Unnamed area

Session 1 : Issues/challenges faced in R&D expenditure

BE 2

Gross Domestic Expenditure in R&D (GERD)

- Current Expenditure
  - R&D personnel labour cost
  - Materials, supplies, equipment & services to support R&D activities
- Gross Fixed Capital Expenditures
  - Land & Building
  - Machinery & Equipment
  - Capitalized computer software
  - Other IP Products

DOKUMEN DIPERAKUI BENAR

MOHAMAD MUZAFFAR ABDUL HAMID
TIMBALAN PENGARAH
PCD

1 LIst as many issues as possible..

Expertise & Talents | Financial Resources & Sustainability | Impact of R&D Activities | Industry R&D Culture/Practices | Industry R&D Supporting/Enabling Ecosystem

2 List down top 5 issues

	Why it become an issue?	What can be done to solve it?	Who should involve in the solution?	How to implement it?	When can be implemented/can see the result
Issue #1 Lack & Mismatch of Expertise & Talents	SME can't afford to fund or contribute to researchers Lack of opportunities in SME Lack of needs & drive of core technologies Kekurangan Kepakaran di dalam in-house dan masih bergantung kepada kepakaran luar- (teknologi dan knowledge). Limited sumber untuk buat R&D Fail to attract global subject matter experts Low salaries for expertise & talents involved in R&D in Malaysia Kolaborasi R&D sukar mendapat team yang tepat Inventor and indusries are not friendly parties after all	EFFECTIVELY DESIGN CLUSTER INDUSTRI N wel coordinate ,assign appropriatecomsultant Strategic partnership Create eco system to expedite the process Dana yang mencukupi Joint venture Technology transfer Government incentive to the parties involved Menaikkan kadar elaun bagi penyelidik Invest in our top researchers overseas in top global organizations to develop technology for the country	Private Sector Government Researcher/ Scientist/ Inventor of Uni and RI and SMEs Ministry and its relevant agencies Relevant Policy Maker	Adakan expert coaching program Set KPI for inventors/researchers who are successful commercialise and collaborate with external parties. Set clear focus for long term matching talent and R&D	**Yearly Researcher of the Year Award/Competition with Financial Reward**
Issue #2 Limited Financial Resources & Sustainability	To update funding cost items related to R&D activity chain For MP fund - 5 yr proposal but yearly reviewed with potential cuts More funding available at TRL 4 and higher but less in fundamental which is key to develop core technologies and IP Keupayaan kewangan penerima dana High cost for equipment maintenance Masih bergantung sepenuhnya kepada dana kerajaan bagi mendapatkan geran Funding of grants not aligned to industry needs. Too many funds with differing directions spreading the funding too thinly to too many recipients. Hence lack of impact SME companies do not have any or insignificant allocation to R&D as they don't get quick ROI and they focusing on manufacturing and selling Peruntukan dana tidak mencukupi bagi selenggara aldan maksmal (Preventive maintenance) - Kos selenggara kebiasaannya mahal More incentives to sykt yg buat R&D Kesukaran mendapatkan dana untuk buat prototaip dan upscalling No capital for investment in R&D High Cost	Efficient management of R&D fund Adakan dana precom untuk kluster industri yg dikenalpasti Subsidize investments in R&D by private sectors Shared facility? Menggunapakai/ sewaan peralatan daripada agensi kerajaan (jika berkaitan) Encourage researcher to be part in the company	Private and Public Sectors Open to angel venture	Policy to allow researcher run the company Revise existing act or introduce new act	**Medium term - 5 years Long term 10 years**
Issue #3 Low Impact of R&D Activities	Masih di peringkat prototaip Output R&D tidak sesuai untuk aplikasi oleh industri Chasm between Basic, Applied and Translational Research: HLIs and RIs research outputs not tailored to Industry demands Academic Keperluan pengguna produk dan perkhidmatan cepat berubah Too much redundancies on same topic, over replication, and not building on core technologies R&D output not market ready R&D time taken too long R&D syok sendiri, no link to economy or society challenges. And mostly stuck at laboratory work (not necesarily fundamental research that create novelty) Lack of players in the Industry R&D Ecosystem: R&D by Industries are conducted from the few MNCs. Malaysia's local SMEs (98.5% of industries) mostly do not conduct R&D and their nature of business does not need R&D unlike in Germany where their SMEs are involved in R&D because of their focus on high value-added & tech intensive manufacturing	MUST drive for Absolute Novelty and reach global market (at least ASEAN) Measure translation of R&D into MVP prototypes and marketable products GLC/GLIC to adopt R&D Industry or market driven R&D even at fundamental research Industry review of research proposal for impact to industry and society	GLC/GLIC collaborate with researchers	Identify clear goals and resources required. Critical success factors as part of the plan.	**Yearly Innovation of the Year Award/Competition with Financial sponsorships**
Issue #4 Weak Industry R&D Culture/Practices	Large companies (MNC, LLC) do not see value in co-funding research locally as they do see the novelty in the project being proposed / pursued. Weak IP protection and low IP ownership: IP rights of R&D conducted in Malaysia do not belong to Malaysia Ownership to commercialize Timely commercialization	Adopt MNCs practices INTEL, Osram, Huawei	Private sector led with public sector support and funding	Buy in from industry players - incentives, legal framework and allow global experts to participate	**Medium term - 5 years Long term 10 years**
Issue #5 Gaps in the Enabling Ecosystem for Industry R&D	Financial projections unclear - ROI Inventor lack of interest to commercialise their IP and it became a public domain at the end . How to link R&D project to the industry Driven by researcher instead of business entreprenuers Lack of coordination between commercialization activities and fundamental research Lack of feedback from capital investors	Roadmap with clear goals Establish Industry-specific Market, Applications & Technology Roadmap (i.e. STIE 10x10, CREST E&E cluster-technology domain) Identify Unmet needs of specific industry, and what are NUD (new, unique, difficult) to be developed by researchers Adakan platform industri minta R&D yang diperlukan	Private and Public Sectors	Mengurangkan digital divide di kalangan SMEs GLC / GLIC to lead by example	**National STI / RDCI output** **DSTIN Outcome**

Unnamed area

Session 2 : Crafting Strategy

Use this template to visualize and define different components of a budding or existing strategy.

List of suggestions / request / expectation in R&D

Challenges

What problems are your trying to solve?
What obstacles must you overcome?

- **Expertise & Talents**
- **Financial Resources & Sustainability**
- **Impact of R&D Activities**
- **Industry R&D Culture/Practices**
- **Industry R&D Supporting/Enabling Ecosystem**

Aspirations

What are the ideal desired outcomes?
What do you want to achieve?

- Partnering with like minded organization (globally)
- Well funded research
- Success rate above 70% for commercial
- Good eco-system in RDCI
- Global standards for MY innovations
- High pool of expertise
- Active investments in RDCI
- Industry recognition
- New innovation per year
- Allocation for R&D at i.e. 3-5% of revenue
- New research & development model

Focus Areas

What is the scope of the strategy?
What will you focus on for the most impact?

- Foreign research collaboration
- Support business enterprises profitability
- Good research partners
- Research support resources
- Open access to local resources
- Research network
- Create new policy to share knowledge with global players

Guiding Principles

How will you overcome the challenges?
What specific mantras will guide your teams?

- Globally recognised talents
- Benchmark baseline % (RDCI + Commercial)
- High value ideation
- Proprietary R&D
- World class RDCI ecosystem
- Return on R&D funding
- Target market needs
- New concept of research - Startups

Action Plan

What types of activities solve the problems?
What capabilities achieve your aspirations?

- Reward talents to pitch good ideas
- Identify high priority research to fund
- Publish commercial proposals for investments
- Provide incentives to support success factors
- Get business enterprises input
- Publish research ideas for investments
- Craft a plan to meet targets
- Policy to reward innovation and success

Outcomes

What metrics will be used to gauge success?
What types of measurements will you employ?

- **50% of research by private sectors**
- **5% of GDP for research investments**
- **1% of top research projects / talents based in MY**
- **80% SIRIM / ISO approved research certification**
- **50% global research network part of MY ecosystem**
- Business led talents instead of academia
- High supply of funding from private sectors and MNCs
- MY as a top choice for R&D investments
- New risk-reward culture
- Vibrant inclusive ecosystem players
- Award winning talents in MY
- Highly successful commercial research
- Award winning research based in MY
- High standards research and industry practices
- Private-Public research projects

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