The Philippine Inclusive Filipinnovation and Entrepreneurship Roadmap: Bridging the Gaps, Setting the Milestones
**Introduction**

The Philippine economy has been growing at an average rate of 6.4 percent from 2010 to 2017. Although it slowed down during the first half of 2018, the economic outlook has remained positive given the country's strong macroeconomic fundamentals. Manufacturing has continued to be one of the important growth drivers, posting an average growth of 7.6 percent during the 2010-2017 period, while services grew by 6.7 percent on the average. The manufacturing resurgence that the country is experiencing has been attributed to its growing domestic market, growing middle class, low and stable wages, and abundant, young, and highly trainable, English-speaking work force as well as rising costs in China.

The performance of the agriculture, hunting, fishery, and forestry sectors, however, has remained lackluster, lagging behind services and industry, with an average growth of only 1.4 percent from 2010 to 2017. Since most of the regions are dependent on these sectors, regional economic imbalances have continued to persist along with poverty, unemployment, and underemployment. The Autonomous Region in Muslim Mindanao (ARMM) has the highest poverty incidence at 54 percent, followed by CARAGA and Eastern Visayas (39 percent), SOCCSKSARGEN and Northern Mindanao (37 percent), Bicol (36 percent), and Zamboanga (34 percent).

In order to sustain a high level and inclusive growth, the government is implementing a growth model where a modern industrial sector plays a key role in generating investment and employment. Innovation is at the heart of the new industrial policy known as Inclusive Innovation Industrial Strategy (or i3S). Its goal is to grow and develop globally competitive and innovative industries with strong forward and backward linkages. i3S focuses on three major areas namely, a) creation of an innovation and entrepreneurship ecosystem; b) removal of obstacles to growth to build industry clusters; and c) strengthening domestic supply and value chains to deepen our participation in global and regional value chains and networks. The implementation of the strategy relies on strong government-academe-education-industry collaboration, with the government acting as main coordinator and facilitator in addressing the most binding constraints that prevent industries from growing. Central to the new industrial policy framework is the process of competition-innovation and entrepreneurship-productivity that serve as channels through which investments, employment, and growth are generated.

The industry priorities of the i3S cover automotive; aerospace parts and maintenance, repair and overhaul of aircrafts; agribusiness and tourism; chemicals; construction, transport, and logistics; creative, furniture, and garments; electrical and electronics; innovation and research and development (R&D) activities; climate change and parts and components supply development (inclusive businesses); iron and steel, tool and die; IT-business process management and e-commerce; and shipbuilding and ship repair. These industries have been selected based on a discovery process that assessed the industries’ strengths, weaknesses, and growth opportunities as well as their contribution to objectives that are crucial for economic transformation such as: a) technology upgrading; b) promoting innovation; c) closing the infrastructure gap; d) addressing regional imbalance; e) generating more and better jobs; f) sustainability; g) creating spill-over and multiplier effects; and h) strengthening supply and value chain linkages.

This Policy Brief aims to assess our innovation and entrepreneurship ecosystem and recommends effective innovation strategies and policies. The analysis looks at the different elements of the ecosystem and their interaction using innovation studies and indicators from various sources. A total of 12 consultation workshops and focus group discussions with over a thousand participants were conducted in six key cities (Manila, Angeles, Legaspi, Cebu, Davao, and Cagayan de Oro) covering the country’s various regions from 2017 to 2018. The innovation strategy and policy recommendations are crucial towards making our industries more innovative and globally competitive, providing solutions to societal and industry issues and challenges, supporting economic transformation, and leapfrogging to industrialization.
An Assessment of the Innovation and Entrepreneurship Ecosystem

Innovation refers to the implementation of new or significantly improved products, services, or processes, as well as the introduction of a new marketing or organizational method in business practices, workplace organization or external relations in response to problems, challenges, or opportunities arising in the social and economic environment (OECD 2007). Such innovation is the result of new combinations of existing knowledge, capabilities, and resources and is regarded as inclusive because it can lead to economic transformation both in the developed and underdeveloped areas of the country. In addition, it includes low-tech and high-tech activities occurring across all industries, as well as in both the private and public sectors. Innovation may not necessarily mean “new to the world,” but can also refer to something that is new to producers or users. It does not have to be disruptive – like a product using artificial intelligence or robotics – but may be an incremental improvement or upgrading of a process or product, like making more energy efficient motors or engines.

Innovation policy focuses not only on the creation of new solutions or inventions, but also on their exploitation and diffusion, including the many feedbacks that occur between the various phases of the innovation process. Given the emphasis on the entire innovation cycle and adoption and subsequent commercialization, the approach integrates the importance of connecting innovation with entrepreneurship, building an inclusive innovation and entrepreneurship ecosystem, and creating an environment that is conducive to innovation and enabling and supporting the active engagement and interaction of the different players and stakeholders. The approach emphasizes a market-oriented research policy with focus on the promotion not only of research and development (R&D), but also the commercialization and diffusion of these R&D investments.

The elements of the innovation and entrepreneurship ecosystem include universities and research institutions, companies, government innovation agencies, funding and finance sources, services providers, regulatory framework and infrastructure, culture, markets, education and training, support mechanisms, and human capital and workforce. In the Philippines, the ecosystem players include large multinational companies, small and medium enterprises (SMEs) and start-ups, industry associations, universities as research partners and developers of future workforce, and key government agencies like the Department of Trade and Industry (DTI), Department of Science and Technology (DOST), Commission on Higher Education (CHED), Department of Education (DepEd), Department of Agriculture (DA), National Economic and Development Authority (NEDA), and Department of Information Communications and Technology (DICT). The interaction of these stakeholders will create and transfer knowledge that will enable new products and new business models to catalyze economic transformation and development.
Figure 1 presents a framework developed by RTI International (RTI) on the innovation and entrepreneurship ecosystem and the inherent linkages between the stakeholders. It builds on the following interrelated blocks: human capital, research and knowledge creation, knowledge transfer, intellectual property (IP), and an infrastructure of collaboration. The health and development of the ecosystem requires the connections between the knowledge economy (driven by research) and the commercial economy (driven by the marketplace) and it is in this intersection that the Philippines, like most countries, is facing difficult challenges (RTI, 2017).

Currently, the Philippines has a low level of innovation, ranking 73rd of 126 countries in the 2018 Global Innovation Index, behind Malaysia, Thailand, and Vietnam. Compared to its neighbors, the country’s ranking has not changed significantly in the last three years.

The 2018 GII indicated that the areas where the Philippines has been consistently weak are in: a) ease of doing business; b) government operating expenditures in education; c) government expenditure per pupil (% GDP/capita); d) pupil-teacher ratio; e) gross expenditure on research and development (GERD, % of GDP); and f) ease of protecting minority investors.

In the last four years, R&D in the national budget has not reached 0.1% of GDP. The recommendation of the United Nations Educational Scientific and Cultural Organization (UNESCO) is to allocate at least 1 percent of GDP for R&D support. Comparative data on R&D expenditure shows that the Philippines is investing far less than other countries on activities that drive innovation. Front runners of innovation like Korea, Japan, Israel, China, and Singapore allot a considerable part of their budget on R&D, while neighbors Thailand and Vietnam also invest much in R&D.
The Philippines also lacks the manpower needed to support innovation and commercialization activities. Along with Vietnam, it exhibits low availability of scientists and engineers, in comparison with countries like Indonesia, Malaysia, Japan, Israel, and Singapore.

Correspondingly, data from UNESCO show that total R&D personnel in the Philippines is very miniscule in comparison with innovation leader countries like Korea, Singapore, and Japan. This goes to show that base support for innovation and commercialization remains comparatively weak in the Philippines.

Table 2. Total R&D Personnel per Thousand Total Employments (FTE), 2013

<table>
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<tr>
<th>Country</th>
<th>FTE</th>
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<tbody>
<tr>
<td>China</td>
<td>4.619</td>
</tr>
<tr>
<td>Japan</td>
<td>13.768</td>
</tr>
<tr>
<td>Philippines</td>
<td>0.671</td>
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<tr>
<td>Republic of Korea</td>
<td>15.998</td>
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<tr>
<td>Singapore</td>
<td>13.994</td>
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<tr>
<td>Viet Nam</td>
<td>1.494</td>
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Source: UNESCO Institute for Statistics
Likewise, the Philippines does not fare well in terms of research productivity. The country’s ratio of scientific and technical publications relative to GDP is around 1.6, while Thailand and Vietnam produce more than three times of this value (6.5 and 5.6, respectively). The research productivity of Israel, Korea, and Singapore is notably high. It also appears that Malaysia (12.3) is catching up with China (14.1) and Japan (15.1).

Figure 5. Scientific and Technical Publications (number per Billion PPP$ GDP)

![Graph showing scientific and technical publications per Billion PPP$ GDP for various countries, with China leading at 45.4, followed by Israel at 29.2, and Japan at 26.3. Other countries listed include Malaysia, Rep. of Korea, Singapore, Thailand, and Vietnam.](Source: WEF Readiness for the Future of Production Report 2018)

Patent applications are also low, even when compared with other Asian countries like Malaysia or Thailand. The indicators imply that policies and incentives for research productivity must be improved to promote a balance between the incentives for basic and applied research. To achieve this, a shift towards more academe-industry collaboration and commercialization of research is necessary.

Figure 6. Patent Applications (applications/million population)

![Graph showing patent applications per million population for various countries, with China leading at 427.69, followed by Japan and Israel. Other countries listed include Rep. of Korea, Singapore, Thailand, and Vietnam.](Source: WEF Readiness for the Future of Production Report 2018)

The collaboration between academe and industry in the country remains weak. Over the years, the country’s score and ranking on the university-industry collaboration in R&D indicator of the Global Competitiveness Index has not improved as much as desired.

Studies and stakeholder consultations have shown that academe-industry linkages continue to be limited. In general, universities do not see research collaboration as part of their core mission, as opposed to teaching and publishing journal articles. University faculty seem to have a sense of aversion towards consulting services or work for hire due to issues with IP ownership. To exacerbate these issues, financial gains...
Conversely, there are prevailing perceptions from industry that dealing with the academe is too complicated. With limited public information about their expertise, research interests, and innovation projects; businesses commonly do not perceive the academe as potential partners. The lack of legally-sanctioned payment mechanism for financial contributions also erodes the interest of companies to support government-funded research. The academe’s desire for full control of IP and their lack of familiarity and trust on legal mechanisms for licensing likewise discourages companies to pursue such collaboration. Overall, relations between the academe and industry is characterized more by competition rather than collaboration. This limits the commercialization of potentially useful research outputs and seriously impacts the overall innovation performance of the country.

With some exceptions, Philippine universities generally remain detached from problems as signaled by the market and often fail to appreciate the importance of commercialization. Some institutions are also unable to respond timely to the commercialization intent of some businesses because of their onerous processes or lack of mechanisms or preparedness to deal with such. University researchers normally do not consider commercialization as part of their core mission because their performances are evaluated based on the number of their research publications.

Moreover, research activities in universities usually do not end up being commercialized due to the lack of personnel with the capability to deal with technology transfer and commercialization. Researchers also need to be acquainted with business plans, conducting market research and feasibility studies, and valuing technology because these are sometimes part of the requirements for IP filing. Additionally, financial constraints limit the commercialization of university technologies because IP management entails high transaction costs and consumes much time due to the complexity of the process and requirements.

It is also important to note that there is limited awareness of and clarity about government policies and programs for R&D. Some researchers who tried to avail of R&D grants did not qualify or did not choose to take advantage of such programs because they saw it as being rather restrictive (e.g., limited to specific industries, repayment conditions) or that the process to access it is arduous and complex (STRIDE, 2017).

The rules and guidelines on government procurement (RA 9184) cover state universities and colleges (SUCs) and the state-funded research activities conducted by its faculty and researchers. Problems arise when administrative requirements, including complex procedures, hinder the timely purchase of research equipment or consumables, thereby reducing research productivity and slowing commercialization (STRIDE, 2014). Such inefficiencies disincentivize researchers and require urgent appropriate reforms.
Connecting and integrating the key elements and stakeholders of the Philippine innovation and entrepreneurship ecosystem is crucial. To address the weak innovation performance of the Philippines, our vision is to close this gap by linking the stakeholders together through the creation of regional inclusive innovation centers (RIICs) in different parts of the country. These RIICs are envisioned to be at the heart of Philippine economic transformation and serve as linchpin of productive collaborations between and among industries, universities, government agencies, LGUs, startups, MSMEs, R&D laboratories, S&T parks, incubators, FabLabs, investors, among many other agents in the ecosystem.

The i3S recognizes that we cannot adopt a one-size-fits-all approach and we need to recognize the diversity of regional/local conditions across the country. As such, the RIICs will be set up by building upon the existing elements of the ecosystem in the regions. These centers will be sensitive to the current clusters in the regions and capitalize on the cluster strategies being implemented by the national and regional/local government. The RIICs will link together various DTI and DOST projects such as shared services facilities (SSFs), FabLabs, R&D centers, food innovation centers, Negosyo Centers, technology business incubators, and technology transfer offices. Support mechanisms (incubators, accelerators, co-working spaces) and service providers (logistics, accounting, e-services) will also be features of the RIICs.

In the end, the ecosystem will be constituted by connected and creative communities in various regions of the country, propelled by innovative and entrepreneurial Filipinos, who are driven by their desire to do things better, provide solutions, make better products, and address market demands. They will be nurtured by the collaboration of government, industry, and education/academia through policies, strategies, and programs/projects that continuously develop human capital; ensure access to funding and other sources of financing; and provide the appropriate support mechanisms and services for commercialization. All of these activities, interactions, and partnerships will be fostered in an environment in which institutions, infrastructure, intellectual property rights system, culture, and customers enable more and better innovation and entrepreneurship throughout the country.

In order to achieve the overall vision of creating an inclusive innovation and entrepreneurship ecosystem, the following recommendations and strategies are proposed: 1) Strong Government-Academe-Industry Linkages; 2) Human Capital Development Towards Innovation and Entrepreneurship; 3) Enabling Policy Environment to Accelerate Innovation and Entrepreneurship; 4) Entrepreneurship
Culture and Support Programs for MSMEs; 5) Funding and Financing for Innovation and Entrepreneurship; and 6) Growth and Development of Industry Clusters. The more specific recommendations are subsequently presented.

1. **Strong Government-Academe-Industry Linkages**

The coordination between and among government, academe, and industry is crucial for innovation and entrepreneurship to thrive in the country. Within government, the various national government agencies will coordinate their priorities, strategies, and programs, harmonize these, and optimally use their resources for greater impact. Coordination between the national and regional/local levels of government is also important, because of the latter’s proximity to the stakeholders and the additional resources and support that can supplement those coming from national agencies.

Government and industry need to continue working together as guided by the new industrial strategy, i3S – with government serving as enabler of the private sector, and industry acting as engines of the country’s growth. Government and the academe, on the other hand, must strengthen their relationship not only in training the country’s future workforce, but also in terms of finding solutions to market failures, societal issues, and industry problems. Government promotion of partnerships between industry and universities/higher education/research institutions will contribute in addressing misunderstandings and exploration of mutually beneficial arrangements for improving human resource, increasing available funding, and conducting basic and applied research.

The initiatives that will require government-academe-industry collaboration include:

- Promotion and strengthening of the ecosystem environment through the alignment and continuity of existing innovation- and entrepreneurship-related government policies, programs, and support infrastructure (e.g., SSFs, FabLabs, Food Innovation Centers, Technology Business Incubators, Negosyo Centers, Tech4Ed centers, incubators/accelerators);
- Development of a government portal or database that includes information on research being done by universities, research and development institutions, and industry; inventory of laboratories, equipment, machinery, and other resources available in the region; prices and specifications of innovation-related products, equipment, and consultancy;
- On the part of government research institutions, the Department of Agriculture (DA)-Bureau of Agricultural Research and the Department of Science and Technology (DOST)-Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) to establish and maintain websites and webpages for public information about tested technologies ready for commercialization;
- Production of a directory of local MSMEs, start-ups, and industries, as well as a directory of industry experts; setting-up informal opportunities for industry representatives and academic researchers to meet, interact, and collaborate; and
- Coordination with the Regional Research Development and Innovation Committee under the Regional Development Council (RDCs).

Furthermore, this triple helix of government, academe, and industry collaboration serves the pursuit of knowledge production, designing solutions (innovation), as well as value-creation and commercialization.
• Formulation of higher education policies that encourage and incentivize academe and industry partnerships;
• Development and promotion of university policies that value faculty-industry collaboration in knowledge production and innovation;
• Strengthening student internship programs that serve as platforms to provide students with industry-relevant knowledge and competencies;
• Recognition and reward for faculty immersion in industry;
• Establishment of a database of university and industry research and knowledge resources;
• Initiation of curricular reforms to address job mismatch and cater to the needs of emerging industries in the regions;
• Crafting of new metrics of performance excellence that recognize and reward faculty research engagement with industry and the inclusion of entrepreneurship and community engagements as new metrics of extension;
• Organizing university research groups and centers that cater to the needs of the local community and industry;
• Establishment of pathways for university publications and patents to be translated into industry solutions or to pass on university researches to industry for implementation;
• Inclusion of innovation and entrepreneurship in the R&D consortia of universities;
• Capacity-building of faculty-researchers in solutions-driven and market-driven research as well as business development, customer discovery, and customer development;
• Training of faculty-researchers on the methods of market studies, market segmentation and analyses, and marketing;
• Provide incentives for university faculty who are engaged in extension-technology transfer projects;
• Require agricultural SUCs to promote and share their expertise and accomplishments in the field of food and agricultural research and extension;
• Set up a special fund for university researchers in food and agriculture for technology demonstration and dissemination;
• Encouraging faculty-researchers to be actively engaged in the proposed RIICs as resource persons; recognize and use the RIICs as venues for university extension programs; engage local entrepreneurs or leaders of industry as guest lecturers in classes or as conference speakers;
• Establishing university office, technoparks, hubs, or centers focusing on entrepreneurship, innovation, and technology and business incubation; and
• Setting up of common research and support facilities catering to local industry needs.
2. Human Capital Development Towards Innovation and Entrepreneurship

Human capital is the engine of innovation and entrepreneurship. It fuels knowledge production, spurs revisions to innovations, catalyzes incremental innovations, identifies and develops new enterprises and business opportunities, facilitates technology adoption, and leads to the diffusion or transfer of knowledge to another generation of skilled workers, which then accrues to enhanced human and social capital.

The success of this inclusive innovation-entrepreneurship dynamic is anchored on the composition and agility of human capital— the set of skills, competencies, and attributes that reflect both technical competence as well as so-called ‘generic skills’ such as problem solving, creativity, teamwork and communication skills, learning to learn, motivation, discipline, self-confidence, self-awareness, networking, and capacity to embrace change.

The role of “Philippine education,” then, in developing a culture of innovation and entrepreneurship will have to start in the formative years, from pre-Kindergarten to 12th Grade and seamlessly progressing to tertiary and higher education. The government’s three education agencies, i.e., Department of Education (DepEd), Technical Education and Skills Development Authority (TESDA), and the Commission on Higher Education (CHED), will need to design integrative programs and curricula that can effectively produce Filipino lifelong learners who possess the knowledge, competencies, values, and attitudes to make them succeed in the world of work, develop innovative solutions to key societal issues, or transform these innovations into economic goods.

The following strategies are recommended:

- DepEd’s review of the K-12 curriculum to be used as an opportunity to integrate innovation and entrepreneurship in basic education;
- Interest in Science, Technology, Engineering, Agro-Fisheries, and Mathematics (STEAM) disciplines and careers should be promoted across all levels;
- TESDA to support local MSMEs, startups, and industries of specific regions through dynamic and customized techvoc programs that can produce the human capital needed in these local enterprises;
- TESDA to offer or accredit private providers that offer re-skilling and upskilling courses (e.g., coding, data analytics, leadership, entrepreneurship, business communication, etc.) to produce knowledge workers/professionals in the new knowledge economy;
- CHED to support initiatives by universities, public or private, to promote innovation and entrepreneurship/technopreneurship as part of university coursework or overall university mission or thrust (e.g., UP, DLSU, ADMU, MSU-IIT, USC, and USTP);
- Establish SUCs/HEIs as centers for excellence in innovation and entrepreneurship;
- Establish university programs that encourage cross-pollination of courses to engage faculty and students in the collaborative and multi-perspective nature of innovation and entrepreneurship.
3. Enabling Policy Environment to Accelerate Innovation & Entrepreneurship

Significant strides have been taken, thus far, to ensure that government programs and the overall policy environment in the country are conducive for innovative and entrepreneurial activities. Nonetheless, the following recommendations related to technology transfer, commercialization, and support for startups are intended to enhance the policy environment:

- Strengthen the implementation of the Technology Transfer Act;
- Capacitate SUCs/HEIs to establish pathways for university publications and patents to be translated into industry solutions or to pass on university researches to industry for adoption;
- Strengthen IP system to facilitate the commercialization process, including the use of services offered by the Intellectual Property Satellite Offices (IPSOs), Innovation and Technology Support Offices (ITSOs), and the IP Depot;
- Simplify and reduce the cost of IP filing; provide support and assistance to facilitate the process of IP filing and management;
- Provide incentives to MSMEs that innovate and undertake R&D initiatives;
- Support the passage of the proposed Innovation Act and Innovative Startups bill, which will be significant milestones in the country’s efforts to boost innovation and entrepreneurship; and
- Ease regulatory policies and administrative burden in starting up businesses to facilitate the introduction of ideas into market.

4. Entrepreneurship Culture and Support Programs for MSMEs

Towards cultivating a culture of entrepreneurship in the country, the various entrepreneurship programs and support for MSMEs implemented by government will be enhanced and actively promoted for greater awareness. Efforts to simplify and rationalize requirements and availing process for these programs will be made.

Central as well to developing an entrepreneurship culture is the pivotal role of education. There ought to be synergistic programs and activities at the basic, tertiary, and higher education levels to support appreciation of entrepreneurship, acquisition of entrepreneurial, and 21st Century/lifelong learning skills, and promotion of venture creation as a career opportunity.

- Strengthen and expand one-stop-shops for MSMEs, which provide services such as certification, licensing, capability training, production, and marketing of products/services; services can be expanded to provide business mentorship, particularly for startups, as well as creative and design services that aid in transforming ideas/prototypes into commercially viable products and services;
- Establish regional startup offices or hubs that can serve as a platform for MSMEs to connect and network with industry experts as well as function as business incubators for stakeholders in the regions;
- Foster greater cooperation among actors in the MSME support network (i.e., incubators, accelerators, small business development centers, export assistance centers) by deepening and strengthening their involvement and engagement with stakeholders, including industry experts;
- Build and/or strengthen MSME partnerships with academe and larger players in industry for mentorship programs for innovation and technology-related training programs and activities; and
- Strengthen the StartUp Ecosystem Development Program (SEDP) and provide support programs and other forms of assistance to startups and other members of the community.
5. Funding and Financing for Innovation and Entrepreneurship

It is critical for innovators and entrepreneurs to have adequate financial resources as they move forward in commercializing their ideas and products. This will include public funding (such as grants, microcredit, tax incentives) and private sources of finance (such as equity financing, venture capital). The appropriate form of funding/financing for a particular stage of innovative/entrepreneurial activity (seed, startup, early-stage, expansion) should be made accessible and interventions to make these available will be carried out.

- Increase government expenditure on R&D (GERD) towards reaching the UNESCO benchmark of 1% of GDP;
- Strengthen programs that provide financing for commercially-viable projects to bridge the gap between commercialization and R&D;
- Create an investment environment that encourages more private sector participation in financing enterprises, including angel investors, venture capital, and crowd fund-sourcing;
- Review and rationalize requirements and guidelines for availing of government funds for R&D in order to ease and broaden access by startups, MSMEs, and researchers; and
- Provide to startups and MSMEs information and mentoring on finding sources of financing, qualifying for these, and sustaining capital flow.

6. Growth and Development of Industry Clusters

The RIICs will build upon the existing industry clusters in the regions and capitalize on the cluster strategies being implemented by the national and regional/local governments. As common points for convergence, RIICs will be able to galvanize a shared direction among stakeholders and provide a venue to weave together and/or harmonize programs and projects in support of innovation and entrepreneurship in the regions.

Conceivably, the RIICs shall have the following functions in order to spur the growth and development of industry clusters in the regions:

- Establish, together with local SUCs and HEIs, knowledge centers for innovation and entrepreneurship, market research and insights in the region;
- Serve as open innovation platforms and hubs for technical collaboration/cooperation between industry and academe (foreign & local) for market-driven research;
- Host shared service facilities for rapid prototyping and demonstration, testing equipment, and reliable ICT networks and communication platforms;
- Improve supply chain, value adding, and agro-processing, as well as systems for food and agricultural research, access to technologies, financing, regulation, and certification particularly for high-value crops such as rubber, mangoes, coffee, cacao, coconut;
- Promote the Philippines as an agribusiness regional hub and increase its participation in the global value chain as a supplier of semi-processed or finished farm products; and
- Provide a directory of regional products and services and serve as venues for startups and MSMEs to connect and network with industry experts to enhance their entrepreneurial know-how and enable them to be Industry 4.0-ready.

Among the priority industries under i3S, electronics, automotive, aerospace, chemicals, IT-BPM, and agribusiness (including various high value crops) are primed for innovation initiatives and more entrepreneurship opportunities.
Way Forward: Roadmap Implementation

In June 2017, DTI and DOST signed a Memorandum of Understanding (MOU) to jointly formulate and implement the innovation roadmap. This has been expanded to include NEDA, DepEd, CHED, DA, and DICT, as part of the whole-of-government approach in establishing the ecosystem. One of the objectives of the expanded MOU is to revive and reconstitute the Filipinnovation Council, to be composed of concerned national government agencies and representatives from industry and education/academia, which will serve as the central coordinating mechanism on innovation and entrepreneurship policies, strategies, and programs/projects in the country.

The ultimate goal of the Inclusive Filipinnovation and Entrepreneurship Roadmap is to activate innovation and entrepreneurship as the main levers to reduce, if not completely eliminate, poverty in the country.

In coordination with the Council, each member-agency will be responsible for aspects of the ecosystem that are within their purview.

- DTI, BOI, IPOPHL: market studies, linking industries with academe and other government agencies; ease of doing business; IP strategy
- DOST, DA, CHED: basic and applied research grants, R&D, commercialization support
- DepEd, TESDA, CHED: human capital development and curriculum reforms
- DICT: physical innovation infrastructure; support for startups
- NEDA: innovation and entrepreneurship policy monitoring and evaluation

TESDA and DOLE are targeted to be included and involved in human resource development, while the DILG will take lead in regional/local stakeholder engagement and the DOF will be concerned with fiscal support for innovation, R&D, technology transfer, commercialization, and MSMEs.

Together, the member-agencies of the Council will coordinate their innovation and entrepreneurship-related policies, strategies, and programs/projects in order to avoid duplication, harmonize these, and maximize the use of resources. Towards this end, a central data portal containing information on major government-funded research projects is currently being developed by DICT, DA, DOST, DTI, and NEDA. In the regions, the roadmap implementation would be spearheaded by the Regional Research Development and Innovation Committee under the Regional Development Council (RDCs).
The needs assessment studies project for the establishment of RIICs has commenced in Cebu, Cagayan de Oro, Legaspi, and Davao. The project, which is a collaboration between DTI and the USAID-STRIDE, aims to examine the existing ecosystem, identify the gaps, and recommend measures to link the different players towards creating more inclusive innovation and entrepreneurship ecosystem in these pilot cities.

The ultimate goal of the Inclusive Filipinnovation and Entrepreneurship Roadmap is to activate innovation and entrepreneurship as the main levers to reduce, if not completely eliminate poverty in the country. By institutionalizing the proper policy framework and implementing innovation-centered strategies and programs through strong government-academe-industry collaboration; domestic firms and industries can address the challenges and take advantage of market opportunities arising from Industry 4.0 technologies and serve as an engine for sustainable growth, job creation, and poverty reduction.

References

The preparation of this policy brief was led by DTI Assistant Secretary Rafaelita M. Aldaba with the support of the following consultants & BTIPR staff: Kris Francisco, Francis Quimba, Napoleon Juanillo, Jr., Richard Umali and Myleen Aldana, Cyrus Kim Bautista, Jude Martin Joya, Amara Zarah Amper, Mc Phearson Christian Ramos and Elli May Malabayabas.

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