

# NIMT: a Brief Look

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(2017 – 2021)



# FOUNDATION



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# Metrology system in Thailand

## Scientific Metrology

National Metrology System Development Act B.E. 2540 (1997)

National Institute of Metrology (Thailand)

Ministry of Science and Technology

## Legal Metrology

Weights and Measures Act B.E. 2466 (1823)

Central Bureau of Weights and Measures

Ministry of Commerce

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# NIMT: Legal basis

**National Metrology System Development Act  
B.E. 2540 (1997)**

**Autonomous  
institution** under  
Ministry of Science  
and Technology

Designated national  
**highest authority** in  
scientific metrology

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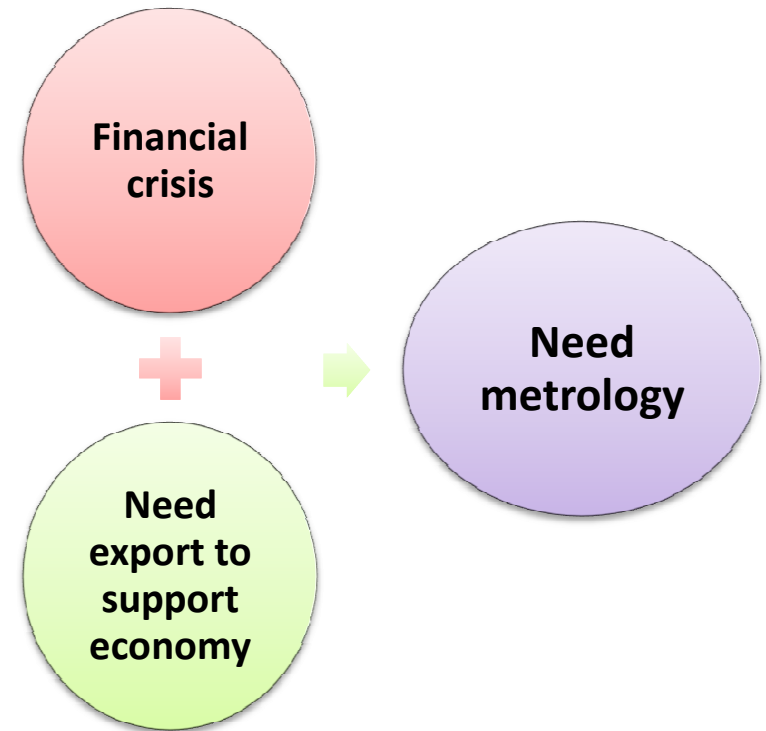
# Immediate Challenge

1 July 1997

Floating of THB started the Asia Economic Crisis

1 June 1998

NIMT was found



# Supports from friends

- **PTB:** Promotion of Thai Calibration Service Project
- **JICA & NMIJ/AIST:** Japanese Technical Cooperation for the Project on Technical Strengthening of National Institute of Metrology (Thailand)
- **NMIA & NIM, China** among the first helping hands



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# PRESENT STATUS



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# Labs & Offices



- 2 campuses:
  - one in Pathum thani
  - the other in Bangkok
- Organisation:
  - 7 Metrology Departments
  - 2 Administrative Departments
  - 1 MIS Center
- 47 labs with strictly controlled temperature and humidity
- Good vibration control
- Energy conservation (operated 24 h)
- Easy maintenance with less interruption
- Good working environment

*NIMT*

สถาบัน

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# Staff & Budget

- Staff ~ 196
  - Metrologist: 127  
(Bachelor: 27, Master: 56, PhD: 41, Others: 3)
  - Supporting staff: 69  
(Bachelor: 40, Master: 20, PhD: 3, Others: 6)
- Budget
  - ~ 220 Million THB from government
  - ~ 40 Million THB from services
  - ~ 2000 Million THB for upgrading national measurement standards and facilities, 2013 - 2017



# Measurement Capabilities & Services

2000

- 70 measurement capabilities
- 1100 services

2003

- 100 measurement capabilities
- 1400 services

2016

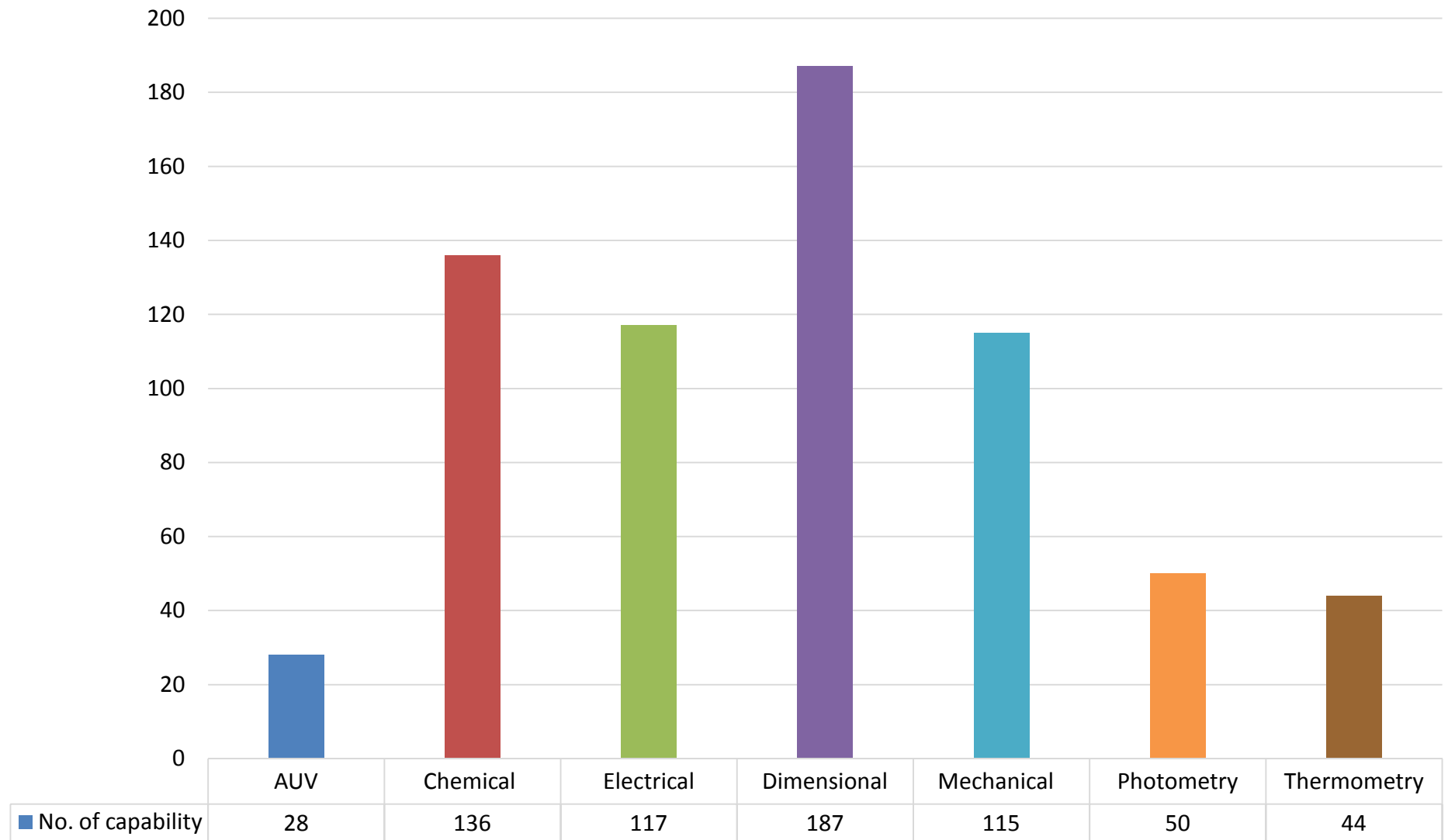
- 677 measurement capabilities
- 4000 services



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## NIMT's Calibration Capability



# CIPM-MRA and CMCs

October 1999

- Became signatory to CIPM-MRA

July 2003

- First measurement capabilities entered Appendix C (CMCs in electrical metrology)

February 2016

- 197 measurement capabilities registered in the Appendix C
  - 143 Physical
  - 54 Chemical



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# Calibration and Measurement Capability (CMC) of APMP NMIs



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# FUTURE CHALLENGES



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# New Challenges



Link national metrology development to national economy and social development

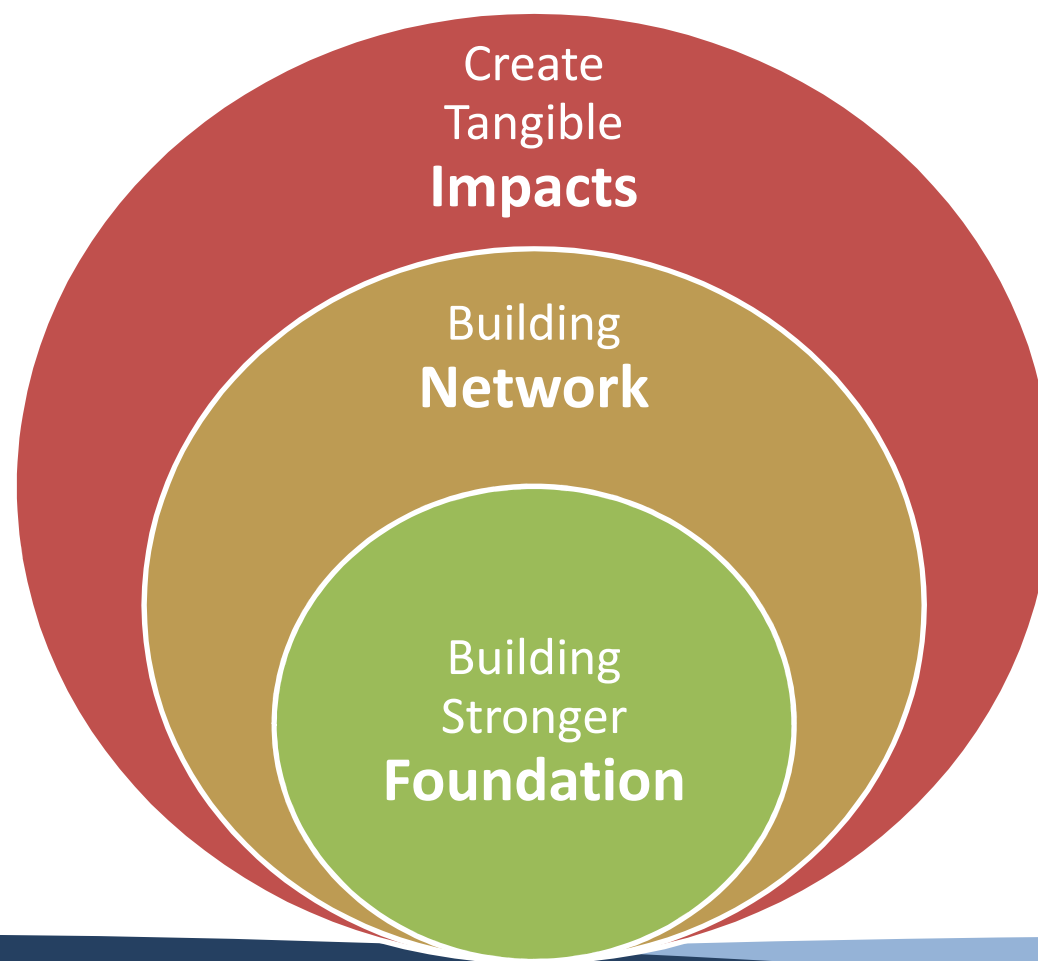
Create tangible impacts



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# Approach & Mode of Operation



# Building Foundation

Chemical  
Metrology &  
Biometry

New lab  
building

New  
equipment

Physical Metrology

Upgrade  
measurement  
standards

New  
quantities, ran  
ges &  
techniques

International  
recognition

Participate in  
Key  
Comparisons

Research &  
publish peer  
reviewed  
articles

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# Building Network

## Domestic Network

Metrology Club

Chemical Metrology  
Laboratory Network

## Regional Network

ASEAN Experts Group on  
Metrology

APMP, APMP-DEC

## International Network

Bilateral collaboration  
e.g.  
NMIJ, NICT, PTB, NIM, KRIS

Participation in international  
forum: BIPM, IMEKO

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# Create tangible impacts

New transfer measurement standard

SME and  
Industry

Quality of  
Life

Consumer  
Protection  
& Fair  
Trade

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Approved in principle by the National Metrology Committee

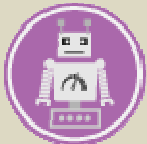
# **NATIONAL METROLOGY DEVELOPMENT MASTER PLAN III (2017 – 2021)**



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# Structure of Strategic Intentions



**SI-1: Demand-pulled Measurement Capabilities & Innovations**



**SI-2: Coherently and effectively Functioning NQI**



**SI-3: Productive & Innovative Economy**



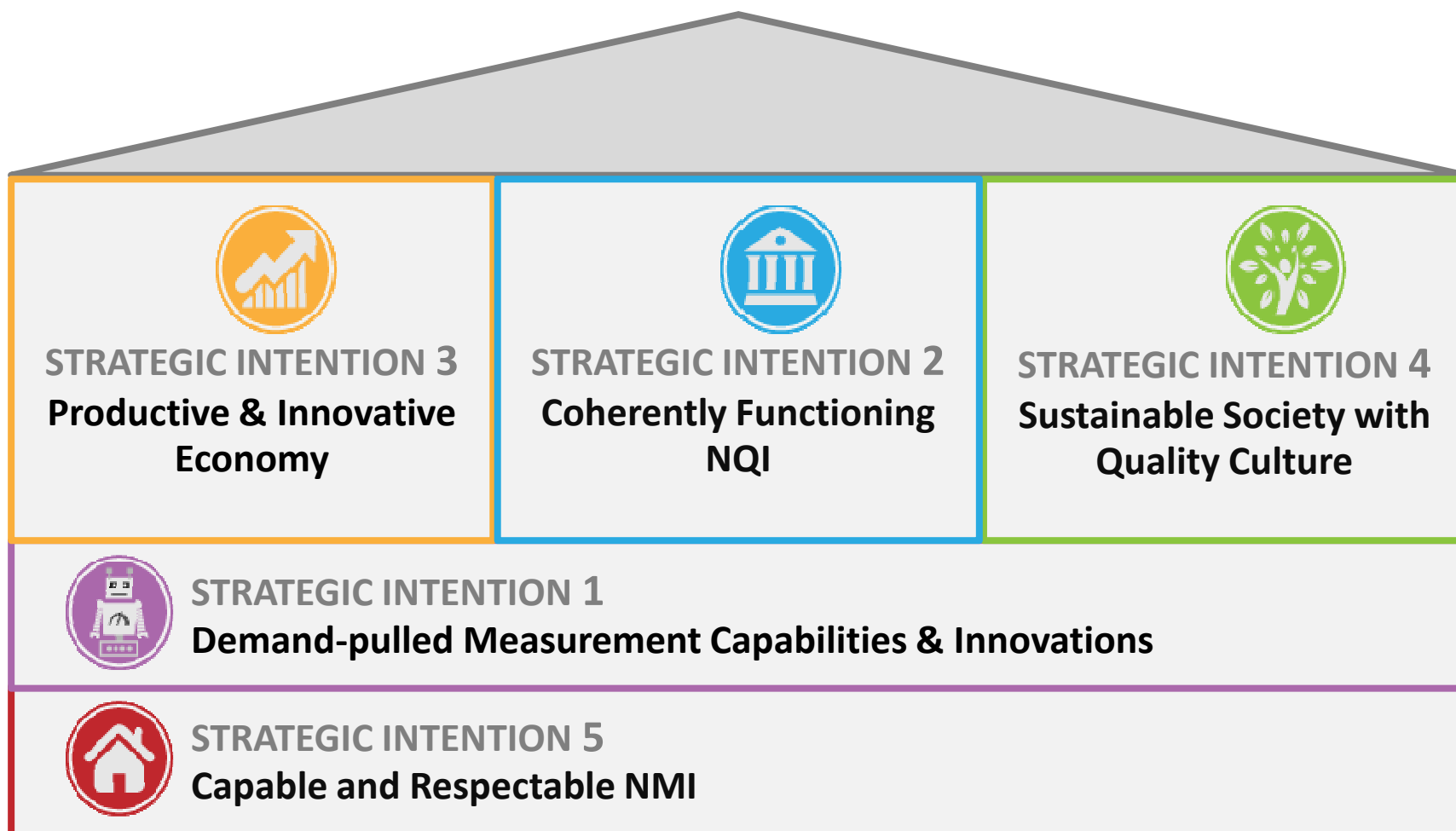
**SI-4: Sustainable Society with Quality Culture**



**SI-5: Capable and Respectable NMI**

IT

# Structure of Strategic Intentions



# Expectations following the completion of Master Plan #3

## Social

- ✓ Public health
- ✓ Road safety
- ✓ Consumer protection
- ✓ Sustainable society with Quality Culture



## Environment

- ✓ Waste reduction
- ✓ Pollution control
- ✓ Increase Green energy
- ✓ Natural Disaster management
- ✓ Carbon footprints reduction

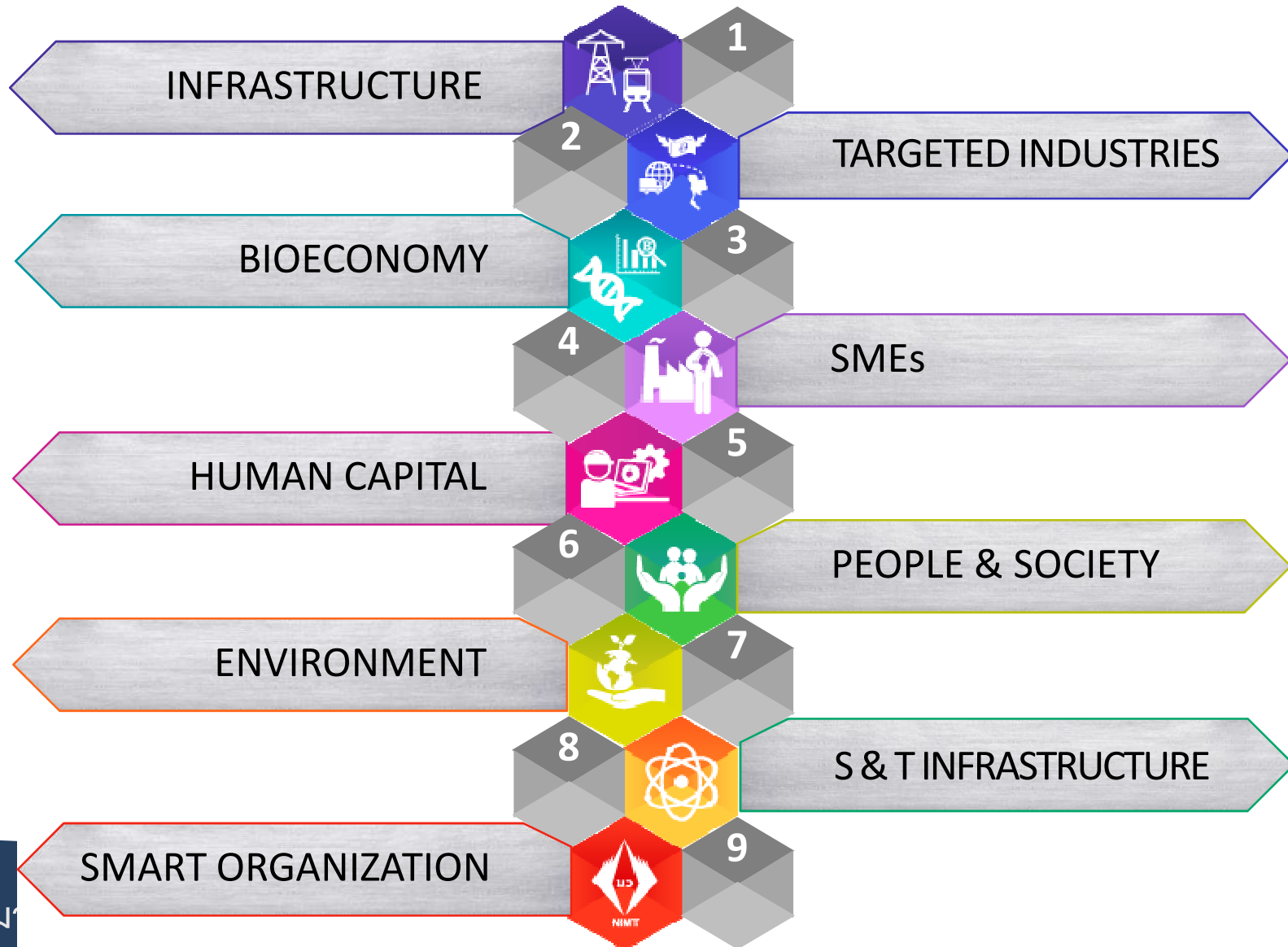


## Economy

- ✓ Efficient manufacturing process
- ✓ Efficient energy consumption for manufacturers
- ✓ Increase productivity for industry
- ✓ Cost-saving from importing foreign know-how



# Work Plans to deploy the strategies



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# Strengthen NQI

- Collaboration with Abs
- MOU on Promotion and Development of Thailand RMs
- Partners: TISI, DSS, DMSc & NIMT



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# Improve productivity through skill improvement: Geometric Dimensioning and Tolerancing (GD&T)



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# Fair trade: sweetness RM



## Cane and sugar Industry of Thailand

1. One of the biggest sugar exporter, about 7 million tons, worth approx 30,000 million baht
2. Internal consumption 3 metric tons, worth approx. 20,000 million baht
3. Involved more than 1,000,000 farmers



Office of The  
Cane and Sugar  
Board (OCSB)

“Promotion of metrology system  
for the quality of cane and sugar”

- Reference Material for Brix measurement
- Calibration of refractometer
- Proficiency Testing scheme for brix determination of the sugar industry
- Awareness seminars



Calibrated weighing machine: Fairness of weighing



Calibrated refractometer: Fairness of trading by CCS measurement



# Quality of medical services:

## Guide for measuring device verification



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# Quality of environment:

## Pollution monitoring & control

### Collaboration with Pollution Control Department



# New Chemistry Lab

Strengthening  
metrology  
infrastructure



- Construction 727 Million THB (~ 24 Million USD)
- Equipment 484 Million THB (~ 16 Million USD)
- Area 12,000 m<sup>2</sup>
- 7 floors, 5 groups of laboratories

*Thank you  
for  
your kind attention*



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