



WEBINAR
SERIES



UTM
UNIVERSITI TEKNOLOGI MALAYSIA



KEMENTERIAN SAINS,
TEKNOLOGI DAN INOVASI

csnano

Perkongsian Ilmu “TRL (Technology Readiness Level)”



SPEAKER

Kamarulzaman bin Kamaruddin

KETUA PENOLONG PENGARAH
PUSAT NANOTEKNOLOGI KEBANGSAAN



MODERATOR

**Prof. Madya. Ts. ChM Dr.
Nik Ahmad Nizam Nik Malek**

PENGARAH CSNANO
UNIVERSITI TEKNOLOGI MALAYSIA

Tarikh: 4 Feb 2021 (Khamis)

Masa: 9.30 - 10.30 pagi

**LIVE
STREAM**



csnano



csnano

Dianjurkan oleh :
Centre For Sustainable Nanomaterials (CSNano)

CENTRE FOR SUSTAINABLE NANOMATERIALS (CSNano)



csnano.utm.my

What is **desirable**
to users?

Innovation

What is
possible with
technology

What is **viable**
in the
marketplace

Challenges in Commercialization

- 1) **Non-standardised IPR Valuation model** between Universities/Research Institutions with Industry.
- 2) New platform has to be created to **market validate technologies** developed to meet **final user requirements and alignment to standards**.
- 3) A **win-win business model has to be created** to ensure successful technology development, transfer and commercialisation.
- 4) **Local company's readiness** in exploring emerging technologies with no proven records
- 5) High risk in technology development
- 6) Managing industry's and university's **expectation** (commercial vs theory and timeline of development)
- 7) No benchmark on existing cost structure and may hinder commercial activities
- 8) Managing of know how (formulation, process) confidentiality despite an existing SOPs



MEASURING TECHNOLOGY READINESS FOR INVESTMENT

Accelerating technology development and
improving innovation performance

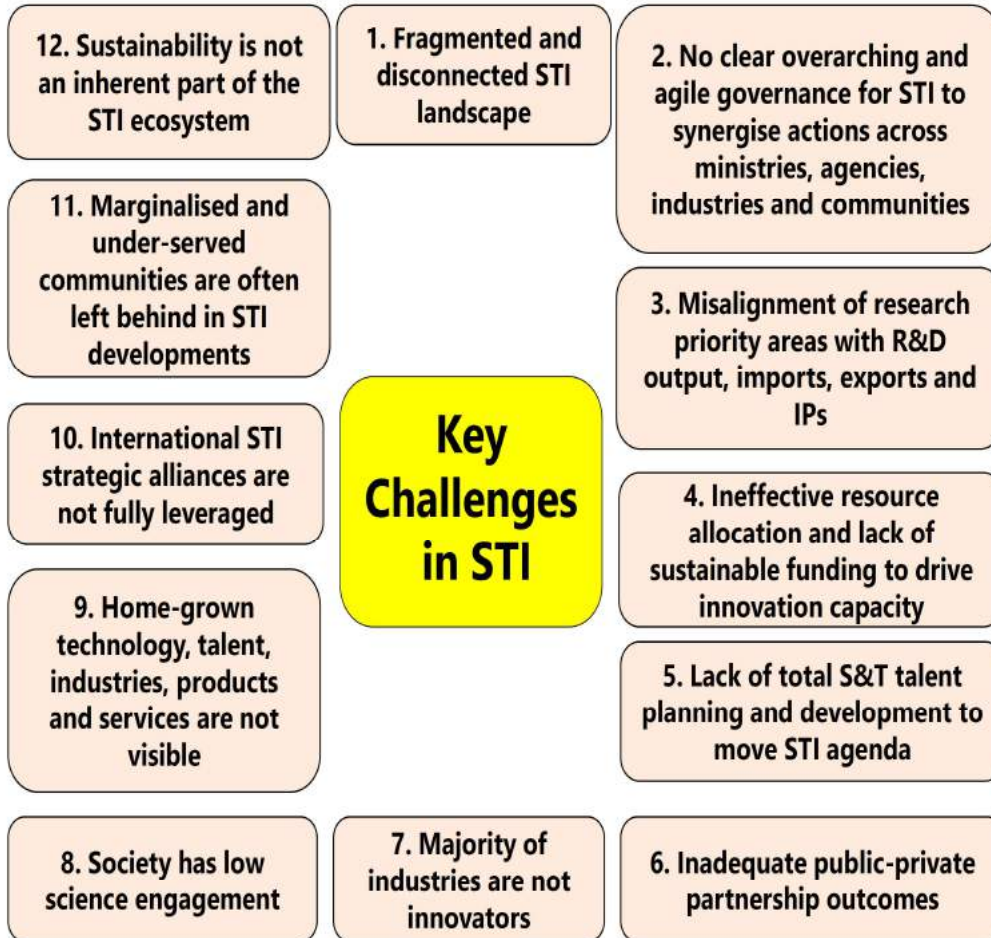
Report of a project undertaken by
Manufacturing Technology Centre
and
Heriot-Watt University
funded by
Innovate UK

March 2017

Findings

1. Investors look at technology readiness as one parameter in their assessments of investment opportunities, alongside the market opportunity and the company's capability to deliver. Some investors also place importance on manufacturing .
2. Investors often do not know the technology readiness level of companies they are thinking of investing in; they often engage an expert consultant to check that the technology works but not to assess its maturity in a structured way.
3. Entrepreneurs often overestimate their own technology readiness by failing to grapple with all the detail.

Key Challenges in STI to be Addressed



Ecosystem & Governance

Disconnected ecosystem & unclear governing & coordinating body in setting the direction, coordinating, & monitoring the national nanotechnology agenda.



Research & Development

Pathways from laboratory research to successful commercialisation remained a challenge due to barriers such as **absence of a standardised priority areas, dedicated funding, monitoring process** on the progress of the project till it is taken up by industry for commercialisation.



Commercialisation

Innovation chasm between R&D & businesses resulted to most of **research unable to be commercialised &** industry remained lack of competitiveness due to **low technology adoption**



Standard, Safety & Regulation

Lack of awareness on standards, safety & regulation specific for Nanotechnology & **lack of robustness** for nanotechnology certification in leveraging on the advantages for country's revenue generation.

Transformation from TRADITIONAL to NEW ECONOMY

Resource focused	→	Knowledge intensive
Labour intensive	→	High-skilled talents
Requires control	→	Requires collaboration
Vertical	→	Horizontal trust orientation
Mass production	→	Mass customization
Proximity is important	→	Location less significant
Rigid	→	Flexible
Capitalist	→	Profit Sharing

©ACADEMY OF SCIENCES MALAYSIA



Source: OECD Public Governance Reviews

What have we achieved after 63 years



Where Are We Now?



Innovation

Under GII 2020, Malaysia **ranked 33rd /133**
(Source: *Global Innovation Index 2020*)

but

Under GII 2020, Malaysia **ranked 63rd /131** in
'Patents by origin'
(Source: *Global Innovation Index 2020*)

Under Global Entrepreneurship 2019, Malaysia **ranked 64th /137** in **'Product Innovation'**
(Source: *Global Entrepreneurship 2019*)



Knowledge

Over 270,000 **research publications** since 2010 & Malaysia ranked 23rd / 231 countries in 2019
(Source: *MOHE, 2020 & Scimago, 2020*)

but

Only **less than 10%** are in the **Top 10% Citation Percentile**
(Source: *MOHE, 2020*)

Under GII 2020, Malaysia **ranked 70th /131** in **'Knowledge creation'**
(Source: *Global Innovation Index 2020*)

Under GII 2020, Malaysia **ranked 53rd /131** in **'Knowledge workers'**
(Source: *Global Innovation Index 2020*)



Talent

IMD World Talent Ranking 2019:
Malaysia **ranked 22nd/63**
(Source: *IMD World Talent Ranking 2019*)

but

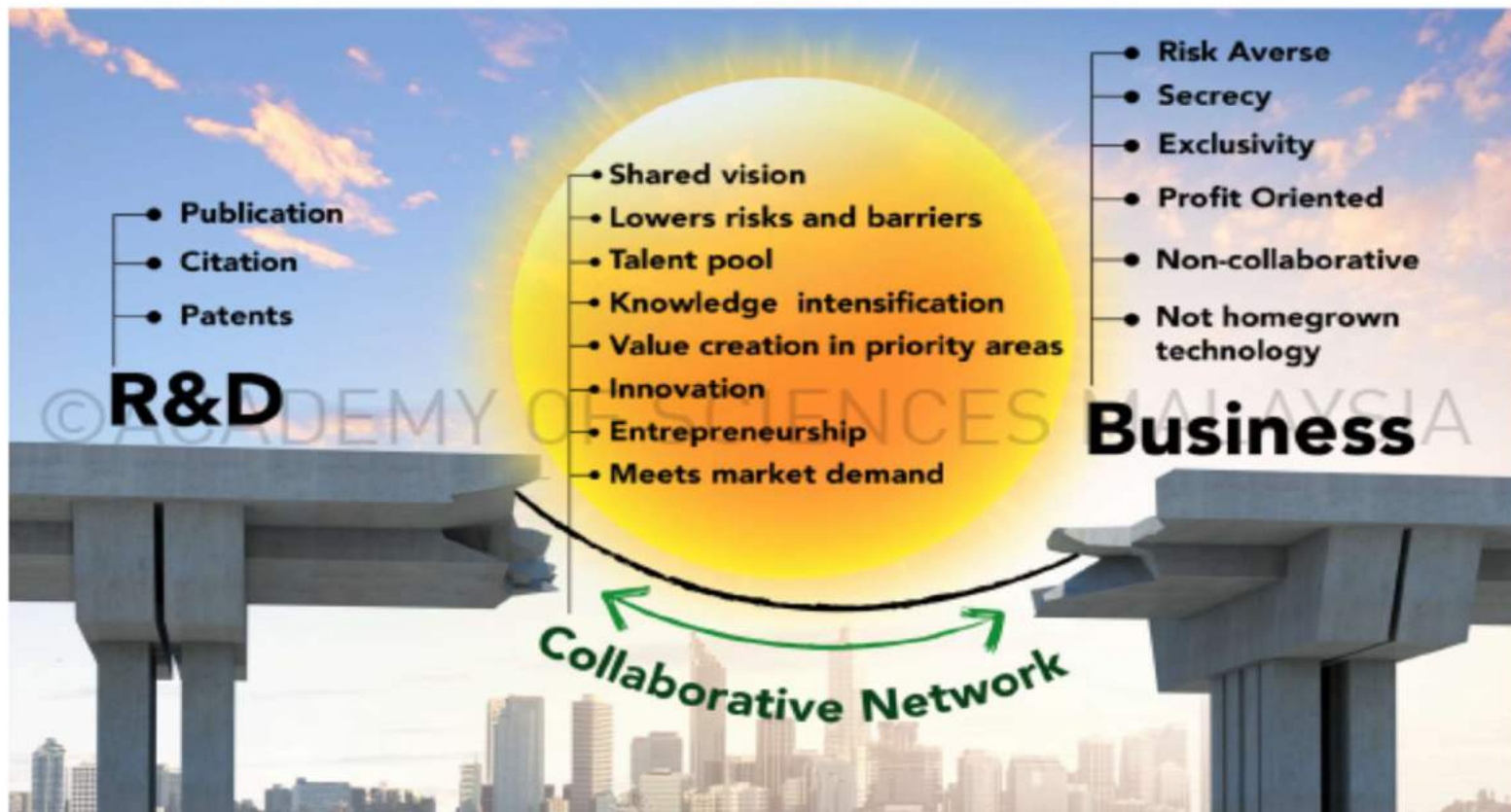
Under GII 2020, Malaysia **ranked 55th /131** in
'Research talent, % in business enterprise'
(Source: *Global Innovation Index 2020*)

Under Global Entrepreneurship 2019, Malaysia **ranked 63rd /137** in **'Start-up skills'**
(Source: *Global Entrepreneurship 2019*)

- Malaysia GDP is slower than the People's Republic of China, East Asia & the Pacific.
- Although manufacturing and services sector contribute almost 79% of GDP, the adoption of high technology in both sectors remains low at 37% and 20% respectively.
(Source: *Shared Prosperity Vision 2030*)

Challenges for STI for E

Knowledge-based Innovation Chasm



Source: *New Economic Opportunities in STI-based Industries to serve Emerging Markets* (ASM, 2017)

Shared Prosperity Vision 2030

AIM

The primary aim of the Shared Prosperity Vision is to provide a decent standard of living to all Malaysians by 2030.

OBJECTIVE

1

Development for All

Restructuring the economy to be more progressive, knowledge-based and high-valued with full community participation at all levels.

RESTRUCTURING ECONOMY

2

Addressing Wealth and Income Disparities

Addressing economic disparities across income groups, ethnicities, regions and supply chains to protect and empower the rakyat in ensuring that no one is left behind.

ADDRESSING INEQUALITIES

3

United, Prosperous and Dignified Nation

Building Malaysia as a united, prosperous and dignified nation and subsequently becoming an economic centre of Asia.

NATION BUILDING

15 GUIDING PRINCIPLES



8 ENABLERS



FRAMEWORK OF SHARED PROSPERITY VISION 2030



PROPOSED 15 KEY ECONOMIC GROWTH ACTIVITIES (KEGA)

I

KEGA 1:
Islamic
Finance Hub
2.0

2

KEGA 2:
Digital
Economy

3

KEGA 3:
Industrial
Revolution 4.0

4

KEGA 4:
Content
Industry

5

KEGA 5:
ASEAN Hub

6

KEGA 6:
Halal & Food
Hub

7

KEGA 7:
Commodity
Malaysia 2.0

8

KEGA 8:
Logistic,
Transportation
& Sustainable
Mobility

9

KEGA 9:
Coastal &
Maritime
Economy

IO

KEGA 10:
Centres of
Excellence

II

KEGA 11:
Renewable
Energy

I2

KEGA 12:
Green
Economy

I3

KEGA 13:
Smart &
High Value
Agriculture

I4

KEGA 14:
Advanced &
Modern
Services

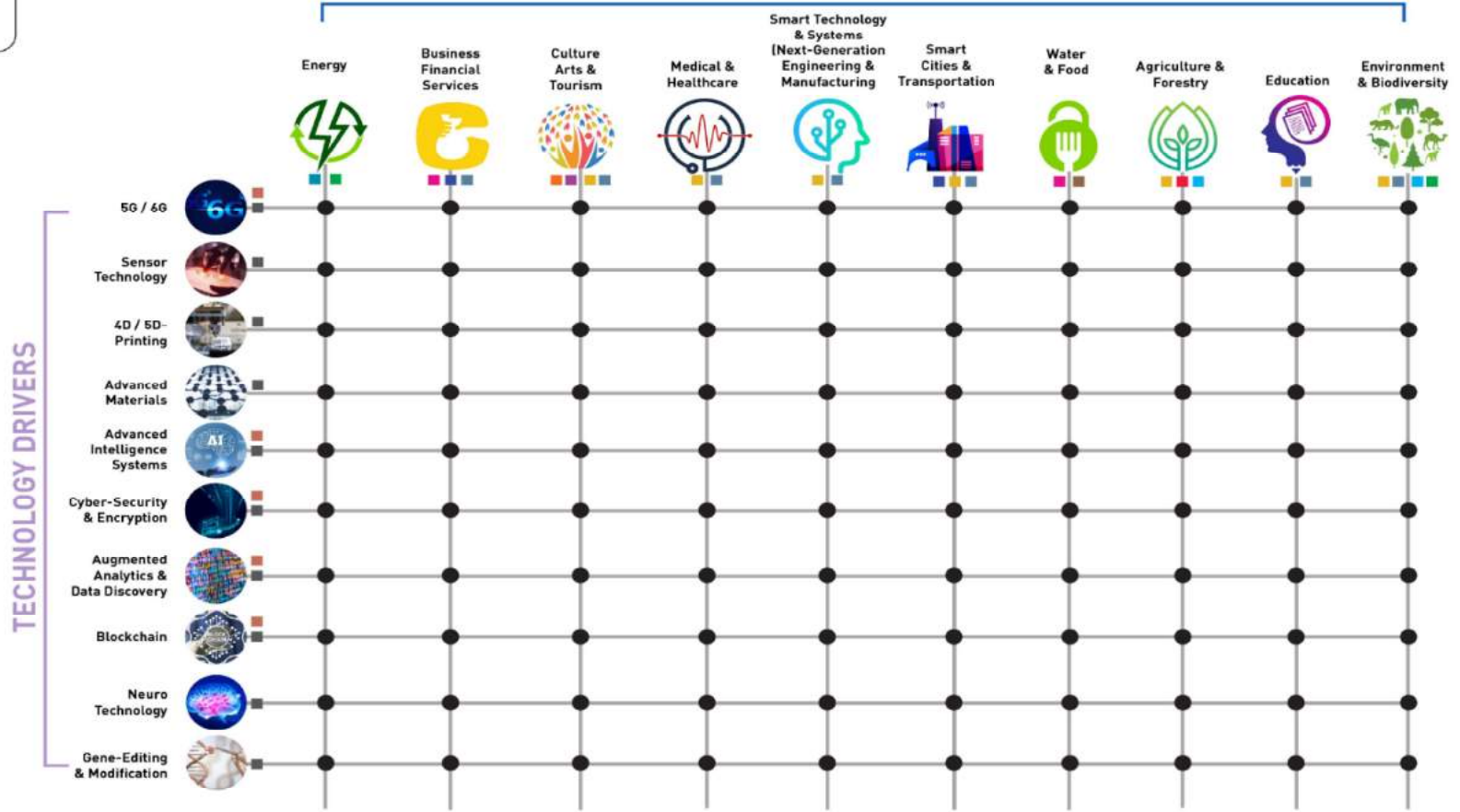
I5

KEGA 15:
Malaysia
Truly Asia

Key Economic Growth Activities (KEGA) of Shared Prosperity Vision 2030 (SPV2030)

- RENEWABLE ENERGY
- ISLAMIC FINANCE HUB 2.0
- MALAYSIA TRULY ASIA
- CONTENT INDUSTRY
- LOGISTICS, TRANSPORTATION & SUSTAINABLE MOBILITY
- ASEAN HUB
- ADVANCED & MODERN SERVICES
- HALAL & FOOD HUB
- SMART & HIGH VALUE AGRICULTURE
- COMMODITY MALAYSIA 2.0
- COASTAL & MARINE ECONOMY
- GREEN ECONOMY

SOCIOECONOMIC DRIVERS



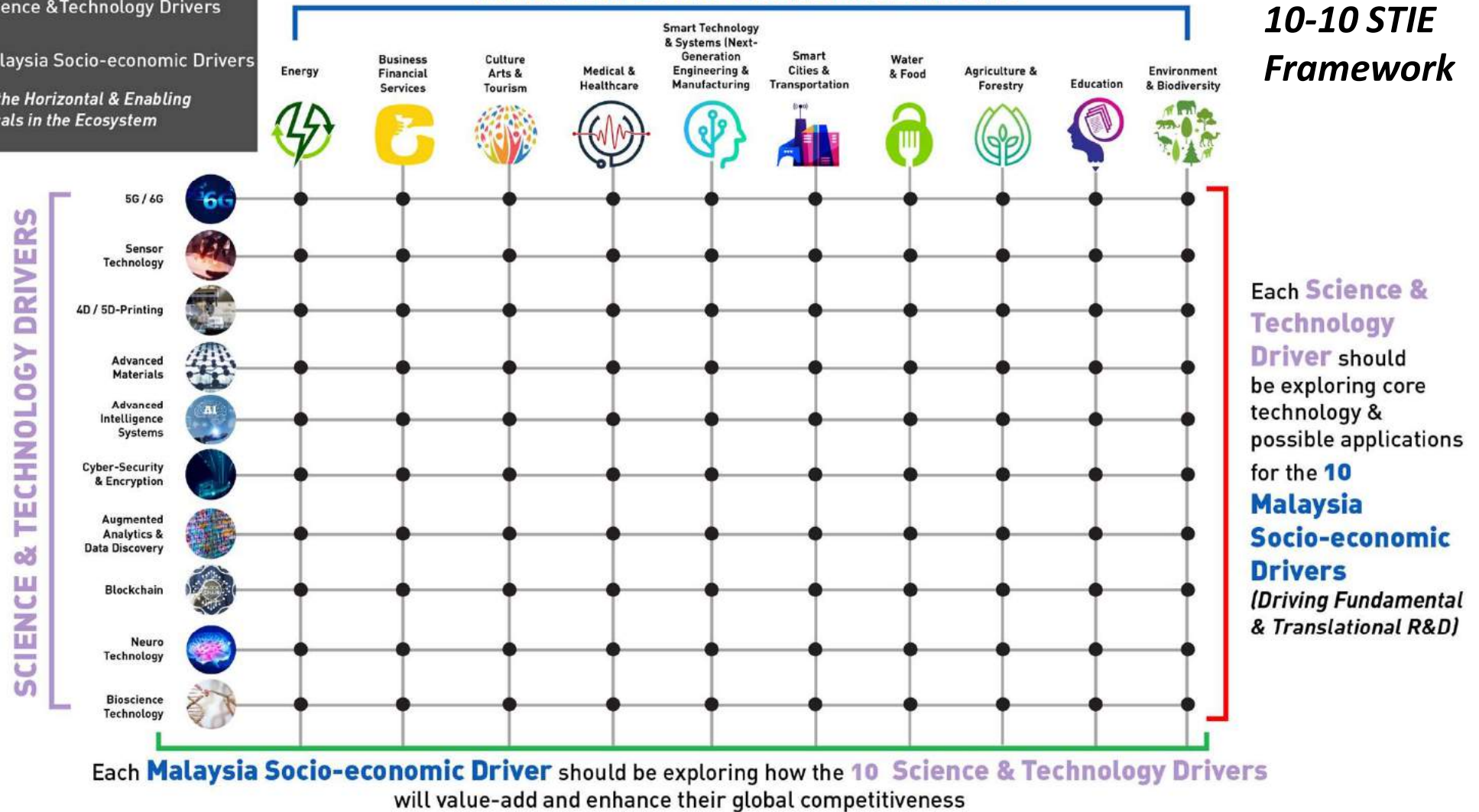
- DIGITAL ECONOMY
- INDUSTRIAL REVOLUTION 4.0

0-10 STIE framework

10 Science & Technology Drivers
on
10 Malaysia Socio-economic Drivers
*Building the Horizontal & Enabling
the Verticals in the Ecosystem*

MALAYSIA SOCIO-ECONOMIC DRIVERS

**10-10 STIE
Framework**





DASAR SAINS, TEKNOLOGI DAN INOVASI NEGARA 2021-2030



Teknologi Menerajui Masa Depan Negara



DASAR SAINS, TEKNOLOGI DAN INOVASI NEGARA 2021-2030

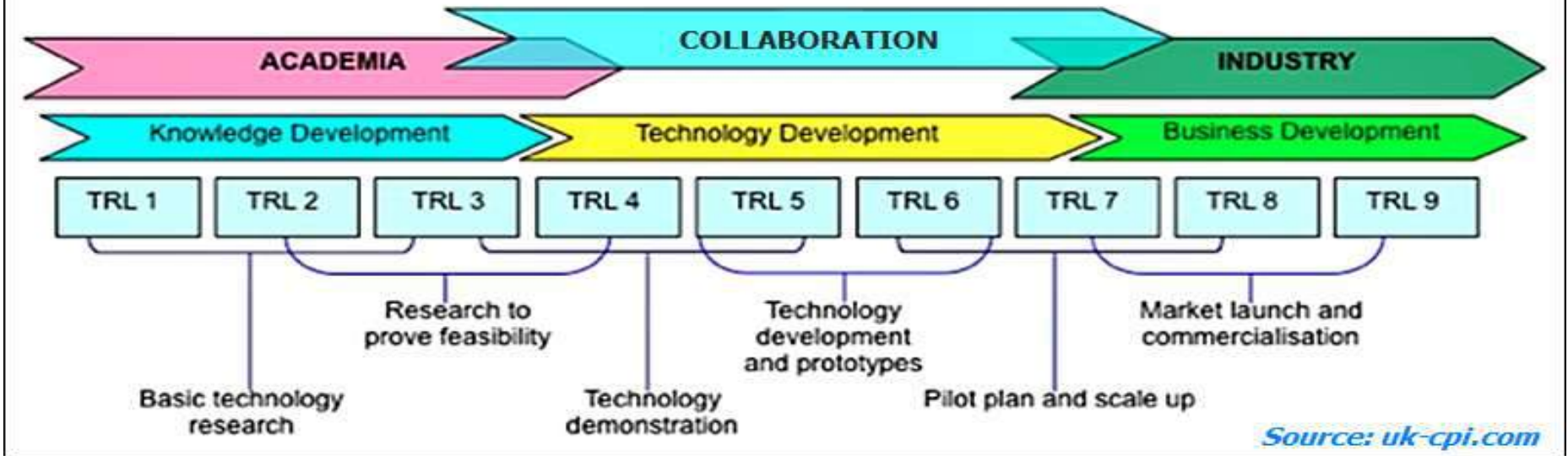


PELAN TINDAKAN

Teknologi Menerajui Masa Depan Negara

Rebranding & Repositioning

The Innovation Chain: Converting Science into Wealth



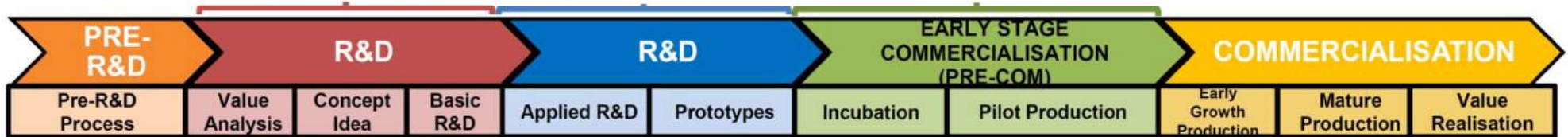
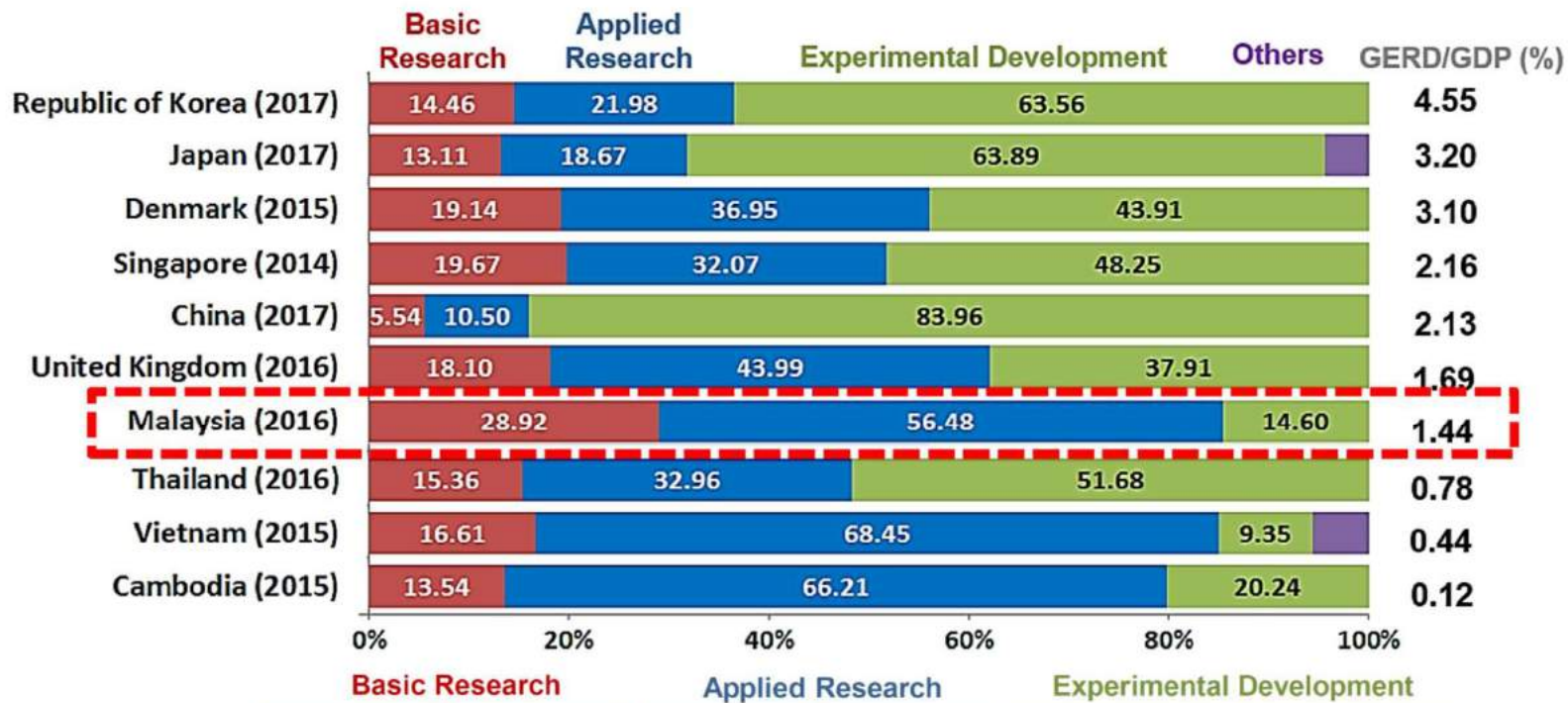
National Nanotechnology Centre

Nano Malaysia Berhad

IHLs, GRIs, MESTECC, MOE, MOA, KATS, MITI

IHLs, GRIs, MESTECC, MOE, MOA, KATS, MOF, MITI, Funders, Investors, Techno-Funders, Technopreneurs, Industry Players.....

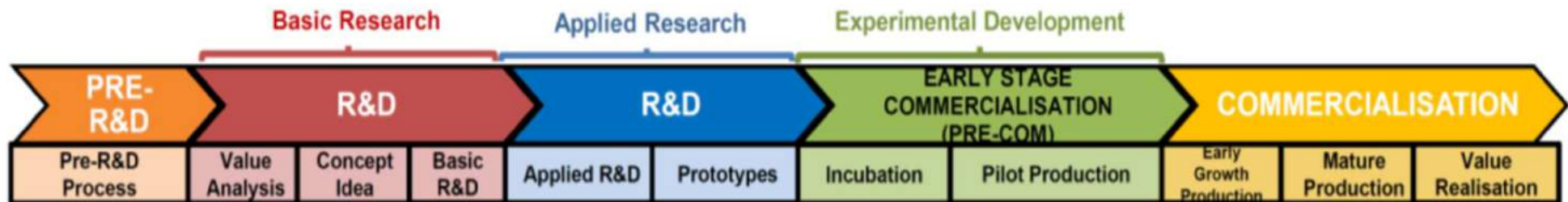
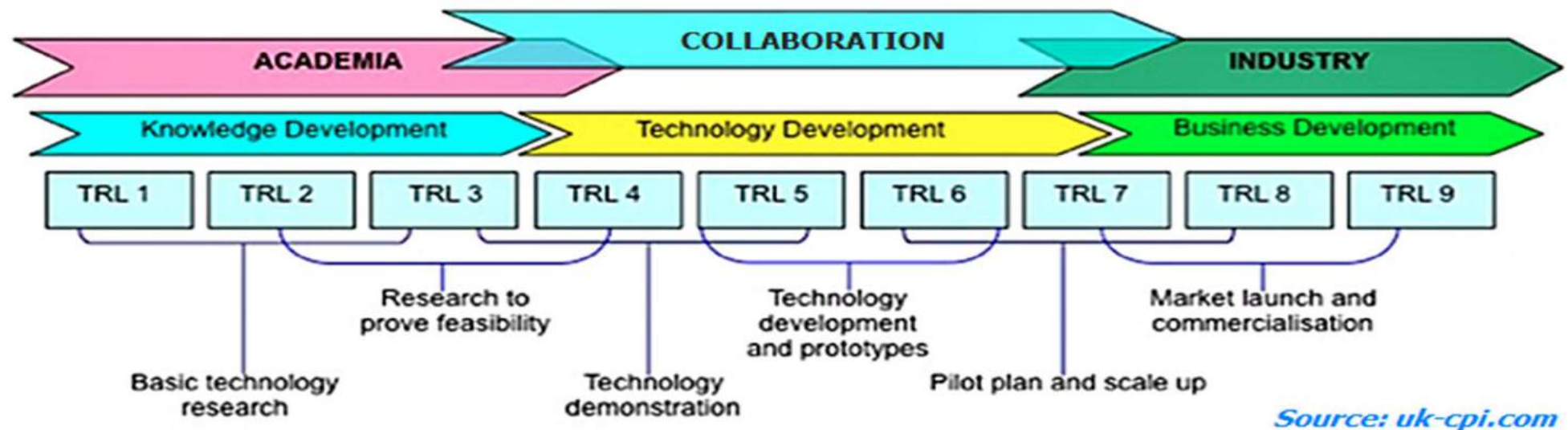
Malaysia invests too little on experimental development to translate R&D outputs to market

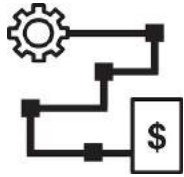


Source: 1) Updated based on Science Outlook 2017 (ASM, 2019), data source: UNESCO Institute of Statistics Database accessed in October 2019, MASTIC National R&D Survey 2018
 2) Adapted from Frascati Manual 2015, OECD 2015; EPU, 2015

GERD: Gross Domestic Expenditure on R&D

The Innovation Chain: Converting Science into Wealth





Technology Transfers & Commercialisation

- “commercialization” – Business Readiness Level
- “technology”- Technology Readiness Level
- “producing”- Manufacturing Readiness Level
- “to be used...” - Business Readiness Level

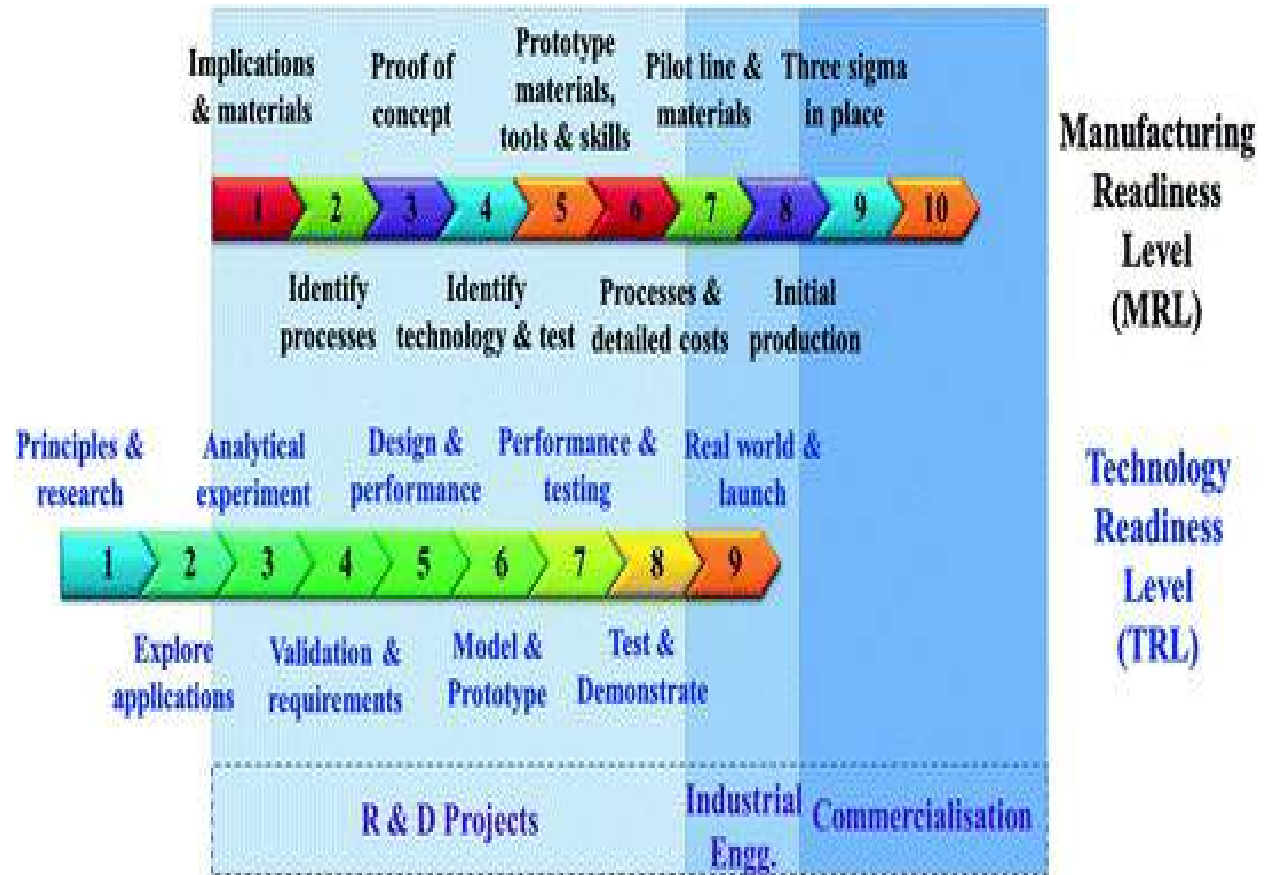
TRL = Technology Readiness Level

MRL = Manufacturing Readiness Level

BR = Business Readiness

CR = Customer Readiness

Technology commercialization is the process of transitioning technologies from the research lab to the marketplace or **Commercializing** the **technology** by **producing** a product or products **to be used by the community or consumer**



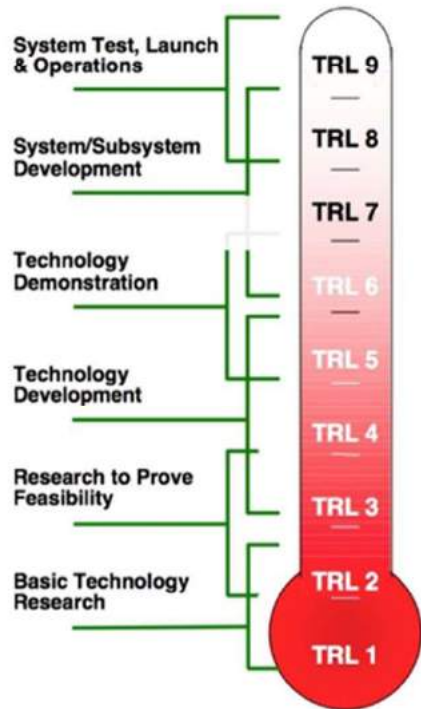
Quality & Certification Governance



Standards & Regulatory



Technology readiness level (TRL)

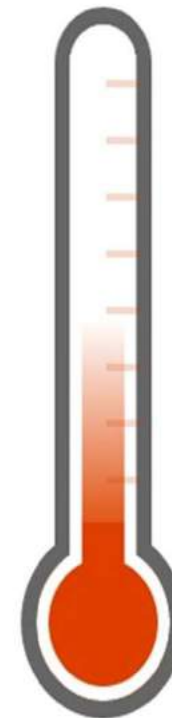


Investment readiness level (IRL)



1. Complete First-Pass Canvas
2. Mkt Size/Competitive Analysis
3. Problem/Solution Validation
4. Prototype Low Fidelity MVP
5. Validate Product/Market Fit
6. Validate Right Side of Canvas
7. Prototype High Fidelity MVP
8. Validate Left Side of Canvas
9. Validate Metrics That Matter

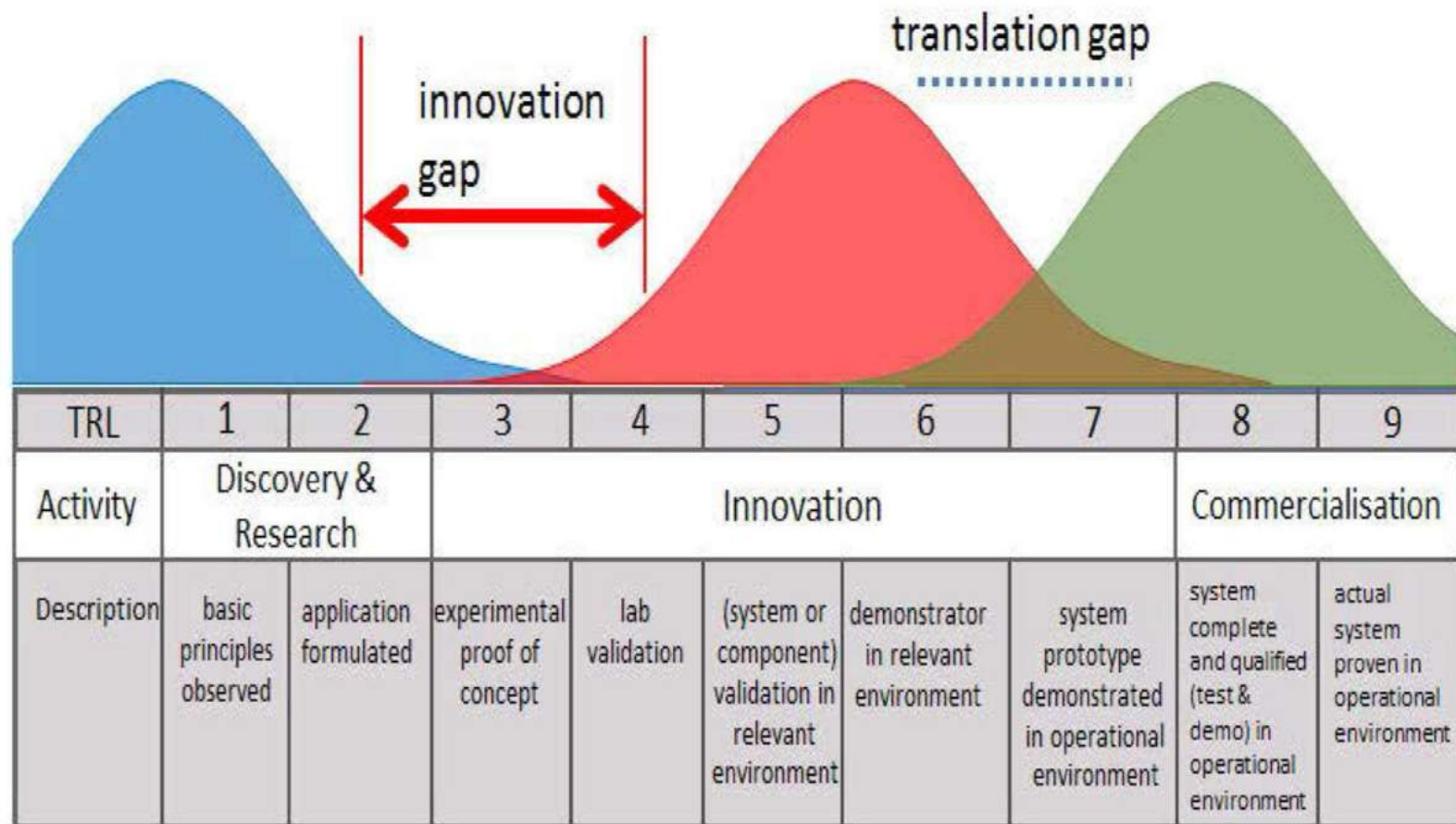
Community readiness level (CRL)



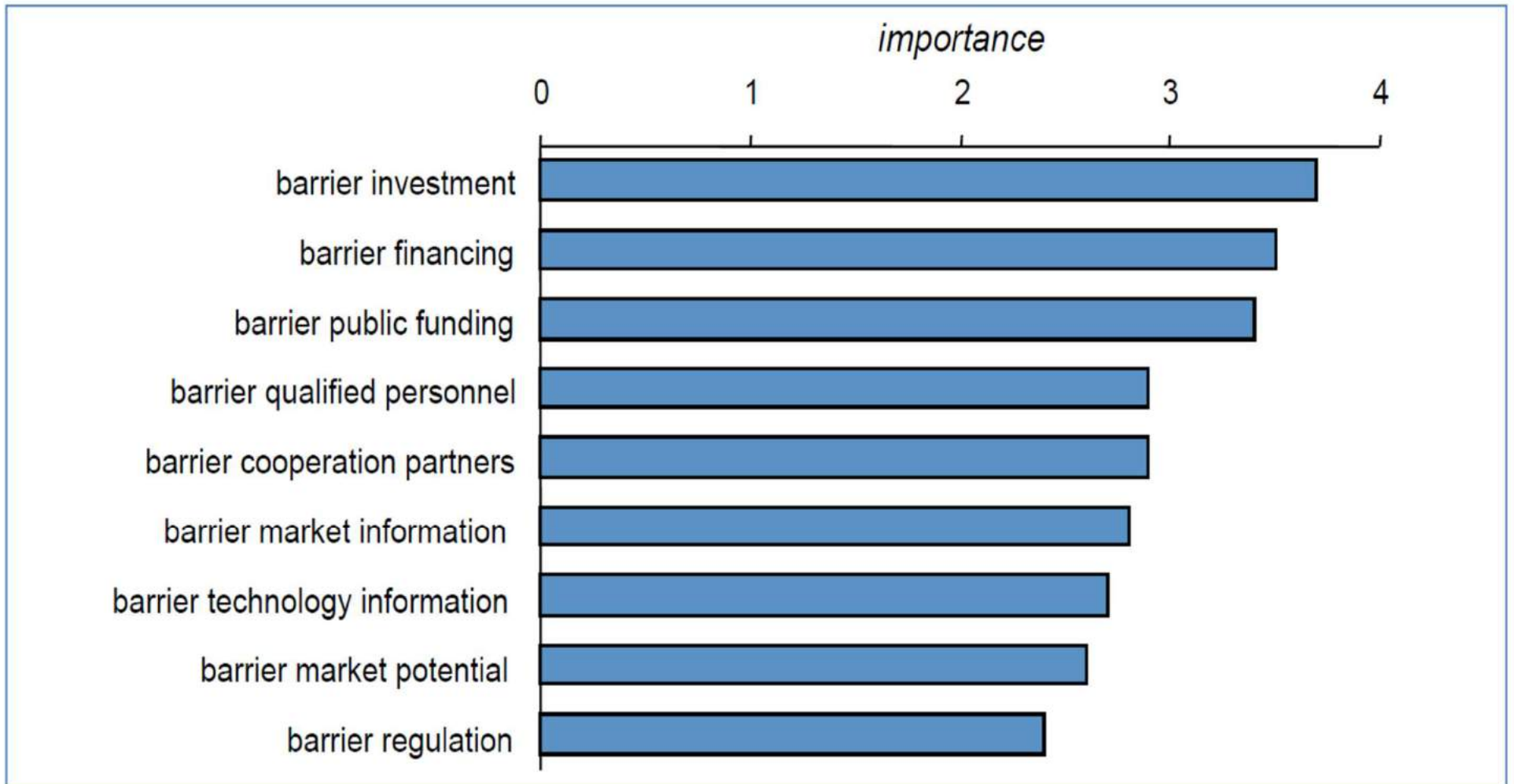
1. No awareness
2. Denial/Resistance
3. Vague awareness
4. Preplanning
5. Preparation
6. Initiation
7. Stabilization
8. Confirmation/expansion
9. Community ownership



Figure 2: The innovation chain: barriers to economic impact from research excellence [9]
(TRL indicates the technology readiness level.)



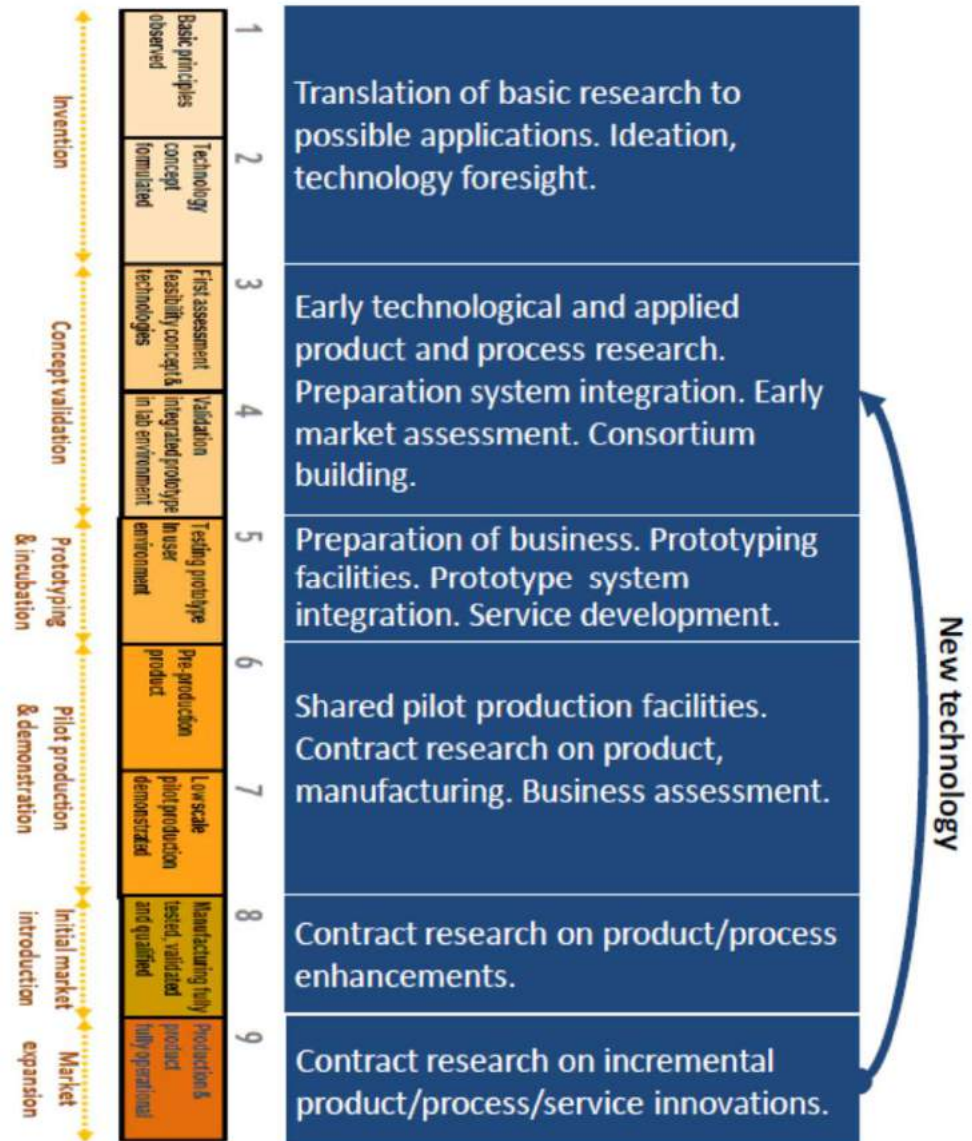
Barriers for Technology Transfers and Commercialisations





The TRL Scale as a Research & Innovation Policy Tool, EARTO Recommendations

30 April 2014





**GARIS PANDUAN
DANA PENYELIDIKAN STRATEGIK
(SRF)**

Bahagian Dana
Kementerian Sains, Teknologi dan Inovasi
Aras 4, Blok C4, Kompleks C, Pusat Pentadbiran Kerajaan Persekutuan
62662 Putrajaya
Tel: 603 – 8885 8544 / 8704 / 8258 / 8327
E-mel : helpdesk-eDana@mosti.gov.my

TAHAP KESEDIAAN TEKNOLOGI

TAHAP TRL	PENERANGAN	CIRI-CIRI
TRL 1	<i>Basic Principle</i>	<ul style="list-style-type: none"> • <i>Technology research</i> • <i>Pure science begins translation to R&D</i>
TRL 2	<i>Formulation of Concept</i>	<ul style="list-style-type: none"> • <i>Early studies for application formulation</i> • <i>Invention & Practical Application Begins</i>
TRL 3	<i>Experimental Proof of Concept</i>	<ul style="list-style-type: none"> • <i>Analytical validation & proof of concept</i> • <i>Start active research & development</i>
TRL 4	<i>Lab validation</i>	<ul style="list-style-type: none"> • <i>Validation in laboratory environment</i> • <i>Ready to begin bridge for technology transition</i>
TRL 5	<i>Validation in real environment</i>	<ul style="list-style-type: none"> • <i>Validation in relevant environment</i> • <i>Ready to enter technology development</i>
TRL 6	<i>Demonstration in real environment</i>	<ul style="list-style-type: none"> • <i>Demonstrated in relevant environment</i> • <i>Ready to enter system development</i>
TRL 7	<i>Demonstration of prototype</i>	<ul style="list-style-type: none"> • <i>Demonstrated in operational environment</i> • <i>Ready for limited production decision</i>
TRL 8	<i>Product/System complete and qualified</i>	<ul style="list-style-type: none"> • <i>Compliant, qualified & test/demo complete</i> • <i>Ready for operational evaluation</i>
TRL 9	<i>Product/System proven</i>	<ul style="list-style-type: none"> • <i>Completed operational evaluation</i> • <i>Ready for full-rate</i>

Evolution of R&D Funding RMKe-7 to RMKe-12

R&D Funding has evolved from fundamental (IRPA/ ScienceFund) to pre-commercialization stage (AIF/TeD1/TeD2/BGF/SRF)

RMKe- 7&8

IRPA

- Enhance socio economic development
- Strengthen capacity & capability building
- Accelerate commercialization

RMKe- 9

ScienceFund /
TechnoFund / InnoFund

- Reprioritize of research to focus on agriculture, biotech, ICT, advance material and industry
- Strengthening industrial commitment
- Accelerate commercialization
- Competitive bidding for prioritized project

RMKe- 10

ScienceFund /
TechnoFund / InnoFund

- Knowledge Generation, Wealth Generation & Societal Well-being
- Extension of focus area nanotech, biotech, ICT, Sea to Space, S&T core and industry
- To fund more on projects at applied research (Science Fund) and pre-com (Techno fund / Inno fund) stages.

RMKe- 11

InnoFund/ ICF/ SMARTFund /
MOSTI R&D Fund

- Economic Growth & Societal Well-being
- Reprioritise focus area of pre-com into (i) Medical & Healthcare, (ii) Green Growth for Sustainable Development, (iii) Water, Food & Energy Nexus
- Expand to international R&D
- Improved access to Pre-com funding for Universities / Research Institution

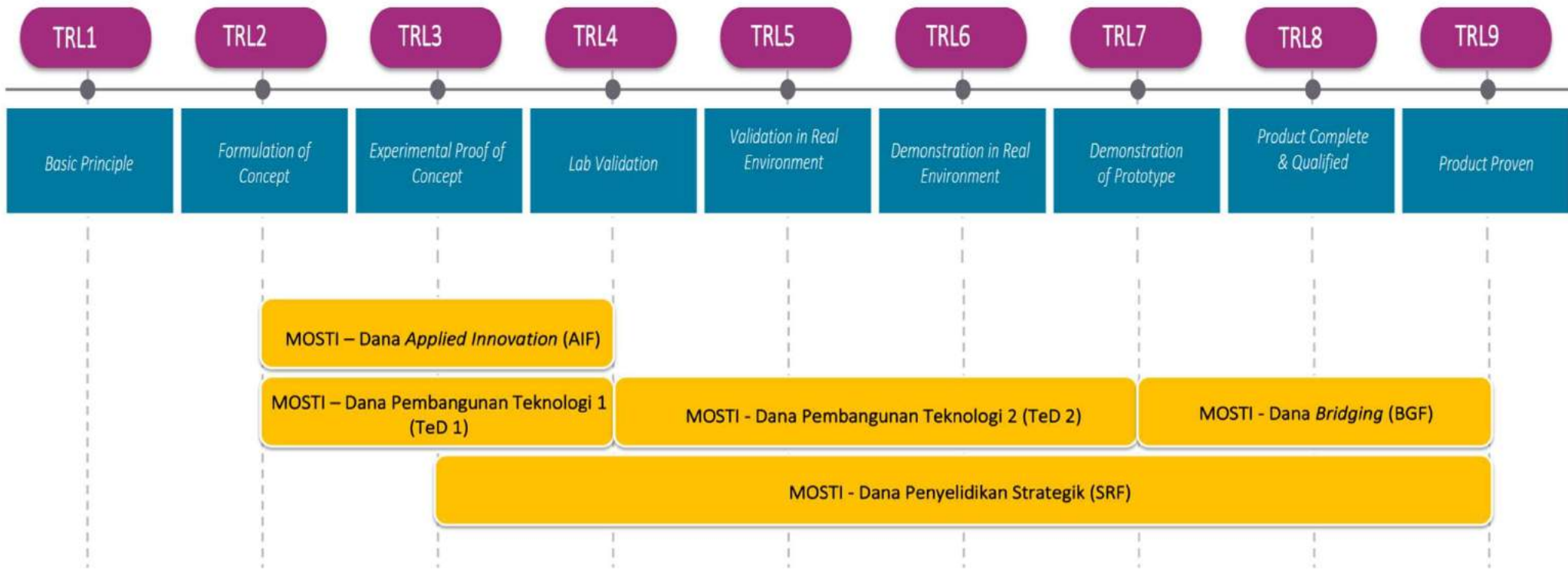
RMKe- 12

AIF/ TeD1/ TeD2 / BGF/SRF

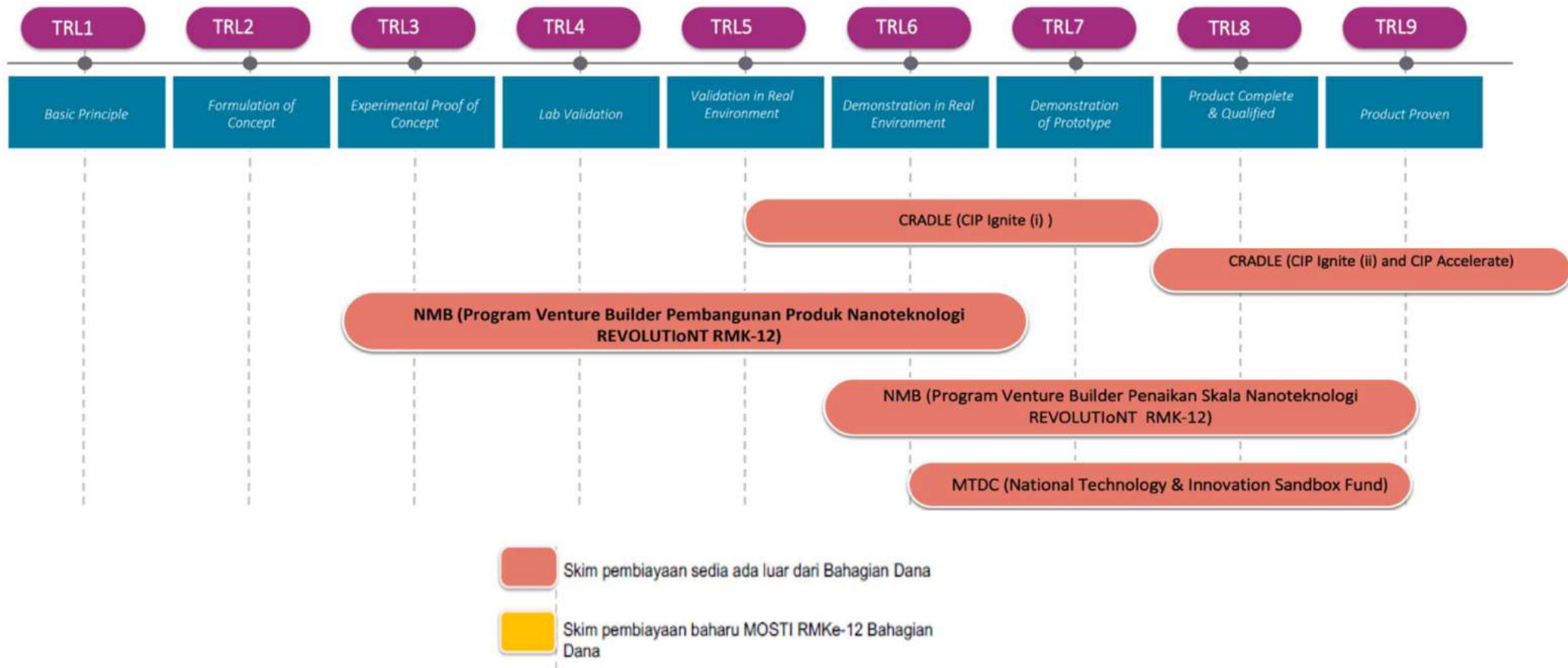
- Focus on Experimental Development
- Focus area according to 10-10 MySTIE framework
- Grand Challenges
- Improved access to Startup, MNC
- Fast track:
 - i. TeD1 → TeD2
 - ii. TeD2 → BGF
- Streamlining process between funding agencies under MOSTI

KRITERIA PENILAIAN

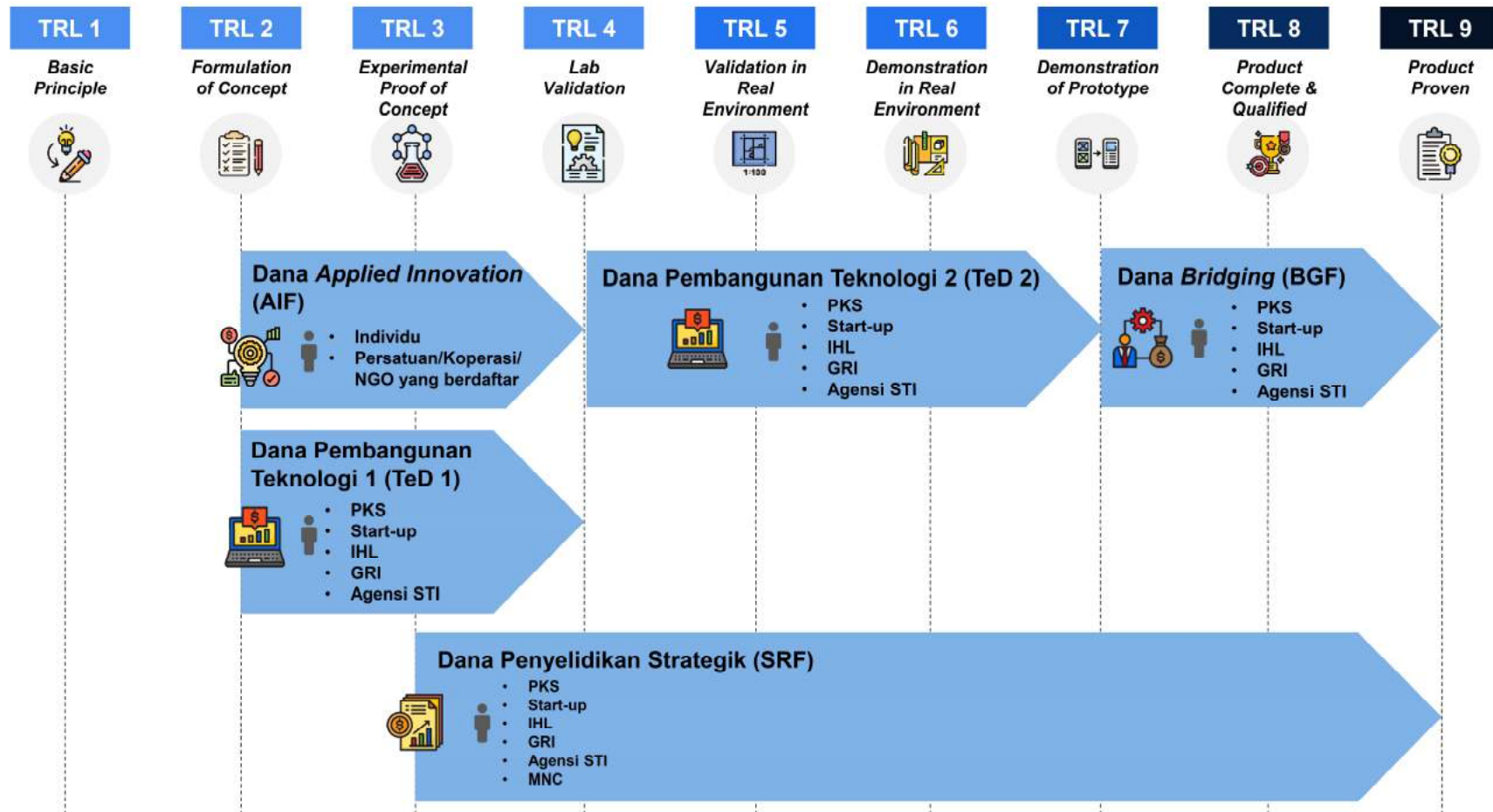
<u>Teknikal</u> i. Pembuktian konsep / Prototaip berfungsi ii. Keunikan / Inovasi / daya cipta teknologi iii. Kebolehpercayaan objektif & Kesesuaian metodologi iv. Potensi berskala/ Kemampuan Pembuatan v. Pematuhan Standard dan pengawalseliaan		<u>Impak Ekonomi</u> i. Pengurangan kos ii. Penggunaan sumber yang optimum iii. Potensi eksport iv. Meningkatkan produktiviti dan kualiti produk / perkhidmatan		
<u>Komersial</u> i. Kelebihan persaingan ii. Potensi dan permintaan pasaran iii. Kesesuaian masa untuk dipasarkan iv. Kelestarian v. Penyebaran vi. Keberkesanan kos vii. Strategi pasaran / Model Perniagaan viii. Sijil dan Standard (jika berkenaan)	<u>Impak Sosial</u> i. Kemampuan ii. Penciptaan Pekerjaan mahir dan pekerja perpengetahuan iii. Penyelesaian masalah iv. Peningkatan keselamatan v. Persekitaran tempat tinggal dan kerja yang kondusif	<u>Impak Alam Sekitar</u> i. Kesan Ekologi/ Karbon ii. Ekonomi Sekular iii. Pematuhan terhadap akta kualiti alam sekitar iv. Penggunaan sumber yang optimum	<u>Kewangan</u> i. Berpotensi menjana pulangan pelaburan ii. Nilai terhadap wang iii. Kelestarian Kewangan	<u>Pengurusan</u> i. Kelayakan profesional / Pengalaman ketua projek & Ahli Pasukan ii. Kesesuaian <i>milestone</i> iii. Pengurusan risiko



- Skim pembiayaan sedia ada luar dari Bahagian Dana
- Skim pembiayaan baharu MOSTI RMKe-12 Bahagian Dana



Skim Pembiayaan Baharu R&D MOSTI RMKe-12



R&D&C&I FUNDING FRAMEWORK RMKE-12

BAHAGIAN DANA

TOP-DOWN



MOSTI SRF

Kumpulan Sasar
Start-up/ PKS/
MNC/IHL/GRI/Agensi STI
(Termasuk Bukan Warganegara)

Kuantum
RM15,000,000

Tempoh
36 bulan



MOSTI AIF

Kumpulan Sasar
Individu/Persatuan/Koperasi/NGO
yang berdaftar

Kuantum
RM500,000

Tempoh
12 - 18 bulan



MOSTI TeD1

Kumpulan Sasar
Start-up/PKS/IHL/GRI/Agensi STI

Kuantum
RM1,000,000

Tempoh
24 bulan



MOSTI TeD2

Kumpulan Sasar
Start-up/PKS/IHL/GRI/Agensi STI
(Termasuk Bukan Warganegara)

Kuantum
RM3,000,000

Tempoh
36 bulan



MOSTI BGF

Kumpulan Sasar
Start-up/PKS/IHL/GRI/Agensi STI

Kuantum
RM4,000,000

Tempoh
36 bulan

BOTTOM-UP

Dana Penyelidikan Strategik (SRF)

Permohonan dibuka mengikut keperluan



Satu inisiatif **top-down** ke arah meningkatkan daya saing industri di Malaysia melalui bidang-bidang khusus yang ditawarkan oleh MOSTI atau **isu strategik** semasa



KATEGORI PEMOHON

Start-up/PKS/MNC/IHL/GRI/Agensi STI
(termasuk bukan warganegara)



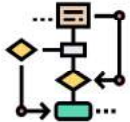
BIDANG KEUTAMAAN

10-10 MySTIE / Top Down



TECHNOLOGY READINESS LEVEL (TRL)

Dari TRL : 3 - 9



PROSES PERMOHONAN

Pitching (RFP) → Permohonan →
Penilaian → Pemakluman Keputusan



KOLABORASI/KERJASAMA

- IHL → hendaklah bekerjasama dengan Start-up/PKS
- GRI/Agensi STI → **digalakkan** bekerjasama dengan Start-up/PKS
- Start-up/PKS/MNC → **digalakkan** bekerjasama dengan IHL/GRI/Agensi STI



KUANTUM & TEMPOH PEMBIAYAAN

RM15 juta
(PKS/MNC - Secara padanan)*
36 bulan



KAEDAH PEMBAYARAN

- PKS dan MNC - Bayaran Pendahuluan (*disbursement*) dan Pembayaran Balik (*reimbursement*) – *mix mode*
- Start-up, GRI, IHL, Agensi STI - Bayaran Pendahuluan (*disbursement*)

* *In-kind* sehingga 50% - MOSTI akan biaya sehingga 70% dari kos projek
Cash Investment - MOSTI akan biaya sehingga 90% dari kos projek

Bagi kaedah pembayaran *mix-mode*, Jawatankuasa Penilaian Dana (JPD) akan mencadangkan nilai pembayaran pendahuluan berdasarkan merit.

Permohonan dibuka sepanjang tahun

Dana Bridging (BGF)



Meningkatkan tahap kesediaan (*readiness*) produk-produk hasil R&D supaya dapat menembusi pasaran



KATEGORI PEMOHON

Start-up/PKS/IHL/GRI/Agensi STI



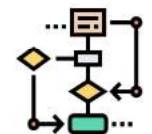
BIDANG KEUTAMAAN

10-10 MySTIE



TECHNOLOGY READINESS LEVEL (TRL)

Dari TRL : 7 - 9



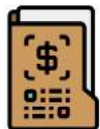
PROSES PERMOHONAN

Permohonan → Penilaian → Pemakluman Keputusan



KOLABORASI/KERJASAMA

Digalakkan untuk bekerjasama dengan Agensi Kerajaan atau agensi perkhidmatan



KUANTUM & TEMPOH PEMBIAYAAN

RM4 juta
(PKS- Secara padanan)*

36 bulan



KAEDAH PEMBAYARAN

- PKS - Bayaran Pendahuluan (*disbursement*) dan Pembayaran Balik (*reimbursement*) – *mix mode*
- Start-up, GRI, IHL, Agensi STI - Bayaran Pendahuluan (*disbursement*)

Bagi kaedah pembayaran *mix-mode*, Jawatankuasa Penilaian Dana (JPD) akan mencadangkan nilai pembayaran pendahuluan berdasarkan merit.

* *In-kind* sehingga 50% - MOSTI akan biaya sehingga 70% dari kos projek
Cash Investment - MOSTI akan biaya sehingga 90% dari kos projek

Permohonan dibuka sepanjang tahun

Dana *Applied Innovation* (AIF)



Meningkatkan penyertaan inovator dalam aktiviti inovasi



KATEGORI PEMOHON

Individu/Persatuan/Koperasi/NGO yang berdaftar



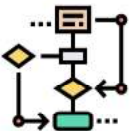
BIDANG KEUTAMAAN

10-10 MySTIE



TECHNOLOGY READINESS LEVEL (TRL)

TRL : 2 - 4



PROSES PERMOHONAN

Permohonan → Penilaian → Pemakluman Keputusan



KOLABORASI/KERJASAMA

Digalakkan berkolaborasi dengan pakar/penyelidik daripada HLI/GRI



KUANTUM & TEMPOH PEMBIAYAAN

RM500,000.00

12-18 bulan



KAEDAH PEMBAYARAN

Bayaran Pendahuluan (*disbursement*)

Bayaran Pendahuluan berdasarkan nilai kos *milestone* pertama atau 40% daripada kos projek

Permohonan dibuka sepanjang tahun

Dana Pembangunan Teknologi 2 (TeD 2)



Meneruskan pembangunan konsep yang berkaitan dengan reka bentuk teknologi, proses atau produk **ke arah pengkomersialan** bagi mengurangkan jurang kegagalan (*valley of death*)



KATEGORI PEMOHON

Start-up/PKS/IHL/GRI/Agensi STI
(termasuk bukan warganegara)



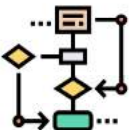
BIDANG KEUTAMAAN

10-10 MySTIE



TECHNOLOGY READINESS LEVEL (TRL)

Dari TRL : 4 - 7



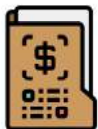
PROSES PERMOHONAN

Permohonan → Penilaian → Pemakluman Keputusan



KOLABORASI/KERJASAMA

- IHL → **hendaklah** bekerjasama dengan Start-up/PKS
- GRI/Agensi STI → **digalakkan** bekerjasama dengan Start-up/PKS
- Start-up/PKS → **digalakkan** bekerjasama dengan IHL/GRI/Agensi STI



KUANTUM & TEMPOH PEMBIAYAAN

RM3 juta
(PKS- Secara padanan)*
36 bulan



KAEDAH PEMBAYARAN

- PKS - Bayaran Pendahuluan (*disbursement*) dan Pembayaran Balik (*reimbursement*) – *mix mode*
- Start-up, GRI, IHL, Agensi STI - Bayaran Pendahuluan (*disbursement*)

* *In-kind* sehingga 50% - MOSTI akan biaya sehingga 70% dari kos projek
Cash Investment - MOSTI akan biaya sehingga 90% dari kos projek

Bagi kaedah pembayaran *mix-mode*, Jawatankuasa Penilaian Dana (JPD) akan mencadangkan nilai pembayaran pendahuluan berdasarkan merit.

Permohonan dibuka sepanjang tahun

Dana Pembangunan Teknologi 1 (TeD 1)



Membangunkan konsep yang berkaitan dengan reka bentuk teknologi, proses atau produk yang **berpotensi untuk dikomersialkan**



KATEGORI PEMOHON

Start-up/PKS/IHL/GRI/Agensi STI



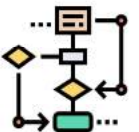
BIDANG KEUTAMAAN

10-10 MySTIE



TECHNOLOGY READINESS LEVEL (TRL)

TRL : 2 - 4



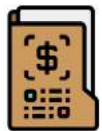
PROSES PERMOHONAN

Permohonan → Penilaian → Pemakluman Keputusan



KOLABORASI/KERJASAMA

Digalakkan berkerjasama dengan/atau Start-up/PKS/IHL/GRI/Agensi STI



KUANTUM & TEMPOH PEMBIAYAAN

RM1,000,000.00

24 bulan



KAEDAH PEMBAYARAN

- PKS - Bayaran Pendahuluan (*disbursement*) dan Pembayaran Balik (*reimbursement*) – *mix mode*
- Start-up, GRI, IHL, Agensi STI - Bayaran Pendahuluan (*disbursement*)

Bagi kaedah pembayaran *mix-mode*, Jawatankuasa Penilaian Dana (JPD) akan mencadangkan nilai pembayaran pendahuluan berdasarkan merit.

MALAYSIA

GRAND CHALLENGE

**SMART CITIES AND
TRANSPORTATIONS**



SMART TECHNOLOGY & SYSTEM
(NEXT GENERATION ENGINEERING & MANUFACTURING)



MEDICAL AND HEALTHCARE



**BUSINESS AND FINANCIAL
SERVICES**



AGRICULTURE AND FORESTRY



WATER AND FOOD



EDUCATION



ENERGY



CULTURE, ARTS AND TOURISM



ENVIRONMENT & BIODIVERSITY



<https://edana.mosti.gov.my/>

SRF Strategic Research Fund

A top-down initiative for the development of strategic technology and innovation leading toward commercialisation and solving peoples' problems through the Malaysia Grand Challenge



APPLICANT

Start-up/SME/MNC/IHL/GRI/STI Agencies
(Including Non-Malaysian)



QUANTUM & PROJECT DURATION

RM15,000,000.00 (SME/MNC - Matching) | 36 months



TECHNOLOGY READINESS LEVEL

TRL 3 - 9

SRF SECRETARIAT

✉ nani@mosti.gov.my

✉ ramadhan@mosti.gov.my

☎ 03 8885 8544 (Nani Rahayu) ☎ 03 8885 8704 (Shahrul Ramadhan)



KEMENTERIAN SAINS,
TEKNOLOGI DAN INOVASI
MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION

<https://edana.mosti.gov.my/>

AIF Applied Innovation Fund

Increase the participation of innovators
in innovative activities



APPLICANT

Individual/Association/Cooperation/Registered NGOs



QUANTUM & PROJECT DURATION

RM500,000.00 | 12 - 18 months



TECHNOLOGY READINESS LEVEL

TRL 2 - 4

AIF SECRETARIAT

✉ nadiah@mosti.gov.my

☎ 03 8885 8309 (Nadiah)

✉ elmy@mosti.gov.my

☎ 03 8885 8367 (Elmy)

<https://edana.mosti.gov.my/>

TeD1 Technology Development Fund 1

Develop the concepts related to technology design, processes or products that have the potential to be commercialised



APPLICANT

Start-up/SME/IHL/GRI/STI Agencies



QUANTUM & PROJECT DURATION

RM1,000,000.00 | 24 months



TECHNOLOGY READINESS LEVEL

TRL 2 - 4

TeD1 SECRETARIAT

✉ noraisyah@mosti.gov.my

✉ sitikhadijah@mosti.gov.my

☎ 03 8885 8316 (Noraisyah)

☎ 03 8885 8322 (Siti Khadijah)

TeD2 Technology Development Fund 2

Continuing the concepts development related to technology design, processes or products towards commercialisation to reduce valley of death



APPLICANT

Start-up/SME/IHL/GRI/STI Agencies (including Non-Malaysian)



QUANTUM & PROJECT DURATION

RM3,000,000.00 (SME - Matching) | 36 months



TECHNOLOGY READINESS LEVEL

TRL 4 - 7

TeD2 SECRETARIAT

✉ shahzari@mosti.gov.my

☎ 03 8885 8315 (Shahzari)

✉ noordina@mosti.gov.my

☎ 03 8885 8618 (Noor Dina)

BGF Bridging Fund

Increase the readiness level of
R&D products in order to
penetrate the market



APPLICANT

Start-up/SME/IHL/GRI/STI Agencies



QUANTUM & PROJECT DURATION

RM4,000,000.00 (SME - Matching) | 36 months



TECHNOLOGY READINESS LEVEL

TRL 7 - 9

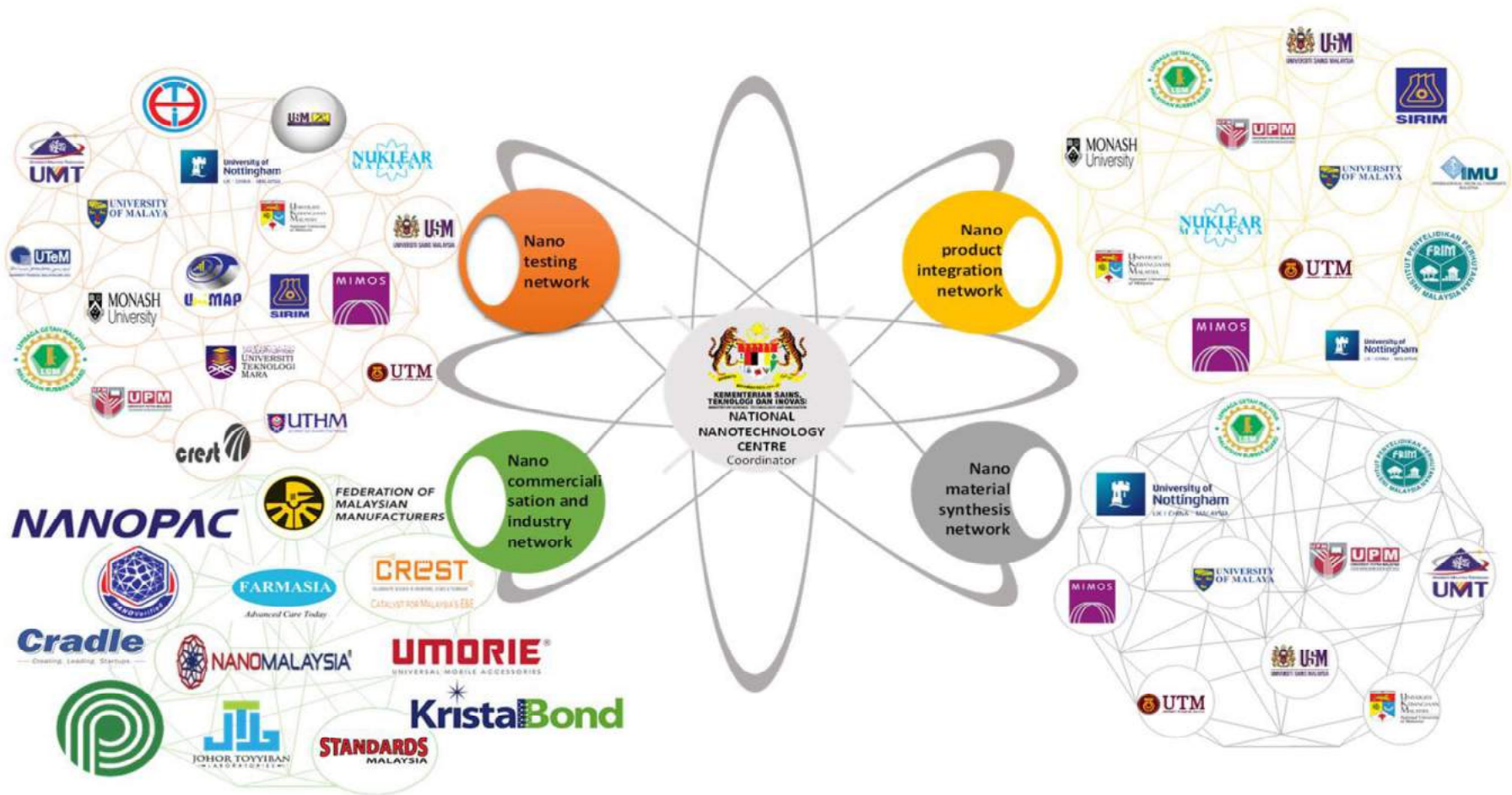
BGF SECRETARIAT

✉ shahzari@mosti.gov.my

✉ rosnani@mosti.gov.my

☎ 03 8885 8315 (Shahzari)

☎ 03 8885 8324 (Rosnani)



Source: NNC, 2020

Figure 16: Framework of National Nanotechnology Network



National Nanotechnology Centre

THANK YOU

