



IDENTIFYING R&D&C PRIORITY AREAS

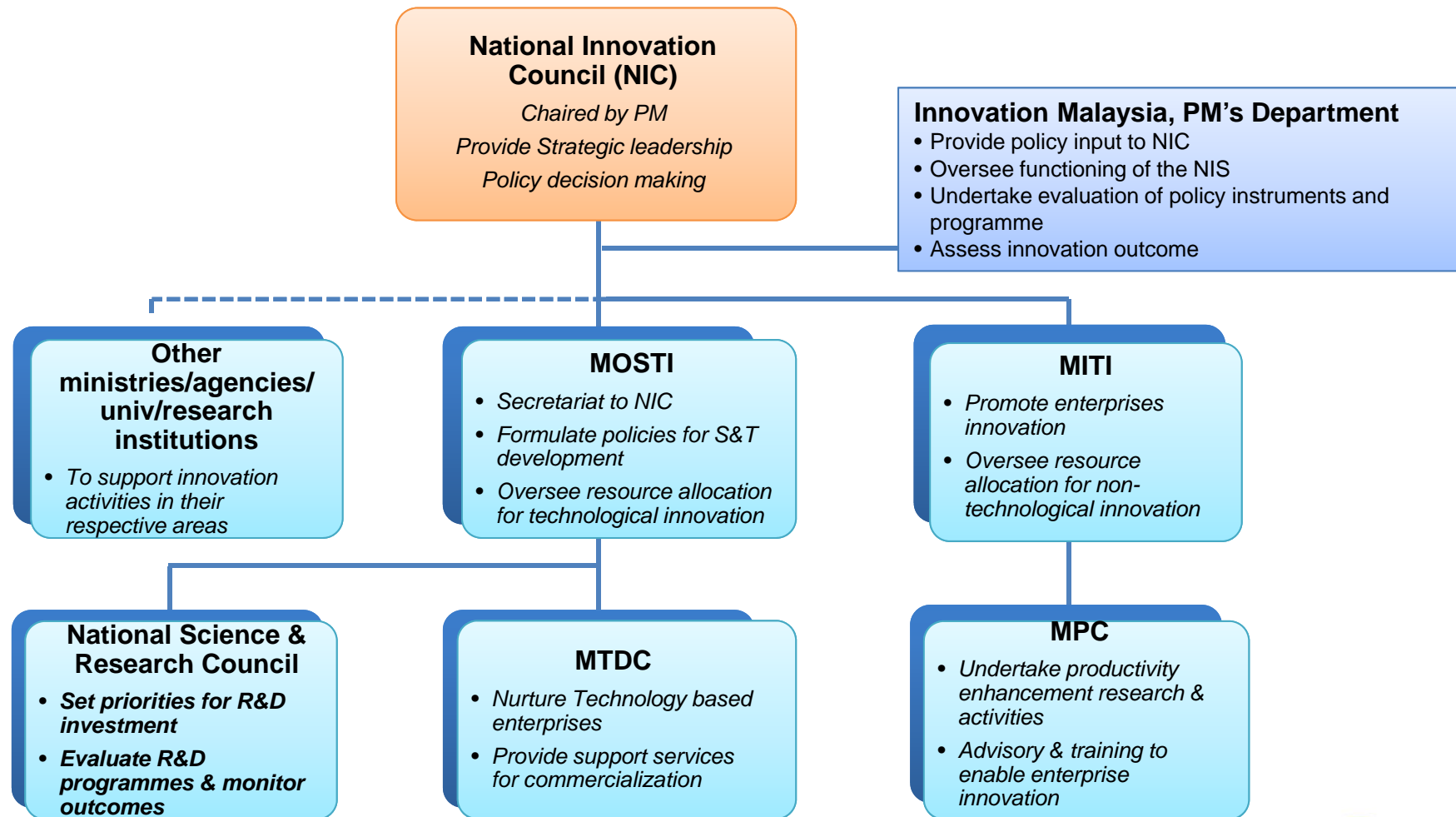
NATIONAL SCIENCE AND RESEARCH COUNCIL (NSRC)



Establishment of the NSRC

The NSRC was established under the 10th Malaysia Plan (2011)

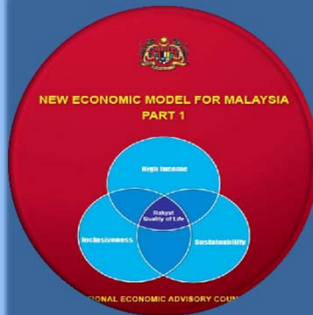
Institutional Structure Supporting Innovation and R & D



Objectives



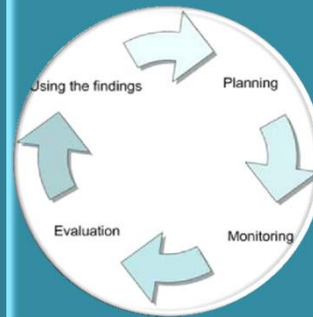
To develop National S&T Transformation Plan on the governance of S&T;



To chart roadmaps, aligning S&T to the New Economic Model



To strengthen the role of S&T through assisting in an advisory capacity, the formulation of policies and national strategies

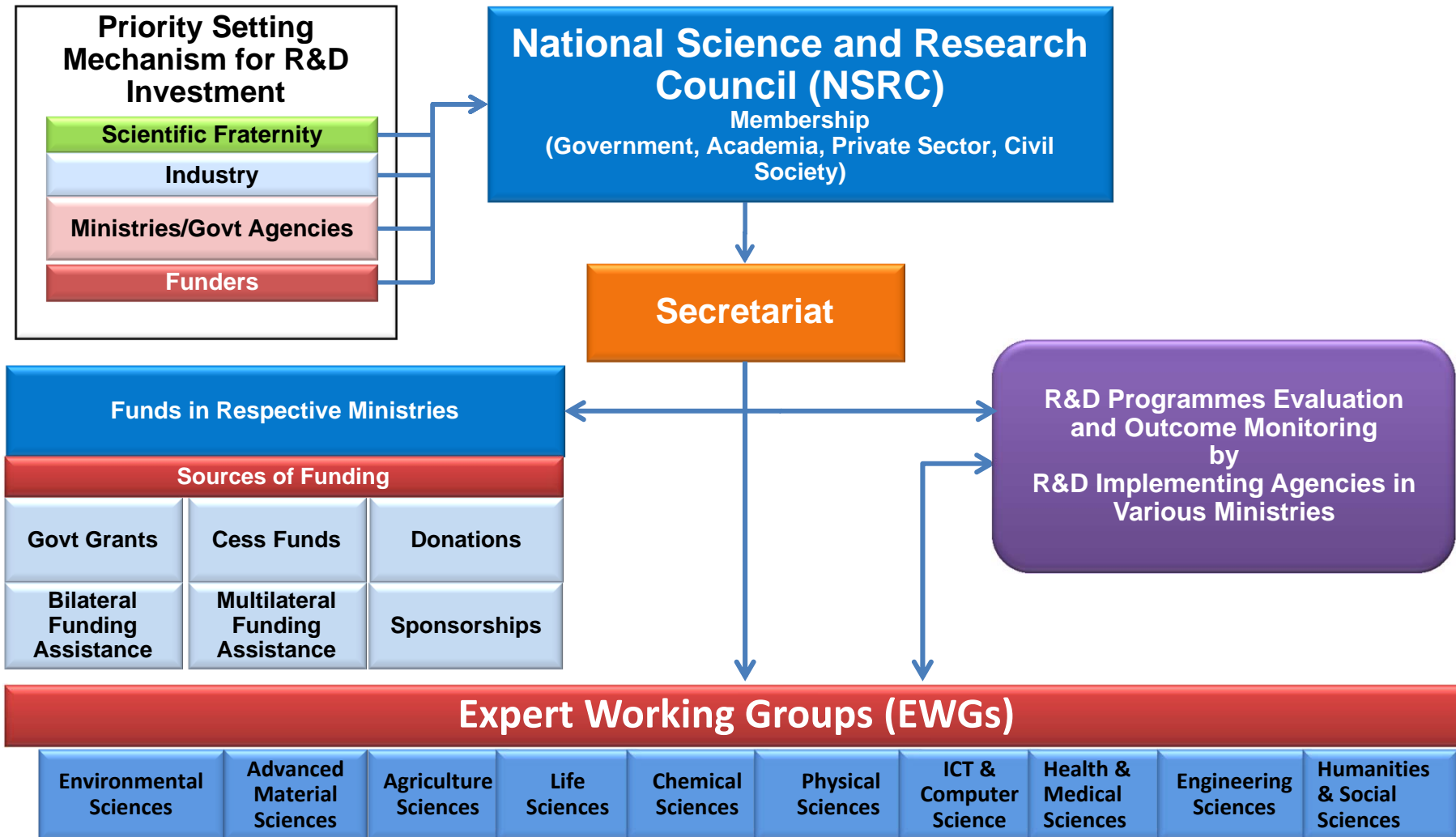


To monitor and evaluate the S&T capabilities of the country to meet challenges of national development



To make Malaysia more visible and attractive as a global research partner for organisations, research teams and individuals by providing a coordinated approach and a single point of contact

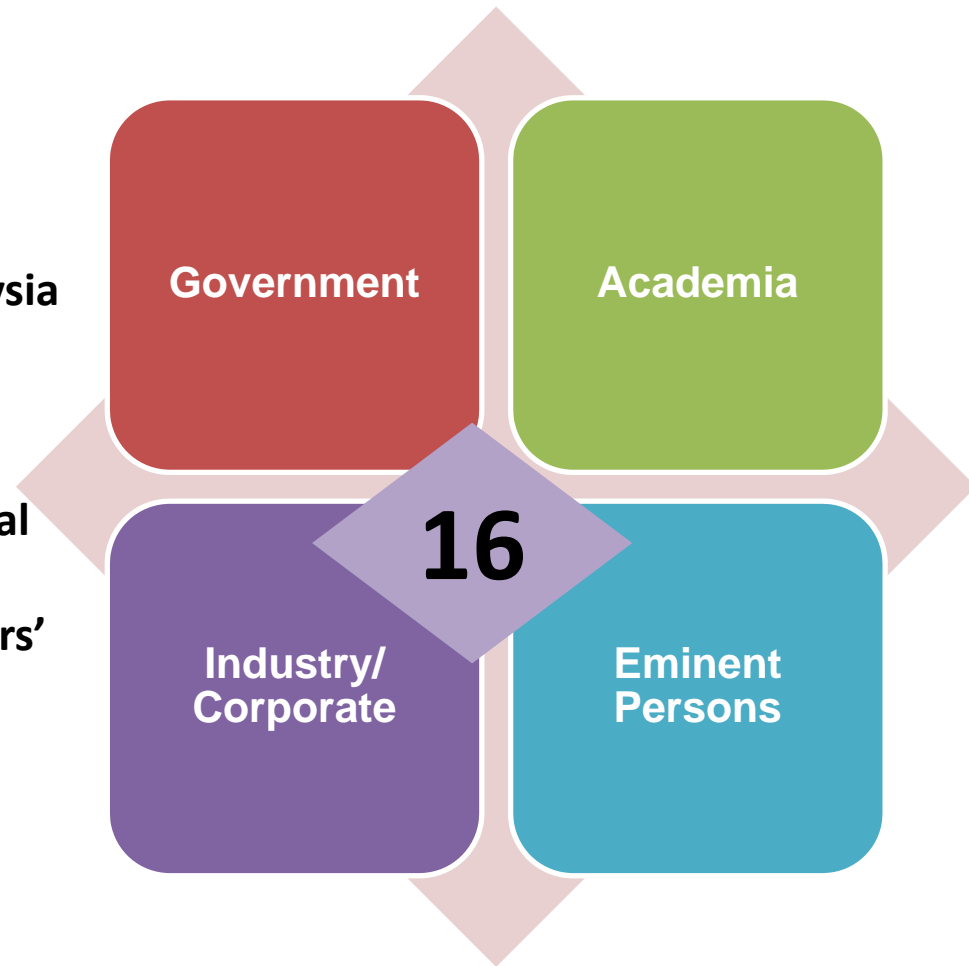
Operational Structure and Framework



NSRC Membership

8 *Ex Officio*

1. Sec Gen Treasury
2. Sec Gen MOSTI
3. President of Academy Sciences Malaysia
4. Director General, EPU
5. Director General, Dept. of Higher Education
6. Protem President of Academy of Social Sciences and Humanities (ASSH)
7. Member of University Vice-Chancellors' Council
8. CEO AIM



The Implications and Outcomes

- 1) An established one stop center for R&D priority setting to set a common vision for the use of S&T for socio-economic development;
- 2) Streamlined mechanism to realign the research agenda in S&T organisations to reduce overlap with consolidated research effort.
- 3) Ability to properly monitor and evaluate in a timely manner the country's knowledge, technology, and innovation and product portfolios.
- 4) Minimise inefficiencies in policy and programme implementation with more aligned and synchronised S&T focus for convergence;
- 5) Proper governance in assisting government to address current and on-going challenges on the use of S&T for national well-being (Rakyat Sejahtera) as well as to provide a platform for long range scientific advice on issues of national importance (forecasting and foresighting); and
- 6) Ensure sustainable contribution of S&T for a resilient and competitive economic growth using the 1Malaysia concept premised on the meaningful inclusivity of the Rakyat.

Activities to Date

- 1. Reviewed the National STI Policy;**
- 2. Public Research Assets (PRAs): Research Performance and Its Impact;**
- 3. Increasing National R&D Expenditure (GERD): New Mechanism to stimulate Private Sector Investment;**
- 4. Teaching of Science and Mathematics: Implications to the Future of Malaysia;**
- 5. R&D Priority Setting;**
- 6. Science Act; and**
- 7. R&D for Rice Self-Sufficiency/ Food Security**

R&D PRIORITY AREAS

To prioritize the R&D for science & technology development the following was taken into consideration:

- *Utilization of **well known process & framework***
- *Selection process must be **transparent***
- *Identification of areas will be **problems/issues based** either realized or anticipated*
- ***Trans disciplinary** & diverse engagement*
- *Considerations into **long term impact & strategies***
- *Considerations into **resources & competencies***

Leveraging on existing work that has already elements of national priorities. This included both the **S&T focus areas** as well as the **economic focus areas**.

PRIORITIZATION PROCESS

Taking the mandates spelled out by the main council, the sub committee undertook the following to meet the requirement set forth in prioritizing the R&D areas:

- *Incorporating elements of technology foresight & MCDM;*
- *Documenting the prioritization process as well as repeated engagement;*
- *Engagement of Expert Working Groups which represents 10 disciplines;*
- *Framework for prioritizations which take into consideration the issues & problems as well as the resources and competencies.*

Leveraging on existing work to include but not limited to:

S&T focus areas

- *Mega Science*
- *National Technology Foresight*

Economic focus areas

- *Industrial master plan*
- *NKEAs*

NATIONAL R&D FRAMEWORK

VISION 2020/NEM
HIGH INCOME FULLY DEVELOPED NATION & ECONOMY

Sustainable
Economy

Enhanced
Quality of Life

Sustainable
Environment

**ISSUES &
PROBLEMS
EITHER
REALIZED
OR
ANTICIPATE
D**

R&D GOALS

New Discoveries

Knowledge Generation

Societal Wellbeing

*Legal
Framework*

R&D PRIORITY AREAS

Areas 1

Areas 2

Areas 3

Areas 4

Strategies

- **Develop**
- **Partnership**
- **Acquire**

CRITICAL SUCCESS FACTORS

Competencies

Human Capital

Infrastructure

Facilities

Career Path

Support

FUNDING

POLICIES

NATIONAL FOCUS AREAS



6 National Key Result Areas



12 National Key Economic Areas



11 Development Areas



*12 manufacturing sectors
8 non government business areas*



*National Technology Foresight Areas
Mega Science*



Niche Priority Areas



FOCUS AREAS COMPARISON

Focus Areas/Sectors	National Foresight	Mega Science	NKEAs	IMP3
Advance Manufacturing	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/> Machinery & equipment
Agriculture & Food Security	<input checked="" type="checkbox"/> Food Security	<input checked="" type="checkbox"/> Agriculture	<input checked="" type="checkbox"/> Agriculture	<input checked="" type="checkbox"/> Halal & Food processing
Biotechnology	<input checked="" type="checkbox"/> *	<input checked="" type="checkbox"/> Biodiversity		
Domestic Safety & Security	<input checked="" type="checkbox"/> ICT Based			
E&E	<input checked="" type="checkbox"/> Electronics *		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Education			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Education services
Energy	<input checked="" type="checkbox"/> Future Energy	<input checked="" type="checkbox"/> Energy	<input checked="" type="checkbox"/> Oil, Gas & Energy	<input checked="" type="checkbox"/> Petrochemicals
ICT	<input checked="" type="checkbox"/> *		<input checked="" type="checkbox"/> Comms Content & Infrastructure	
Material Science	<input checked="" type="checkbox"/> *			<input checked="" type="checkbox"/> Textile & apparel, Metals
Medical & Healthcare	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Health	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Devices & pharmaceuticals
Nanotechnology	<input checked="" type="checkbox"/> *			
Plantation Crops	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/> Palm Oil	<input checked="" type="checkbox"/> Wood, rubber, oil palm
Services (Business & Financial)			<input checked="" type="checkbox"/> Business & Financial	<input checked="" type="checkbox"/> Non Government
Tourism			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Transportation	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/> Greater KL	<input checked="" type="checkbox"/> Equipment & Logistics
Waste Management	<input checked="" type="checkbox"/>			
Water Security	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Water		
Wholesale & Retail			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Distributive trade

* NTF identify as cross cutting and converging technology

PRIORITIZATION CRITERIA

Attractiveness

- Alignment to national priorities
- Economic & industrial impact
- Knowledge generation
- Social & societal impact
- National competitiveness
- Novelty



Feasibility

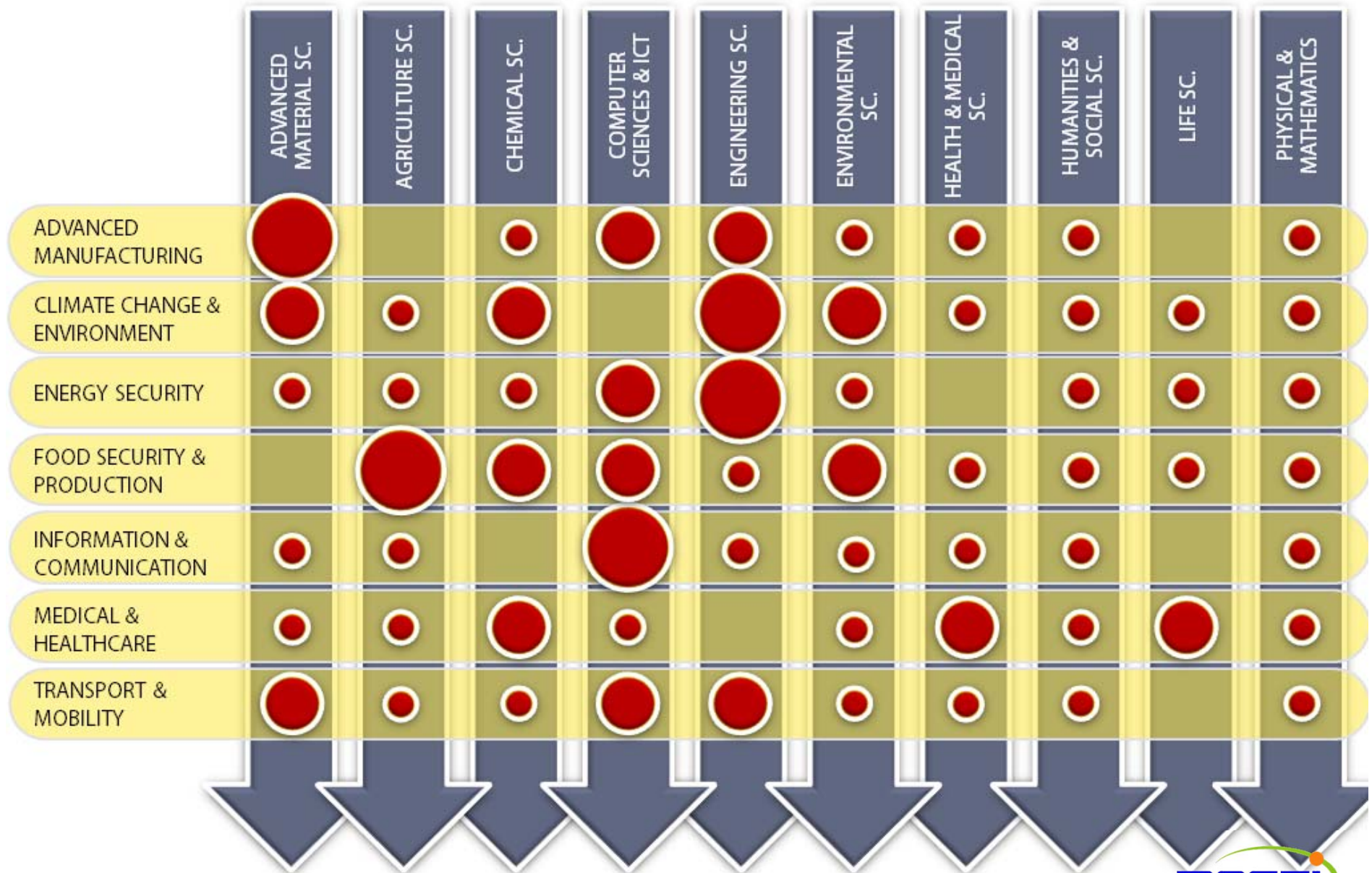
- Application potential & diffusion
- Cost effectiveness
- Material and infrastructure
- People & competencies
- Technology readiness and maturity
- Time horizon of impact



>500

list of research areas

EWGs' Consultation



NATIONAL R&D AREAS

After numerous consultations and reiterations with the EWGs as well as within the R&D sub committee, the National R&D priority areas are presented in the following:

S&T Enablers

Knowledge generation & strengthening the areas of fundamental science, social sciences as well as the cross cutting & converging technologies

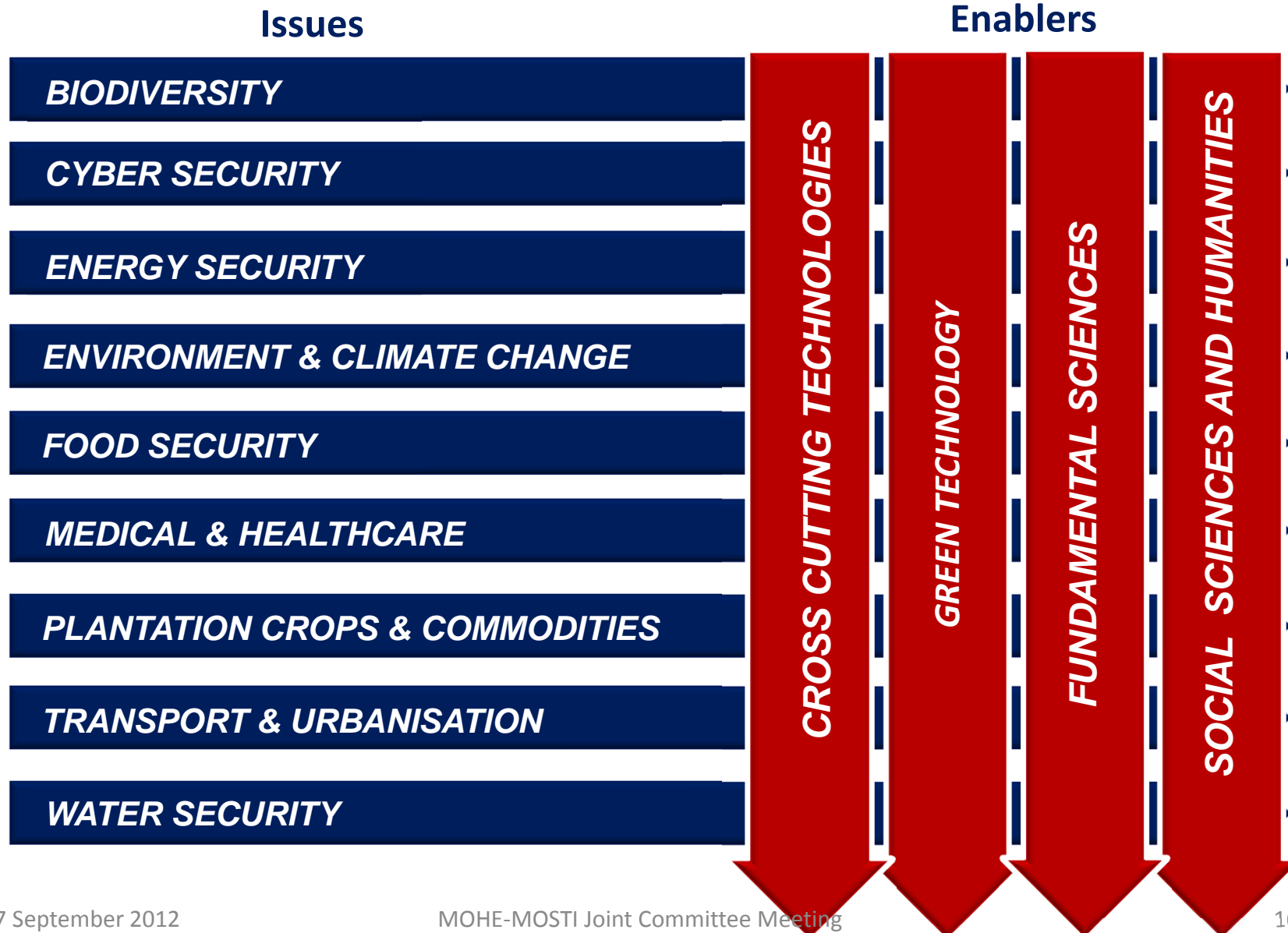
National Issues

Areas in relation to the general well being of the nation and the society, addressing national issues

Global Issues

Areas that enable the country to cope with global issues that has direct impact to the country

NSRC's R&D FOCUS AREAS



FOCUS AREAS GOALS

Biodiversity

*Sustainable Exploitation of Malaysian **biodiversity** to address issues identified or anticipated.*

Cyber Security

*Development of national **autonomous and secure systems** to reduce the dependency on foreign for systems of strategic importance*

Energy Security

*Harnessing alternative resources and improving the **efficient use of energy** especially in the areas of **renewable energy** to reduce dependency on fossil fuel*

Environment & Climate Change

*Supporting ecosystem management, protection and improvement to mitigate **flood, drought & air pollution** as well as promotion of **eco tourism** for sustainable development*

Food Security

*Improvement of **food crops, live stock, fisheries & animal feedstock**; focusing on **post harvest physiology & technology** to reduce dependency of import on staple food and increase the level of self sufficiency.*

FOCUS AREAS GOALS

Medical & Healthcare

*Improving health, wellbeing & longevity through the diagnostic, prevention & treatment of **lifestyle diseases** as well as **new and emerging diseases***

Plantation Crops & Commodities

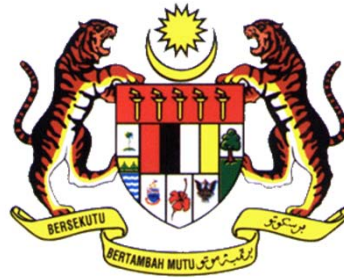
*Creating sustainable plantation crops and commodities sector by increasing the productivity and utilization, focusing on **Oil Palm, Timber, Rubber, Cocoa & Pepper***

Transportation & Urbanization

*Reduce dependency of fossil fuel & enhance energy efficiency by focusing on the **use of alternative energy & design engineering**. Ensuring sustainable urbanization via efficient urban **waste management***

Water Security

*Ensuring sustainable water supply & optimizing water usage focusing on **creating sustainable sources** and **improving the processing, treatment & distribution of water***



THANK YOU

