

***10th YEAR NATIONAL
INNOVATION AGENCY***

***TOWARD
INNOVATION
NATION***

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TOWARD INNOVATION NATION

1

How “innovation” is Important for Thailand 9

- The 1st Era: An Establishment of the Innovation Development Fund 10
- The 2nd Era: From Innovation Fund to the National Innovation Agency 12
- The 3rd Era: A Move Forward to Become a Public Organization 14
- The 4th Era: When “Innovation” is the National Strategy 18

2

“System Integrator” Builds The National Innovation System 21

A Strong Innovation System, a Strong Nation

- Startup Thailand – A Showcase for Global Hub 22
- The NIA Academy 25
- STEAM4INNOVATOR Programme 27
- Regional Innovation for Sustainable Thailand 29
- Highlight Innovation Work in all Areas 31

“Innovation” – A Power for Changes

- Economic Innovation, Gearing toward the Future 34
- Change Thailand with Social Innovation 36

Towards the Future of Innovation

- Innovation Festivals to Build Image as “Innovation Country” 38
- Innovation Foresight Institute 40

3

From 10 Innovations to a New Paradigm 43



**Financial Architecture
for Innovation**
Prinn Panitchpakdi
44




Social Innovation
Sarinee Achavanuntakul
50



Innovation Workforce
Panuwat Benrohman
56



**Innovation Market
in Government Sector**
Parit Wacharasindhu
62



Mandatory Innovation
Assoc. Prof. Dr. Kotom Areeya
68



Area - based Innovation
Assoc. Prof. Dr. Somchet Thinapong
74



**Entrepreneurship and
Innovative Enterprise**
Karn Trakoonhun
80



Data - Driven Innovation
Dr. Sak Sekkhoontod
86



**Internal Entrepreneurship/
Innovation Leadership**
Mr. Paron Israsena Na Ayudhya
92



Paradigm Innovation
Dr. Weerapong Paesuwan
98

Introduction

“With great power comes great responsibility”

This can be a good explanation of a government policy agency. It is also a reason why a long-term strategy must be very well planned to ensure that it will bring about the ultimate benefits for the nation and the people. Just like the original idea behind the establishment of the National Innovation Agency (Public Organization) (NIA). The agency was created from a vision of the government policy agencies involved to develop national strategies that encouraging the formation of NIA to use ‘innovation’ as a crucial tool to enhance the capacity level of Thailand’s competitiveness. As a result, the NIA has a “great responsibility” for the nation since the first day the announcement of the Royal Decree for the establishment of the NIA was made until it has celebrated the 10th anniversary on September 2, 2019.

The NIA is not an organization with commanding or controlling authorities. We have a clear role to act as a system integrator in connecting all sectors, including the government, private, research and academic, civil society and environment sectors to strengthen one another to build the National Innovation System or NIS. We are both a facilitator and a friend of all entrepreneurs, no matter they are SMEs, Startups, or corporate companies. We are an operating agency to drive policy into a concrete result and support ‘innovators’ properly. We also work to shape a life-long learning process by combining all bodies of knowledge and arts to enable the Thai people to create innovation continually, and also to support Thailand to have an international standard like other countries with the world-class innovation.

Probably, we can say that a great responsibility for the NIA will become greater in the future because all the roads of global communities are leading to the era of the 4th generation of industrial revolution or the Industry 4.0. That is to change the world with technologies and innovations. The “innovation nation” goal is announced by the Thai Government with a strong commitment to move our nation into a competition led by innovations. This is just like the way we have been doing so far. The NIA has continued to promote a strong eco-system for national innovation. Take for example, a support for innovation fund for enterprises with good potentials, a working fund for researches to help link them to a business system that creates a real competition, and a facilitation for entrepreneurs and startups to grow more domestically and compete with others internationally. However, we are well aware that the past 10 years is just the beginning.

What’s more important for our roles is to move forward to the future. The content of the book titled “Toward Innovation Nation” is made to commemorate the 10th anniversary of the establishment of the NIA. This time we will present you a continued part of the movie titled “National Innovation System” which the NIA has stepped past. This means that we have set up 10 innovative issues that are very challenging in the future and are a goal that we must push for with strong commitment. The 10 innovative issues have been analyzed by a group of 10 experts from different fields to see what are the potential trends and directions in the future. The body of knowledge has reflected opportunities and possibilities for Thailand in the long-term. This is a direction for the NIA to use as goals to build the “Nation Innovation” – a great responsibility that we are always proud to present.

Dr. Pun-Arj Chairatana
Executive Director of the National Innovation Agency
(Public Organization)

1998-2002

An Establishment of Innovation Development Fund

1998

The Committee restructured and enhanced a capacity limit for competition with approval for a process to establish the Innovation Development Fund

1999

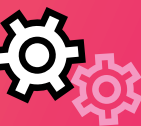
The Cabinet agreed and approved an establishment of expert committee to manage the Innovation Development Fund

2000

Determined a Policy Framework to Provide Financial Aid for the Private Sector for Project Fund Management and Academic Project Fund

2001

Developed an Innovation Database, both for a Project Database and Database for Agencies That Have Experts in Thailand



2002

Connected an Innovation Project Development with ANVAR, France

2007

Collaborated with Ramkhamhaeng University to Organize a Master's Degree Course in Innovation Management, and with Chulalongkorn University for a Course on "Business Technology and Innovation Management" for Post Graduate and PhD Students



2006

Organized the Medhi Honorary Event to Promote Innovation and Innovation Market in Collaboration with the NIA, the National Research Council of Thailand (NRCT) and the Office of the Small and Medium Enterprises Promotion (OSMEP)

2003-4

The Cabinet Resolution Was to Establish the National Innovation Agency (NIA) as an Agency Under the Ministry of Science and Technology with an Independent Management Regulations from the Government System

2003-2008

A Promotion to the National Innovation Agency

2008

Promoted Innovation in Three Key Industrial Groups: Bio-Business Group, Eco-Economics Industry Group and Innovative Design Group

2009-2016

A Move Forward to Become a Public Organization

2009

The Royal Decree Announced the Establishment of the "National Innovation Agency (Public Organization) (NIA)" and the NIA was Awarded the National Outstanding Agency for Economy Development

2014

Joined an International Competition Award and Received a Bronze from the "42th International Exhibition of Inventions of Geneva" in Geneva, Switzerland



2016

Focus on Innovation Strategy for goals, open-ended innovation strategy and innovation strategy for sustainability

2010

Initiated an "Innovation Park" Project

2013

Moved Forward Five Strategic Innovation Projects and Spatial Innovation Promotion Project

2011

Created an Innovation Voucher for Entrepreneurs and Supported a Consulting Provision Group for Spring Innovation with Other Nine Financial Institutes

2012

Supported Academic Work and Financial Aids to the "Innovation Enterprise Network Capitals Project, the "Transformation of Technology into Fund" Project and the "Good Innovation...No Interest" Project



2017-2019

"Innovation" is the National Strategy



2015

Received an Award for National Government Service for an Outstanding Integration of Services

2017

Promote beginning enterprises to become a hero in new economy at Startup Thailand



2018

NIA received two world awards: The GovInsider Innovation Awards for Rising Star and The World Most Important Innovation Lab

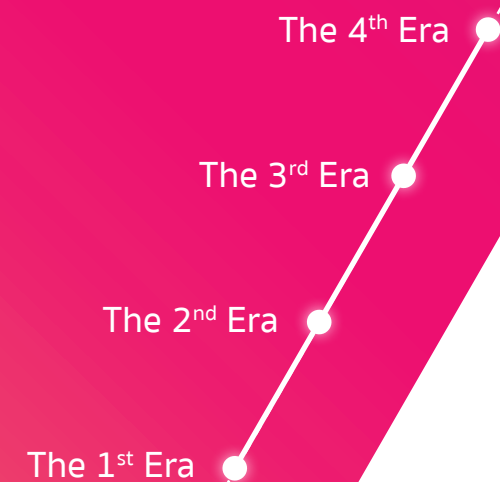
2019

Move toward system integrator completely

1

How “innovation” is Important for Thailand

How can we become a country of innovation, if we have little understanding about our roots, identity, a revolution of “innovation” and a history of a variety of social context of Thailand? How can we have a quality Gen M, if there is no baby-boom generation who has a sharp vision to pave a way and creatively built Thailand to be capable of standing at the forefront of the world’s large-sized economies. Likewise, the NIA has a historical development which is growing and moving into the 10th years old in 2019. It has a standpoint to strengthen a more systematic work by gradually support a formation of the National Innovation System at all the policy, industrial, entrepreneur and people levels. The NIA has gradually been developing with many historic moments to remember and a few devoted personnel that are worth mentioning as a valuable lesson before moving toward the future with braveness and stability.



The 1st Era 1998-2003

When looking back to the year 1997, which is only one year before the NIA was established, there were a series of global crisis that caused ongoing impacts on Thailand. It seemed like the country was knocked and almost fell on to the ground. The main reason came from pressures from the rules and regulations of new global trade. Nonetheless, the Tom Yam Crisis is the worst cause of economic crisis for Thailand. As a result, the whole economy of Thailand was in recession, a balance sheet for cash flow was in red, and more than 50 financial institutes were forced to close down its business. Thailand resorted to borrowing money from the International Monetary Fund and received financial aids from various global organizations.

The root cause for the fragility of the social and economic structure of Thailand is a lack of competitiveness capacity in the manufacturing sector. It was resulted from an ignorance to increase more value added to the restructure of the manufacturing sector. Thailand had for a very long time been a base for manufacturing hiring since 1980. The concept of “innovation” remained very vague in the Thai society. It’s more about research and development (R&D), but the R&D itself remained very little. Given that both the government and corporate companies were severely affected by the financial crisis in 1997, everything then came to a complete standstill throughout the system.

The Government did not ignore the crisis, though. All policy agencies involved with national strategy planning collaborated with one another to brainstorm ideas for a setup of The Fund Policy Commission and the Fund Management for the Economic Restructure Commission by having the Fiscal Policy Office, Ministry of Finance and the Office of the National Economic and Social Development Council as Secretariat. An outstanding performance of The Fund Policy Commission and the Fund Management for the Economic Restructure Commission during the period of 1998-1999 was an establishment of the “Innovation Development Fund” under the National Science and Technology Development Agency (NSTDA). The existence of the Innovation Development Fund was perceived as a new phenomenon. It was for the first time in Thailand that the Thai Government has a clear direction to support an innovation development in accordance with real needs for the country.



The Innovation Development Fund 1998-2003

To ensure that the Innovation Development Fund is differed from other funds of NSTDA and has its own authority to propose policy recommendation and measures for the innovation development towards The Fund Policy Commission and the Fund Management for the Economic Restructure Commission for agreement, the Cabinet issued a resolution to appoint a group of 8 honorary experts to sit at the Management Commission of the Innovation Development Fund by having Dr. Jirayu Issarankura Na Ayudhaya as Chairman. Then, there was a selection of the director of the Fund Management Commission and it was agreed to appoint Mr. Teera Ponganant as the first director. The then Finance Permanent Secretary, Mr. Supachai Pisithavanich, approved a budget of 100 million baht as a starting capital funding for the Innovation Development Fund.

“It’s necessary to help connect between those with little technical knowledge and business owners to bring technological and technical work into a manufacturing system. When the product is manufactured and can be sold that means an innovation is made,” said Dr. Korb Kritayakeerana, one of the Management Committee for the Innovation Development Fund. He once mentioned an offering of financial support for the private sector for the innovation development project for commercial use, including a pilot project, a product improvement, an enhancement of product manufacturing or a product delivery, a separate project or a group project that can evidently bring about any positive impacts on the manufacturing, commercial, investment, management and marketing sectors.

The
2nd
Era

2003-2008

From Innovation Fund to the National Innovation Agency

After the Innovation Fund has been allocated to support the private sector, SMEs and other entrepreneurs since 1999, there was a significant change. The Fund's management committee and relevant networks realized that there should be other systems to help build a mechanism that could support the work more pro-actively. In addition, the Innovation Fund itself should be able to work more independently to respond to any abrupt changes at the global level.

Later, the Cabinet had a resolution to establish the "National Innovation Agency" (NIA) under the Ministry of Science and Technology on 26 August, 2003. The NIA will have an administrative management, independent from the government system, and have a proactive role covering wider areas of responsibility beyond the Innovation Development Fund. Its key objectives are to support, connect and coordinate with all sectors in society to help drive them towards the national innovation system. The NIA's first Executive Director is Mr. Supachai Lorlowhakarn.

The initial directions of the NIA were to focus on the development of strategic innovation projects in five areas: food and herbs, rubber products and rubber trees, software and Mechatronics, automobiles and parts, and engineering and industrial design. Throughout the support under the Innovation Development Fund, some projects were successful and others were not. This is a good lesson learned for the NIA to realize that the agency must be proactive in resolving the problems. That is to support the projects with technical experts as well as financial support by collaborating more with the industry sector. By doing so, the industry sector can help study the market and what kinds of technologies are needed for the private sector to invest. More importantly, the innovation products will be able to serve the market's requirement.



*Father of Innovation
An Innovation Award 2007*

Nearly at the end of the 2nd era, Dr. Suchitra Chotipanich, Permanent Secretary of the Ministry of Science and Technology, stepped in to take up the position of Chairman of the NIA's Executive Board. She was committed to push for a mechanism to provide funding support and share the risks with the private sector.

It was a period when the NIA changed its role from a funding support agency to a coordinator by working in partnership with entrepreneurs and institutes involved to create more collaboration and promotion among the business that help strengthen one another completely. Take for example, a push for a stronger collaboration among the educational network of the Rajabhat and Rajamonkala Universities, and research projects with specific fields aimed at matching a business duo with NIA's research. In addition, the NIA also signed an agreement with various private universities to develop innovation for commercial purpose. We continued to build a wider innovation network and received a good support from both the government and private sectors, including those from innovation business network which aimed at developing innovation in the regions nationwide.

Another development that showed a clear strategy of the NIA was strategic innovation and industrial innovation in 3 key areas: Bio-Business, Eco-Industry and Design & Solutions. All the three innovation sectors clearly showed to the public that they had an innovation potential and could create the right values to truly serve the market requirements.

The
3rd
Era

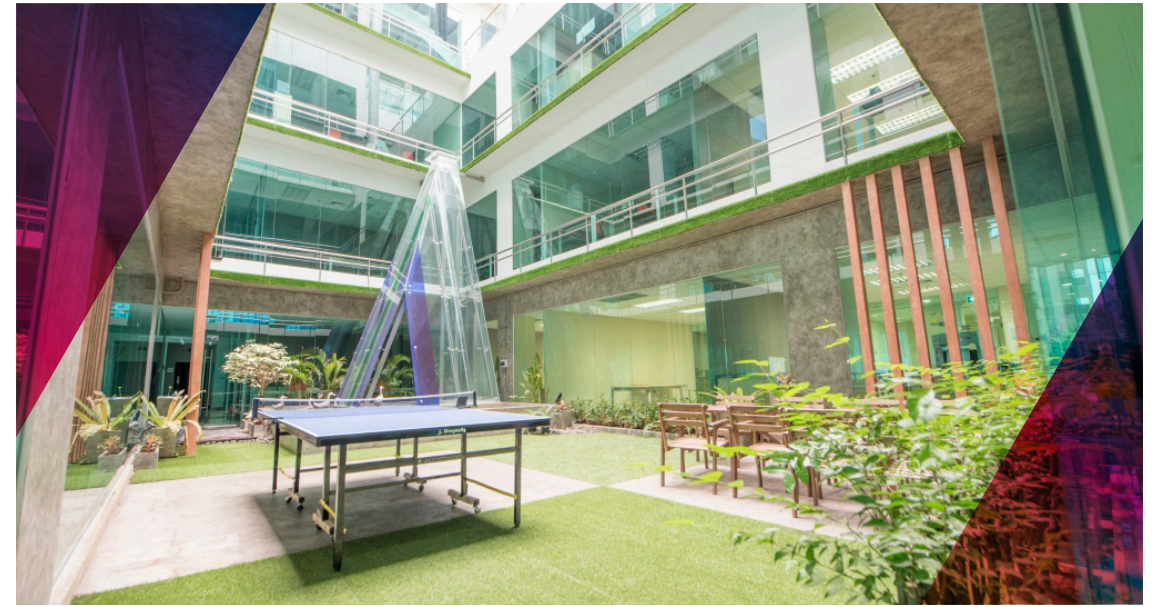


2009-2015

A Move Forward to Become a Public Organization

Due to its long commitment in creating a national eco-innovation system, in 2009 the NIA could expand its work and network and was more widely accepted. The NIA's partners and networks were increasingly aware of the creative innovation concept. A few national corporate companies became more committed to build their own innovation. The roles of NIA then moved into "a friend of entrepreneurs". All sectors concerned joined forces with one another whereas the NIA acted as a system integrator to link, coordinate and support them with innovation in all dimensions

With enhanced development and increased partnership, later there was the Royal Decree's announcement for the establishment of the "National Innovation Agency (Public Organization) (NIA)" on September 2, 2009. This meant that the NIA fully become a public organization and had a status of a legal entity empowered by full authorization in accordance with the public organization's law. The NIA could then gear toward building a new industry by leveraging a supply chain to be a value added chain in order to increase greater potentials for Thailand with advantages for competition.



The atmosphere inside the Innovation Park

During the period from 2009-2010, Mr. Kosit Panpiamrat, a senior executive of the Bangkok Bank PLC, chaired the Executive Board of NIA. We could say that it was a great transformation era back then. The NIA could build up its work from the growing foundation of the national eco-innovation system, and start a policy to support an open innovation to apply all bodies of knowledge, both domestic and international one, for use. We could also expand a greater collaboration with the private sector at central and regional levels through an innovation business network to create an appropriate innovation with potentials for the national industry. In addition, the NIA stimulated an ongoing innovation culture. Take for example, an organization of a "National Innovation Award" and the "Rice Innovation Project". We also built an "Innovation Park" as a connecting center with all sectors concerned in the development of innovation system for Thailand.

The directions for the NIA's strategic plan in the 3rd era were increasingly clear during the period of 2011-2013. More importantly, Mr. Pornchai Rujiprabha, Permanent Secretary, Ministry of Science and Technology who was working at policy level, agreed to take up a position of NIA Chairman of Executive Board. As a result, the NIA's activities are evidently strengthened by both strategy and work plan. We managed to prepare entrepreneurs to enter an international competition of the ASEAN Economic Community through the strategic innovation project. This meant that the Thai entrepreneurs would be leveraged to a new value chain. Besides, we continued to encourage industrial innovations in those three key areas and started a strategy to support spatial innovation project.

With a clear direction of the NIA's strategy plan, the agency managed to produce many concrete results with a great performance in 2015. Dr. Pan-Arj Chairatana then joined the NIA as Executive Director. He focused on innovation business by collaborating with all agencies involved, including entrepreneurs, educational institutes and research agencies to develop a business model innovation. This was aimed at supporting the Thai entrepreneurs to jointly build the "national innovation system" that can truly create greater advantages for competition for Thailand at an international level. An adjustment of innovation structure for Thailand to gain more sustainable results was shown in the strategy plan through spatial innovation project and innovation district project to leverage the spatial eco-innovation system to enable better coordination with the government, private, business sectors, and communities. Dr. Somchet Thinapong, an expert in spatial innovation project also took up the position of the Chairman of NIA Executive Board from 2014-2017.



At the end of the 3rd era, the NIA acted like a dot connector to link all sectors in the innovation system. Since 2018 Dr. Weerapong Paesuwan, Chairman of NIA Executive Board, clearly saw an overall picture of the changing paradigm of society with new faces in the innovation system. Take for example, a startup enterprise group. The NIA speeded up its work through three key strategies: a thematic innovation, an open innovation and a sustainable innovation to build more spaces for the startup business group via the National Startup Thailand Project. This aimed at mobilizing startup entrepreneurs, both locally and internationally, to showcase their potentials at the Startup Thailand event. In addition, the NIA joined hands with a few international startup agencies to manage an "Acceleration Program" to enable the Thai entrepreneurs to move from a place-based framework with a leap jump to an international arena.

When “Innovation” is the National Strategy

Then a big challenge came when the NIA has entered the 10th anniversary and the government has announced that “innovation” was part of the country’s key reform and development policies. They are the 20-Year National Strategy (2018-2037), Thailand 4.0 Policy, and the National Science, Technology and Innovation Policy Development Plan, 1st Issue (2012-2021). Hence, the NIA has set a goal to respond to the government’s long-term development policy to ensure that all strategies are included.

An “Innovation Nation” is a milestone that the NIA has eyed on in making a work plan for 2019-2022 to increase the national capacity for creative innovation to proactively serve social and economic changes and respond to key challenges that we can no longer be only receptive as we did before. Just like what Dr. Pan-arj Chairatana, our Executive Director, has mentioned in his vision presentation that “this is an era where the NIA must respond to various questions raised from the national reform in accordance with the government’s policy. It is because a big issue of the country is “innovation” – which is very significant. Thus, we must be open to respond to a wide variety of issues and be well rounded to work with international communities, giant corporate companies and startup businesses. We must do a development work in the region and look after our people, especially the disparity in society. The innovation can be used to help support all areas. Thus, the NIA must play a more important role.”

Within a scope of the 4 planned strategies, covering key issues that challenge the creativity and collaboration of all sectors, the NIA has remained committed to build a strong innovation system. To achieve this we will act like a system integrator to enable a connection for all the private, government, educational and social sectors, both at central and regional levels, and also to speed up a development for innovation entrepreneurs to strengthen an innovation system structure from the bottom.

Another important issue is to have an environment that is suitable for a catalyst for changes in innovation. The NIA has realized that it is necessary to have an effective tool and supportive mechanism, and also an environment that is suitable as catalyst for changes and growth in order to create innovation that will lead to transformational changes in society and economy.

In addition, it is necessary to have a stimulation and promotion for nurturing future value for innovation. This can help prepare a readiness and leverage potentials for innovation in the future at all individual, agency and country levels through learning process, body of knowledge and innovation tools. We must not forget to develop our own agency as innovative organization either. This is because as a complete system integrator, the NIA’s role means we must start developing our own agency first to become an innovative organization that can help strengthen and stabilize our internal growth.

Over the past decade, it has been a learning experience for the NIA. We can say that it has been a joint learning process of the Thai people nationwide as well. To move forward to be an innovative society and to create its own innovation the country must come across the middle income trap. Just like the role of NIA which has committed to become an organization for catalyst for development and changes to enhance a national level of innovation for Thailand, and create a national image as a leading country for innovation in the region and the world in the near future.

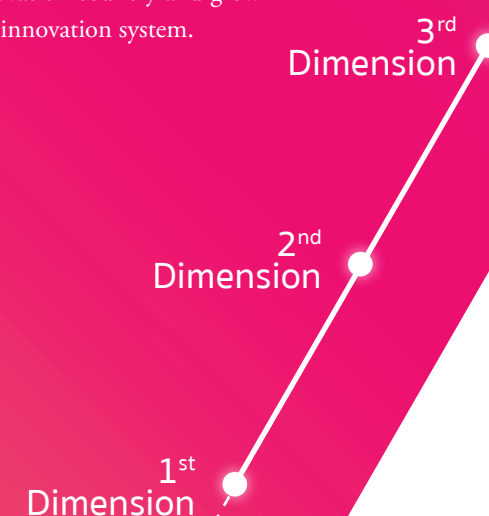


The atmosphere inside Startup Thailand 2019
“Startup Nation”

2

“System Integrator” – Build a National Innovation System

When an innovation for the global paradigm is changing it causes some impacts on countries worldwide. As a key innovation promotion agency, the NIA has then prepared a well-rounded eco-innovation system to enable Thailand to be one of the innovation countries with outstanding potentials and enhanced capacity for competition, both regionally and internationally. The NIA has adjusted and shifted its strategies from a provision of funding support to promote as many as innovation entrepreneurs to a coordination administration by focusing on 5 key sectors known as quintuple helix: the government, private, academic research, social and environmental sectors. The NIA has a clear standpoint to drive forward these strategies as system integrator to ensure that Thailand can become a strong innovation country and grow more sustainably with the whole eco-innovation system.



A Strong Innovation System, a Strong Nation

Strengthening a national innovation system is a key strategy for the NIA's priorities. We have mobilized coordination from both the government and private sector, together with all agencies and educational institutes involved at national and international levels. This is to enable the NIA to develop, cultivate and nurture all target groups with knowledge to become the efficient innovation entrepreneurs for our society. Below are examples of the successful projects:

Startup Thailand A Showcase for Global Hub

The NIA has planned for the next 10 years to develop some 3,000 startup companies to leverage the whole body of knowledge and various standards that can be internationally recognized with both local and international collaboration. This will enable the startup companies to be well exposed and expanded at an international level.

As the NIA has a mission to respond to the government policy that aims at making the startup companies to be a new economic hero and requires that Thailand opens a market for the ASEAN's growth, we have an aim to become a leader in the global startup platform in the Southeast Asian region and to serve a growth of startups worldwide.

The Startup Thailand event that has been organized continuingly since 2016 has been a success and widely recognized, both locally and internationally. At the beginning, the event is aimed at mobilizing startup entrepreneurs nationwide to join forces to help inform and raise greater awareness among the local Thais for a self-development to become a startup with potential for



a business expansion and to help create a new market with awareness raising's activities and to further develop a business for participants. Take for example, a knowledge sharing activity at a forum, a conference and a seminar, a startup network building activity, activities to further a business development, and an inspiration building activity for a new business startup. All the activities have received a good response from the startup group nationwide, investors and the interested public.

At the Startup Thailand 2019 event, it is held with a theme of "Startup Nation" and a venue is near a sky train so it could be easily accessible by the general public living along the sky train areas. This is aimed at presenting that Bangkok has a potential to become the global hub in the ASEAN region. In addition, the event has highlighted the role of NIA as system integrator to build an eco-innovation system in organizing this event by connecting all agencies involved to come and jointly host the Startup Thailand event. Each agency can present its potential. The event was also held at Siam Innovation District, True Digital Park, TCDC and Dtac Accelerate. This kind of event showcased a new phenomenon that the NIA and its partner network have a great potential up to an international standard to organize Startup Thailand 2019 in according with its goals.

The Startup Thailand 2019 is focused on "Deep Tech and MAR Tech (Music, Art and Recreation Technology)". Many masterpiece works at the event are timely for Thailand as Chairman of ASEAN in 2019. At the event, there is also an ASEAN Leader Conference attended by all the leaders. The key agenda for the conference is a collaboration to develop an eco-system for startups in ASEAN.



Dr. Pan-arj Chairatana, Executive Director of NIA, has summarized the objective of the organization of the Startup Thailand, saying: “We have attempted to create the Bangkok Initiative or Bangkok Declaration by inviting those agencies which are an ecosystem builder in the government sector and ASEAN+3 (China, Japan and South Korea) to join a discussion with a plan to announce the Bangkok Declaration together. We will try to connect an eco-system innovation system for startups, and not to work as individual country. As a result, we do not have to compete with one another. There are a few issues for us to be capable of working together because a number of 660 million people are living in ASEAN. This is one of the big markets in the world. If we join forces, we can become very powerful.

In addition to the success of the Startup Thailand, the NIA’s role as a center for startup enterprises in Thailand has contributed to supporting more new faces as an entrepreneur, a co-founder, a deep technologist, a sector mentor, an individual investor, and a venture capital or a corporate capital company. The groups of these potential startups have been given an opportunity to further develop themselves and enhance their capacity for competition. Also, the NIA has urged a development of startup enterprises in the form of business innovation with capacity for competition and a fast growth through a development project for entrepreneurship and a mentoring system. We do so by collaborating with co-working space and incubator nationwide. We have provided them with an opportunity, starting from an upstream to a downstream. This has included all groups of people, ranging from the youth, entrepreneurs, SMEs, startups to corporate companies. By doing so, they can further develop and expand their business to strongly help create a national innovation system.

The NIA Academy

With a key goal to build a strongly national innovation system sustainably and systematically, the NIA has therefor intended to establish the NIA Academy as an institution with expertise in innovation management for the following three target groups: children and the youth, the entrepreneurs, SMEs and startups, and the corporate companies.

For our children and the youth, we have a specific course with a key tool called STEAM4INNOVATOR to cultivate in them since at the beginning to learn about and create innovation. This course is specifically designed for the children at the primary to university levels. For the youth at a university level, the course will be upgraded to a Startup Thailand League that serves students at both university and vocational school levels. For the youth who have a dream to become an entrepreneur, but have no idea how and where to start, the Academy can offer a course called “Startup in Residence” for a beginning process to provide them with skills and expertise. The course is a specific technological training. In 2019, there are the following courses open for the interested public: Travel Tech, Lifestyle Tech, Urban Tech, Health Tech, Agri Tech, Food Tech Industry Tech. The NIA Academy has planned to have as many as 10 fields next year and will expand the courses to be more available in another two major cities: Chiang Mai and Hat Yai, Songkhla.



The NIA Academy's continuing courses can also serve the target groups who have started to be equipped with tool to work as entrepreneur. It is necessary for them to increase their innovation knowledge when it comes to a business development. Hence, the Academy has offered 4 basic innovation courses for them. They are as followed:

- The 1st course is Fundamental Innovation, which includes Innovation for Competitiveness, IP for Innovation Management, Social Innovation and Startup Warrior to provide learners about basic structure of innovation.
- The 2nd course is Social Innovation which is designed for target groups who are able to develop a product or a business that requires a registration for an intellectual property or IP.
- The 3rd course is IP for Innovation Management to increase knowledge about IP
- The 4th course is Startup 101 about Tech Startup from founders of Tech Startup and senior executives from leading corporates in Thailand

In addition, there is a platform for online course called MOOCs. This course can be learned via the NIA Academy's website at www.niaacademy.co As for the entrepreneurs, SMEs and Startup, there are a more advanced course such as IDE for IPO – which is suitable for those who want to be prepared and trained before entering the Stock Exchange. The NIA will select any entrepreneurs with experiences in innovation and have a potential for readiness preparedness to register their business in the Stock Exchange. The NIA has jointly developed a course with the MAI Stock Exchange with a capital mobilization from Seed, Series A, B funding and is about to further it to an advanced level. The NIA has done this course for the past two years with the Stock Exchange of Thailand. There are graduates from four classes. Another course is the Public and Private Chief Innovation Leadership, which targets leaders from the government and private sectors, and civil society. It is focused on driving a high-level policy.

The NIA Academy's courses have received a lot of interest from all target groups, especially the government and private sectors. The increasing awareness of all the target groups has resulted in a satisfactory result and reflected the NIA's performance that has helped create a public awareness about the word 'innovation' more widely. The NIA's proactively ongoing work can connect all parties concerned to work together more systematically with a standardized body of knowledge. This can help enhance a capacity for competition for all entrepreneurs to become more internationally competitive.



STEAM4INNOVATOR Programme

A goal for STEAM4INNOVATOR Programme is to focus on a social innovation creation, whose key element is a new generation with potentials, creative ideas and a deep understanding of innovation knowledge, and to apply the basic concept of science and technology to a business model that can be further developed. This is the idea for the STEAM4INNOVATOR Programme – a potential development plan for the youth who want to become an innovator. The word “STEAM” is originally come from STEM: Science, Technology, Engineering, Mathematics by adding the alphabet ‘A’ for Art. The word ‘Art’ has two meaning dimensions: 1) an artistic art and 2) an artistic understanding and approach to the demands of people in creating innovation and also understanding of target customers in the business we have created.

A new and younger generation known as a ‘Digital Native’ has grown up with modern science and has an understanding of behaviors of contemporary people. This generation is also full of creativity that can be released into the system. However, at the same time they have no enough experience yet to run a business. The NIA has then realized that a preparation for readiness for this generation is of tremendous important. As a result, the STEAM4INNOVATOR Programme is developed to build a new society, consisting of younger generation full of potentials. We believe that a human resource, who is a prototype of innovator known as ‘Innovative Leader’ or ‘Change Maker’ and who has studied this programme, will be capable of convincing the new and younger generation to be interested in self-potential development and attract those with capacity and search for innovation opportunity to work together to create social innovation in the future.

This course is used as a base to become an innovator and is designed with 4 procedures as a tool to concretely understand what a creative innovation procedure is like. The 1st procedure is to have an “insight” in an innovation business. It’s a beginning stage to have an ‘insight’ of how to create an innovation business by having a good understanding about environment and real problems. The 2nd procedure is a creation of a ‘wow idea,’ a further step for creativity which is derived from a problem identification with a clear solution target. The 3rd procedure is a creation of a business model, which is a concept design and a business management plan. The 4th procedure is a production and diffusion. This is a stage which learners must start creating a real innovation work and do it to have commercially concrete results.

Over the past two years (2018-2019), the STEAM4INNOVATOR Programme has become an important tool for the NIA’s organization mission’s achievement – to strengthen an innovation system in society and to create opportunities for the public to access and benefit from basic infrastructure and to enhance capacity of the youth. The NIA has given an importance on children and the youth at two levels of ages. Thus the selection of courses and activities must be made properly for each age group. For primary school students and junior secondary school students, there will be a learning station, a road show activity and a short workshop, including a design of an online communication to start nurturing a concept to look at a problem, a creation of innovation understanding and a creation of work for problem resolution through these four procedures. For the youth at a college and a university, they are a key target for innovative leader creation or a change maker to the new society. We must leverage and strengthen an innovation capacity for them with a Capability Programme. It focuses on training how to think and extensively create a piece of work and getting things done. The children and the youth will be able to learn and practice like a real entrepreneur, both for a short-term and long-term period, so that there is a learning process. Then, they can adjust and be more experienced.

The NIA is committed to actively perform a duty of system integrator by following a development of the youth via the STEAM4INNOVATOR, and further transfer the supporting role to other units in the system. In addition, the NIA has closely worked with the civil society – a real beneficiary, including the youth, their parents and teachers who have significantly supported the children to build an eco-innovation system on the basic of joint collaboration with agencies concerned.

For the youth group who has passed the youth’s potential development plan, the STEAM4INNOVATOR Programme will attract a few more youth with potentials into the system and develop them together by coordinating with many sectors in order to become an innovator. It will also bring in a representative of the new generation who has an idea for a creative problem solving methods and are confident to express their ideas/rights toward a change of work plans at a policy level. These youth will become a key element to strengthen the national innovation system in the near future.



Regional Innovation for Sustainable Thailand

Another important role for the NIA to strengthen the national innovation is to support the innovation development in the region. We have always given an importance on regional innovation entrepreneurs. But mostly there have been a project-based development, which has not yet resulted in a clear impact for changes. Our current policy direction is, therefore, adjusted to focus more on regional innovation with main objectives to build an eco-innovation system in the regional areas by collaborating with local stakeholders and networks.

A Regional Innovation Development Working Group has a standpoint and a commitment to its role as system integrator – a middle person to help connect all sectors in the target areas to join activities. The working process is started from an identification of organizations and agencies in the relevant areas for the innovation development. They are classified into two major groups. One is for service receivers such as entrepreneurs, community enterprises, and startups. The other is service providers such as organizations and units whose roles are to promote and support innovation. These agencies are a science park, universities, banks or Board of Investment. An identification process can help assure the role of NIA as system integrator because it is necessary to have a key person who is influential and can play a crucial role to help identify target groups in the local area.

When we have an alliance and networks with a common ideology to work with the regional innovation team will then start coordinating the work. Currently, the NIA has an alliance with 15 science parks in Bangkok and the regions under the Ministry of Higher Education, Science,



Research and Innovation. The science parks have a basic structure to serve research and development work, and to enhance capacity of entrepreneurs in the areas. This has enabled both the NIA and the science parks to make use of the existing tools of the parks and NIA's expertise in developing the parks' capacity. Take for example, a financial and marketing course, a network building with other alliances of NIA, and entrepreneurs who are a new graduate or those who are interested in doing a business. The coordination can help bring them into a nurturing process of the NIA which will further their development and increase an opportunity for their new innovation business to grow more. This process can help us achieve the goal to create innovators and personnel as service provider and also lead us to build an innovation community later.

Another objective for the regional innovation development is to find an area with high potentials in driving forward a strategic development. Take for example, in the North it is divided into 5 areas: food industry, tourist industry, health and medical service industry, startup industry and social innovation in relations to urbanization. These five strategies can be used to develop innovation in the North.

The latest project called the "Chiang Mai City of Innovation" is implemented in collaboration with the Chiang Mai Municipality. The collaboration is expanded to the Science Park in the South by coordinating with other local universities: Walailak University, Taksin University and Prince of Songkhla's University. The NIA has continued to work systematically in regional innovation development by creating the dot – to match key players in various sectors, then connecting the dot by making a supply chain and value chain, and stimulating and promoting them to link with others in various sectors. We believe that this process can help move and strengthen the innovation system into a right direction.

Highlight Innovation Work in all Areas

The NIA has promoted the area-based or place-based strategy since 2015, realizing that a creation of a suitable eco-innovation system for all groups of entrepreneurs can enable them to join hands and increase greater opportunities for an employment and a huge income generation from innovation creation for the country. There are three parts of the place-based innovation promotion: a policy planning to promote mega infrastructure that responding to industry's needs in innovation; a city development with innovation promotion index for a city and a course development for knowledge sharing for a city governor; and an innovation promotion at a district level to build greater awareness for those residing in the district. Hence, the innovation projects can be achieved according to the goals. With the NIA's expertise, there will be a focus on innovation district by producing work results in six districts in Bangkok, another four districts in the Eastern Economic Corridor. For a regional district innovation, it will start with Chiang Mai.





One of the successful district innovation in accordance with our planned objectives is the Yothee District – which has been jointly collaborated by three key ministries: the Ministry of Science and Technology, Ministry of Education and Ministry of Public Health. These ministries have seen that Yothee District has a potential for medicine and many public health agencies are located around this area. Hence, it can be further developed for a business innovation, especially a medical research and development, as a center for medical information and services. In addition, the district can be used by the startups interested in medical-related business to work with researchers and can become a co-working space with further development. As a system integrator, the NIA will link all sectors concerned via a website called www.ymid.or.th to provide information in the Yothee District as a prototype district. In the future, it can be developed with more information and become a one-stop service, including a startup application for a doctor appointment and can be connected with users directly.

Another innovation district being promoted by the NIA as an innovation center in the future is Kluaynamthai Innovative Industries District (KIID). It is expected to become a university community for media technology – a joint collaboration between Bangkok University and other private universities. It has so far received a support by agencies in the area. Take for example, the Port Authority of Thailand has further developed this plan with its own innovation development plan.

The Poonawithee District which is known as Bangkok Cyber Tech District is another successful place-based innovation development. Jointly collaborated with a private sector- True Corporation, the district has a well-designed infrastructure called True Digital Park. When the company has joined hands with the NIA's Startup Thailand project there is an establishment of District C which is aimed to become a coordination center providing consultation as a one-stop service for startup. It can also serve various activities that can be further developed in the future. As a result, the NIA has planned to expand this innovation district toward Bitec Conference Center.

For the regional area, the place-based innovation development project has been expanded to cover other major cities. Take for example, Chiang Mai which has a medical district being collaborated with the Faculty Group of Health Science, Chiang Mai University by having the Faculty of Medicine as a major institute for the development. Also, there is an establishment of Chiang Mai & Co to be a venue for startup in overseas and a coordination center to ensure a full benefit from the government. There are also another four innovation districts in the Eastern Economic Corridor: Bangsaen, Sri Racha, Pattaya and Baan Chang-U-Tapao. For the Baan Chang in Rayong province, there is a joint Letter of Intent with the NIA, GISTDA, Baan Chang Municipality of Rayong province and King Mongkut's University of Technology, Thonburi Campus. The district will be developed as an innovation center for this area with a similar model as the Knowledge Exchange Center (KX) which is developed by King Mongkut's University of Technology, Thonburi Campus at Klong San in Bangkok.

Given the importance of the place-based innovation development, the NIA has never stopped searching for body of knowledge and study cases, both locally and internationally. Take for example, a co-operation with an old district in Barcelona, Spain. We are confident with human resources' potentials, space usage and a commitment of the Thai entrepreneurs to work together for the development of innovation districts for the region.



“Innovation” A Power for Changes

Global communities are braced for potential changes that have kept coming in since the 21st Century. The NIA has carefully set a strategy to strengthen the nationally basic infrastructure with various dimensions to ensure innovation creativity can happen for economic and social transformation. This can be made with tools and mechanisms, both in terms of financial and environmental supports, which are suitable for innovation transformation and innovation platforms that may result in some impacts on the national development at a high level.

Economic Innovation, Gearing toward the Future

Economic liquidity is the most important factor for a business growth. The NIA has realized its importance. Thus, it has created economic innovation work to help build greater opportunities for an innovation business development through network connection, both with technologies and finance, and sustainable growth for the entrepreneurs. This is addressed with a concept of Groom, Grant and Growth for all personnel. Groom is a workshop to increase knowledge for the entrepreneurs so that they can make use of innovation as leverage for local and global competition. Grant is a financial mechanism and funding support which the NIA has been working for so far. Growth is event organization to stimulate and create innovation market for the entrepreneurs working with the NIA and to continue to create new entrepreneurs who have some good potentials by promoting a joint marketing collaboration, both locally and globally.

A concrete success of various projects is resulted from a mechanism of economic innovation. Evidently, it is made through a strategy of funding support – a mission that the NIA has committed to work for. At present, there is an adjustment of funding support to be in line with the NIA’s policy. Previously, the funding was given to an open innovation entrepreneur for a broad support with criteria to manage an innovation business, which leveraging the first s-curve supply with potentials toward a new value chain - a new s-curve of the nation. The NIA has, therefore, adjusted its strategy to support a more specific form of innovation called the ‘thematic innovation’ with clear objectives for the national development and to enhance innovation capacity in specific field and issue that have impacts on the future of the nation at a high level. By doing so, the economic innovation will conduct a study to cover all issues to serve customers’ pain points, and industrial opportunities for all sectors of the country that can use innovation to resolve the problem. Take for example, an industry in the health system and

opportunities in tourism industry in Thailand. In addition to supporting strategy, it will be linked with economic growth by using a thematic innovation which has been operated for two years with concrete results leading to satisfying innovation transformation.

For 2018, there were five main businesses: tourism and service innovation; herbal products for health, non-pilot aviation; production with the IoT technology and food security and urbanization innovation. All the businesses are an innovation industry with high-level impacts for the country development. There were some outstanding projects which have received funding support for multi-purpose innovation and are responding to the government policy. Take for example, a smart transport for tourists in tourism industry. This was focused on a security provision for tourists and was in line with the government’s tourism promotion policy for secondary cities.

For 2019, there are additional six target innovation industries. They are health care business industry, tourism industry, IOT industry and logistics, food and medical industry (specifically chronicle and non-communicable diseases), herbal industry (specifically chronicle and non-communicable diseases), and security industry, for both military and civil servant sectors. Any repetitive themes for a variety of industries will be changed into a new-dimension concept so that they will be responding to the changing context of the current problems and situations. Take for example, a tourism industry is shifted from a smart transport to cultural tourism instead.

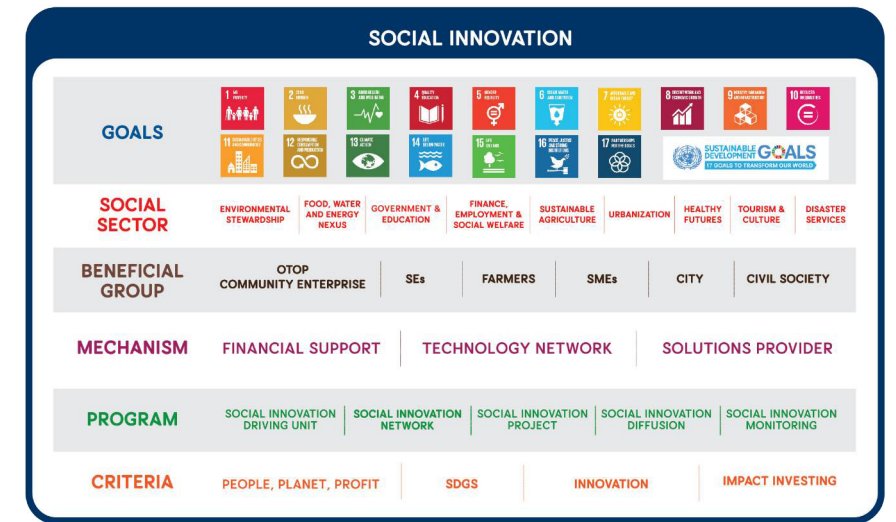
In addition to the grant, a development of economic innovation for entrepreneurs has focused on growth or a creation of innovation market for the entrepreneurs from all sectors concerned. There are several projects which are further developed into a business for entrepreneurs. For example, a startup enterprise project for investment, a joint collaboration development with foreign agencies, and a supporting mechanism for potential enhancement in innovation. This is made with objectives to enable the entrepreneurs to cross over a traditional innovation business towards a new value chain – an innovation business that can generate high income and competitive advantages in the future.

Change Thailand with Social Innovation

Over the past three years (2017-2019) of intensively social innovation development work, the NIA has realized that a development of social platform and social business supporting innovation capacity in society can help reduce economic disparity, increase potentials and capacity for communities' competition and improve people's quality of life thoroughly and equally. When looking back to the initial stage of NIA's performance it is evident that the NIA has not ignored the social issues and has always incorporated them into the work, both in the form of sustainable agriculture or renewable energy. Currently, the NIA has set up a systematical strategy with more focuses on the targets.

In addition to the social context of Thailand, a social innovation operation is also applied from the Sustainable Development Goals in accordance with the United Nations Framework. The NIA has studied and limited scopes to support its social innovation within 9 goals: an environment conservation; a connection between food, water and energy; an education and government; a finance; an employment and social welfare; a sustainable agriculture; an urbanization; a health; a tourism and culture, and a disaster management.

These nine social dimensions can be mainly divided into three groups. The 1st group is linked with environment, including an environmental conservation, a connection between water, food and energy or a sustainable agriculture. The 2nd group focuses on human and urbanization such as an urban expansion, government and education or social welfare. The 3rd group is about people's lifestyles, including community tourism and healthcare for the elderly in the future. However, a definition of social innovation can be addressed as social innovation which aims at resolving new problems that cause some social impacts in order to make better understanding. At the same time, this social innovation must have a business growth such as a business, an enterprise and a company to have a concrete success.



We have some outstanding projects in social innovation. Take for example, a Social Innovation Village Project. This project is ready to be expanded to target areas and create an eco-innovation system for society and can help address the problems, promote, support and enhance quality of life in the areas. This project is a prototype of social innovation with a plan for result expansion. The project is proposed to the NIA and can be divided into nine key dimensions to be in line with problem in the context of a specific area. Besides, there are other projects for urbanization. Take for example, the City & Community Innovation Challenge Project. This is open for proposals for an innovation project for urban and communities, and also for urbanization-related problems. It is open for those interested to submit a form of innovation they plan to use for a problem solving. Each year we have many interested entrepreneurs with a few projects being selected for further development.

As system integrator, the NIA can help connect the social innovation entrepreneurs with potential investors. This helps create a good understanding and a more convenience in managing a government's procurement and a co-ordination with the Local Administration Organization (LAO). Take for example, a social innovation entrepreneur doing an underground water bank can further his/her project work with the LAO which has a funding directly, or invest in a joint business. Besides, we have offered an opportunity for the entrepreneurs to meet up with agencies which want to further develop a corporate social responsibility project by applying the concept of social innovation with positive impacts in resolving social problems. Also, we help look for potential investors, both locally and internationally. Take for example, a collaboration with neighboring countries in the form of Cambodia-Laos-Myanmar-Vietnam – which is the collaboration in the ASEAN region.

Towards the Future of Innovation

The NIA has worked for innovation, which is a science related to new things in the future, and has prepared a readiness and enhanced an innovation for an individual, an organization and a country for the future. It has sought for more collaboration at international level to enable Thailand to be developed as a leading innovation country with a clear direction for innovation development. Thus Thailand can stand on the same level as other countries internationally.

Innovation Festivals to Build Image as “Innovation Country”

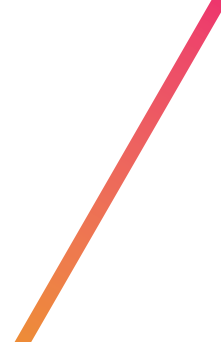
In 2018, the NIA has for the first time organized an Innovation Thailand Expo (ITE) with key objectives to create an innovation image for Thailand in accordance with a transition of an innovation paradigm for the country. Thailand has remained unknown and unaccepted by global communities as innovation country, although the NIA has long been working with other agencies from various sectors involved to build an eco-innovation system for Thailand. The NIA has therefore realized the importance of communicating with the global communities to present Thailand's potentials in innovation and to push for an innovation development through various kinds of activities. Thus, the Innovation Thailand Expo, a tech and innovation event, is a venue to showcase a leading technology and innovation exhibition from the Southeast Asian region and to present to SEA entrepreneurs that Thailand does have a potential through Thailand's innovative work and products displayed at the event. Like an innovation festival, the Expo was organized with a concept of Fair, Fin, Fun: an Innovation Fair, an Innovation Business (for Fin) and Innovation Experience (for Fun).

This year the ITE will be held for the 2nd time on 3-5 October, 2019 under the theme of Social Innovation at Mitrtown Shopping Mall, Samyan with the same “Fair, Fin Fun” concept like the one held last year. It will be coincided with the National Innovation Day on the 5th October. The event is aimed at raising greater awareness about the innovation image of Thailand and highlighting the role of NIA as system integrator. The ITE will showcase to the public the innovative projects with all sectors involved, not only those innovation work by the NIA. The attendants will learn a lot more about many national projects from all agencies whereas the NIA plays a role of system integrator to enable them to showcase their work and products.

One outstanding point at the ITE is that the entrepreneurs or the general public can receive a consultation from the government sector at the Government Support Zone, which is divided into the Groom, Grant, Growth zones, according to an agency policy work. The Groom Zone is for a government agency supporting and developing innovation potentials for the entrepreneurs with training and workshops, and a technological development for vocational workers such as Thailand Center of Excellence for Life Sciences (TCELS) and the Department of International Trade. The Grant Zone is for a support given to the entrepreneurs by NIA, the National Science and Technology Development Agency, the Industry Promotion Department and the Ministry of Commerce. The Growth Zone is for further development of product or research results that can be expanded to the market by the Board of Investment and creative economy. This is a new phenomenon which is made to enable the entrepreneurs to change its impression toward an old image that the government agencies cannot be easily accessible. By doing so, the interested public can learn how to approach the government agencies and ask for consultation independently. Thus they can compete with one another.

The organizer wants its key objective of the ITE to be clearly addressed and communicate to a wider audience, including the Thai people and foreigners. We want the audience to realize Thailand's potentials for innovation and learn about the new image of Thailand as one of the innovation countries with potentials, capability for product development. These innovative products can really be used and beneficial to human beings no less than other neighboring countries at the international level.





Innovation Foresight Institute

An establishment of the Innovation Foresight Institute (IFI) in 2018 by the NIA is a crucial turning point, showing a long vision of the NIA. The IFI is established with an aim to forecast what the directions of innovation in the future are and what kind of impacts will be for changes in key sectors such as economy, society, environment, and overall living conditions of the people in the country. We believe that the IFI's work can have significant impacts toward a development at the national strategy.

Initially, the IFI is designed to be a consultation agency, focusing on using tools in social science and management to create new bodies of knowledge as a means for a 'foresight' of any incoming phenomenon, and a channel for suitable innovation creativity. In addition, the IFI is aimed to help create an eco-innovation for a foresight. This is because this science of foresight is relatively new for Thailand whereas it is of tremendous importance in many foreign countries, in particular the government sector. Take for example, Singapore and some European countries such as the UK and Finland. These countries have very well realized that the bodies of knowledge can be applied to create huge values for the country.

The reasons that many developed countries have emphasized the importance of the science because each country has a long-term investment plan for changes that may take a long process. Take for example, a human resource investment to respond to specific fields of industry which can take at least 10-20 years or a technological investment that requires research and long-term development. These are a reason why the foreign countries have given an importance on the foresight as a direction and strategy guideline for the country. For Thailand, the awareness on the importance of the foresight has emerged with the 20-year national strategy. As a result, many government agencies have increasingly been aware of the importance of the foresight.



The IFI's previous performance has been focused on building interested public and communities which want to start working on the issue. There have been the government and private sectors, but mainly an educational sector, the researcher groups and strategists from various agencies. The IFI has created a tool to help them look forward to the future. It is a collection of techniques which are mainly used by the future study researchers to analyze the future and put them into a manual to transfer knowledge and provide trainings about new trends that can be adjusted in accordance with changing social context. Take for example, a new trend for health, education and professions in the future, and an assessment of innovation agencies at the Stock Exchange of Thailand and the Market for Alternative Investment (MAI). Besides, there is a promotional activity for foresight to attract target groups who are a younger generation, to join. Take for example, a video contest to enable the students to share what the next 10-20 year for the foresight is and what the direction is like. This is mainly aimed at creating an engagement with the younger people to start thinking about the foresight so that they fully use and apply their creativity to present it through a video clip production.



3

From **10** Innovations to a New Paradigm

Over the past ten years the NIA in partnership with the government and private sectors have worked to create a complete eco-innovation system to enable a tree called a “National Innovation System” to grow well. Until now the tree has been growing and expanding in Thailand. It is still growing more with a set of 10 innovation issues to achieve in leveraging the country innovation potentials. There will be 10 experts with a wide variety of knowledge to unlock these 10 issues and present relevant information to the general public and reflect it to the policy level.

A portrait of Prinn Panitchpakdi, a man with glasses, wearing a yellow polo shirt and a dark blue blazer, sitting in a chair. The background is a blurred indoor setting with a window. The image is overlaid with a dark blue and red geometric design.

Prinn Panitchpakdi

Executive of the New Economy Academy, Ministry of Commerce

Executives of the Stock Exchange of Thailand

Executive of the Electronic Transactions Development Agency (ETDA)

A decorative diagonal line in the top right corner, transitioning from red to orange.

Financial Architecture for Innovation

In addition to the role of Deputy Head of the Democrat Party, Mr. Prinn Panitchpakdi is also a Chairman of the Working Group of the “Modern Economic Team” or the “Avenger Team.” He has been very well experienced with finance and banking sectors, including commercial banks, stock business, investment banking and various enterprises, both with the government and private sectors. He was also a former executive board of the National Innovation Agency. Hence, his opinions and recommendations about the financial architecture of innovation have contained information about how to apply various kinds of financial tools to serve needs and duration of the innovation development for the entrepreneurs.

Mr. Prinn has provided an overview of the mobilization situation for the entrepreneurs, in particular the startups. Any entrepreneurs with a limited finance are at a higher risk than those with a huge finance. This is due to a mindset of investors in the market, especially those who are not really ready can face uncertainty. Mr. Prinn has raised an example, saying that the currently startups which receiving a loan from a commercial bank are considered having a good connection group. Meanwhile those receiving financial support through a donation and others having a venture capital (VC) are very few.

Investors and some large commercial banks have not yet understood the risk happening in startup investment. They have little understanding that it is necessary to start investing in the startup in order to create an innovation, research and development for a long-term growth.

“VC is one of the increasingly popular channels for startups, but remains not many. Some startups may be approached by VC from a competition. Now there are many more competitions which being held by the NIA and the private sector such as SCB, Dtac and True Corporation. It can be said that this is just picked up after the startup business is booming. Some have used a startup platform to mobilize funds through an initial coin offering (ICO). However, it remains very limited. I think investors and some large commercial banks have not yet understood the risk happening in startup investment. They have little understanding that it is necessary to start investing in the startup in order to create an innovation, research and development for a long-term growth. This is like an innovation for a company. It is important to accept high risk rather than only offering a personal loan or corporate loan. A mindset must be changed.”

When asked to comment on limited numbers of startup business in Thailand that resulting in such a problem, Mr. Prinn has replied that partly it depends on a quality of a company. A life cycle of a startup is actually in a baby stage. It needs more knowledge development for entrepreneurs so they can be of good quality, when compared with those in foreign countries which have a strong foundation. Take for example, an owner or an executive of a startup in foreign countries are those who used to work fulltime and were successful before. But in Thailand most of the startup business owners are a new graduate. They have an energy, but lack strong experiences and knowledge in finance, accounting, marketing and law. Hence, many startups lack quality to mobilize funds for further investment at the stock market level.



Mr Prinn has also noted that the social enterprise business is another group facing a problem of fund mobilization. The public may be confused about the social enterprise's image that it is more about a charity or a business entrepreneur. There are some VCs who understand the concept of social enterprise and want to invest in this business. “I've seen some VCs interested in investing in sustainable business and at the same time wanting to contribute to society by assisting in coaching and mentoring the social enterprise. Take for example, Sasin Sustainability & Entrepreneurship Center. The institute has now joined us to help drive innovation with creativity and sustainability for growth.

In addition, Mr. Prinn has provided an additional information, saying that he still has hope for access to financial system called a peer-to-peer lending (P2P Lending) which is a loan offering on a block chain system. This should be used to help resolve the problems of SMEs and startups because their main problems are an unavailability of the funding sources that is affordable and concrete.



“It can be easily explained that the P2P leading system is to bring together those with funding and those with amazing ideas but no liquidity to meet with one another and join hands, then give a loan to them based on mutual trust, good traits, punctuality, integrity which called a ‘social credit score’. The social credit score will be kept in a block chain and be evaluated from social behavior activities in their daily life such as a click on ‘like’ on social media and any post-pay or pre-pay package purchases. All the information will be treated as a digital footprint data and analyzed. It’s very interesting.”

When asked for any recommendation to society or agencies working at a policy level, Mr. Prinn has mentioned his concern for efforts to reduce a social disparity for competition. Those at the policy level must carefully consider before making any decisions, especially those that will have an impact on the financial architect for innovation. Some policy issues can affect the entrepreneurs before they can survive or grow.

“For a few policies, we are not a pioneer. Hence, what we can do is to be open and look around in the region and at the global level which directions the world is moving toward. We can have a short-cut learning from them and apply those good policies with our country. Take for example, a tax issue. There is a royal decree for a business operation with digital assets. I believe it is happened for a good intention. But the problem is that the objective in attempting to protect consumers and punish those who are guilty can cause a slow funding mobilization. The startups which want to mobilize funds must delay their activity due to a complicated process and a tax issue. This needs to be taken into consideration whether a law should be made for a fair competition and a disparity reduction.





Sarinee Achavanuntakul

Managing Director
for Knowledge
Development,
Sal Forest Co Ltd

Writer, Translator,
Researcher and
Independent Academic for
Financial Issues

Social Innovation

“Let’s look at the monopoly problem by a single group in the economic, political and social fields. I want to ask if these people have already had some benefits, would they be interested in supporting innovation. Hence, those supporting innovation are always not a powerful people. Why? Innovators who transform a business are always sometimes those who have to struggle and work. That’s why they want to create an innovation.

If we think about a contemporary academic whose work is always focused on social issues, no matter as a writer, a translator, a researcher or an activist, Sarinee Achavanuntakul is always in one of the priority list for Thailand. She is a co-founder of Sal Forest Co Ltd – an organization which aiming at building a sustainable business in Thailand through a variety of activities, both intellectual and public interests. Her latest work being translated is the Myths of Innovation. A few issues in the book can deeply reveal the innovation situation, just like a dialogue on “social innovation” this time.

Sarinee has opened the dialogue by raising a question about a connection between “innovation” and “society,” both at the levels of general public’s understanding and the entrepreneurs who are doing social innovation. She has viewed that when speaking about innovation people are likely to think of products or concrete technology in terms of commercial use. They have not linked them to a wider scope, meaning a creation of innovation to solve social problems, although the social innovation has a wider scope and capacity beyond technology and products. The social innovation also means a process innovation. Some of it has not created a product, but a new process to find a solution from the old and unresolved problems.



Like a circle of the social innovation entrepreneurs, there remains a loophole for a conceptual framework that has blocked them to build a transformational innovation at a global level. Although a few people have been working for innovation work with a good intention, they may not be able to think that far to create an innovation. Sarinee has raised an example to show a clear picture of it, saying: “As the entrepreneurs have not eyed on the innovation, it does not mean that they have not yet seen themselves in creating an innovation. Take for example, an entrepreneur who is interested in organic farming want to earn a higher income, but have not set a goal to transform an agriculture or create a market for organic farming to change the mainstream agricultural market. Hence, if any social entrepreneurs have set a limited role for themselves, they would probably not realize the importance of how to use innovation. To me, this is not an obstacle, but it does reflect a mindset of a huge number of social entrepreneurs who want to take part in solving a certain level of problems that they can do. This is a question for us to consider how we can drive them to think beyond this point. At the end, it must start with a mindset of entrepreneurs first. If they can think big and beyond the social innovation itself, they can understand the word ‘innovation’ better.

Among those who want to operate a business in this sector, some of them are interested in solving social and environmental problems. There remains a ‘market’ and a group of consumers who are ready to purchase a product that solving the problem. If we want the market to grow and be sustainable, we must create a real completion and enable it to compete with the existing market.

In addition, the influence of attitudes of those who want to support corporate social business can have an impact on creative innovation as well. Mostly, these people tend to link the word ‘social business’ with “non-profit organization (NGOs).” Thus, it is expected by society that this business is for social concern only, not necessarily to make any profits. This kind of perception has hindered not only the entrepreneurs’ potentials but also interested companies which being keen to support the social business that have to negotiate prices for their products because they consider that it’s a non-profit organization. In fact, the social business does need financial sustainability as well. Hence, many social businesses are operated with profit making, but their key mission is to solve social problems. With such a perception for a wrong image, a creation of business model to generate a certain income or profit is limited.

“Among those who want to operate a business in this sector, some of them are interested in solving social and environmental problems. There remains a ‘market’ and a group of consumers who are ready to purchase a product that solving the problem. If we want the market to grow and be sustainable, we must create a real completion and enable it to compete with the existing market. Take for example, if we want an organic farming products to grow, it must be able to compete with the general agro-farming products and create a wider group of users. The question remains, though. An operation of social business means that we must help solve social problems. However, it is questionable why our ways of life must be sufficient. This is a different issue. I think our Thai society is still trapped with this kind of perception.”



The Sal Forest co-founder has reflected ways to problem resolving at a policy level, saying that the NIA and the government have increasingly given an importance on social business. There are a funding support and a variety of social innovation competitions. However, the Thai-style culture has created an impression of a ‘cheering group’ rather than a drive to push the entrepreneurs to achieve the point where an advanced innovation creation is done. “The government may not necessarily have to identify the word ‘innovation’ clearly before a support provision. But the government has to lay a system and think beyond this point. The government must set up clear criteria with advanced standard for a competition. It has happened that some work at the competition may be useful, but it has not yet been considered a transformational innovation and the entrepreneur must also realize that it is not. Probably, this can be called an innovation starting point award. As a leading agency for the task, the NIA must attempt to build better understanding and set a long-term goal with specific outcome more than only activity outputs.

Ms. Sarinee has raised the last point, reflecting her views as academic with experiences in creating shared value (CSV) and a social movement, saying that there is an infrastructure connection which bringing about a unsustainability problem to support social business operation. In considering the sustainable development goals (SDGs), there are three main issues that need to be resolved at the policy level. Firstly, a social disparity in the Thai society, in particular an income disparity, an access to natural resources and human rights. Secondly, a multi-dimension environmental problem, especially an environmental problem resulting from the impacts of government development on communities. Thirdly, a problem of justice system which is crucial to building a peaceful society from a creation of justice procedure and an efficient institute. Ms. Sarinee has realized that it has a deep impact on society, especially the social business entrepreneurs and the country as a whole.

“Those who have been working on sustainable development or being interested in environmental problems may doubt whether a justice system, a fairness or peace are interconnected with sustainable development. If we do not have such things, how can a development happen?”

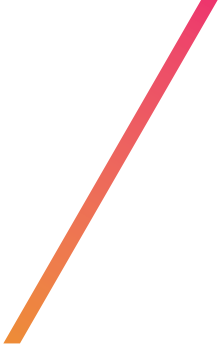




Panuwat Benrohman

Managing Director and
Partner of Aon Hewitt Thailand

Managing Director and
Partner of Kincentric Thailand



Innovation Workforce

With over 10 years of experiences in Human Resource (HR), Mr. Panuwat Benrohman's expertise is to provide agencies in the government and private sectors with knowledge and consultation in HR development and management, based on a research and an in-depth analysis systematically so that the agencies can improve its HR work to become more modernized and suitable to the fast changing social context at present. Thus, his viewpoints toward an 'innovation' are very interesting. He finds that the innovation work requires many new skills to ensure entrepreneurs and agencies involved can be knowledgeable and responding to a radical innovation in today's work place.

There must be three key skills: a good knowledge of computer science and technology, knowledge about mathematics and statistics and the last is an understanding of humans, psychological knowledge, co-living with others and a business operation. All these skills and knowledge will enable the employees to apply and connect them with a variety of work process.



Panuwat has mentioned a previous research called the “Best Employers” which was made over 10 years ago on by Kincentric Thailand and Sasin Graduate Institute of Business Administration of Chulalongkorn University with an objective to stimulate the Thai agencies to focus on HR work with a project giving an award to the best employers as outstanding firms for HR management. Panuwat has shared some interesting points: “Over the past few years there has been a changing tendency. The characters of best employers, both locally and internationally, are affected by the fast changing technology with a fiercer competition. These employers have to adjust and change too. Previously, an organization have expected that an employer must be attached and devote himself/herself to the organization physically and mentally. These are likely to change more in the future. “

Key qualifications for an organization suitable for an innovation work in the future are an adaptation to new situations and a quick response to customers’ needs. Both the managers and employees must have these characteristics. Take for example, a manager must set a system that enables an employee to be capable of making a decision. This will enable an organization to move toward a desired goal. Besides, it must give an importance on “people focus” – an employee’s skill and potential development to respond to new changes in the future. The organization must have a method to deal with customers of various generations, no matter if they are the Gen X as executive, the Gen Y, or the Gen Z. It must know how to deal and communicate with them differently.



Next are the skills for a leader. An organization must have a well-rounded leader for work, mentality to show an understanding for employees and a good vision. Mr. Panuwat said: “A leadership with a capability to engage with others is an engaging leader. He/she must not on an ivory tower, but be able to connect with other employees and have a vertical management. This kind of a leader is capable and can be connected with others around to drive the employees to help work for the organization in the future and to enable the organization to adjust itself to a higher-level competition and enable it to survive in the long run.”

For the employees who are assigned to take up the future responsibility which focusing on an in-depth data analysis with a suitable forecasting for the future, Mr. Panuwat has some recommendations. There must be three key skills: a good knowledge of computer science and technology, knowledge about mathematics and statistics and the last is an understanding of humans, psychological knowledge, co-living with others and a business operation. All these skills and knowledge will enable the employees to apply and connect them with a variety of work process. At present, it is noticeable that there are less human resources with these characteristics than it should be.



In addition to the private sector’s adjustment, Mr Panuwat has shared ideas about the HR adaptation for both the government and state enterprise sectors. Apart from the innovation people, the government sector needs to consider an innovation organization too. This is because an organization structure and the working process have been changed. The government sector should focus on a transformation of the organization to respond to customers’ needs better and have experienced stakeholders and to improve its working process less complicated and more productive in order to respond to a new method of working for the younger generation for all the civil servants, full-time employees and temporary employees in Gig Economy.

However, it is necessary not to ignore our own strength in preparing and adapting ourselves to serve the eco-innovation system in the future. This is particularly the strength of HR in Thailand. We must continue to maintain and develop it to keep all our good qualifications and to be capable of responding to changes in the digital world.

“Due to the influx of various kinds of cultures and technologies, we may lose some good characteristics such as generosity and thoughtfulness. Thus, we must not forget to keep them and improve them more. I want to encourage us to focus on the strength, add them to what other better qualifications our Thai people have had, especially the service mind. This is the strength of Thai people. We must remember this.”



A portrait of Parit Wacharasindhu, a young man with dark hair, wearing a blue blazer over a white shirt. He is sitting at a desk with an orange chair, looking towards the left. The background is a blurred office setting.

Parit Wacharasindhu

Founder of New Dem under the Democrat Party. But He Resigned from the Party After It Decided to Join the Current Government

Former Candidate as Member of the Parliament

Former Junior Project Manager and Consultant of McKinsey & Company

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Innovation Market in Government Sector

In any generations, most young people do have an aspiration to change the world and attempt to inspire others to create a new and better society. Likewise, Mr. Parit Wacharasindhu, a young and aspiring politician and a graduate with the Politics and Economics Degree from the Oxford University, has shared the similar wish. His political and social thinking is very clear. He has had experiences with a few standing points in the New Dem group which he co-founded to connect the world of the old and the new generations together. Also, he is open to contemporary ideas based on the country development and has some perspectives to drive and strengthen an “innovation market in the government sector” in Thailand. Interestingly, he has shared some ideas, reflecting what the new generation wants and showing challenging perspectives.

Mr. Parit has raised issues from the Global Innovation Index, showing how well the innovation development in Thailand is, when compared with the rest of the world. With an overall picture and a superficial consideration, Thailand is now ranked at no. 40th plus in the world. This is not so low, when compared with our neighboring countries. However, it is more interesting to look at the details of each index. “Thailand has received a very low score for an index linked to the government such as a political stability and a ratio between students and teachers in the education system. A ratio percentage of government’s online services is very low or is lower than the same index of the private sector such as a capacity for competitiveness in exports, services or creative products. There is a growing gap between the government and private sectors. Hence, if judging on the real information and the facts, it shows that in Thailand the government-driven innovation is more slowly progressing than that of the private sector.”

I think we must have a project that supports an innovation, adjust the idea from a bottom-up to the top. It must not be limited to few people in the meeting room to determine the national innovation strategies.

According to Mr. Parit, given the current situation, there are core points that can be summarized for easy understanding of the pathway to create innovation. He has said: “How and what needs to be done for creativity? It does not matter if it’s creativity for newly technological development or a service or a product. What is more important is to promote creativity.”

“What kind of surroundings the government should build to nurture creative ideas? I have divided it into three structures. The first one is a national administration system structure. There is a data indicating that a democratic society which promoting a freedom of expression is in line with a level of creativity of people in the country. Some have also reiterated that if we look at a composition of a class room in any country, we can tell how much advanced that country’s democracy is and whether a creative idea is promoted or not. In a classroom where all students are sitting around a teacher, they are at the same level and they are given an equal opportunity to share their ideas. This is how a culture of idea expression is cultivated and there will be a variety of ideas. I think a return to democracy which encouraging people to share different ideas is very important. Creative ideas are mainly the ideas happening outside the framework. They are not in line with the mainstream ideas of society. If we don’t suppress those whose ideas are differed, we can unlock our potential on this point.”



After having shared an idea for an overall picture at the national level, Mr. Parit has mentioned the 2nd structure by looking at the regional level, focusing on a power distribution in the region. He has given an example from the recent general election held early this year. Many political parties have highlighted the power distribution to the local areas. This is in accordance with an idea stimulation and a regional innovation. “When I travel to the provinces I have seen each province has its advantages and disadvantages. At the end, if we support the local people to have rights and power and enable them to administrate their own province, that can be a good start for an innovation creation in the region. Take for example, Khon Khan province. There is a grouping of the private sector and the young people who wanting to develop a mass public transport for Khon Khan. A smart bus is tested. What is challenging for them is the local power does not suffice, although they want to enhance it or scale up a small project to a provincial project. They must meet up with the governor who is appointed by the central government. Hence, it is very challenging to see whether they can reduce the power of the central government and increase local authorities to manage themselves.”



The third structure that should be changed is an organizational structure. Mr. Parit has suggested that the organization should support any initiatives by employees from all levels and should not be limited to only the ideas from the senior executives. “To reduce the importance of a seniority system, what we should do to enable the employees of all levels to have an opportunity to make changes within the organization? Recently, I joined an innovation event held by the Airport Authority of Thailand. There was an activity which enabling staff from each section to propose a project and how to improve their work more efficiently. One cleaner staff proposed how to make a toilet cleaner by using a behavioral economics theory. I was amazed with the outcome the cleaner showed to us. It’s a creative idea happening from a staff worker who is directly working on the issue. Thus, I think we must have a project that supports an innovation, adjust the idea from a bottom-up to the top. It must not be limited to few people in the meeting room to determine the national innovation strategies, saying what and how to be done for the innovation.

For the ideas proposed by Mr. Parit, any questions or monopoly system about the country should be changed to distribute the power and authorization to the people to make it in accordance with the concept of democracy. He has given four guidelines to support the government to create such as ambiance to outline an innovation market for the government by truly considering the majority of the people.

“First, the innovation work should not be confined only the NIA to determine measures and policy. Rather, representatives from all parties concerned, including government agencies, must be able to take part in understanding what innovation is about. Secondly, for a skill increase we must look back at the education system. It should be changed from providing knowledge to provide the students/learners with practical skills such as communication, thinking and analytical skills and caring skills. What tremendously important for innovation are thinking and imagination skills. Thirdly, a reward system to create an incentive or compensation that is in line with real values which people have made to society. In Singapore, for example, if any company using a technology to change its work efficiency to increase revenue and to expand a customer base for increasingly accessible services, the government will fund the company. An incentive creation system by the government is really crucial. Lastly, a highlight of a prototype can be an inspiration or a role model. If an organization wants to present a new innovation, the government should support or showcase it to stimulate others to use it as a model.”





Assoc. Prof. Dr. Kotom Areeya

Academic for Public Policy for
Social Problem Solving with
Peaceful Methods

Former Director of Center
for Human Rights and Peace
Studies, Mahidol University

Mandatory Innovation

Dr. Kotom Areeya who supports a harmonious cohabitation in today's society for pluralistic culture, finds that an analysis of innovation which is necessary for the country development is not merely to look at any single angle. It can be reflected through various dimensions of economic, social, cultural issues, and a wide impact that can happen to the people who is a foundation for the country.

With the government policy gearing toward an industrial development and six special businesses, comprising a health care business industry, a tourism industry, an Internet of Things (IoT) and logistics industry, medical food science industry, herbal industry and security business industry, both for military and civil servant safety industry, Dr. Kotom has said: "For innovation in these six fields, I think they are mainly focused on the business side. But a cultural innovation is not clearly shown yet. As I understand, the direction of the NIA is focused on a connection between a small and micro enterprise network and an innovation system which can be further developed for commercial research to enhance skills and to build an innovation culture. What I want to highlight is wisdom by many people. There must be a way to access it, but if it's more focused to enable the minor group of elite to access it, or to increase higher GDP through more businesses. That's another direction. I still believe in using people's wisdom. We can develop an innovation from the wisdom of majority people who are an ordinary in society.

I believes that the majority of people have a potential as innovation source, including those who want to support innovation.



Dr. Kotom has also given an importance on an innovation protection, seeing that in the field of scientific innovation and technology, an important indicator is a patent or another form of registration. For the cultural innovation, it can be different. Take for example, food, plants or the local Thai rice. It is necessary to support a patent registration or a form of geographical indicator (GI) registration. Although it may not be classified as innovation, it is no less important to protect the old innovation.

In addition, Dr. Kotom has said that a different direction for the policy to focus on commercial goal and people's benefits can bring about a different supporting policy or direction. Take for example, a case of the cannabis or ganja extraction which has now received the wide public interest. "Ordinary people may have an interest to create an innovation, but cannot do so due to a lack of specific body of knowledge just like the case of cannabis extraction for the medicinal part from ganja. If there is a policy to support a high competition, the result may be different. But if we turn to the direction which a majority of people can take part or monitor whether it is useful or harmful to health, there may be another form of operation. I raise this issue as example to show that it can result in an outcome which can probably benefit the majority of people."

For the direction which targeting the six innovation developments, Dr. Kotom is interested in a few areas, especially food industry in various dimensions. To him, this can be further developed for commercial business. He has proposed that there be additional dimensions for food security, food safety and food identity preservation. Also, there should be a value added in packaging too which can be overlap with environment conservation such as an innovation for designing a packaging from the leftovers of pineapples to enable a biological digestion. This kind of value added with social dimension is not only focused on a commercial macro-business alone, but also a direction to promote a micro-business.



When looking back to see the overall picture of the country, Dr. Kotom has analyzed advantages and disadvantages which the policy level should review for further direction for innovation promotion. “I have noticed that the Thai values and social behaviors have considered that Thai society is weak and culture is also weak, when compared to those of Korea, Japan, Singapore which are more discipline, strict and devoted. As a result, any businesses that can generate income for the country are mainly a service sector, including tourism, and generous culture and delicious food. These have caused Thailand to be problematic with the middle-income trap. The Thai people are not so much skilled with products which generating high revenues such as information technology and large retail businesses. More importantly, a high income business does not pay attention to assets and income distribution. In fact, the asset and income distribution can help many people develop and show their potentials which can facilitate high-revenue businesses in the long term. Some areas may take time. However, it’d better for Thailand to start doing now.”

Dr. Kotom believes that if the government and private sectors can strongly join hands to work with better collaboration, it can significantly help guide Thailand to an advanced development of innovation in the long term. “Use a fighting spirit to make a business survive, plus those in the government sector, especially those who have a long vision. Some issues can be radically changed whereas others may be further developed from the existing foundation. If we want to move farer than where we are now, we must have a clear direction because this is a long-term investment. The private sector must be also ready to invest. It is a long-term process to yield results. I wonder if the government is now ready for the support? Otherwise, we must look for any private companies which are already ready to support. Think carefully. It’s very risk. The government must help provide them with measures to guarantee some risks that may happen.”

Dr. Kotom has ended the dialogue with a clear vision – he believes that the majority of people have a potential as innovation source, including those who want to support innovation. “Do not tell them to be just a receiver. They can create an innovation. Eventually, the NIA must make a choice, whether it will be vertical or horizontal, or to choose the minor elite or the majority people. I still want the NIA to focus on the majority people and the culture together. We will not ignore the first group, but shouldn’t mistake only one group, and consider all groups more and more.”



รศ.ดร.สมเจตน์ ทิณพงษ์

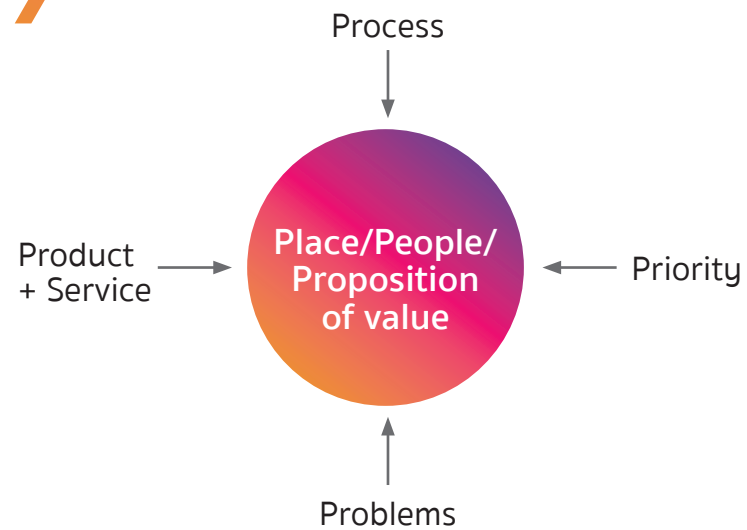
ประธานกรรมการ
สำนักงานนวัตกรรมแห่งชาติ
(2557 - 2560)

กรรมการผู้จัดการ
Dawei Development Co., Ltd. (DDC)

A Place-based Innovation

Dr. Somchet Thinapong has given an idea for a place-based innovation development by making a draft on a white paper which outlining a holistic connection of 7P's that must be operated in creating the place-based/area-based innovation. He has had this idea from a spatial development since he remained a Governor of the Industrial Estate Authority of Thailand and Executive Director of the New International Airport Authority Co Ltd and also former Board Chairman of the National Innovation Agency (2014-2017)

Area based Innovation



From a center of the model it has shown that people are a target for an area because they are one of the stakeholders for the whole area, which must also be designed with proposition of value that can be transferred to people of all parties concerned. The proposition of values should be focused on a sustainable value system with the following five elements:

“Firstly, that area must be useful for economics equilibrium that can be used to reduce social disparity and not to be used to facilitate the minor elite group because the government is not a corporate company. It must have an economic value to help improve the livelihood of the poor. Secondly, there must be environmental value. Thirdly, it is a potential for equitability distribution. Fourthly, it is a value for education system, followed by a focus on the ethics as the fifth element. Any area which containing these 5E’s composition can be regarded as a valuable and target creation of area-based innovation.

If the concepts are made in the same direction with work, products, services and processes in its administration, priority arrangement and problem solving, we can plan a strategy for the place-based development by focusing on people and sustainable value creation, including innovation creation with a value creation model.

“Before I have heard about the Eastern Economic Corridor (EEC) development project, I was in the process of planning a strategy for how to create the place-based innovation development in the Eastern Seaboard which I used to be responsible for 10 years. I have also thought of how to make a connection between the EEC and the Western Economic Corridor, starting from the west of Dawei in Myanmar through Kanchanaburi to Suvarnabhumi and then to Chachoengsao, Chon Buri, Rayong, Chantaburi, Trad and Cambodia and Vietnam

VCM (Value Creation Map) Innovating thru strategic questions of what ??? (aligning with your Innovation Strategy)

1. What is the "HVC" of your Products & Services ? Identity: Value Chain <ul style="list-style-type: none"> • High Value impact? (HVI) • Newness • Innovativeness • Differentiation • Strange • Paradox • Growth from your I & D ? <p><i>*HVC: High Value Creation</i></p>	3. What does Competitive Landscape look like? (Product, Services) <ul style="list-style-type: none"> • Analysis 5 competitive forces • What are your competitive advantage? • How do your leverage your product or services 	5. Strategy Operandi : Covers 3C-Connectum Cluster : Make cluster analysis and ask What do you stand on value system and value chain? Collaborators : Who are they to collaborate with?; Who do that? Co-Creators : Which ways they do and "How"? <ul style="list-style-type: none"> • On your part; What your SWOT and your specific strength? • Connect VS Collect • Inno OT 	7. What your Delivery Channels for your products? logistics <ul style="list-style-type: none"> • Who/Where to display or distribute products
2. What is the value proposition in view of users? <ul style="list-style-type: none"> • What are the value you deliver to user along value chain? • Can you make quantitative value ratio analysis? 	6.1 At what Financial Costs: (quantify cost breakdown) <ul style="list-style-type: none"> • Hardware • Software • Humanware • Capex/Opex/Cash/ROA • Contract out amount 	6.2 What your Financial Return you get? <ul style="list-style-type: none"> • Do you have return or recognition; in what money value? (Quantitatively) • Worth or Revenue (Money) 	8. What yours maket strategy & structure, customer segments or <ul style="list-style-type: none"> • Who are your customer, stakeholders & how many? • You must draw market strategy map • What your overall management structure look ? • How you sales? e-market platforms (Market Public)
10. Social Costs (Also inkind)	11. Social Benefits (Also inkind) (Quantify Social Benefit by Social Impact Analysis)	12. SROI (Social Return on Investment)	

That time we were invited by many agencies such as Geo-Informatics and Space Technology Development Agency (Public Organization) - GIST-DA), the Industrial Estate Authority of Thailand, the Designated Areas for Sustainable Tourism Administration (Public Organization) and Rayong to work with the NIA as host to create innovation which covering the technological development to drive "ASEAN Innovative Economy Mapping" by these agencies. We had discussed for over a year before we heard about the government's EEC."

There is a plan for an Internet of Things (IoT) platform in each target area to facilitate an eco-innovation system in building various products and to create values for the stakeholders in all sectors in the long term. This is a crucial process.

These key concepts can be applied with the place-based innovation in various aspects from a large-sized to a medium-sized area in the city, and to a small-sized area in a shopping mall which currently being filled with a variety of innovative spaces or co-working spaces at a level of small spaces. But whatever type of areas, we must target a key principle – a development based on human values and spaces, not technology. Then, we can additionally build creative innovation to help drive it. The NIA has always focused on this concept and drafted a strategy for the place-based innovation in many aspects. These include the Medical Innovation at Yothee District or the Food Innovation District. Dr. Somchet has shared some perspectives to the policy makers:

"Human is born to create values, especially a value for life. This is different from a price value or something that is important which is used as the word "worth," but it is only for a living. Thus "innovation" is to enable creative ideas to become valuable which is truly a value for human being."



A portrait of Karn Trakoonhun, a middle-aged man with dark hair, wearing a dark blue suit, white shirt, and a yellow tie with small dark spots. He is seated and looking slightly to the right of the camera with a neutral expression. The background is a plain, light-colored wall. A large, semi-transparent graphic overlay in shades of purple, orange, and red is positioned in the lower-left and bottom-center of the image, containing text.

Karn Trakoonhun

Director and Chairman of Board Members
of the Siam Cement Group (Public Company)

A decorative graphic element consisting of a diagonal line that transitions from orange at the top to red at the bottom, located in the upper right corner of the page.

Entrepreneurship and Innovative Enterprise

“I believe in the future Thailand will become a developed country. We will be able to resolve a social disparity with

innovation. The innovation development can be a guiding light for our country. We must actively move forward, although there remain some obstacles. But both the government and the private sectors must be open, speak with each other and join hands to resolve the problems. It’s not possible that only one of them does it. If working together, they can bring about the ultimate benefits for the country.”

During the period when Mr. Karn Trakoonhun has remained SCG Managing Director, he has had a commitment to make SCG a leading organization for innovations. It is evidently showed that SCG has given an importance on a budget allocation for a research and development (R&D). The budget was raised from 40 million baht in 2004 to 4,000 million baht in 2018. This budget was aimed at promoting high value-added products and services (HVA) which resulting in higher incomes from the HVA products. The company’s income was raised from 7,700 million baht in 2004 to be 180,000 million baht in 2018, and generated financial benefits to SCG for more than 10,000 million per year. The R&D innovation has strengthened technological development for SCG. This is a clear evidence how the innovation development has provided a bright solution, both at the organizational and national levels.

The government has started to see the importance of the private sector and will not control them that much. That's not a right mindset. I am with the private sector, but I am not talking for the benefits of the sector. The private sector also must be fair with the government.



Over the past few years the government's policy has increasingly supported more research investment. Thus the private sector has taken radical action by allocating a huge budget for the research investment, shifting from 20,000 million baht to 120,000 million baht. Thus the national R&D (from both the government and private sector) has significantly been increased from 0.2% of the GDP to 1% of GDP in 2017. However, a ratio for the R&D from corporate companies and SMEs has not much been increased. The government has still focused on a strategy to invest in the people and a suitable eco-innovation system to cultivate and create innovators and innovation enterprise. This must be started from education institutes which must be adjusted with changes, both for the study curriculum and lecturers' roles.

Now the government has readjusted a higher education with new courses that are likely to be increased in the education institutes in the future. It is called a multidisciplinary course which focusing on a self-learning. For startups and entrepreneurship, students must take a more well-rounded learning style which teaching how to do a business by themselves. There will also be financial angles for them to have an experience, not merely a four-year theory. The education institutes must be pro-active to help construct innovation enterprises in the country. There should be a policy determination for lecturers to have an indicator to help entrepreneurs, especially the SMEs. Take for example, how many hours to be spent for their teaching time for primary skills and engineering standards to help the entrepreneurs reduce expenditures and to help the factory owners to manage its business better. It can be for a process to reduce steps in processing system or power consumption. Meanwhile there should be an information collection that can be made for an in-depth development for innovations or HVA products. Thus university lecturers, PhD's and Master Degree's students must reach out to support this.



In addition, the government should consider some flexible factors in the eco-innovation system that can help support innovators and innovation enterprises which have increasingly gained a momentum for a deep tech investment. Mr. Karn has shared some perspectives that currently an investment in deep tech comes from a medium-sized or a large-sized organization whose ratio for investment is raised satisfactorily. But what has limited it is a variety of processes which have to be dealt with the government sector should be more flexible. The processes should be made less complicated and based on a foundation of giving and taking to support each other much more like a joint collaboration between the government and private sectors.

“Before when we do a R&D project and if we have to have a tax refund from the government we must do it through the National Science and Technology Development Agency (NSTDA) to review the project. If the process is very much delayed, the private sector will not want to invest in it. Now there is a new rule called a self-declare, which is questioned by the government sector involved how transparent the new regulation will be. I have commented that it is better not to control the private sector too much. Those private agencies which have done everything and every process rightly should be given the rights for a tax refund. Details are written in the documents. Thus the government sector should be more supportive and increasingly create an environment facilitating the R&D.”

“If we follow this path, the government and private sector can engage with each other and it will bring about better connection. The government has started to see the importance of the private sector and will not control them that much. That’s not a right mindset. I am with the private sector, but I am not talking for the benefits of the sector. The private sector also must be fair with the government. We all must pay for tax, a changing mindset to do something not suitable such as an avoidance of tax or others are should not happen. If it has happened, there must be a fierce punishment.”

Thus to promote a better environment for a creation of innovation and innovation enterprises, according to Mr. Karn, the policy must be supportive to facilitate and provide the private sector with a suitable eco-innovation system, especially for the R&D and a fully digitalized transformation. As for the support from the government sector, it is necessary to have clear goals in parallel with sustainable development. The private sector must respect and follow the rules and regulations and pay tax for the great benefits of the country. This is like the only choice for Thailand to move across the middle-income trap to a developed country.



A portrait of Dr. Sak Sekkhoontod, a middle-aged man with glasses, wearing a black t-shirt and a watch, sitting in an orange chair. The background is a blurred office setting with blue lighting. A large, semi-transparent orange and red graphic element is overlaid on the bottom left of the image.

Dr. Sak Sekkhoontod

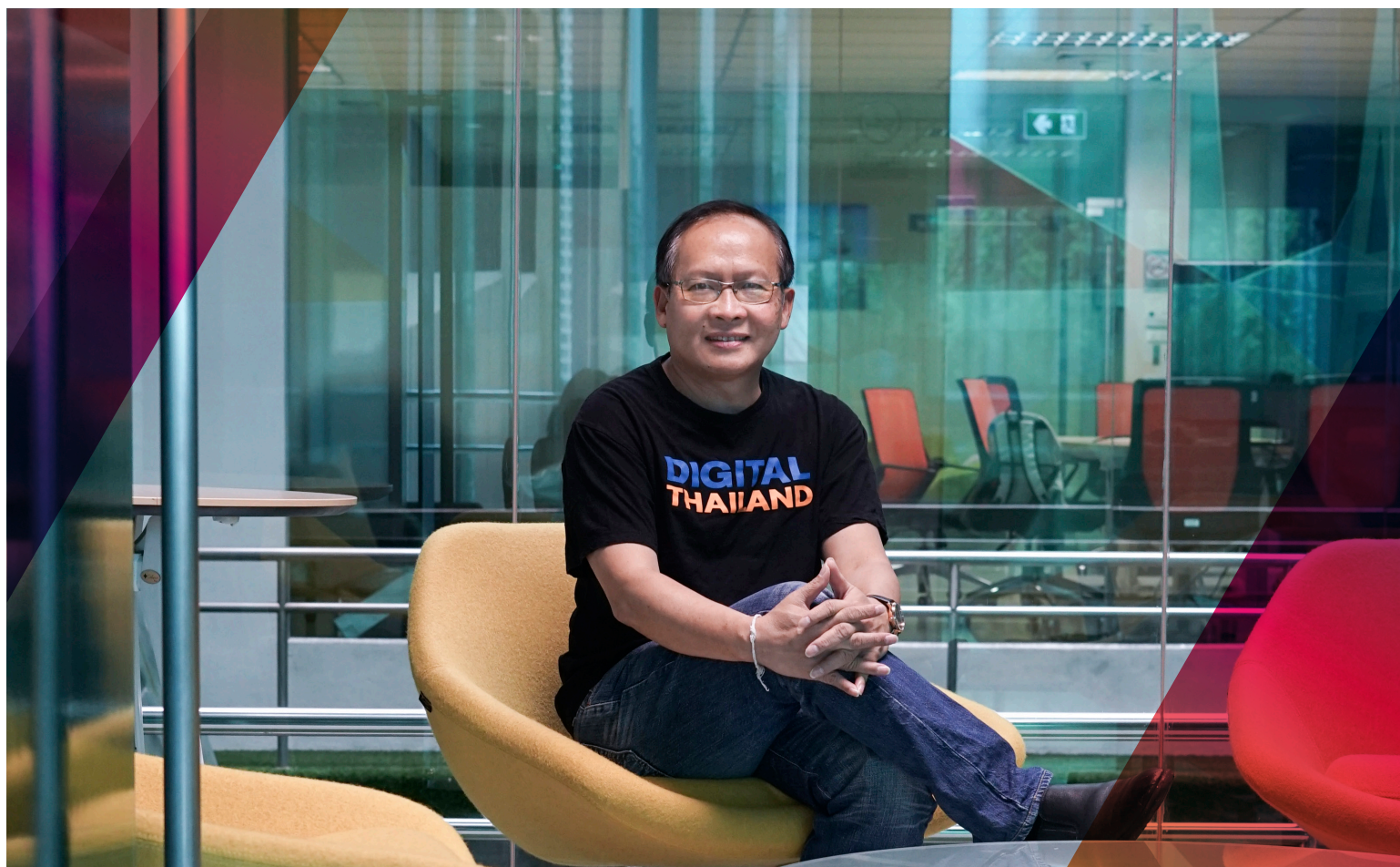
Former Executive Director of the Digital Government Development Agency (Public Organization)



Data-Driven Innovation

From his experience as Former Executive Director of the Digital Government Development Agency or DGA (Public Organization), Dr. Sak Sekkhoontod was responsible for open data since 2014. Back then Thailand was not so much aware of the data standard as today. We have attempted to push for an e-government and an open data to leverage new innovations in the Thai society, especially a data-driven innovation. From then until now, Dr. Sak has set out a trend to drive the issue forward and what direction we should move to, what the limitation and opportunities are that can reflect a movement at the policy level.

“An open data can be fully beneficial to the public and enable them to see it in two dimensions: 1) a transparency which the public will know what the government is doing, what a procurement process is made and what information is available and 2) a further development of the information for innovation and a new business. Thus, a principle of open data is to create and share it through a new form that can be easily used with no expenses, and is freely open for further development.”



In addition to an open data, Dr. Sak has said in details about how to apply the data to be used more efficiently, giving an example of when he was a Former Executive Director of DGA the data about more than 70,000 - 80,000 government location was open to the public who found it very beneficial for further use. If any additional information will be included such as what kinds of services are and what contact numbers are, the information can be further developed and enabled a variety of innovation works to be made and beneficial to the public, programmers and companies interested in innovation business. A leverage of open data is equal to a creation of eco-innovation system to stimulate an advanced data-driven innovation.

If we can create the data literacy - that is a user knows how to use it, and the data governance - which the government creates the accurate data and it can be monitored, there will be a good circle of sharing and receiving the accurate data.

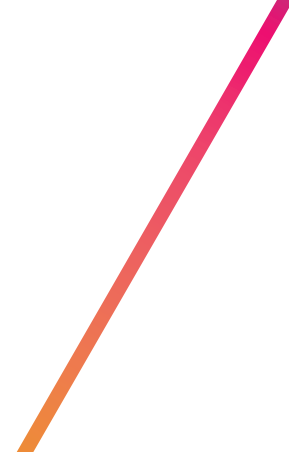
Another level of a useful open data is the application programming interface (API) information. An example of this real-time data is an enforcement use of GPS installation on all public vans with an open data system being developed for the public to check it by the Department of Land Transport. Dr. Sak has viewed that this open data will become really useful for the safety and the living of the general public. Then, it can be further developed for an innovation. Take for example, an application development for safety check-up for the public's children who must travel by a public van. In foreign countries, the open data for public use is several times much higher than that of Thailand. If DGA has openly shared a few thousands of data, it can be about 20,000 in the UK and over 100,000 in the U.S.A.

However, among the influx of such an open data, it is necessary to be more concerned about the good governance too. Dr. Sak has explained the point, saying: "We must be careful and confident that the open data is accurate, modernized and can be really applied for further development. Take for example, when the Department of Pollution Control has shared the information about PM. 2.5 the general public does not know what the policy for this PM 2.5 data is and what the green and red colors mentioned in the data are about. Thus, when the information has been compared with other websites there is a difference way for data explanation. It is not wrong, but it depends on what condition is used in providing the data explanation. As a result, the government must create a standard called a "data governance" to ensure that the open data is accurate and correct, and cannot be used for different definition or explanation that can confuse the public.



From the data governance issue, Dr. Sak has linked it to an enhancement of the open data for application beyond the data innovation. It is a “data literacy” for the Thai people which meaning that users must be knowledgeable and selective to use the data for the real benefits. Take for example, most agencies have kept a statistic data about the casualties on the roads during the Songkran holidays. What has often happened is the data shared by each agency is not accurate. It is necessary to cross check it before applying the data for further use. This is a data literacy. The data can be further developed for innovation creation that is not risky for any mistakes.

“If we can create the data literacy - that is a user knows how to use it, and the data governance – which the government creates the accurate data and it can be monitored, there will be a good circle of sharing and receiving the accurate data. It will bring about an inter-relation between users and creators. At the end we will have the accurate data for use. This is a data stakeholder or a value chain of data. We must make it happen because the value chain of data will improve the use of data. The last stage is for the authorities at the policy level. They must learn how to make a decision based on the data and apply it for use more widely.”



For recommendations to further develop the open data, Dr. Sak has shared a useful opinion for both the general public and the government agencies involved that “What can we do to create a data community and how? This can be done by enabling users to have a mechanism to inform the government what kind of data must be open for use and how to do it. Or if the private sector can access the data, create a data community and share their experience in data analysis for a public use, not individual data, or if a new software testing with a limitation scope for individual data which is called sand box, this will be very useful too. In the future, there may be a genome scan. This kind of mechanism, I think, the NIA can help create it for use. It can help create many new ideas and be further developed.”





Mr. Paron Israsena Na Ayudhya

Former Director of Sasin Graduate Institute of Business Administration of Chulalongkorn University

Founder and Director of Darunsikkhalai School for Innovative Learning, King Mongkut's University of Technology, Thonburi

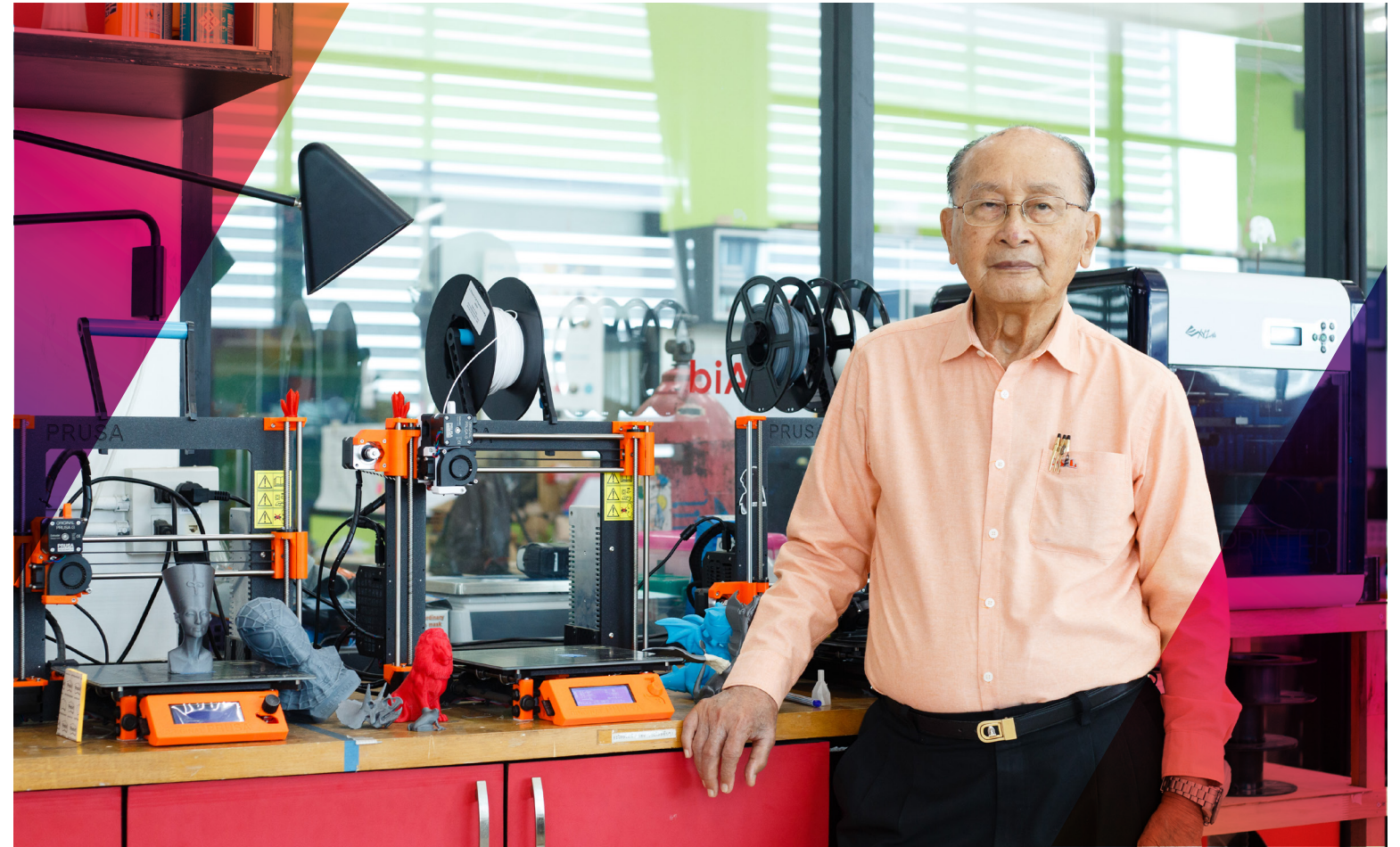
Internal Entrepreneurship/ Innovation Leadership

“An education organization must be made to develop Thai people to become a well-rounded human, not an individual

innovator who cannot communicate with others. If a senior person behaves to younger people as a friend and communicate with them casually, a pattern of innovation in society can happen more easily.”

For Mr. Paron, a vision about an innovator creation for a development of innovation leadership is to focus on education. This is crucial for a human development, both intellectually and ethically, as a human being. He finds that the education is a key element for any new innovative creation. With long-year of experiences as a former senior executive of leading corporate companies of Thailand, and a devoted person for human development, Mr. Paron has emphasized a strong foundation to nurture an innovator – a cultivation of a lifelong learning process. He has always considered this lifelong learning as a key principle for the establishment and administration of Darunsikkhalai School for Innovative Learning.

If the government has not highlighted the education and human resource as a national agenda, I believe, Thailand will not be able to create so many innovators to help develop the Thai people to compete with other countries.



As a committed educator, Mr. Paron established Darunsikkhalai in 2000 after he had retired for a while. He has an intention to create it as a “School for Innovation Learning” or a prototype for a “differentiated” study and learning from the old pattern and to promote innovation by applying a theory of “creative learning with constructionism” from a famous research made by Professor Seymour Papert of Media Lab at MIT to be fully used for the Thai geo-society. As the school has been managed, it has completely corresponded to the National Education Act 1999, in particular an educational organization as a lifelong learning process for the general public. Its key principle is all learners are capable for learning and self-development. The learners are the most important. A process for an education organization must promote all learners to be able to develop naturally and with their full potentials by considering a difference among individual persons.

“You and I are also different. If we are forced to think the same or do anything the same, it’s also against the nature of us as a person,” Mr. Paron said, mentioning the fundamental principles of Darunsikkhalai is to support a creation of innovators since young. Hence, activities that cultivate a learning process at the school are derived from a real experience in learning. The learners are taught to think and do new things. This helps stimulates their curiosity for continuing to learn throughout their life because of their “passion for learning” to continue to build innovation with their own interest. They are not forced to do it. This kind of qualification is necessary for innovators and can move to be an innovative leader at an organization level and other dimensions which have a beneficial impact on the Thai society sustainably.



“Principles in building innovation are the same principle for a learning theory of constructionism creativity. An innovation comes from an innovator. An innovator may be a grandfather or a grandmother anywhere or ordinary people. But this kind of innovation may not last that long, be sustainable and modernized enough. An innovator must be trained and modernized, knowing how to apply technology to a learning method. This school has used a project-based learning for children and allows them to learn by practices, integrated with technology, academic, art and culture, Thai values and morals and ethics. When the students finish the 6th grade they will have as good the English language skills as the Thai language through a natural language learning which consisting of the advanced listening, speaking, reading, writing and grammar accordingly. This is our vision to educate a Thai child to grow up as a good citizen for both Thailand and the world community and be capable of maintaining the Thai values too.”

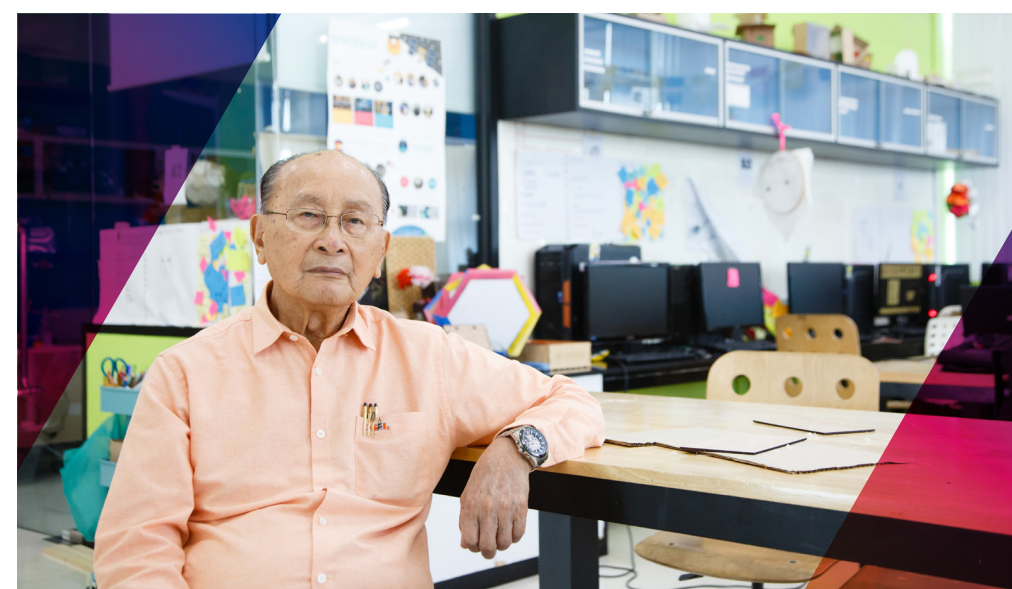
The founder of Darunsikkhalai has also compared the importance of education and human resource development with those of two other Asian countries: Singapore and China. Their governments have emphasized the importance of people development with education, just like “to educate their people to build the nation.” This has resulted in a sophisticated and concrete innovation with clear success. It is all about a national strategy

which Thailand should learn and apply it for the Thai society. “They have highlighted the importance of education because those people who are educated can later help develop the nation with a lot of new innovations. Take for example, Shanghai in China. When you arrive at the airport and take a train you can reach the center of Shanghai directly. There is a very good city plan. Shanghai can very well compete with New York. This is how China has educated its people to help build the nation”.

With a commitment to a holistic learning Darunsikkhalai has not given an importance on a sophisticated technology alone, but has also integrated a ‘head, hand, heart’ principle into its learning system. The head and hand parts are an additional academic skill with a lab learning process and modernized tools such as a laser cutter and 3D printer which facilitating the learners to practice and create some innovative stuff. The heart part is about mentality, morality, ethics, inner disciplinary and sympathy. These must be nurtured for learners of all ages through trainings for both learners and teachers at a homeroom section in the morning before a class starts.

Thus a creation of innovators who are growing to become a leader in innovation in the future is not that easy and requires a lifelong learning process throughout their life. Just like what Mr. Paron has reflected to the strategy planners at the national level and the Thai society, saying:

“If the government has not highlighted the education and human resource as a national agenda, I believe, Thailand will not be able to create so many innovators to help develop the Thai people to compete with other countries. More importantly, if without an innovator, how can we expect to have an innovation.”





Dr. Weerapong Paesuwan

Chairman of Executive
Directors of the National
Innovation Agency

Rector of Suranaree
Technology University (STU)

Paradigm Innovation

With an experience as former Permanent Secretary of the Ministry of Science and Technology and a body of knowledge on education service as Rector of Suranaree Technology University, including his sharp vision for working at the policy level as the Chairman of NIA's Executive Directors, these have enabled Dr. Weerapong Paesuwan to analyze the direction of paradigm innovation in various dimensions. This can be seen at the level of government sector, the private sector, research sector, social and environmental sectors, in particular the context of the NIA to be a system integrator to help move Thailand toward an innovation nation at all sectors.

The NIA Chairman has given a definition of the “paradigm innovation” as a change of fundamental concept for an organization in its operation. It should be changed by using a mental model with commitment to create innovation that changing conceptual framework at various levels, ranging from an incremental innovation that have a development, an improvement and a procedure of existing services to a radically absolute change which is called a radical innovation.

He has raised an example of the NIA's former concepts to develop an innovation based on a linear model by focusing on the use of research from a supply side which is a research base and further develop it from an education. Currently, this is changed to a new innovation model – a procedure to focus on the linkage of knowledge flow, which leading to innovation and emphasizing the issue of problem solving and market. By doing so, the innovation development will be transferred to a demand side or users, no matter it is for a startup, SMEs, medium- or large-sized companies, including space, organization, communities and individuals.



We must join hands to build the innovation nation as the same picture and create a pathway for growth to enable the entrepreneurs to start walking from the upstream to the downstream.

This kind of paradigm shift can create non-linear innovation – a context which is in line with the nature in forming innovation. That is a stimulation to create a joint collaboration for all agencies involved in the eco-innovation system. It is considered as a starting point for a multi-point innovation, which is not limited only to research work. Rather, the new ideas should also come from the public and ready-made technology that can help develop marketing questions or a collaboration of both the government and private sectors by having a common goal to increase value chain. In this case Thailand can enhance its competitiveness capacity by using innovation as important tool for the drive.

In addition to adjusting the basic infrastructure of the eco-innovation system to serve both demands and supplies, Dr. Weerapong has further analyzed that the suitable directions for an adjustment of the national paradigm in moving forward together, by emphasizing the mindset framework which needs to be rebuilt. This is because all sectors, including the government and private sectors, universities, research and social sectors, which have so far played a part in creating an innovation, still have a mindset for innovation creation which is not in line with the new paradigm. Take for example, a research work at a university. The research has always limited the conceptual framework to only further develop an academic research. There is no clear goal for a further development toward a creative innovation that directly serves the market requirements. Or in the private sector, there is a mindset that an efficient innovation must be imported only. There remain a few potential way-outs for either a research funding by the government to develop an innovation or a creation of innovation reward for researchers at an educational institute like an incentive through a reward or compensation. This is for a paradigm shift toward an efficient creation of innovation. If the mindset has remained unchanged, an innovation model cannot be changed. As a result, the innovation procedure cannot be altered either.



In addition, the NIA Chairman has emphasized a paradigm shift for a cultural dissemination in the region as regionalization paradigm shift to offer an opportunity for new researchers in the region. This aims at applying locally intellectual knowledge with potentials to create an innovation. At present, the NIA has made a strategy to support social innovation, seeing that this paradigm can create sustainability and reduce disparity in the Thai society. Dr. Weerapong has indicated that a market share's ratio between the big entrepreneurs and the small entrepreneurs are significantly different. The big ones have received a big market share in Thailand for about 80-90% whereas the small entrepreneurs such as the SMEs in every region nationwide have a limited and less progress business circle. At the beginning, the SMEs may have some profits, but later they cannot make any profits due to the fluctuating market. Then these SMEs have turned to start a new business without stability and progress in the business.

To enable the small entrepreneurs to be free from this problematic circle, it is necessary to let an innovation lead the business. The government sector must adjust all the strategic paradigm by turning to support innovation, both in the manufacturing process, the product development and the business model that is suitable. Besides, there must be an eco-innovation system which facilitating the general entrepreneurs to gain access to innovation, and being capable of seeking further collaboration from all sectors involved practically. This kind of adjusted paradigm strategy can help lay a strong foundation for the sustainable innovation nation.

The emphasis on the paradigm innovation by the NIA with efforts to respond to global changes in the 21st century has also been reflected through an establishment of the new ministry called the “Ministry of Higher Education, Science, Research and Innovation or MHESRI. This is seen as a transformation of the national innovation for the future and a commitment to create a paradigm shift of the whole people in the system. Dr. Weerapong has made a point with hope: “We must join hands to build the innovation nation as the same picture and create a pathway for growth to enable the entrepreneurs to start walking from the upstream to the downstream. An innovation shift with the national paradigm has remained a hope for people in society which we must jointly create it.”



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