Republic of the Philippines
Department of Environment and Natural Resources
Visayas Avenue, Diliman, Quezon City
Tel. Nos. (02) 8920-0689 / 8925-8275 / 0917-885-3367 / 0917-868-3367
Website: http://www.denr.gov.ph / E-mail: web@denr.gov.ph

MEMORANDUM

FOR : The Director,
Biodiversity Management Bureau
Environmental Management Bureau
Forest Management Bureau

FROM : The OIC-Director, Policy and Planning Service

SUBJECT : **NATIONAL INNOVATION AGENDA AND STRATEGY DOCUMENT (NIASD) CO-CREATION WORKSHOP**

DATE : 02 DEC 2022

This refers to the e-mail sent by the National Innovation Council Secretariat last 29 November 2022 requesting the DENR to attend the National Innovation Agenda and Strategy Document (NIASD) Co-Creation Workshop on 12-13 December 2022.

In view of the above, we would like to request your Office to send your technical staff to attend/participate in the NIASD Co-Creation Workshop on 12-13 December 2022. May we request for the Confirmation Slip to be filled out and to send an advance copy to our office email psddivision@gmail.com on or before 6 December 2022.

Attached are the Invitation, Indicative Programme, Confirmation Slip, and the National Innovation Agenda 2032 presentation for your perusal.

For your preferential action, please.

MELINDA C. CAPISTRANO

MEMO NO. 2022 - 853

Gmail **Nehemiah Leo Carlo Salvador <nehemiahsalvador@gmail.com>**

[FOR NIC-ETB] Invitation to the National Innovation Agenda and Strategy Document (NIASD) Co-Creation Workshop and 4th NIC-ETB Meeting

4 messages

NEDA National Innovation Council Secretariat <nicsecretariat@neda.gov.ph> Tue, Nov 29, 2022 at 5:54 PM
To: "carlo.marcaida@gmail.com" <carlo.marcaida@gmail.com>, "edsie.buado@gmail.com" <edsie.buado@gmail.com>, Liz Angela Intia <laaintia.op@gmail.com>, Office of the Deputy Executive Secretary for General Administration <odesga@op-proper.gov.ph>, DOST OUSECRO <ousec.ro@dost.gov.ph>, "samabborang@dost.gov.ph" <samabborang@dost.gov.ph>, DOST OASECIC <oasec.ic@dost.gov.ph>, leah buendia <leahbuendia@yahoo.com>, "egpandanan@dost.gov.ph" <egpandanan@dost.gov.ph>, "Usec. Rafaelita M. Aldaba" <RafaelitaAldaba@dti.gov.ph>, "Office of the Undersecretary, CIG" <oucig@dti.gov.ph>, "Office of the Undersecretary for Competitiveness and Innovation Group (CIG)" <cigous@dti.gov.ph>, "Catherine E. Nuqui" <CatherineNuqui@dti.gov.ph>, "mercedita.sombilla@da.gov.ph" <mercedita.sombilla@da.gov.ph>, "prri.oed@gmail.com" <prri.oed@gmail.com>, John de Leon <jcdl1169@yahoo.com>, shawie flores <shawflores31@gmail.com>, Office of the Secretary <osec@denr.gov.ph>, "Undersecretary for Policy, Planning and International Affairs" <ouppia@denr.gov.ph>, Jonas Leones <jonasrleones@gmail.com>, Llarina Mojica <lsmojica@denr.gov.ph>, Nehemiah Leo Carlo Salvador <nehemiahsalvador@gmail.com>, "OIC Dir. Melinda Capistrano" <melindacapistrano@yahoo.com>, Health Facilities and Infrastructure Development Team DOH <hfidt@doh.gov.ph>, "lcdavid@doh.gov.ph" <lcdavid@doh.gov.ph>, Helen Paaño <hdpaano@doh.gov.ph>, Kenneth Ronquillo <kgronquillo@doh.gov.ph>, Office of Asec KGR DOH <officeofaseckgr.doh@gmail.com>, "irvidamo@doh.gov.ph" <irvidamo@doh.gov.ph>, "felgo-mamaril@doh.gov.ph" <felgo-mamaril@doh.gov.ph>, "jdelapaz@doh.gov.ph" <jdelapaz@doh.gov.ph>, "mnacbulatao@doh.gov.ph" <mnacbulatao@doh.gov.ph>, "tr.batan@dotr.gov.ph" <tr.batan@dotr.gov.ph>, "ppdo@dotr.gov.ph" <ppdo@dotr.gov.ph>, "jelyngonzales.dotr@gmail.com" <jelyngonzales.dotr@gmail.com>, "kc.deleon@dotr.gov.ph" <kc.deleon@dotr.gov.ph>, "crismel.tengson@dotr.gov.ph" <crismel.tengson@dotr.gov.ph>, "ouaf@dotr.gov.ph" <ouaf@dotr.gov.ph>, "jobybacs87@gmail.com" <jobybacs87@gmail.com>, "rozen0711@gmail.com" <rozen0711@gmail.com>, "mc.marasigan@doe.gov.ph" <mc.marasigan@doe.gov.ph>, "amdtcarlos@doe.gov.ph" <amdtcarlos@doe.gov.ph>, "rowena.villanueva@doe.gov.ph" <rowena.villanueva@doe.gov.ph>, "enavarrete@doe.gov.ph" <enavarrete@doe.gov.ph>, "ajsibal@doe.gov.ph" <ajsibal@doe.gov.ph>, "oasla@dnd.gov.ph" <oasla@dnd.gov.ph>, "drlcruz@dnd.gov.ph" <drlcruz@dnd.gov.ph>, "lmdofrin@gmail.com" <lmdofrin@gmail.com>, "ouiid@dict.gov.ph" <ouiid@dict.gov.ph>, "emmy.delfin@dict.gov.ph" <emmy.delfin@dict.gov.ph>, "yvette.cabrera@dict.gov.ph" <yvette.cabrera@dict.gov.ph>, "thea.docena@dict.gov.ph" <thea.docena@dict.gov.ph>, "loraine.valdez@dict.gov.ph" <loraine.valdez@dict.gov.ph>, "jocelle.sigue@dict.gov.ph" <jocelle.sigue@dict.gov.ph>, "cjaro@ched.gov.ph" <cjaro@ched.gov.ph>, "executivedirector@ched.gov.ph" <executivedirector@ched.gov.ph>, "acenriquez@ched.gov.ph" <acenriquez@ched.gov.ph>, "lmilla@ched.gov.ph" <lmilla@ched.gov.ph>, "abunag@ched.gov.ph" <abunag@ched.gov.ph>, "msgunigundo@ched.gov.ph" <msgunigundo@ched.gov.ph>, "naparejo@ched.gov.ph" <naparejo@ched.gov.ph>, "jbasilio@dbm.gov.ph" <jbasilio@dbm.gov.ph>, "jdizon@dbm.gov.ph" <jdizon@dbm.gov.ph>, "rbalanquit@dbm.gov.ph" <rbalanquit@dbm.gov.ph>, "mdeugenio@dbm.gov.ph" <mdeugenio@dbm.gov.ph>, "osec@deped.gov.ph" <osec@deped.gov.ph>, "osec.cos@deped.gov.ph" <osec.cos@deped.gov.ph>, "ouci@deped.gov.ph" <ouci@deped.gov.ph>, "oasci@deped.gov.ph" <oasci@deped.gov.ph>, "als.taskforce@deped.gov.ph" <als.taskforce@deped.gov.ph>, "caleb.pantoja@deped.gov.ph" <caleb.pantoja@deped.gov.ph>, "asec.pas.als@deped.gov.ph" <asec.pas.als@deped.gov.ph>, "frcruz@dilg.gov.ph" <frcruz@dilg.gov.ph>, "franciscocruz.dilg@gmail.com" <franciscocruz.dilg@gmail.com>, "jlponan.dilg@gmail.com" <jlponan.dilg@gmail.com>, "dilg.oaspp2019@gmail.com" <dilg.oaspp2019@gmail.com>, "mliringan@dilg.gov.ph" <mliringan@dilg.gov.ph>, "ouslg.dilg@gmail.com" <ouslg.dilg@gmail.com>, "gina.jamoralin@dfa.gov.ph" <gina.jamoralin@dfa.gov.ph>, "edd.oier@dfa.gov.ph" <edd.oier@dfa.gov.ph>, "louella.duarte@dfa.gov.ph" <louella.duarte@dfa.gov.ph>, "kristine.sison@dfa.gov.ph" <kristine.sison@dfa.gov.ph>, "enrik.revillas@dfa.gov.ph" <enrik.revillas@dfa.gov.ph>, "pwanover@dole.gov.ph" <pwanover@dole.gov.ph>, "asec.employment@dole.gov.ph" <asec.employment@dole.gov.ph>, "usec.employment@dole.gov.ph" <usec.employment@dole.gov.ph>, "teodoro.pascua@ipophil.gov.ph" <teodoro.pascua@ipophil.gov.ph>, "marinel.ganitnit@ipophl.gov.ph" <marinel.ganitnit@ipophl.gov.ph>, "adrian.sablan@ipophil.gov.ph" <adrian.sablan@ipophil.gov.ph>, "rowel.barba@ipophil.gov.ph" <rowel.barba@ipophil.gov.ph>, "raymond.pasiliao@ipophil.gov.ph" <raymond.pasiliao@ipophil.gov.ph>, "PIAcore@ipophil.gov.ph" <PIAcore@ipophil.gov.ph>, "nelson.laluces@ipophil.gov.ph" <nelson.laluces@ipophil.gov.ph>, "aileen.santiago@ipophl.gov.ph" <aileen.santiago@ipophl.gov.ph>, Jude Martin Joya <judemartin.joya@ipophil.gov.ph>
Cc: "Rosemarie G. Edillon" <rgedillon@neda.gov.ph>, "Rowena M. Arellano" <rmarellano@neda.gov.ph>, "Brigida T. Brocal" <btbrocal@neda.gov.ph>, "Sarah Lynne S. Daway-Ducanes" <sdducanes@neda.gov.ph>, "Sonia O. Alvis" <soalvis@neda.gov.ph>, "Maria Ruby L. Lamac" <mllamac@neda.gov.ph>, "Winston B. Silvestre" <wbsilvestre@neda.gov.ph>, "Diane Gail L. Maharjan" <dlmaharjan@neda.gov.ph>, &Innovation Staff - od <&INNOS-od@neda.gov.ph>, &Innovation Staff - spid <&INNOS-spid@neda.gov.ph>, &Innovation Staff - ifmd <&INNOS-

ifmd@neda.gov.ph>, &Innovation Staff - icpd <&INNOS-icpd@neda.gov.ph>, NEDA Research & Development – Project Management Office <r&d-pmo@neda.gov.ph>

Dear **NIC-ETB Principals,**

On behalf of NEDA Undersecretary and NIC-ETB Chairperson Rosemarie G. Edillon, this is to respectfully furnish your office with a signed copy of the memorandum requesting NIC-ETB principal and alternate representatives to attend the following: (1) NIASD Co-creation workshop on 12-13 December 2022 in Metro Manila (exact venue to be confirmed), and (b) 4th NIC-ETB meeting on 19 December 2022, 1:30 - 5:00 PM in Metro Manila.

Please note that the 4th NIC-ETB meeting schedule and venue are still tentative. We will advise once details are finalized.

We would appreciate receiving your accomplished confirmation slip on or before ***1 December 2022***. Should you have inquiries or concerns on this matter, you may contact Ms. Regina Bargola or Mr. Ijy Lomibao through tel. no. (02) 8631-0960 to 68 local 21616 or through this email.

Kindly acknowledge receipt of this email.

Thank you very much.

Best regards,

National Innovation Council Secretariat
Innovation Staff
National Economic and Development Authority

National Economic and Development Authority

NEDA National Innovation Council Secretariat

, Philippines
Tel: | Fax:
https://neda.gov.ph
pdp.neda.gov.ph | 2040.neda.gov.ph | sdg.neda.gov.ph

3 attachments

[NIC-ETB] Invitation to the NIASD Co-creation Workshop and 4th NIC-ETB meeting.pdf
1194K

Indicative Program_NIASD Co-creation Workshop.docx
1220K

REPUBLIC OF THE PHILIPPINES
NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY

Confirmation of Physical Participation
National Innovation Agenda and Strategy Document (NIASD) Co-creation Workshop
on 12-13 December 2022, in Metro Manila

	Required Participants
NIASD Co-creation Workshop Day 1 (12 December 2022)	- NEDA NIASD Inter-Staff Group *(max of 2 participants)* - NIC-ETB member agencies *(max of 3 participants)*
NIASD Co-creation Workshop Day 2 (13 December 2022)	- NEDA NIASD Inter-Staff Group *(max of 2 participants)* - NIC-ETB member agencies *(max of 3 participants)* - Regional representatives (NEDA Regional Offices, RIICs, and private sector representatives) *(max of 3 participants)*
4th NIC-ETB Meeting 19 December 2022	NIC-ETB principal and alternate representatives

Please tick the appropriate box.

1. **Date of Participation (please refer to the box above)**
   - ☐ Workshop Day 1 – 12 December 2022
   - ☐ Workshop Day 2 – 13 December 2022
   - ☐ 4th NIC-ETB Meeting – 19 December 2022

2. **Representative/s from the following group/s**
   - ☐ NEDA NIASD Inter-Staff Group (ISG)
   - ☐ NIC-ETB member agency
   - ☐ Regional representatives (NEDA Regional Offices, RIICs, and private sector representatives)

3. **For regional representatives**. Put a check if:
   - ☐ Request for the NIC Secretariat to book the airfare transportation (economy class only)*
   - ☐ We will book our own airfare (economy class only) and will request for reimbursement*
   - ☐ We will not request for reimbursement from the NIC Secretariat

Note: Asterisks (*) - reimbursements are subject to the submission of complete requirements below:

For NROs/PSRs/RIICs:

1. Boarding pass (hard or e-copy)
2. Original or certified true copy of PRE Travel Order
3. Original or Certified Copy of POST Travel Order
4. Certificate of Travel Completed signed by the Immediate Supervisor
5. Certificate of Appearance (c/o NIC Secretariat)
6. Travel report (signed by the participant once prepared)

4. List of confirmed participants to the NIASD Co-Creation Workshop

Name	Position	Agency	Sex	Email Address	Viber number	Signature

Additional Notes (food allergy, etc):

IMPORTANT:

It is understood that the participants stated herein this form will be relieved of their duties and responsibilities once confirmed to attend the workshop. Any changes on this form will not be accepted by the NIC Secretariat.

In case the participant/s failed to attend the said activity, he/she will explain in writing the cause of non-attendance and the same should be duly noted by his/her immediate supervisor. Moreover, in case, the participant failed to submit all required documents, the undersigned shall not be entitled to reimbursements incurred. The undersigned hereby commits that the participant/s may be charged a proportionate cost to defray expenses to be incurred relative to the arrangements/preparations undertaken, subject to the validity of the reasons stated.

5. **For NIC-ETB. Confirmed participants to the 4th NIC-ETB meeting:**
   - ☐ Principal representative. Name: _____
   - ☐ Alternate representative. Name_____

Note: Please send the duly accomplished confirmation slip to nicsecretariat@neda.gov.ph

_____

Signature over Printed Name of Staff Director/Head of Office

_____

Agency/Office

_____

Date

REPUBLIC OF THE PHILIPPINES
NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY

Memorandum

FOR : **NATIONAL INNOVATION COUNCIL – EXECUTIVE TECHNICAL BOARD (NIC-ETB) MEMBERS**

FROM : **ROSEMARIE G. EDILLON**
Undersecretary for Policy and Planning Group
NIC-ETB Chairperson

SUBJECT : **Invitation to the National Innovation Agenda and Strategy Document (NIASD) Co-creation Workshop, and Notice of Meeting for the National Innovation Council - Executive Technical Board (NIC-ETB)**

DATE : 24 November 2022

Actions Requested. For the NIC-ETB principal and alternate representatives' attendance to the following: (a) National Innovation Agenda and Strategy Document Co-Creation Workshop on **12-13 December 2022 in Metro Manila (exact venue to be confirmed)**, and (b) 4th NIC-ETB meeting on **19 December 2022, 1:00 – 5:00 PM, in Metro Manila (exact venue to be confirmed).**

Background.

1. Pursuant to Republic Act (RA) No. 11293 otherwise known as the Philippine Innovation Act, the National Innovation Council (NIC) shall develop the National Innovation Agenda and Strategy Document (NIASD) that shall establish the country's 10-year vision, long-term goals, and strategies for improving innovation governance focused on the innovation priority areas deemed important by the NIC. In addition, the Act states that the NIASD shall be developed in consultation with government agencies, large businesses, MSMEs, academe, RD&E institutions and other relevant stakeholders (Sec 8 and 9).

2. In this regard, may we **request the NIC-ETB principal and alternate representatives to attend the said workshop**. We have allotted a

No. 12 St. Josemaria Escriva Drive, Ortigas Center, Pasig City, 1605 Philippines
(+632) 8631 0945 to 68 • neda.gov.ph

maximum of three (3) slots per agency only. The NIC Secretariat will provide accommodation and food (breakfast, lunch, dinner, AM & PM snacks for 12-13 December 2022).

3. Attached is the indicative program and a copy of the approved National Innovation Agenda Document 2022-2032 for your reference.

4. Further, we would like to convene the NIC-ETB to deliberate and approve the 7 Executive Members of the NIC and present the draft NIASD output from the workshop, along with other agenda in the attached provisional agenda.

5. We would appreciate receiving your agency's accomplished confirmation slip by ***1 December 2022***. Your staff may coordinate with Ms. Regina Bargola of the NIC Secretariat through tel. no. (02) 8631-0960 local 21616 or via email through nicsecretariat@neda.gov.ph.

Thank you.

ROSEMARIE G. EDILLON
Chairperson, NIC-ETB
Undersecretary, Policy and Planning Group

Attachment:
1. Indicative Program of the NIASD Co-Creation Workshop
2. Copy of Approved National Innovation Agenda
3. Provisional Agenda for the 4th NIC-ETB Meeting
4. Confirmation Slip

National Innovation Council-Executive Technical Board (NIC-ETB)
Meeting No. 04, Series of 2022
Date: December 19, 2022 | time | Venue: Metro Manila

I. Agenda of the Meeting

Agenda Item	Presented By	Action Requested
1. **Call to Order** a. Declaration of Quorum	**USec. Rosemarie G. Edillon** *Chairperson, NIC-ETB*	For information
2. **Approval of the NIC-ETB Meeting Agenda**	**USec. Rosemarie G. Edillon** *Chairperson, NIC-ETB*	For approval
3. **Matters Arising from the 3rd NIC-ETB meeting**	**OIC-Dir. Diane Gail L. Maharjan** *Innovation Staff, NEDA*	For information
4. **Selection of the Seven Executive Members of the National Innovation Council 2022-2028** a. Presentation of the Selection Criteria and Process for Nominations b. Deliberation and approval of the executive member nominees	**OIC-Dir. Diane Gail L. Maharjan** *Innovation Staff, NEDA* **USec. Rosemarie G. Edillon** *Chairperson, NIC-ETB*	For discussion and approval
5. **Presentation of the Pre-Final Draft of the National Innovation Agenda and Strategy Document**	**OIC-Dir. Diane Gail L. Maharjan** *Innovation Staff, NEDA* **USec. Rosemarie G. Edillon**	For discussion and approval

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	Chairperson, NIC-ETB	
6. Updates on the FY 2022 Innovation Grants	**OIC-Dir. Diane Gail L. Maharjan** *Innovation Staff, NEDA*	For information
7. NIC Logo Presentation	**OIC-Dir. Diane Gail L. Maharjan**	For discussion
8. Other Matters	**USec. Rosemarie G. Edillon** *Chairperson, NIC-ETB*	For discussion
9. Summary of Key Agreements	NIC Secretariat	For information

REPUBLIC OF THE PHILIPPINES
NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY

National Innovation Agenda and Strategy Document Co-Creation Workshop
Indicative Programme

Time	Activity	Presenter
Day 1_Monday_December 12, 2022: NIC-ETB & NEDA-ISG		
8:00 – 9:00 AM	Registration	
9:00 – 9:30 AM	Preliminaries	NIC Secretariat
9:30 – 10:00 AM	Opening Remarks and Rationale	Director Diane Gail L. Maharjan/ PPG Principal
10:00– 10:30 AM	The Philippine Innovation Act Orientation and Presentation of the NIA Workshop Mechanics	NIC Secretariat
10:30 – 12:00 PM	Break-out Sessions: 1. People 2. Economy 3. Institutions 4. Environment 5. Ecosystem	NIC Secretariat NIASD ISG
12:00 - 1:00 PM	Lunch Break	
1:00 - 3:00 PM	Continuation: Break-out sessions	NIC Secretariat NIASD ISG
3:00 – 4:30 PM	Presentation of Outputs	IAG Chairpersons
4:30 – 5:00PM	Closing Remarks and Next Steps	

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Day 2_Tuesday_December 13, 2022: Regional and Private Sector Representatives

8:00 – 9:00 AM	Registration	
9:00 – 9:30 AM	Preliminaries	NIC Secretariat
9:30 – 10:00 AM	Opening Remarks and Rationale	PPG Principal
10:00– 10:30 AM	The Philippine Innovation Act Orientation and Presentation of the NIA Workshop Mechanics	NIC Secretariat
10:30 – 12:00 PM	Break-out Sessions: 1. People 2. Economy 3. Institutions 4. Environment 5. Ecosystem	NIC Secretariat NIASD ISG
12:00 - 1:00 PM	Lunch Break	
1:00 - 3:00 PM	Continuation: Break-out sessions	NIC Secretariat NIASD ISG
3:00 – 4:30 PM	Presentation of Outputs	IAG Chairpersons
4:30 – 5:00PM	Closing Remarks and Next Steps	PPG Principal/ Director Diane Gail L. Maharjan

Day 3_Wednesday_December 14, 2022: Egress

Republic of the Philippines
NATIONAL INNOVATION COUNCIL

NATIONAL INNOVATION AGENDA 2019

Smart and Innovative Philippines
Patungo sa Matatag, Maginhawa,
at Panatag na Buhay para sa Lahat

THE PHILIPPINE INNOVATION ACT
Republic Act No. 11293

Republic Act No. 11293, otherwise known as the "Philippine Innovation Act," was signed by President Rodrigo R. Duterte on April 17, 2019. The law adopts innovation as a vital component of the country's development policies to drive inclusive development.

National Innovation Council

The law mandates the creation of the National Innovation Council (NIC). The NIC is a 25-member policy advisory body in charge of the formulation, development, implementation, and monitoring of the country's innovation goals, priorities, and long-term national strategy.

The NIC is chaired by the President of the Philippines with the Secretary of the National Economic and Development Authority (NEDA) as the Vice-Chairperson. The members of the Council are composed of sixteen Department Secretaries, and seven Executive Members from the ranks of businesses, entrepreneurs, academe, and scientific communities.

National Innovation Council Secretariat

The NIC Secretariat is established within NEDA and is under the supervision of an Executive Director. The NIC Secretariat provides technical and secretariat support services to the Council and coordinates with other government agencies, private sector, academe, and stakeholders on matters related to strategic innovation policy direction and coherence.

National Innovation Agenda and Strategy Document (NIASD)

The NIASD is the country's 10-year vision, long-term goals, and strategies for improving innovation governance on innovation priority areas deemed important by the NIC.

Innovation Fund

The Act mandates the establishment of an Innovation Fund which aims to strengthen entrepreneurship and enterprises engaged in developing innovative solutions benefiting the poorest of the poor directly or indirectly.

The NIC shall screen and approve qualified proposals which can be issued grants under the Innovation Fund.

Innovation Development Credit and Financing

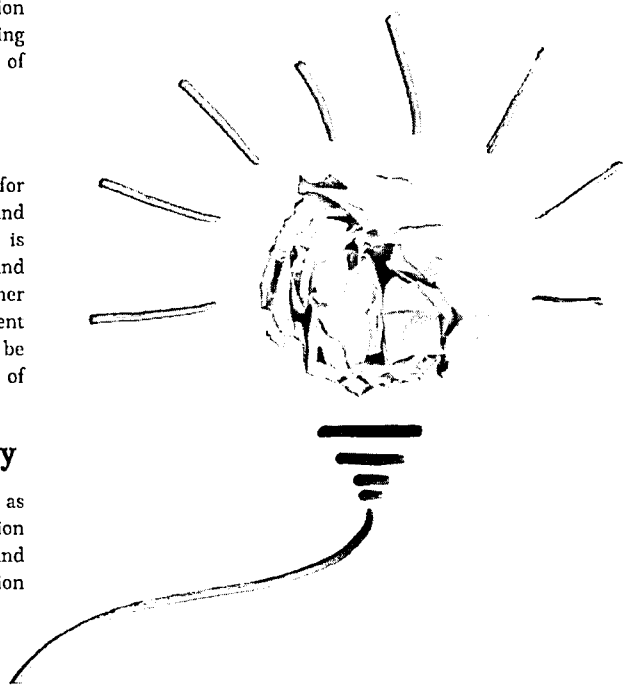
The Act also provides an innovation development credit and financing program to generate and scale up innovation in accordance with the NIASD. Innovation development credit consists of loans and other financing activities for purposes including the development of technologies and innovations.

National Innovation Day

To promote public awareness and national support for innovation and highlight milestones of government and private sector initiatives, April 21 of every year is declared as National Innovation Day. Programs and activities that will involve the participation of other national government agencies (NGA), local government units (LGU), the private sector, and schools shall be planned, designed, and implemented in celebration of this day.

Regional Innovation and Cluster Policy

The Act mandates cluster policies or strategies as significant components of the country's innovation policy mix. In determining the feasibility and effectiveness of cluster policies in pursuit of innovation goals, other policy streams, such as regional economic development policy, industrial and enterprise policy, and higher education policy, among others, shall be considered.



UNLOCKING FILIPINNOVATION

Why innovate?

Innovation is a vital component of national development and sustainable economic growth. Innovation is defined as the development of new or improved products, processes, or services transferred across markets.

Science and technology (S&T) institutions have a long history in the Philippines. In 1905, the Bureau of Government Laboratories was created, which facilitated the control of disease transmission. In 1987, the National Science and Technology Authority was renamed as the Department of Science and Technology, revising the agency's mandate. The national development of S&T, encompassing industry innovation, is further strengthened by the development of the Science and Technology Master Plan.

In 2015, NEDA spearheaded the AmBisyon 2040 survey where Filipinos articulated their aspiration to enjoy a "*matatag, maginhawa at panatag na buhay.*" Given current and expected challenges, we need to promote a smart and innovative society that is inclusive, resilient and sustainable.

The Updated Philippine Development Plan (PDP) 2017-2022 identified issues on science, technology, and innovation (STI) as follows: (i) fragmented and limited linkages among the government, business, academe, and the research and development (R&D) community; (ii) absence of a robust and adaptive intellectual property (IP) culture; (iii) inadequate R&D support and infrastructure, and (iv) underutilized S&T innovations.

Moving forward from 2019, the Philippine Innovation Act mandated the creation of the NIC—a recognition that innovation requires collaboration and multi-stakeholder support. The NIC sets the strategic innovation direction and harnesses the innovativeness of Filipinos towards nation-building. It also appropriates funds to prioritize innovation priority areas towards national development.

Currently, the Global Innovation Index (GII) ranks the Philippines at 11th out of 17 economies in Southeast Asia, East Asia, and Oceania in 2021. Across the world, the country ranks 51st out of 132 economies. The NIA aims to improve this by driving the key actors to formulate solutions and solve gaps in our STI systems.

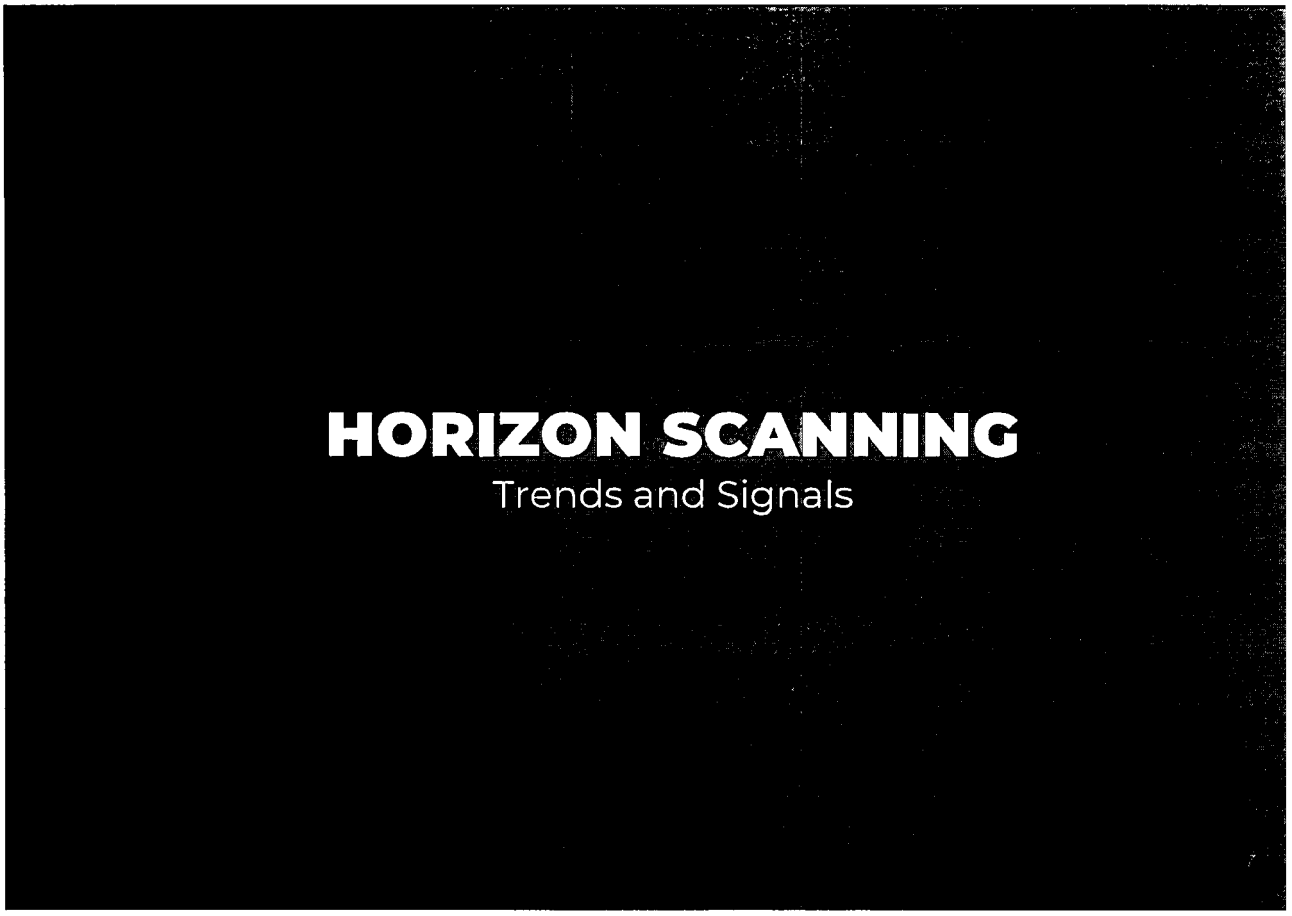
With these, an enhanced national innovation ecosystem will further boost economic growth. The government, as the ecosystem enabler, will drive more innovation outputs by providing more innovation inputs through policy, financing, infrastructure, and encouraging innovation culture.

From fragmented and disharmonized initiatives, the Filipinnovation movement strives to enable a thriving and collaborative innovation ecosystem. It provides a strong foundation for the nation's goals of a competitive economy, efficient governance system, and flexible industry positioning of micro, small, and medium enterprises (MSMEs) unbounded by geographic borders.

Through this harmonized innovation ecosystem, aspiring and established Filipino scientists, entrepreneurs, farmers, fisherfolk, and other stakeholders will be provided access to enabling mechanisms such as Regional Inclusive Innovation Centers (RIICs), Negosyo Centers, innovation hubs, mentorship, capital, shared facilities, training, scholarships, and opportunities towards improved livelihoods.

With a goal of creating a real and lasting impact on our stakeholders, this revitalized ecosystem is the key to achieving a smart and innovative Philippines—a productive, resilient, sustainable, and inclusive nation by 2032.

It is now time to unlock Filipinnovation.



TECHNOLOGICAL TRENDS

Automation and artificial intelligence

Automated systems and AI algorithms will be more accessible by the year 2032. From the USD191.89 billion valuation of the automation market in 2021, it is projected to grow to USD395.09 billion by 2029, exhibiting a compound annual growth rate of 9.8 percent. These computing systems will make way for faster and more customized services. However, these can also impact job security in the future as machines may have more efficiency than human resources. Additionally, this trend has the power to increase revenues, boost resource efficiencies, and improve sustainability.

Moreover, the use of internet has tremendously increased in the Philippines. From 23 million in 2010, it has more than tripled to 73 million in 2020. On average, every Filipino spends nearly 10 hours a day on the internet (World Bank, 2020). This trend will move both government and businesses to further maximize the benefits of technology and digitalization in delivering services to the people.

Conversely, the rise of AI and automation may erode the Philippines' traditional strengths or competitive ---------- advantage in the availability of skilled human resources, low wages, and availability of large manufacturing facilities, among others. An innovation-driven economy is necessary to shift, re-orient, and diversify strengths and advantages.

Decentralization

Decentralized architecture and systems are expected to grow in the next 10 years. Mostly in the form of distributed ledgers or blockchain. Compared to the currently used centralized databases, blockchain networks servers are hosted or replicated by each member of the network. This increases data and information availability as the data is available in all members, as well as and transparency, as transactions using these are available and traceable publicly.

The trend of cryptocurrency is also entering traditional money markets such as the stock exchange. These also follow the rising adoption of government-issued cryptocurrencies such as the digital Yuan. The emergence and evolution of the blockchain and cryptocurrency technology into other forms such as non-fungible tokens (NFTs) should also be further studied and scrutinized so as to update and future-proof the country's existing monetary rules and regulations.

Space technology

Space applications, such as the use of geospatial technologies, will have increased adoption relevant to disaster mitigation, natural resources management, food production, human protection, ship and aircraft navigation, and communication enhancement.

The Philippines' entry point in the space industry is in space asset maintenance, repair, and overhaul (MRO), assembly integration, and testing (AIT), and satellite servicing. Domestically, space technology will be used for earth observation and analytics necessary for disaster risk management and environmental management, and satellite communication and ground services to expand broadband access.

Space exploration will also become a trend for wealthy countries, in order to ultimately provide a wider understanding of the universe.

POLITICAL TRENDS

Devolution and powerful cities

The urbanization and growth in cities, coupled with the implementation of the Mandanas-Garcia ruling, place more responsibility to the local government units (LGUs) to provide better and more comprehensive services for their constituents. The increase in the Internal Revenue Allotment (IRA) of LGUs, to be known moving forward as the National Tax Allotment (NTA), will help them deliver the needed local programs and services.

Meanwhile, metropolitan centers are expected to provide higher forms of economic services and facilities, including innovation and advanced services, culture and tourism, education and research, transportation and trade, manufacturing, and technology development. LGUs are expected to be more responsive in the long-run.

Political actors shall encourage more innovation and intellectual property rights (IPR) in the government agencies' products, processes, and services. Social media and citizen engagement channels will continue to play a part in promoting e-democracy through various communication platforms.

Geopolitical tensions

Geopolitical tensions are on the rise, further pointing to the possibility of a future with several countries having nearly equal amount of influence (i.e., US,

Europe, China, Russia). These conflicts may potentially trigger chaos in other parts of the country. Conflicts will increase regional uncertainty, dampen investor and business sentiment, and cloud the outlook for global growth moving forward. Territorial disputes on energy exploration, as well as competition for scarce food and natural resources, will be central topics for strategic negotiations.

On the other hand, international cooperation, collaboration and dialogue through regional, multilateral, and plurilateral platforms will remain critical to addressing common global challenges that transcend specific interests or agenda of individual States.

ECONOMIC TRENDS

Growing middle-class

According to the European Commission (2017), the global middle class is projected to expand and reach 5.5 billion by 2030. Asians will comprise about 87 percent of the additional middle-class population, and Asia will command more than 50 percent of global middle-class consumption by 2030.

The effects of the COVID-19 pandemic has slowed down the Philippines' transition from a lower middle-income to an upper middle-income country. However, with the continued recovery and reform efforts, the country is now back on track to reach its target as an upper middle-income economy.

Urbanization

People in search of better opportunities, such as jobs, services, and education, have been moving from rural to urban areas across the world, and this accelerating trend is likely to continue. According to the European Commission (2021), the number of people living in cities has more than doubled over the last 40 years and is projected to reach 5 billion by 2050. This urbanization can contribute to sustainable growth if managed well by increasing productivity, improving production and consumption patterns in a more sustainable manner, and allowing innovation and new ideas to emerge.

In the East Asia and Pacific region, the Philippines is one of the fastest urbanizing countries. In the past five decades, the urban population grew by over 50 million people. By 2050, approximately 102 million people or

The Filipino diaspora consists of 1.7 million experts and professionals between 20 and 39 years old (Tabuga, et al., 2021). Nevertheless, members of the diaspora continue to maintain strong ties with the homeland, not just through remittances, but through availing of mechanisms such as dual citizenship. Hence, while they may not be physically present in the country, they continue to play an important role in both political and economic development. Although growing in intellectual migration, the diaspora can greatly contribute to the strengthening of the innovation culture of the Philippines through policies, programs, and reforms such as the Balik Scientist Program.

Learning loss

Prior to the pandemic, the country's learning poverty, which is the percentage of 10-year-old children who cannot read and understand a simple story, was already estimated at 69.5 percent based on Trends in International Mathematics and Science Study (TIMSS) 2003 data (Cho et al., 2021). Based on World Bank calculations, as of August 2021, this rate has risen to as much as 90 percent of learners struggling to learn effectively at home (Muñoz-Najar et al., 2021). According to NEDA (2021), a one-year school closure cost the economy PhP 230 billion in 2020, and its impact over the next 40 years of the students' lifetimes in the labor force is estimated at 10.7 trillion pesos.

Blended learning is expected to continue and be the default mode of education service delivery. Teachers and school leaders are expected to adapt to distance learning modalities which may or may not be limited through resource or personal capabilities. Following these, technologies such as augmented realities and virtual realities are expected to enhance learning across all levels, but access to these technologies may continue to worsen learning loss incidences.

New formats in education will continue to foster important skills that were developed during the conduct of education in the context of the pandemic, such as self-directed learning, use of technology as a learning tool beyond communication and entertainment, and active involvement of parents and guardians in the studies of their children.

Youth participation

The Philippines today has a young population, with 20 years old and below comprising 40 percent. With digitalization, young Filipinos have found ways to be more engaged with society. To increase the potential of young people as drivers of the knowledge economy, there is a need to provide quality and accessible education. This is for them to be equipped with literacy and critical ----

thinking skills to counter the disinformation in the digital age and participate in the decision making process at the local level and in strengthening checks and balances at the national level.

TRUST AND ETHICAL TRENDS

Misinformation and disinformation

Increased digital dependency may lead to more cases of disinformation and misinformation. Algorithms that control the flow of distribution of information may still continue to go unregulated resulting to more cases of blatant, coordinated architectures of disinformation. These prevailing trends erode the trust among key institutions that becomes easy targets of propaganda, which leads to a misinformed population.

Digital security threats

Artificial intelligence will be democratized and cause chaos at many levels of national security: food, supply chains, water, politics, environment, infrastructure, and transportation, among others.

Massive adoption of Internet-of-Things (IoT) in many industries becomes attractive for attacks by criminals resulting in digitally-powered and intensified levels of extortion and sabotage. Social engineering and blatant disinformation become harder to combat due to their massive scale. Now in the form of metaverse technologies such as virtual and augmented realities, forces begin to sabotage not just information but also the senses of human beings.

With the implementation of electronic medical records and digitization of health, personal information of patients may be used both for their benefit but also for the advantage of businesses. The available information can improve the delivery of services, including personalized healthcare. However, if there are lapses in the protocols to maintain this data securely, it may be exploited for illegal use, data-for-sale business models, and weaponization.

The threats will come from criminals operating independently and from State actors who will continue to treat digital strategy as an integral military capability, especially for offensive operations. AI and new analytical tools are required to guide current and future decisions.

Ethical veganism and meat alternatives

More and more people are shifting to alternative consumption patterns which span from changing their diet up to the more extreme lifestyle changes such as ethical veganism. This shift vary as well, from improving personal health and eating patterns, attachment to animals, advocacy against cruelty, and other environmental considerations.

In the next 10 years, people may see a more significant transition to ethical veganism and meat alternatives, which will negatively affect the agricultural sector, especially the livestock and poultry industries. Plant-based products also require complex processing, which may not meet consumer satisfaction and nutrients due to intensive production processes and the use of genetically modified organisms (GMO) technology. Genetic engineering and biotechnology also entail ethical considerations such as seeking consent from producers and consumers.

REGULATORY TRENDS

Deregulation

Deregulation will be a continuing trend while being applied differently across industries and sectors. Foreign economic restrictions will continue to be eased or lifted (e.g., Public Service Act, Foreign Investments Act, Retail Trade Liberalization Act). The government began to adopt a regulatory sandbox framework in specific industries and sectors to ensure consumer protection and enable innovators from the MSME sector. For example, the Bangko Sentral ng Pilipinas (BSP) will use this approach in regulating financial services.

Green regulations and circular economy

The need to adopt green regulations becomes more imperative due to climate change and worsening environmental quality. Enforcement of environmental laws and green regulations, including international commitments, have become stricter.

Regulations toward zero waste and circular economy are enforced, urging businesses to rethink their products and services from cradle to cradle, making sure all products

do not add up to waste and instead redesigned in a way they can be remanufactured, recycled, or decomposed safely.

Compliance with green regulations will differ across industries and sectors. Large enterprises are more likely to adopt environmental standards than MSMEs given needed resources to fully comply.

Increasing demand for accountability on agencies and companies for sustainability, both for practices and products, is expected to be observed. Encouraging the adoption of green public procurement and circular economy in all government agencies will be pursued.

ENVIRONMENTAL TRENDS

Air pollution

Air pollution, which is mainly caused by industrial and vehicle emissions, continues to be a concern in the Philippines. With mass transport systems that are not well-designed and with relevant laws and regulations poorly enforced, people opt to use their own vehicles over taking mass transport systems.

With the development of measures to mitigate common air pollutants (e.g., particulate matter, NOx, SOx), air pollution abatement measures will shift towards currently emerging air pollutants, including microplastics, ultrafine particles, and black carbon.

Electric vehicles will be widely used and more charging stations will be needed. Based on the 2016 GHG Emissions Inventory, transportation is ranked as the third-largest emitter of greenhouse gases. Hence, the importance of the development of low-carbon urban transportation systems.

Water pollution

Due to rapid urbanization and industrialization, water quality will decrease, heightened by lack of proper wastewater management facilities and poor enforcement of relevant laws and regulations. Microplastics and marine litter will also increase due to improper solid waste management. Marine and aquatic resources will continue to deteriorate due to pollution and degradation of ecosystems, especially by illegal fishing, mineral extraction, and endangered species collection.

The volume of solid, hazardous (especially infectious healthcare), and electronic waste will continue to increase due to rapid urbanization and the continuous imposition of health protocols due to COVID-19 pandemic. Notwithstanding, innovative waste management systems (e.g., waste-to-energy, composting, continuous promotion or practice of waste segregation at source, urban mining) will be patronized or mainstreamed. Advocates will also promote circular economy models by utilizing what is usually considered waste as a new resource.

Natural resources

Due to climate change, Philippine crop yields will generally fall by 2.9 percent (NAST, 2021). Climate change negatively impacts the coastal, marine, and terrestrial ecosystems and biodiversity (coral bleaching, changes in species movement and behavior, soil fertility). In addition, the depletion of natural resources and scarce resources, and the occurrence of pests and diseases also affect productivity and resource optimization. By 2032, soil loss due to intensive cultivation is expected and heightened erosion rates in upland areas will be prevalent (Briones, 2010).

Sustainable consumption and production (SCP) practices and green and climate-resilient technologies are being promoted across sectors in an effort to maximize the use of natural resources. This includes the promotion of smart agriculture, retrofitting buildings to become more resource-efficient and climate-resilient, and increasing the quality of products while optimizing the labor used.

Climate crisis

The Philippines is highly vulnerable to the impacts of climate change. The report published by GermanWatch in 2021 ranks the Philippines as the fourth country severely affected by weather-related loss events (e.g., storms, floods, droughts) from 2000 to 2019. Air temperature in the Philippines will increase to as much as 2°C by 2050 and 1.5°C as early as 2032. While these may seem like slight changes, these are disastrous and will severely affect local ecologies.

According to the latest Philippine Atmospheric, Geophysical, and Astronomical Services Administration (PAGASA) climate change projections, the Philippines can expect (a) continuous warming at a rate of 0.1°C per decade; (b) increasing trends in annual rainfall and seasonal rainfall in many parts of the country associated with extreme rainfall events; (c) increasing frequency of extreme tropical cyclones exceeding 170 kilometers per hour; and (d) a 20-centimeter increase in sea level rise by the end of the 21st century.

Climate change leads to emergence of climate-related health risks, zoonotic diseases, and new strains of infectious diseases. These crises prompt the government to allocate resources and long-term investment for building the country's resilience.

MASAKUNA
Distress and Disasters

Technology is advancing, but it cannot be utilized to solve the climate crisis. Natural and human-induced hazards—aggravated by climate change and governance challenges such as poor planning, coordination, and management, and lack of accountability—pose risks to health, income, livelihoods, food security, natural resources, human security, and economic growth.

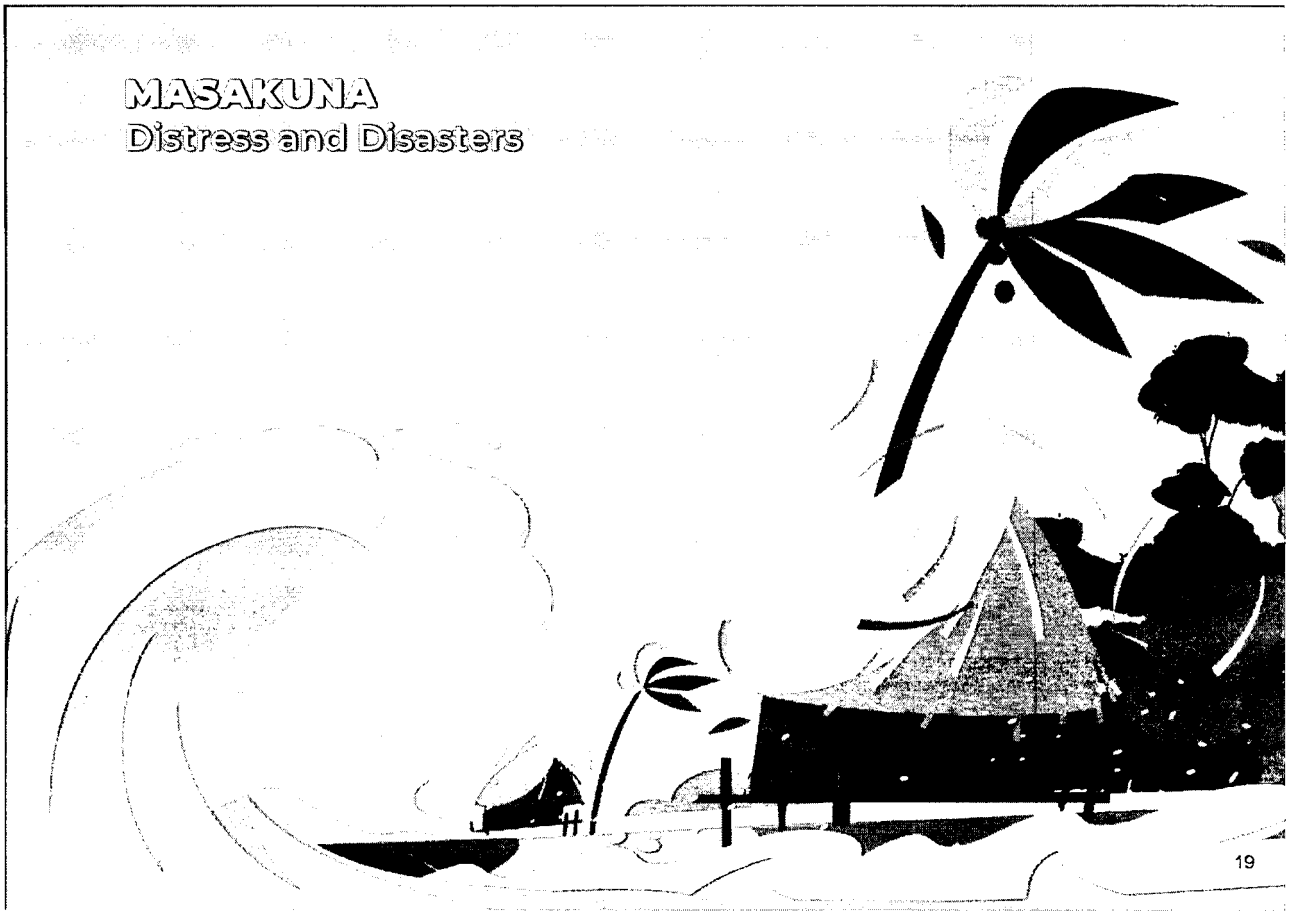
Stronger and more frequent extreme weather events, slow-onset climate change events, such as sea-level rise, drought, and ocean acidification, and other disasters including earthquakes, volcanic eruptions, and fires damage properties, endanger lives, and reverse economic gains. Support from the government, non-government organizations (NGO), and civil society stakeholders is not enough to alleviate people from distress and disasters.

Resource-intensive industries and resource-dependent communities have low capacities to adapt to climate change and prepare for disasters. Communities could not prepare for natural disasters, which causes disruptions in basic services, leaving the grassroots and indigenous communities powerless to defend themselves.

Environmental degradation—such as poor air and water quality, land degradation, forest fires, biodiversity loss, and water scarcity—worsens the living conditions of marginalized communities and negatively impacts their livelihoods.

Human health is also affected due to increased incidence of climate-sensitive diseases and illnesses such as (a) vector-borne diseases (e.g., dengue, leptospirosis, and malaria); (b) water-borne diseases (e.g., schistosomiasis and cholera); and (c) heat-related illnesses (e.g., sunstroke, heat stress or exhaustion, and dehydration). The prevalence of zoonotic diseases and respiratory illnesses will also increase. The emergence of agricultural pests and diseases is left uncontrolled, will continue to affect agricultural productivity, food supply chains, and overall food security. Reduced access to affordable, healthy, and safe food items leads to malnutrition, thereby affecting people's overall health and well-being, especially among children.

Natural and human-induced hazards continue to pose a threat to public order and safety. External dangers, criminal groups, and violent extremists may take advantage of the country's inability to plan for and mitigate disasters. Furthermore, communities that are vulnerable to such occurrences run the risk of being recruited by such groups, jeopardizing peace and security efforts.



LANGIT-LUPA
Wider Inequalities

Radical and disruptive technological advancements and decentralized production and consumption have emerged and are growing exponentially.

Governments and other regulatory bodies are challenged to keep up with technologies due to a lack of anticipatory policy, internal capacities, infrastructure, financial capacity, and safeguards to protect vulnerable populations. Companies powered by AI are largely unregulated. AI has started to take over key industries such as finance and digital trade because government policy interventions are too slow and reactionary in addressing black swan or extremely rare events with negative consequences.

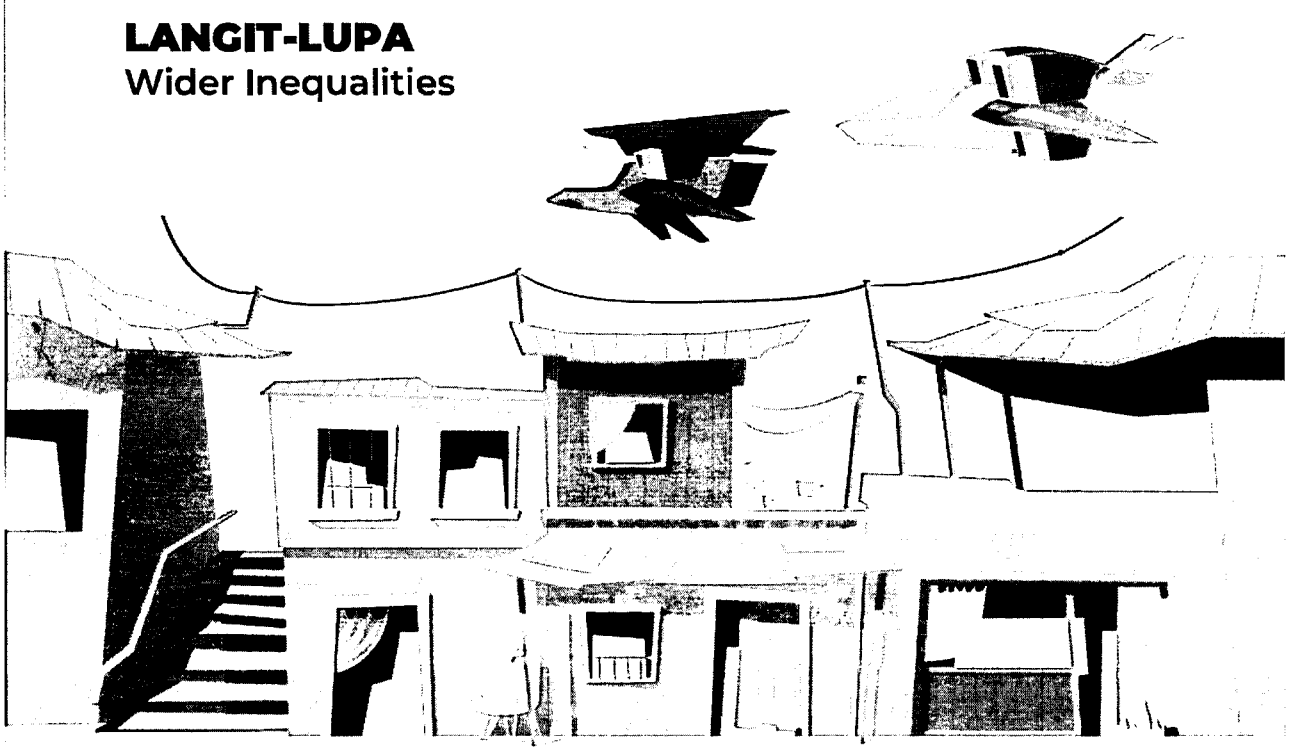
Through rapid worldwide advancement in decentralized technologies, unprecedented changes in production, distribution, delivery, and consumption are happening across the globe. At this point, technology rewards the first adopters. In contrast, laggards and late adopters remain in deep poverty. Instead of addressing challenges for the vulnerable populations, these technological disruptions bring even wider gaps and inequalities—resulting in extreme ends of education, poverty, and wealth.

Advancements in technologies, social inequalities in wealth distribution, and educational disparities between fast and slow learners become more prominent, leading to low productivity and slow economic growth. It becomes easier for the rich and privileged to remain resilient while those in poverty and disadvantaged groups are stuck in their prolonged and worsened situations. The toll undermines social cohesion and foments social, economic, and political instability, which hampers regional and local economic prospects. One example is in access to adequate health services barred by high costs, which causes disparity between the rich and the poor. Advancements in medicine and private healthcare services, such as social health insurance, will only be affordable to the rich and too costly for the poor.

Due to these worsening conditions, social unrest and political instability emerge. Now powered by the new wave of technology, those who can exploit national vulnerabilities within but not limited to the economy, infrastructure, food, and digital sphere are able to do so—free from repercussions.

Apart from solid defense mechanisms, privacy and cybersecurity are among the serious national security issues in a digitally-altered environment. As a result, wars and conflict may also break out, affecting a large portion of the population and resulting in massive casualties, especially those of the poorest of the poor.

LANGIT-LUPA
Wider Inequalities



MABAGAL
Slow Change

There is considerable technological progress, but society has a slow response to stimuli. Solutions are more reactive than proactive. Although socioeconomic outcomes have improved and the scars from the pandemic have been addressed, progress is not as swift as international peers.

Bureaucracy, weak institutions, and overregulation stifle creativity and promote a culture resistant to change, leading to obsolete technologies and processes. Institutions are hesitant to change and remain slow to adopt public sector innovations already available in the market. The rigid management of the innovation policies only benefits the few and the lack of decentralization is still prevalent from the top management to the grassroots communities. Government institutions are slow to adopt foresight and anticipatory tools and methods.

Other similar economies have started to benefit from technological advancement. However, the Filipino society struggles to reap the benefits from R&D. The newly fostered R&D culture induces greater institutional capacity to generate income for Filipino enterprises and workers.

However, adoption of technologies and innovations continues to be slow due to regulatory barriers and low support for the entry of innovation champions in sectors and industries. Stagnant government procurement policies hamper the public sector's innovative and agile actions, leading to slow and inefficient business transactions and information processing. Collaboration across government, NGOs, LGUs, industry, academe, and civil society remains in silos and tends to cover only the short or medium term.

R&D outputs do not immediately translate into innovative products, services, and processes. Social capital has not improved, leading to frictions in the adoption of innovations being introduced, including concerns related to data privacy and cybersecurity.

Filipino creativity and innovation are not properly nurtured. The education system and curriculum is unable to foster critical thinking, 21st century skills, and competencies for career development.

Extreme poverty and existing inequality have led to a constant but slow movement towards development. The country is slow to address key social and economic challenges through technological innovation and trailing behind other countries.

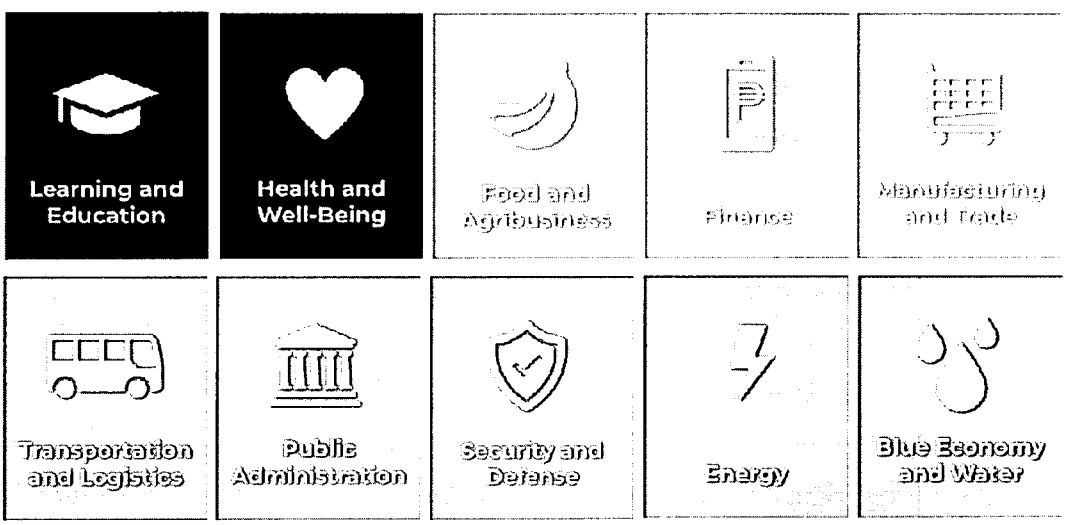
MABAGAL
Slow to Change

OUR PREFERRED FUTURE FOR 2022

Smart and Innovative Philippines

INNOVATION PRIORITY AREAS

INNOVATION PRIORITY AREAS



PRO-ACTIVE, SMART, AND INNOVATIVE PEOPLE

Learning and Education

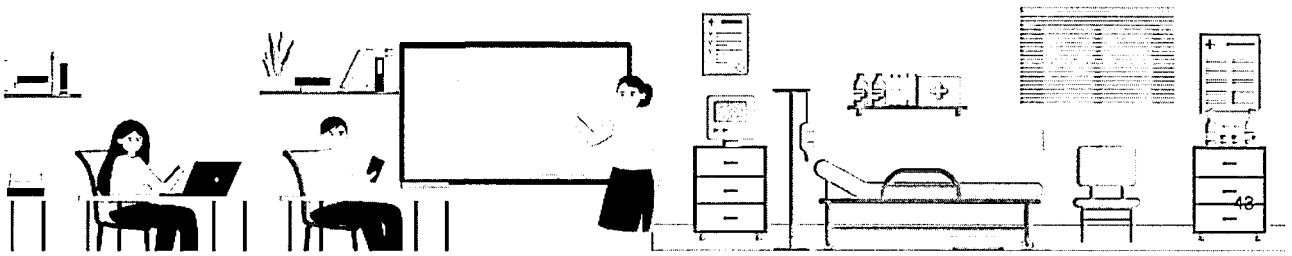
Innovations that enable the effective delivery of inclusive and quality life-long learning, which allow learners to acquire functional literacy, knowledge, skills, values, beliefs, and habits towards a more proactive, productive, smart, and innovative people.

These include improving the teaching and learning environment, learning equipment and platforms, continuing professional and learning development, curriculum design, and pedagogy, among others.

Health and Well-Being

Innovations that ensure affordable, smart, equitable, quality, responsive, accessible, and comprehensive healthcare and total well-being services, products, and solutions.

These include engaging individuals and groups about informed health decisions, participating in decisions affecting their health, averting health risks, reducing barriers to healthcare services, and protecting them from consequences of ill-health to promote and improve health outcomes for all people.



COMPETITIVE AND RESILIENT ECONOMY

Food and Agribusiness

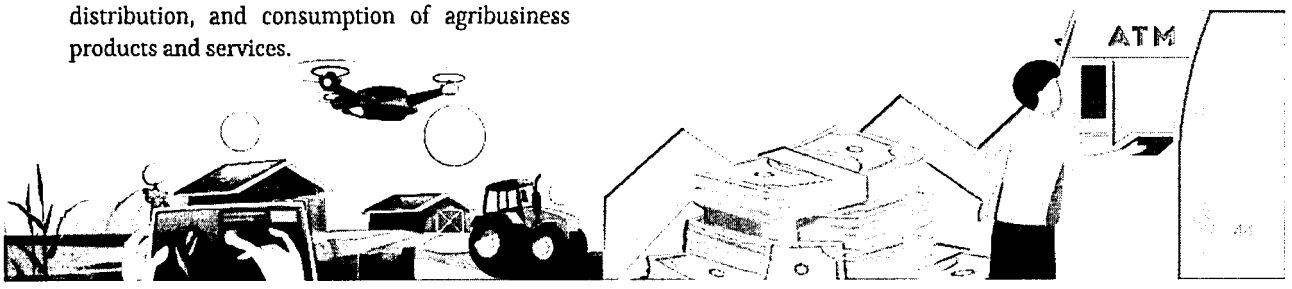
Innovations on interconnected value chains including agricultural extension and support services in food, agriculture, forestry, fisheries, and other related industries that ensure food security and proper nutrition that is affordable, accessible to the communities, and sustainable, while empowering local producers.

These include smart agricultural inputs, improving production efficiency and mechanization, cost-effective post-harvest handling, processing, logistics, marketing, distribution, and consumption of agribusiness products and services.

Finance

Innovations that facilitate smart, inclusive, interoperable, efficient, and secure financial services.

These include innovative platforms for financial literacy and advisory, innovations in digital and open finance, data-driven financial solutions, and cross-border innovations on financial products and services.

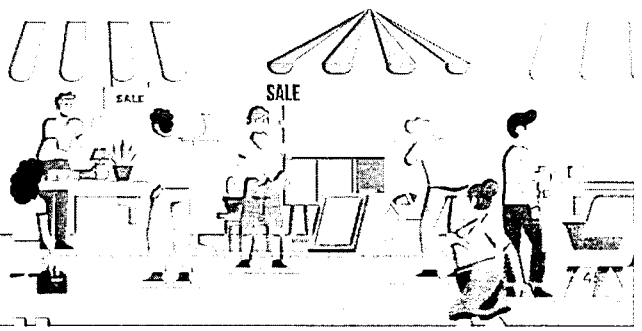


COMPETITIVE AND RESILIENT ECONOMY

Manufacturing and Trade

Innovations that enable more efficient, demand-driven, smart, sustainable, fully integrated, and agile processes in the manufacturing, buying, and selling of goods and services.

These include end-to-end innovations from the demand and supply chains and sustainable manufacturing processes. Trade covers the creation of digital products, retail services, marketplace services, mobile commerce, creative goods and services, and customer service with quality assurance systems which will ensure that the country's products and services will comply with international standards.

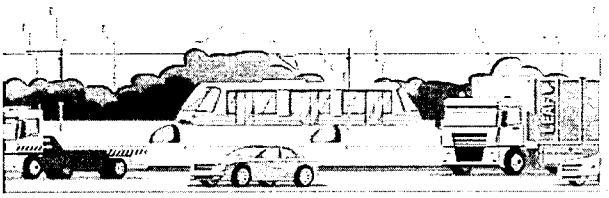


COLLABORATIVE AND RELIABLE INSTITUTIONS

Transportation and Logistics

Innovations that ensure efficient, seamless, inclusive, safe, and secure physical movement or mobility of the flow of goods and people while ensuring equitable mobility opportunities through better urban-rural linkages and reducing carbon footprints from the sector.

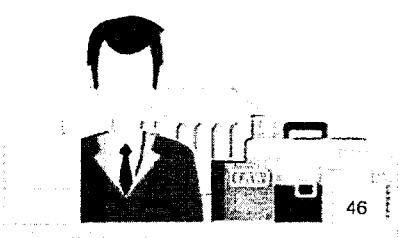
These include innovations in the public and private transportation and mobility systems that facilitate the adoption of responsive, efficient, and low-carbon land, water, and air transport systems, enhancements in land-use and transport interaction in urban planning, and logistics management, warehousing, and storage, among others.



Public Administration

Innovations that empower participatory governance to ensure collaborative, people-centered, reliable, accountable, and efficient government institutions.

These include enhancements and integration of innovation and anticipatory policy planning, citizen participation, administration of justice, digital transformation and e-governance, transparency, public procurement, government to government collaboration, and improvement of public service delivery of NGAs and LGUs, among others.



COLLABORATIVE AND RELIABLE INSTITUTIONS

Security and Defense

Innovations that protect and secure national territory and sovereignty, support peace and development efforts, maintain public order and safety, and build the capacities of people and institutions to respond to natural and human-induced hazards.

These include improvements in law enforcement, cybersecurity, public health security, disaster response and relief, peace and development interventions, defense capabilities and material of the Armed Forces, and maritime and air domain awareness monitoring, among others.

EFFICIENT, CLEAN, AND SUSTAINABLE ENVIRONMENT

Energy

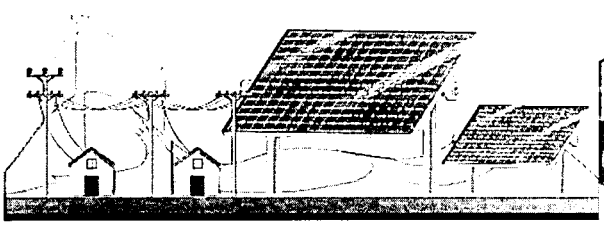
Innovations towards achieving energy security in the country while ensuring efficient, clean, and sustainable extraction, production, refinery, processing, distribution, sale, and consumption of energy resources.

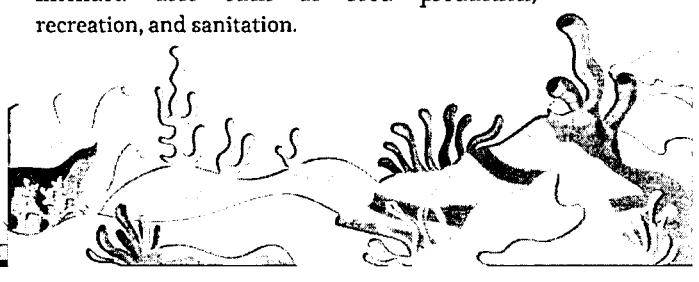
These include innovations for improving energy access, promoting cost-effective and renewable energy sources, mainstreaming energy efficiency and conservation, and accelerating the transition towards clean and sustainable energy.

Blue Economy and Water

Innovations that sustainably harness coastal, marine, and inland water resources to support economic growth and generate sustainable livelihoods and jobs while preserving aquatic ecosystems.

These include the sustainable fish- and marine-based industries, green maritime transport, sustainable tourism, ocean energy, sustainable management of freshwater resources, protection of marine ecosystems, marine scientific research, and improvement of water quality according to intended uses such as food production, recreation, and sanitation.



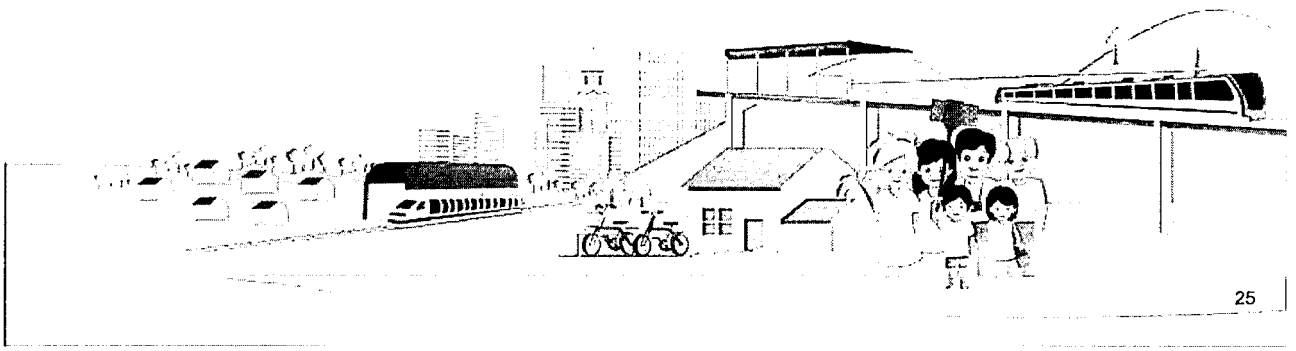


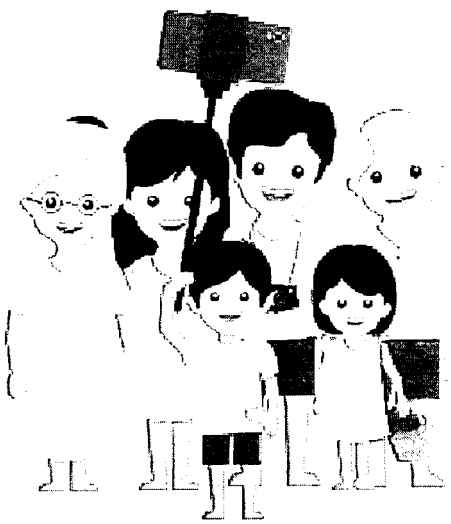
Republic of the Philippines
NATIONAL INNOVATION COUNCIL

innovation.neda.gov.ph

Matatag, Maginhawa, at Panatag na Buhay para sa Lahat

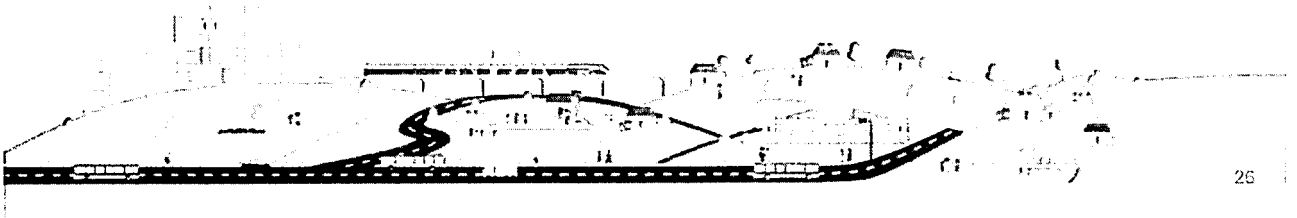
By 2040, Filipinos enjoy strongly rooted family and community ties, a comfortable lifestyle, and a secure future.





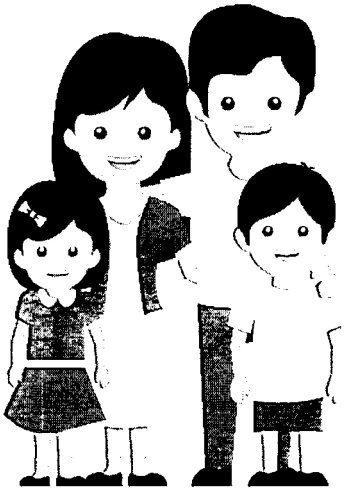
MATATAG

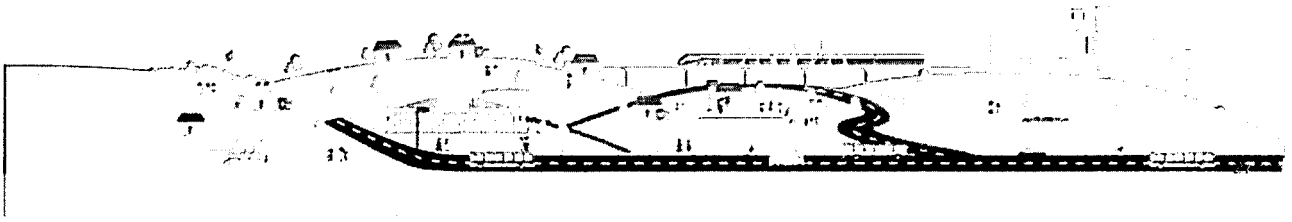
Filipino families live together. There is work-life balance, allowing workers to spend time with family. On weekends, families and friends enjoy moments together in parks and recreational centers. It is a high-trust society with a strong sense of community. There are volunteer opportunities, and Filipinos spend time serving the community, helping others who are in need, and contributing to various causes.

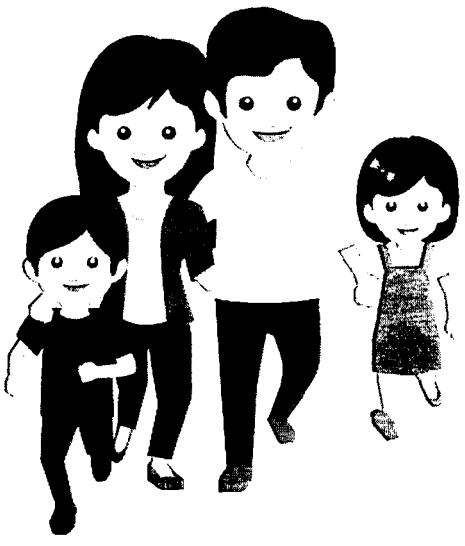


MAGINHAWA

No one is poor, no one is ever hungry. Filipino families live in comfortable homes with the desired amenities and secure tenure. Families and friends are within reach through convenient and affordable transport, and they can take a vacation together within the country and abroad. Children receive quality education so that they realize their full potential and become productive members of society. Decent jobs that bring sustainable income are available, including opportunities for entrepreneurship.

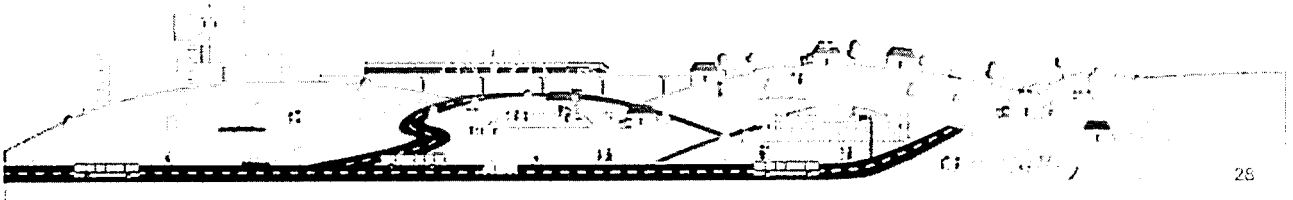






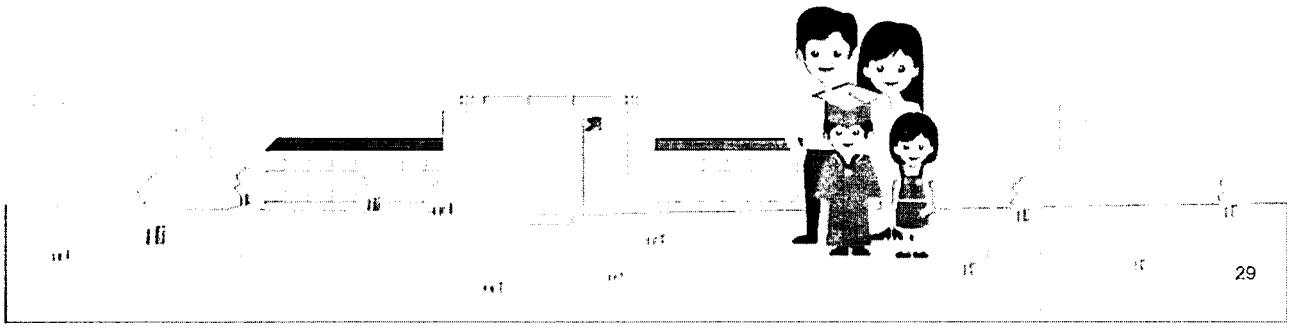
PANATAG

Filipinos feel secure over their entire lifetime. They expect to live long and enjoy a comfortable life upon retirement. There are resources to cover unexpected expenses, and there are savings. They feel safe in all places across the country. Filipinos trust their government because it is free of corruption and provides service to all its citizens equally.



NATIONAL INNOVATION AGENDA 2032

How might we achieve a **Smart and Innovative Philippines** that is productive, resilient, sustainable, and inclusive?



NATIONAL INNOVATION AGENDA 2032

The NIA 2032 takes off from the *AmBisyon Natin* 2040 long-term vision of a Filipino society that provides a *Matatag, Maginhawa, at Panatag na Buhay para sa Lahat.*

How might we?

Innovation challenges are an avenue to source, collect, and generate ideas to solve a specific problem. It starts with the word "how" which suggests that there is no solution yet.

The use of "might" instead of "can" emphasizes the point that there are multiple solutions to the problem and not only one. Lastly, "we" provides a call to action to co-create in crafting solutions, that we are all part of the process of finding the answer.

Smart and Innovative Philippines

By 2032, the Philippines shall have a thriving and competitive innovation ecosystem. It is characterized by these goals: (a) proactive, smart, and innovative people; (b) competitive and resilient economy; (c) collaborative and reliable institutions; and (d) an efficient, clean, and sustainable environment.

Pro-active, Smart, and Innovative People

By 2032, Filipinos are life-long learners and demonstrate high-value 21st century skills with high regard for the quality of life, inclusive work and entrepreneurship opportunities, continuous human capital development, innovative thinking, R&D, and use of IP and intangible assets for development.

Competitive and Resilient Economy

By 2032, the Filipino economy is robust, stable, globally-connected, competitive, and resilient—providing equal opportunities for all through strong and collaborative innovation and entrepreneurship ecosystems.

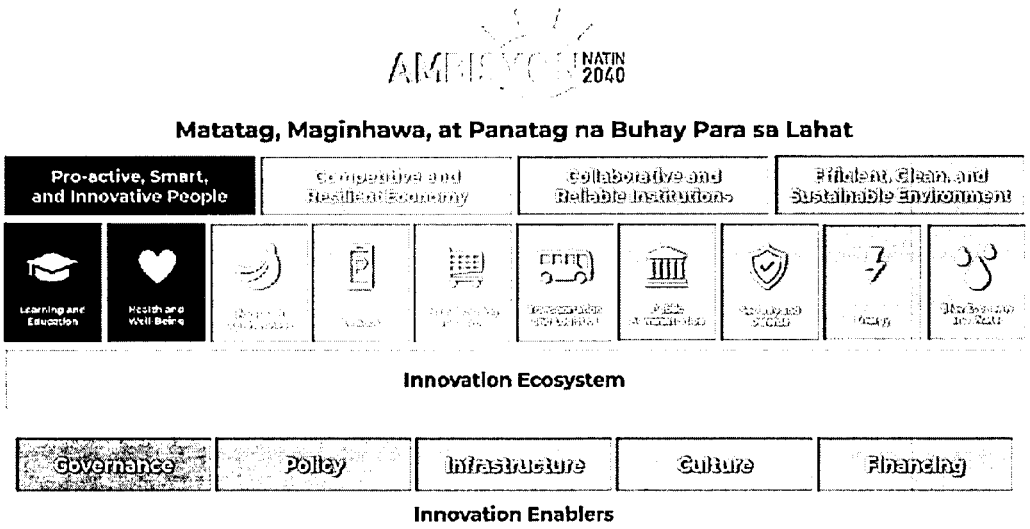
Collaborative and Reliable Institutions

By 2032, Filipino institutions are highly accountable, collaborative, and interconnected—strengthening innovation efforts towards smart, efficient, and improved services that are people-centered, participatory, transparent, trustworthy, safe, and secure.

Efficient, Clean, and Sustainable Environment

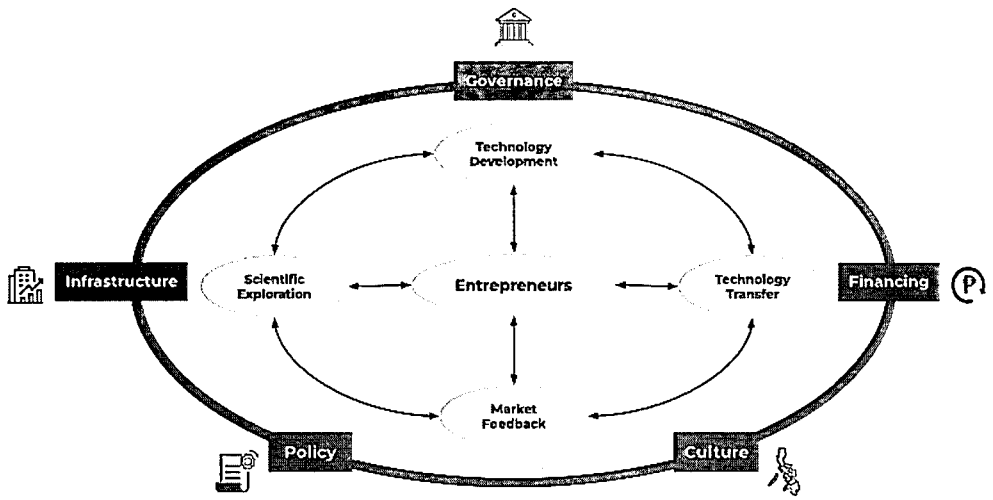
By 2032, our environment, natural, and energy resources are sustainably used for optimum productivity levels, without compromising balanced and healthful ecology for the present and future generations.

NATIONAL INNOVATION AGENDA FRAMEWORK



NATIONAL INNOVATION ECOSYSTEM

NATIONAL INNOVATION ECOSYSTEM FRAMEWORK



INNOVATION ACTORS AND ELEMENTS

Entrepreneurs

Entrepreneurs are key innovation actors who provide direct and significant contributions to national economic growth. According to the Philippine Statistics Authority (2020), 99.6 percent of establishments in the country are MSMEs—enterprises that are below PHP100 million in asset size.

Meanwhile, startups are enterprises engaged in innovative business models aiming to solve pressing problems in society, usually using scalable technologies. On the other hand, spin-offs are startups created by a parent organization, usually by large corporations. Promoting the growth and competitiveness of MSMEs, startups, and spin-offs is key to national development.

Scientific Exploration

The ability to innovate builds upon the knowledge generated by scientists, researchers, and technical experts, including students in academic institutions, private and public research and development institutes (RDIs), the scientific community, and other groups.

These institutions lead scientific exploration and knowledge creation through R&D as well as blue skies and applied research. These R&D activities provide a mechanism to solve existing and encountered problems by offering scientific and research-based solutions that directly benefit communities.

Institutions that lead scientific exploration and knowledge creation also provide the foundational knowledge and skills in science, technology, engineering, and mathematics, particularly at the level of basic and secondary education. These institutions also provide training and capacity-building programs for human capital development. Some of these institutions are also home to incubators, laboratories, and research infrastructure that support innovators internally and externally, helping them to transform their ideas into real products and services.

With its infrastructure and human capital development programs, these institutions are critical in ensuring a sufficient innovators and experts pool who shall spearhead scientific and knowledge creation and conduct R&D activities. These are expected to lead to the development of more responsive technologies that promote the interest of both the industries and the society.

Technology Development

Technology is defined as knowledge, know-how, skills, products, processes, and/or practices. Meanwhile, IP refers to intangible assets resulting from the creative work of an individual or organization. IP also refers to creations of the mind, such as inventions, literary and artistic works, and symbols, names, images, and designs used in commerce.

Building upon the outputs of R&D activities, academic and R&D institutions will then transform theory into tangible products and services.

Through technology development, researchers and technical experts combine science and art by employing methods of research, experimentation, idea generation, and validation. Innovators put their time, money, energy, and thought into their creations and IPs. Hence, the protection of these IPs is important to encourage an environment that will motivate innovators to take action.

During this stage of innovation, potential IPRs, which refer to IP but which are not yet protected by the statutory grant of IPRs, are discovered for protection through various means such as exploration of traditional knowledge, traditional cultural expressions, and genetic resources.

Technology generators are also starting to consider a market-driven approach to ensure that the product or technology being developed will address the needs of the industry. This also assures that the resulting product or service will be used by the consumers. Market-driven technology development directly links the technology generators to business and market opportunities that will be beneficial for both the institutions and the target beneficiaries.

On a wider scale, innovations would lead to economic growth, creation of jobs and industries, and enhancement of quality and enjoyment of life (WIPO, 2020).

Technology Transfer

Technology transfer is defined as the process by which one party systematically transfers to another party the knowledge for the manufacture of a product, the application of a process, or the rendering of a service, which may involve the transfer, assignment, or licensing of IPRs. It starts when IPRs derived from successful R&D activities transition from the research laboratory to the marketplace. A smooth and efficient technology transfer process ensures that innovations designed to empower local enterprises are made available to the public.

Successful technology transfer is expected to lead to commercialization—the process of deriving income or profit from technology—such as the creation of a spin-off company, licensing, or sale of technology and/or IPRs.

The transfer process involves forging strong partnerships and linkages between technology generators and business entities as well as making IP valuation services accessible and affordable for innovators. This will allow researchers, technology generators, and innovators to systematically transfer R&D outputs to another party through the sale or licensing of IPRs. In academic as well as R&D institutions, the Technology Transfer Officers take the lead in finding suitable technology adopters through activities such as market-matching, business-to-business meetings, and technology pitching.

The successful commercialization of IPRs also involves building strong linkages between the government, RDIs, and industry. Hence, technology generators and researchers in the RDIs must be able to shift from academic-driven to industry-driven R&D activities that will produce innovative solutions to address the most pressing problems of Philippine industries. This will ensure that IPs generated from such R&D activities meets the needs of the industry and can be readily translated into commercially-viable products and services.

Technology transfer also strives to link technology generators to businesses abroad through diplomatic relations that will unlock business opportunities overseas and achieve international recognition for locally-made technologies. Doing so will require positioning technologies for the international market through business modeling for foreign economies, IPR protection, and regulatory compliance in foreign markets.

Technology transfer from abroad also serves as an avenue to promote more innovation in local industries. The Filipino diaspora can bring with them learnings from abroad, including knowledge and experiences with advanced and innovative technologies from advanced economies. Foreign industries will also bring with them technologies that can be acquired at various levels apart from the goods and the skills derived that are likewise technology-driven. Therefore, strengthening diplomatic relations and the country's technological absorptive capacity will play an important role in maximizing technology transfer opportunities for the country.

Overall, a successful technology transfer highlights the need to strengthen local and international linkages among the academe, government, and businesses to ensure that R&D outputs will be transformed into commercially-available products and services that will benefit the society.

Market Feedback

Market demand changes through time, and so should technology. This makes innovation more crucial. Once a technology goes to the market, it needs to undergo a feedback loop to allow further improvements to adapt to the changing needs or emerging challenges in the market.

In order to generate feedback, innovators use various tools and methods such as customer satisfaction, social welfare surveys, as well as social media platforms. Innovators use these insights to guide decision-making to enhance products and services based on the needs or preferences of users and customers.

Understanding the customer journey will be beneficial to improving the product/service offered. As such, design thinking is crucial as it helps generate human-centered, consumer-oriented, and business-focused innovations. However, capacities of entrepreneurs and MSMEs must be built to ensure that they have the right skills and platforms to generate and gather feedback from their customers. This will help identify pain points, increase productivity, and continuously improve products and services. Entrepreneurs and MSMEs can also harness existing social media platforms and advanced communication technologies to widen the reach of market feedback to promote inclusivity.

Market feedback activates data-driven and evidence-based decision-making, opening more opportunities and areas for technical experts to develop innovative solutions that will address emerging challenges and issues. Social sciences, such as psychology and sociology, play an important role in this process as it generates a deeper understanding of human-technology interactions. With this, innovation becomes a cyclical process as it begins anew with the scientific exploration based on customer insights and goes through technology development and technology transfer to address the issues and challenges from market feedback.

INNOVATION ENABLERS

Innovation Governance

Innovation governance refers to the institutional set-up of the various elements of the global, national, regional, and local innovation ecosystem. This encompasses the structures and the processes governing policymaking, and implementation. It includes program delivery, monitoring and evaluation, as well as coordination and collaboration.

This can result to strong linkages and innovation alliances among public-private sector institutions with relevant stakeholders in the innovation ecosystem. Local and international innovation alliances forged shall provide a participative and collaborative support system for local scientists and entrepreneurs with their overseas counterparts.

As the primary mover in enabling a flourishing innovation ecosystem, the government and the public sector spearhead the creation of systems supporting the needs of MSMEs, startups, and different innovation actors. A whole-of-society approach and strong leadership and political will are required to ensure effective coordination and achievement of this goal.

The structure and capacity of the government should also be updated to meet the needs for organizational innovation. Such organizational innovation may include updating of the Civil Service Commission (CSC) competency requirements and workplace environment to ensure continuous development of methods in business practices, workplace organization, or external relations. This may include institutionalization of strategic foresight and futures thinking in government processes and establishment of dedicated units for innovation initiatives to ensure an enabling environment within the public sector. Guided by the Ease of Doing Business and Efficient Delivery of Government Services Act and ISO 9001:2015 Quality Management System, public sector innovations will spur more innovative and useful ways to improve processes, products, and services.

Innovation Policy

Innovation policy refers to the laws, standards, regulations, accreditations, programs, projects, and other related action plans by the government with a direct impact on the innovation ecosystems. Through the Philippine Innovation Act, the NIC is developing the National Innovation and Strategy Document (NIASD). This shall establish the Philippines' vision and long-term goals for innovation and provide a road map and strategies for improving governance and advancement of its agenda.

The government is also mandated to implement evidence-based, data-driven, and inclusive policies and strategies for innovation culture, innovation alliances, the Filipino Diaspora for Innovation, and the removal of regulatory barriers to innovation. The NIC shall also adopt cluster policies and strategies that will promote regional and local innovation. The NIC, through a whole-of-government approach, will harness the competitive advantages and strengths of each region, province, and community. The government will also intensify implementation of existing policies and programs for the protection of traditional knowledge and cultural expressions through a strong IP management system.

Innovation Infrastructure

The government will allocate sufficient budget, employ easier public procurement of various instruments—such as accessible and reliable technologies and knowledge management platforms—and establish open facilities to support innovation and promote collaboration among stakeholders.

The government will also promote investments and competition of local service providers to ensure the availability and affordability of reliable and fast internet in the country.

The enhancement of physical and digital infrastructure, alongside information and communication technology (ICT) development, will also consider green infrastructure investments and alternative energy saving arrangements.

First, the government shall encourage and support the establishment of more Regional Inclusive Innovation Centers (RIICs) and business incubators to build linkages between the government agencies, academe, RDIs, and industry stakeholders. These partnerships will foster skills and technology transfer and at the same time create market opportunities.

The Philippine Innovation Act also mandates the NIC to establish centers of research excellence for multi-disciplinary agenda and collaborative activity to encourage relevant agencies to provide research infrastructure in support of key research areas.

Lastly, the NIC is mandated by law to enable innovation using technology platforms, innovation networks, and other instruments to enable innovation in ecosystems and enterprises. With this, the government should actively partake in anticipating and developing emerging technologies in its services and public administrative systems centered on the needs of end-users and its stakeholders.

Innovation Financing

Innovation financing refers to a range of government-enabled financing activities and policies, such as but not limited to loans, credit, grants, budget allocation, procurement, incentives, and investments. These allow both public and private entities to raise additional funds as alternative financing to enhance innovation governance, infrastructure, and culture as well as develop innovative enterprises, new technologies, and innovation on product, process, organization, and marketing.

The NIC will develop and implement policies and programs to improve and ensure accessibility of financing opportunities for innovative enterprises. First, the Innovation Fund will grant funds to entrepreneurs and enterprises to develop solutions. The Act also mandates the creation of Innovation Development Credit and Financing programs that shall consist of loans and other financing activities to develop new technologies and innovations.

Innovation Culture

Innovation Culture refers to the institutional setup and the environment that cultivates and supports interest in learning, creative thinking, R&D, technology invention and transfer, innovation, and knowledge generation and management.

The Philippine Innovation Act mandates that the State shall promote a strategic planning and innovation culture to encourage creative thinking and knowledge creation, management, dissemination and utilization. The Act also recognizes the value of the country's traditional knowledge, cultural expressions, and genetic resources as origins of innovation and the State shall strive to promote its potential for innovation. The establishment of the NIC is also an opportunity to promote and include futures thinking and strategic foresight as enablers for innovation in the country, by instilling a culture of anticipatory thinking and planning in schools, workplaces, and the government.

Cultivating a culture of innovation must start from basic education and a young age where experimentation, outside-the-box thinking, critical thinking, and setting the bar beyond the reasonable are encouraged among the youth and innovators. Inculcating a culture of innovation must also be made available to the grassroots and indigenous communities. Continuing this culture to higher stages of education is crucial in developing a new generation of Filipino lifelong learners that contribute to high-impact innovation.