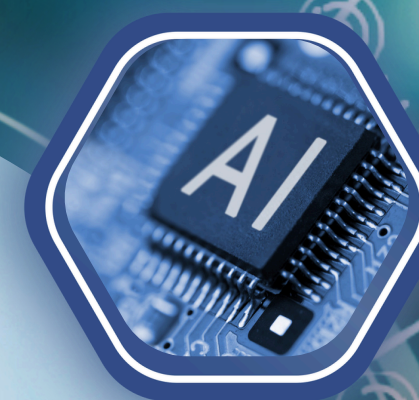




Program Management Unit for Competitiveness (PMUC)



ASSOC.PROF. DR. GANDA BOONSOThONSATIT

Director of the Program Management
Unit for Competitiveness (PMUC)



Structure of Thailand's Science, Research, and Innovation (SRI) System

Policy

National Higher Education, Science, Research and Innovation Policy Council
 Office of National Higher Education, Science, Research and Innovation Policy Council

Policy execution & budget allocation

The Committee for the Promotion of Science, Research and Innovation (COSCI)
 National Science, Research and Innovation Fund (NSRF)
 Thailand Science Research and Innovation (TSRI)

Manage and administer funds

Funding Agencies & Program Management Units (PMUs)

Operation

Higher Education Institution
 Organizations and agencies both within and outside the Science, Research, and Innovation (SRI) System under the Ministry of Higher Education, Science, Research and Innovation (MHESI)

Beneficiaries

Thai citizens Thai Private Sectors The Policy and Government Sectors

Strategies of the Higher Education, Science, Research, and Innovation (HESRI) Plan, 2023 - 2027

S1 Developing the Thai economy with a value-creating and creative economy to be competitive and sustainably self-reliant, ready for the future, by using science, research, and innovation.



S2 To elevate society and the environment for sustainable development, capable of solving challenges and adapting to dynamic global changes through the use of science, research, and innovation.



S3 The development of cutting-edge and advanced frontier science, technology, research, and innovation to create new opportunities and ensure the nation's future readiness.




S4 Developing human resources and institutions in science, research, and innovation to serve as a driving base for the nation's rapid (leapfrogging) and sustainable economic and social development, through the use of research and innovation strategies.



PMUC was established in 2019 by a resolution of the Higher Education, Science, Research and Innovation Policy Council (NXPO), and pursuant to the Regulation of the Steering Committee of the NXPO, with the main objective being:


1. Allocate funding /grants for research and innovation that addresses economic and social needs.



2. Allocate funding to drive technology transfer and commercial utilization.



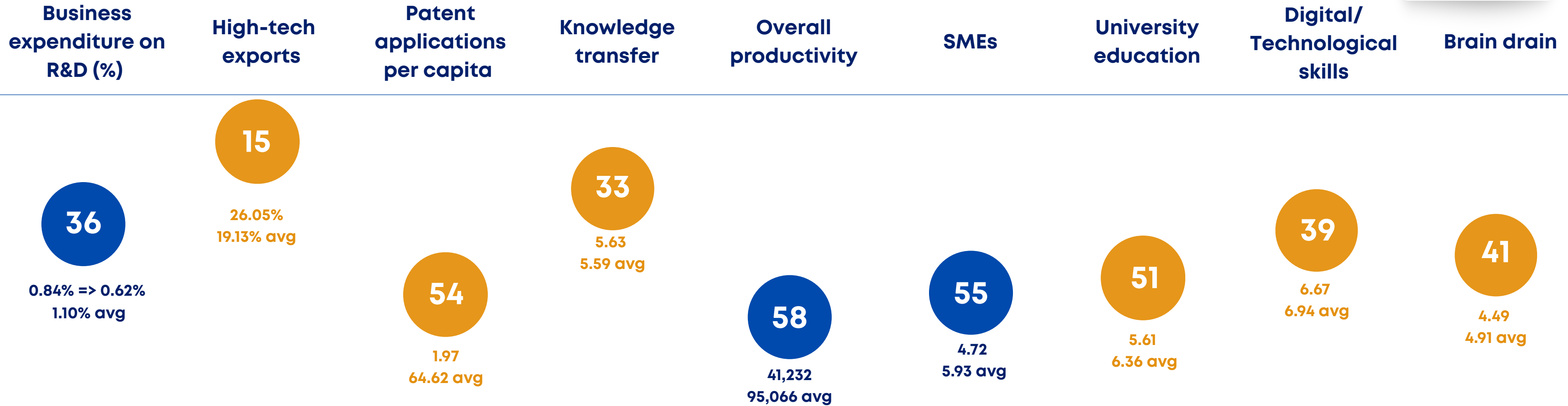
3. Fund the development of the National Quality Infrastructure (NQI) to ensure products and services meet global standards.



4. Promote co-investment with the private sector and direct beneficiaries.



+0.75	-1.80	-0.65
-1.98	+9.48	+7.38
+3.39	+3.39	-12.45
-4.02	+61.38	-5.77
+0.88	+21.98	+4.19
-1.80	+7.94	-2.00
+20.92	+61.38	+9.88
-8.44	-1.98	+7.94



[1] Percentage of GDP [2] Percentage of manufactured exports [3] Number of applications filed by applicant's origin, per 100,000 inhabitants
 [4] Knowledge transfer is highly developed between companies and universities [5] Estimates: GDP (PPP) per person employed, US\$
 [6] SMEs are efficient by international standards [7] University education meets the needs of a competitive economy
 [8] Digital/Technological skills are readily available [9] does not hinder competitiveness in your economy

Business R&D Investment Crisis
 Lack of confidence in the innovation ecosystem.

High-tech Export Paradox
 They are merely "contract manufacturers" and are unable to translate research into standardized and commercially ready innovation.

Human Capital Crisis
 The quality of education does not meet market demands, leading to the loss of talented personnel.

Productivity & SME Efficiency
 Unable to utilize innovation to enhance efficiency and productivity, resulting in a lack of global competitiveness.

From Now on **In the Future**

Research to Market Gap :

Research projects below TRL4 are not ready for use.

Demand Mismatch :

Innovation does not meet market demands.

Ecosystem Fragmentation :

Fragmented innovation ecosystem with a lack of linkage.

Lack of standardization and credibility :

Laboratories do not comply with international standards.

TRL 4+ :

Research projects at TRL4+ are ready for use.

Commercial Impact :

High-value innovation that is marketable and scalable.

Innovation Ecosystem :

Strong ecosystem.

NQI :

Laboratories are internationally certified.



VISION STATEMENT

"To drive Thailand toward an **innovation-based economy by utilizing ready-to-use research and innovation funding (TRL 4+)**, generating commercial impact, elevating Thai standards to an international level, and enhancing national competitiveness."



STRATEGIC DIRECTIONS

TRL 4+

Drive the project toward

Prototype & Commercialization



Commercial Impact

Establish a One-stop Platform & Innovation Market (Digital Ecosystem).



NQI

Elevate laboratories to international standards.



Competitiveness

Establish Thailand's Competitiveness Partnership

Measure performance/ impact using KII (Co-investment, Economic Value, Certified Labs, IDEs).



GOAL

3 to 5 years



≥ 3.9
times
Economic Value

$\geq 15\%$
Co-investment
(In-cash)

$\geq 50\%$
IDEs

$\geq 50\%$
Certified Labs

The TRL range eligible for PMUC

TECHNOLOGY READINESS LEVEL (TRL)

TRL 1

Transforming concepts into research frameworks.



TRL 2

Studying and analyzing products for development.



TRL 3

Initial Laboratory-Scale Testing



TRL 4

Develop prototype and validate specs for statistical and commercial viability.



TRL 7

Conducting real-world testing with actual end-users in an uncontrolled market environment to identify flaws and iterate based on user feedback.



TRL 5

Implementing small-scale laboratory testing under simulated environments to ensure performance meets expected outcomes.



TRL 8

Moving to industrial-scale production and full-scale operational testing to achieve user confidence and quality assurance.



TRL 6

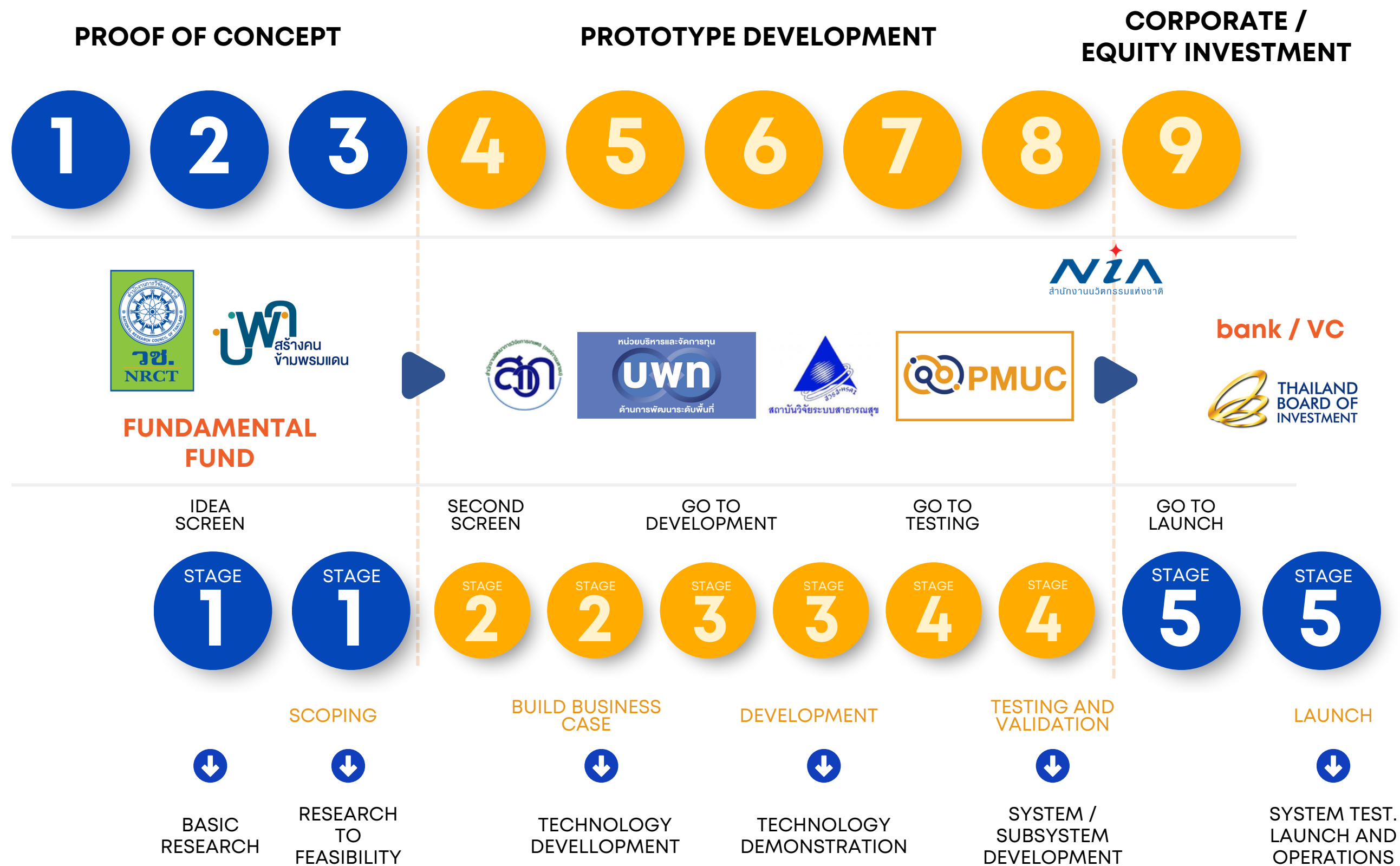
Scaling up testing with increased variables in a simulated operational environment, while monitoring and controlling key success and failure factors.



TRL 9

Post-launch monitoring and continuous product deployment to ensure long-term reliability, with a feedback loop for final refinements and optimization.

Research



Industrial

FUNDING AREAS 2569

Primary Programs

Tourism and Creative Economy

Health and medicine

Functional Ingredient and High Valued Agricultural Products and Health Foods

Circular Economy

Bioenergy, Biochemicals and Biomaterials

Digital and Semiconductors

future mobility Logistic and railway

Logistic

Enabling Programs

National Quality Infrastructure (NQI)

Innovation Driven Enterprise (IDE)

Global Partnership



Tourism and Creative Economy

Increasing the sales value of creative economy goods and services through the application of research, knowledge, technology, and innovation

(Target: 1,000 million THB between 2023 - 2027)



Health and Medicine

- Increasing the sales value of Advanced Therapy Medicinal Products (ATMPs) and biopharmaceuticals developed and produced in Thailand to meet international standards, driven by research, technology, and innovation (Target: 2,000 million THB, 2023-2027).
- Boosting the sales value of Thai-developed and produced medicines and herbal extracts through the application of research, knowledge, and innovation (Target: 500 million THB, 2023-2027).



Functional Ingredient and High Valued Agricultural Products and Health Foods

Increasing the sales and export value of Functional Ingredients, Functional Food, and Novel Food derived from domestic agricultural raw materials, through the application of research, knowledge, technology, and innovation (Target: 2,500 million THB, 2023-2027).



Circular Economy

Driving Thailand toward an innovation-based economy by scaling TRL 4-9 research into commercial success across key sectors, targeting over 6,350 Million THB in total economic impact by 2027.

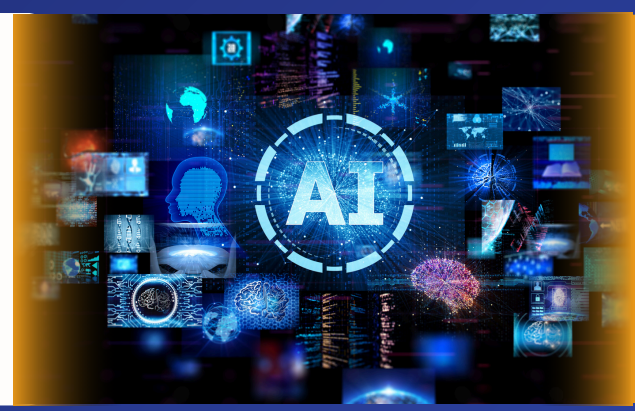
Bioenergy, Biochemicals and Biomaterials

- Bio-based Products Increasing the sales value of bio-based products derived from domestic agricultural raw materials or production/consumption waste, while reducing greenhouse gas emissions through the application of research, knowledge, technology, and innovation. (Target: 420 Million THB, 2023–2027)
- Clean and Renewable Energy Increasing the production value of clean, renewable, and bio-energy by domestic operators, while reducing greenhouse gas emissions through the application of research, knowledge, technology, and innovation. (Target: 400 Million THB, 2023–2027)



Digital and Semiconductors

Increasing the sales value of digital technology products and services, including Artificial Intelligence (AI), Smart Electronics, Robotics, and Automation—developed or enhanced domestically—through the application of research, knowledge, technology, and innovation. (Target: 1,000 Million THB, 2023–2027)



Future Mobility and Rail Systems

- Electric Vehicles (EV) & Battery Technology Increasing the sales value of batteries, key components, and related electric vehicle technologies through the application of research, knowledge, technology, and innovation. (Target: 2,750 Million THB, 2023–2027)
- Rail Industry Increasing the sales value of domestically produced rail system components through the application of research, knowledge, technology, and innovation. (Target: 4,000 Million THB, 2023–2027)



Logistic

Reducing the logistics costs of domestic operators through the application of research, knowledge, technology, and innovation. (Target: 1,000 Million THB cost reduction, 2023–2027)



Enabling Programs

Innovation Driven Enterprise (IDEs)

- Large-Scale IDE Development Increasing the number of large-scale Innovation-Driven Enterprises (IDEs) with annual revenues of at least 1,000 million THB, through the application of research, knowledge, technology, and innovation. (Target: 12 Enterprises, 2023–2027)
- SME Transformation into IDEs Generating revenue from SMEs that have been developed into Innovation-Driven Enterprises (IDEs) through the application of research, knowledge, technology, and innovation. (Target: 47,500 Million THB, 2023–2027)

Global partnership

- The number of collaborative networks involving higher education institutes, research centers, government agencies, and the private sector or civil society that are members of international Science, Research, and Innovation (SRI) networks and have active joint projects with those networks. (Target: 180 Networks, 2023–2027)

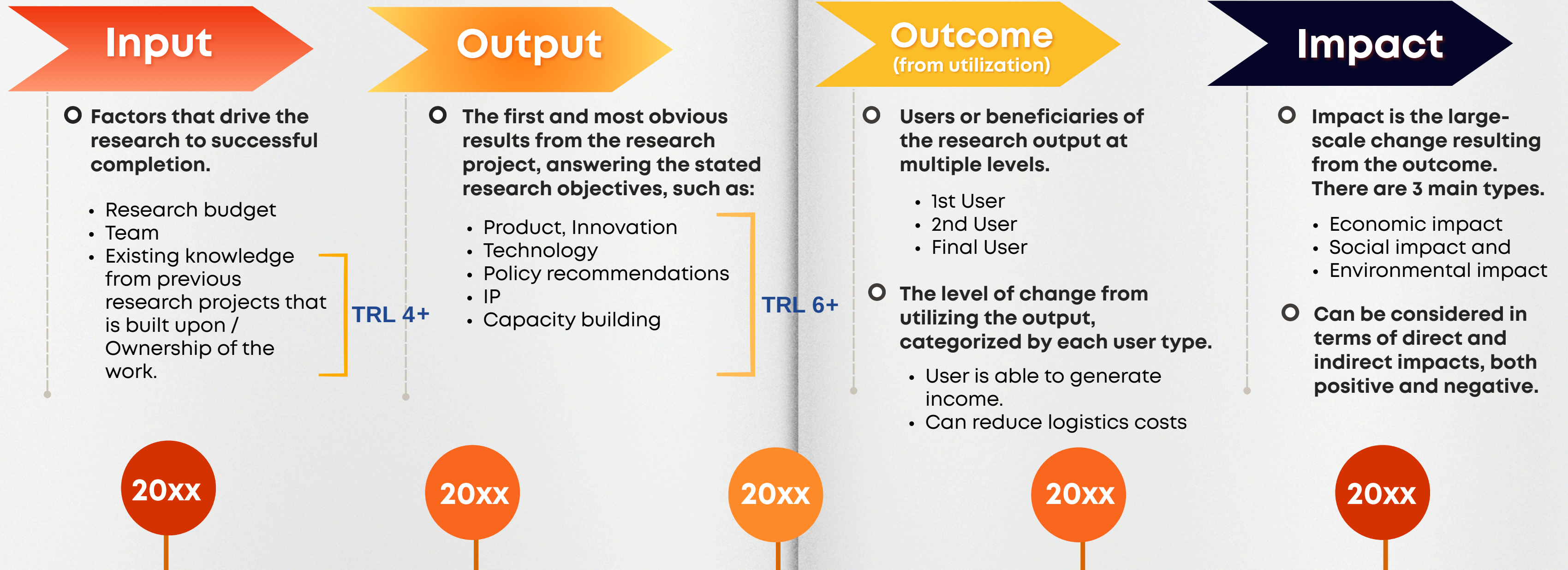
National Quality Infrastructure (NQI)

- The number of newly established, acquired, or upgraded National Quality Infrastructure (NQI) systems.
- The significant economic value generated from the utilization of these infrastructures. This includes services in metrology, standardization, testing, and quality certification (TIC). (Target: 1,000 Million THB, 2023–2027)



IMPACT PATHWAY

Project : Name of research project.....



Outcome or Result: An Outcome is the result of the target audience (User) utilizing the research output, leading to a change in behavior, acceptance, knowledge, attitude, and skills.












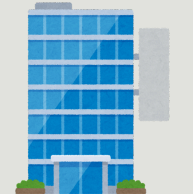
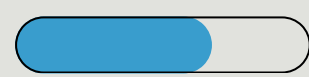

















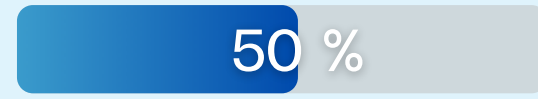

Define the research timeframe from its beginning to the expected impact period (Ex-ante) or to the actual impact assessment period after the project ends (ex-post).



PMUC Co-Funding Criteria

Classified by Legal Entity Size and TRL (Technology Readiness Level)

(Based on the SME definition by the Office of Small and Medium Enterprises Promotion)

Entity Type / Model	Starting TRL	 PMUC (In Cash)	 Private Sector (In Cash)	 Private Sector (In Kind)
 Small (S)	TRL 4 - 5 	 90 %	 10 %	 10 %
	TRL 6 - 7 	 85 %	 15 %	 10 %
 Medium (M)	TRL 4 - 5 	 85 %	 15 %	 10 %
	TRL 6 - 7 	 80 %	 20 %	 10 %
 Large (L)	TRL 4 - 5 	 70 %	 30 %	 10 %
	TRL 6 - 7 	 60 %	 40 %	 10 %
 PPP	TRL 4 - 7 	 50 %	 50 %	-

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