universal formula for creating successful ecosystems and there is no guarantee that they will produce responsible, ethical, inclusive, sustainable and SDG-oriented results.

Analytical and deliberative inputs

STI4SDG demands a systematic and viable path towards inclusive and sustainable development. It requires appropriate **diagnostics, assessments and policy review** to generate **foresight, horizon scanning, prospective analysis, and participatory technology assessment**.

Regrettably, the ingredients for fostering a sustainable innovation culture and system remain elusive for most countries and sectors. They lack the technological capabilities and human skills to analyse, compare, develop, prototype, protect and commercialise their own ideas, inventions and innovations. They lack the ability to visualise and understand the opportunities available, and to create new markets and take advantage of existing ones.

In particular, technology transfer from industrialised to developing countries has not been supporting the growth of innovation ecosystems in terms of smart

investments and human capital development that is able to create globally competitive business and products.

Most companies and individuals rightly fear that their ideas will be ignored, stolen, sabotaged, or exploited by third parties, and that the capacity to innovate lies elsewhere. Many lack the ability to assess risks and to access financing. A good part of human-technological talent migrates from poorer countries and regions to richer economies, while a systemic perception of hopelessness settles in among the most vulnerable.

It is vital to strengthen the higher education systems that support creation of an innovation mind-set in students and enhance their ability for technology-based business creation. Universities are important players in building sustainable innovation ecosystems, particularly if they integrate the SDGs into their curricula, while providing innovation skills, networks and early investments needed to start a business.

The process of innovation is very complex, far-reaching and involves many participants. It has mostly fallen in the exclusive control of a few governments and private monopolies, whose main aim is to maximise electoral support, geopolitical supremacy and shareholder return. Most innovations are supported by an expensive IPR system and an extensive public investment, either directly or by de-risking private investment, but without guaranteeing a positive social impact.

Deeply heterogeneous innovation capabilities have emerged between advanced and backward countries, as well as rich and poor communities within all countries. This has accelerated economic divergences, concentrated geopolitical and economic power in a few hands, and induced socio-political instability. It all points out to further divergence in years to come.

In order to address these global inequalities and risks, it is not enough to just elaborate guidelines and roadmaps towards strengthening national innovation ecosystems. The challenge is to build, under the auspices of the UN System, a global, **coherent**, inclusive, far-reaching, easily reproducible, scalable, self-sufficient, collaborative, interconnected, autonomous and end-to-end innovation system, framed within the SDG and governed by the goal of providing global public goods. This is what is proposed here with the Bank of Ideas (BoI), the Fund for Innovation (Ffi) and the Ethical Council for Innovation.

However, given that some political sensitivities around intellectual property rights and new technologies may persist, the Bank of Ideas can be adapted to overcome these objections, mainly in developed countries and in some of the most dynamic emerging economies, which have a strong private sector. The BoI would focus on entrepreneurship and finding out what are the opportunities for its innovative action at national, sectorial and regional levels towards the SDGs.

In general, STI4SDG requires fostering national and regional innovation networks, capacity-building efforts and human capital formation with the most vulnerable countries and communities in mind. It is ideal that technology and know-how are shared towards maximising public goods and market value creation. Open science, collective intelligence, and the sharing of public data should be encouraged, while ensuring information is not used for exploiting people's behaviour, and imposing self-censorship and social control. Free and open source software and hardware could allow innovators and consumers to study, modify, distribute, make, and sell their own products. It could make it easier for them to generate their own goods and services at lower costs than mass-producing them.

Policy outputs

Under the auspices of the UN System, a network of banks of ideas and funds for innovation, led by autonomous, ethical councils, could effectively guide STI4SDG in an articulated, homogeneous, scalable, equitable and systemic manner, respecting IPR regulations under WIPO support and the legal framework of each country. The network could induce long-term strategic funding to promote, support and protect creative ideas, innovators, research and development, scientific demonstration, and systems deployment. In a first stage, it would be useful to **identify pilot countries** for a joint evaluation. This would **transform BoI's roadmap into a dynamic route adjustable in light of its performance**.

A BoI is a repository for the identification of problems, opportunities and solutions, open to all. They are an effective mechanism for the generation, legal protection, management and financing of a portfolio of best ideas and innovation projects - from ideation and research, to prototyping, proof of concept and commercialisation - in accordance with best international examples and practices, and framed by the SDGs. Out of many ideas, only a small minority are congruent with the SDGs, economically viable and strategically significant. Appropriately selecting them requires structured information within ad-hoc databases derived from the methodical submission of

ideas to the Bank, and supported by algorithms that discern their initial validity and viability. Next steps require **a group of experts to mainstream STI for the SDGs**, and systematically choose the most relevant ideas to be prototyped, their feasibility demonstrated, and the appropriate innovation initiatives financed.

The BoI should tend to be **financially autonomous**. Its functions and costs could be **funded with a small part of the value generated by successful and commercialised innovations**. Participating experts could be granted **guarantees to receive a percentage of the benefits** derived from any successful innovation project they evaluate.

The BoI can help address the **potential socioeconomic effects of accelerating technological change in each country and region**. It can also help analyse and guide the acquisition, absorption, adaptation, replication, expansion, and deployment of existing cutting-edge ideas and conventional technologies, thus **linking innovation to national development challenges and development strategies**. It can facilitate access to financial resources, induce incentives for business and identify best practices from around the world.

The BoI can partly be considered an incubator and an open accelerator of viable ideas, but with a greater reach and tolerance. It can attract and screen a broader array of more mature projects and startups and lead to increased collaboration and value generation within and without each country, through **assistance and dialogue among donor countries and agencies**.

In turn, the Ffi will endeavour to systematically induce a) government resources that would otherwise be dispersed across various sectors, b) available national and international private funds, c) charities and the non-profit sector, to **collaborate in financing innovation**, particularly in the most vulnerable countries and communities; d) provide long-term support for creating innovation skills. Under the auspices of the UN the Ffi could also access financial organisations like the World Bank and sources of regional development financing and use seed funds to kick-start the Ffi.

On the other hand, in advanced economies, the adaptation of the BoI would concentrate on turning zero-value economic activities into functional markets. Private innovation would be attracted to find efficient solutions for itself and develop new markets, given its **encouraged access to funds and to developing new markets**. This would move the BoI's activities away from the IP and patent problem that some countries and stakeholders find difficult to accommodate. The private sector would establish the necessary links and develop

the appropriate intellectual property strategy, without any interference from third parties.

Process, Implementation and Integration

The network of banks of ideas and of funds for innovation is an effective system to stimulate, focus and channel creativity, and to protect, promote and finance the first stages of the formulation and selection of ideas that are considered viable: patent, trademark, copyright, and generation of trade secrets. It is also a platform to help adapt existing infrastructure, institutions, policies and technologies to solve recognised problems, and to induce the emergence of a culture of innovation and creative ideas at all levels of society.

The BoI is the ideal and most expeditious way to change the fear and disdain for innovation, and to surrendering to other innovators. BoI provides a systemic mechanism for **innovation policy mix** and **multidisciplinary approach**, particularly in countries with middle and low technological capabilities. It asks: What is the risk of not innovating and simply accepting or imitating innovations from without? What is the risk of innovating?

BoI and FfI imply accepting that innovation also involves using existing ideas and technologies and adapting them to solve specific problems. They offer reproducibility, scalability, global reach, synergy, **cross-sectoral collaboration**, **peer learning**, **feedback**, **evaluation** and **dynamic capabilities that empower all stakeholders**, particularly the most vulnerable. Their varying success to information and support will depend, at the beginning, on each country's cultural disposition and institutional capabilities for innovation.

The growing reach and resilience of an ecosystem for innovation based on BoI and FfI will largely depend on the establishment of bottom-up and top-down forums of stakeholders. It will crucially depend on the establishment of an autonomous Ethical Council that can ensure accountability, supervision and orientation of outputs towards the SDGs.

Ecosystems can be strengthened if public policies, **innovation governance**¹, intellectual property rules and efficient market creation support collaboration among all stakeholders within the triple-helix model.

¹ Innovation governance implies the systemic capacity to align goals, allocate resources and assign decision-making authority for innovation, across a public or private entity and with external parties.

² Most common resources are public goods because they are non-excludable. On the other hand, they generate rivalry in consumption, because their use diminishes the value or

They would also be reinforced if the quantity and quality of financing were restructured around the overriding goal of delivering essential technologies as a global common good.²

International Collaboration and Assistance

All creative stakeholders can be interconnected through BoI's online platform, according to their respective interests, needs and environments. They can find tips and solutions during their innovation process, and access the story-telling system about the origin, participants, development, results, evaluation and collaboration schemes with other stakeholders.

A general problem that affects the most vulnerable is that if there is no market, then there is no innovation. There is less innovation and effectiveness in the solutions to the problems faced by vulnerable communities. A potential solution is that the BoI and FfI attract and coordinate existing charities, the non-profit sector, national and international aid organisations, national development banks and other public or private funds, to generate economic value for people who do not have it, and then use market mechanisms where people can pay an economic agent, such as a company, to apply the innovated solution to a specific problem.

Future Steps: Overcoming the Funnel of Technology Adoption and Digitalisation

Parallel to the strengthening of a national Efi and the establishment of a Bank of Ideas and a Fund for Innovation, countries, governments and companies face increasing pressure to absorb innovations and technologies that often do not meet their cultural, institutional and economic needs.

Many times, this pressure is related to products and services that arise from native interests, conditions, developments and commercial or political ends, which are different from those of the recipients. Usually they do not understand what their problems are and how, what is offered to them, would solve them.

It is essential to develop an ecosystem of technology and advisory services that offers standardisation and cataloguing, evaluation and certification, proof of concept and implementation of technologies and digitisation systems to be adopted. It is important to

lessens the quantity available to others. On the other hand, common goods are non-excludable and non-rival. Technologies and know-how that are most relevant to advancing towards the SDGs should be shared globally in order to maximise global public goods, while creating market value. Hence, we should consider these essential technologies and know-how as global common goods.

align them with the strategies for the achievement of the SDGs.

Impact Entrepreneurship and the SDGs

An impact entrepreneurship digital platform is complementary to BoI-Ffi's role in guiding innovation

towards the SDGs. It attracts, registers and connects like-minded 'conscious entrepreneurs', bridges their financing gap, promotes their products and services, analyses their impact and elevates their innovation capabilities.