

EVALUATION GUIDELINES OF R, D & C FUND UNDER MOSTI

GOALS

KNOWLEDGE BASED ECONOMY



KNOWLEDGE
GENERATION



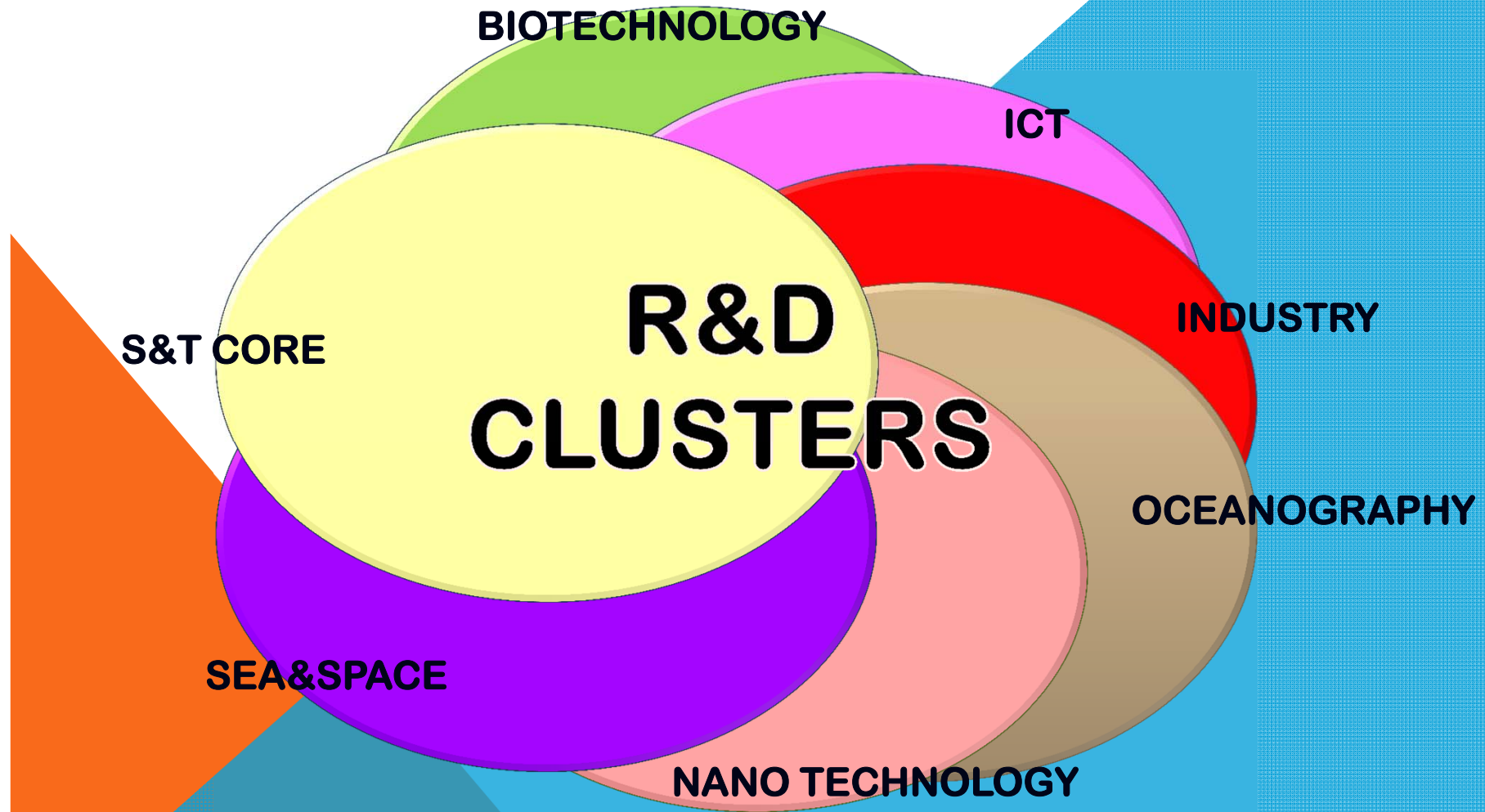
WEALTH CREATION



SOCIAL
WELL BEING

Pivoting Science and Technology
to Innovation

CLUSTERS



Evolution of MOSTI R&D&C Fund

EVOLUTION OF MOSTI R&D&C FUND

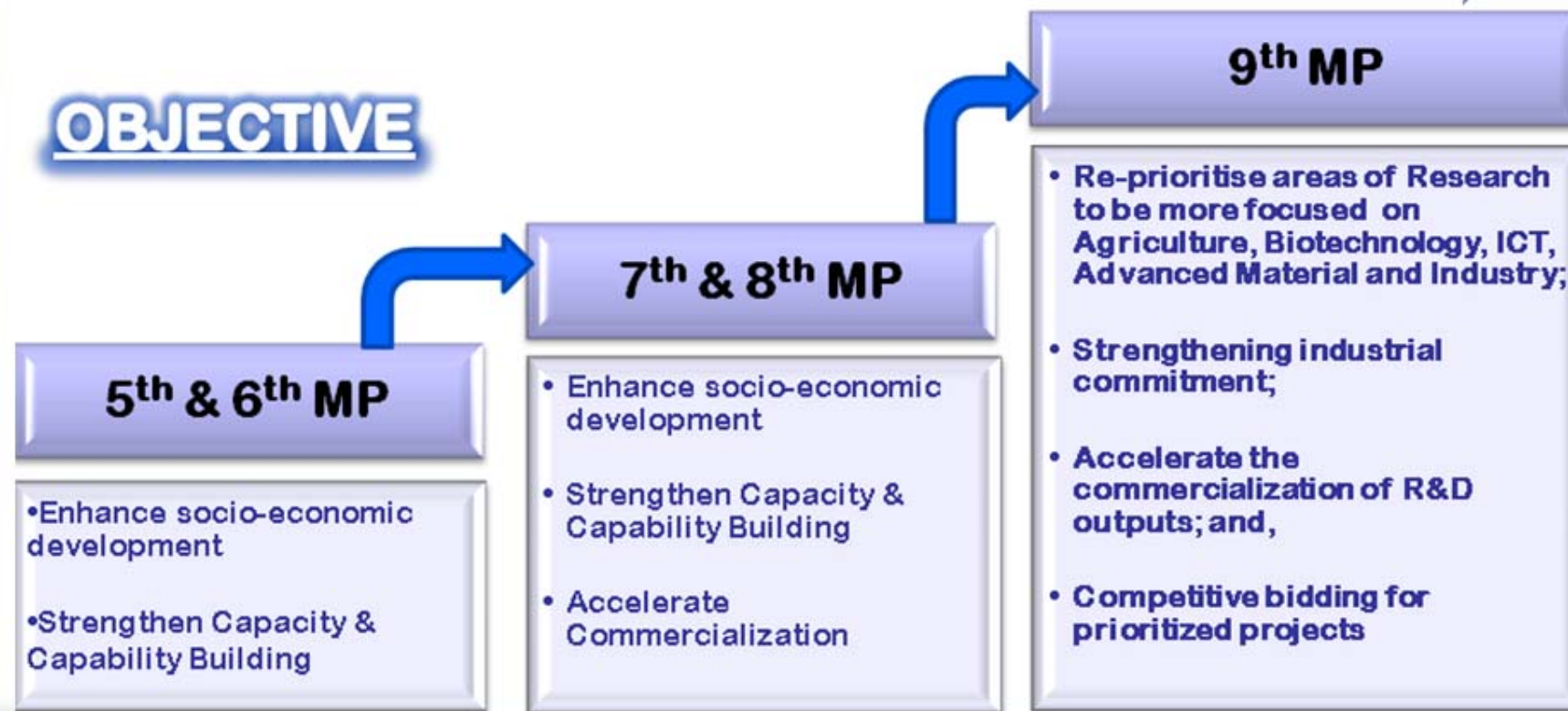
R&D Fund Disbursed
Directly from Treasury to
IHLs/RIs

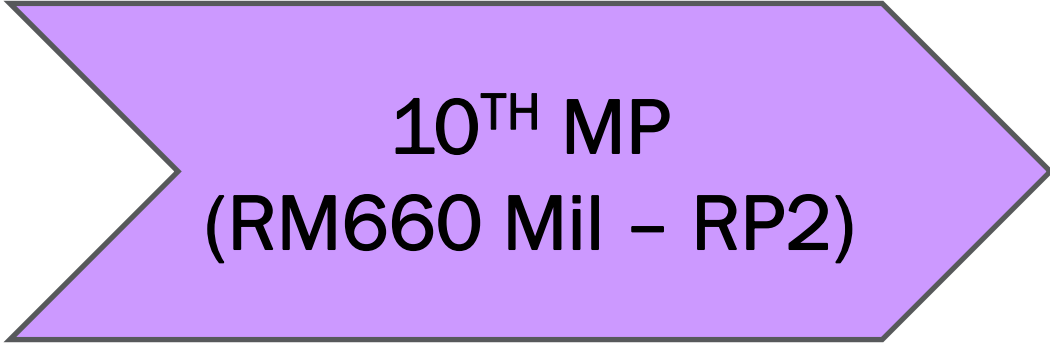
R&D Fund
Managed by
MOSTE

R&D&C Fund
Managed by
MOSTI



OBJECTIVE



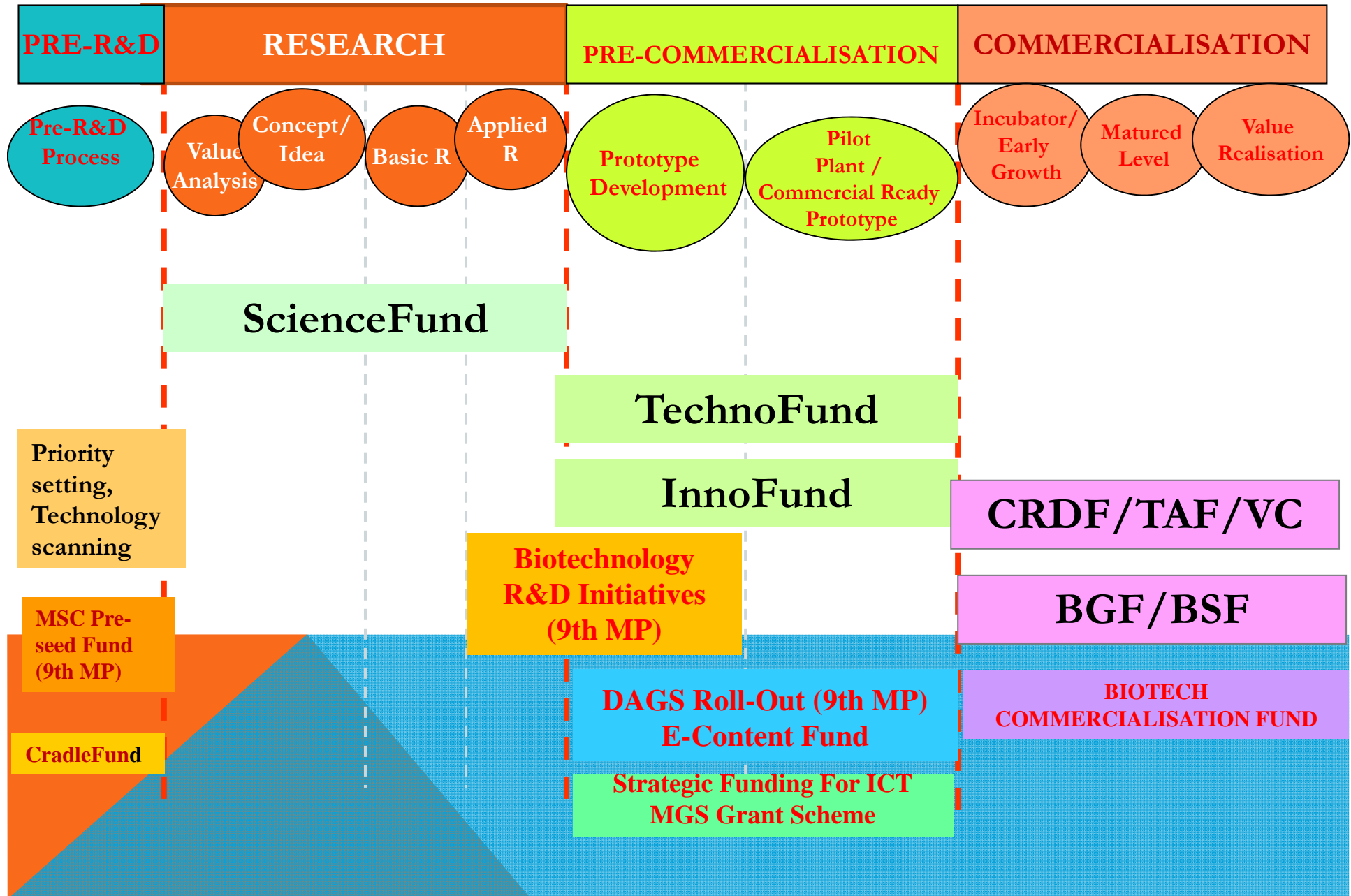


10TH MP
(RM660 Mil – RP2)

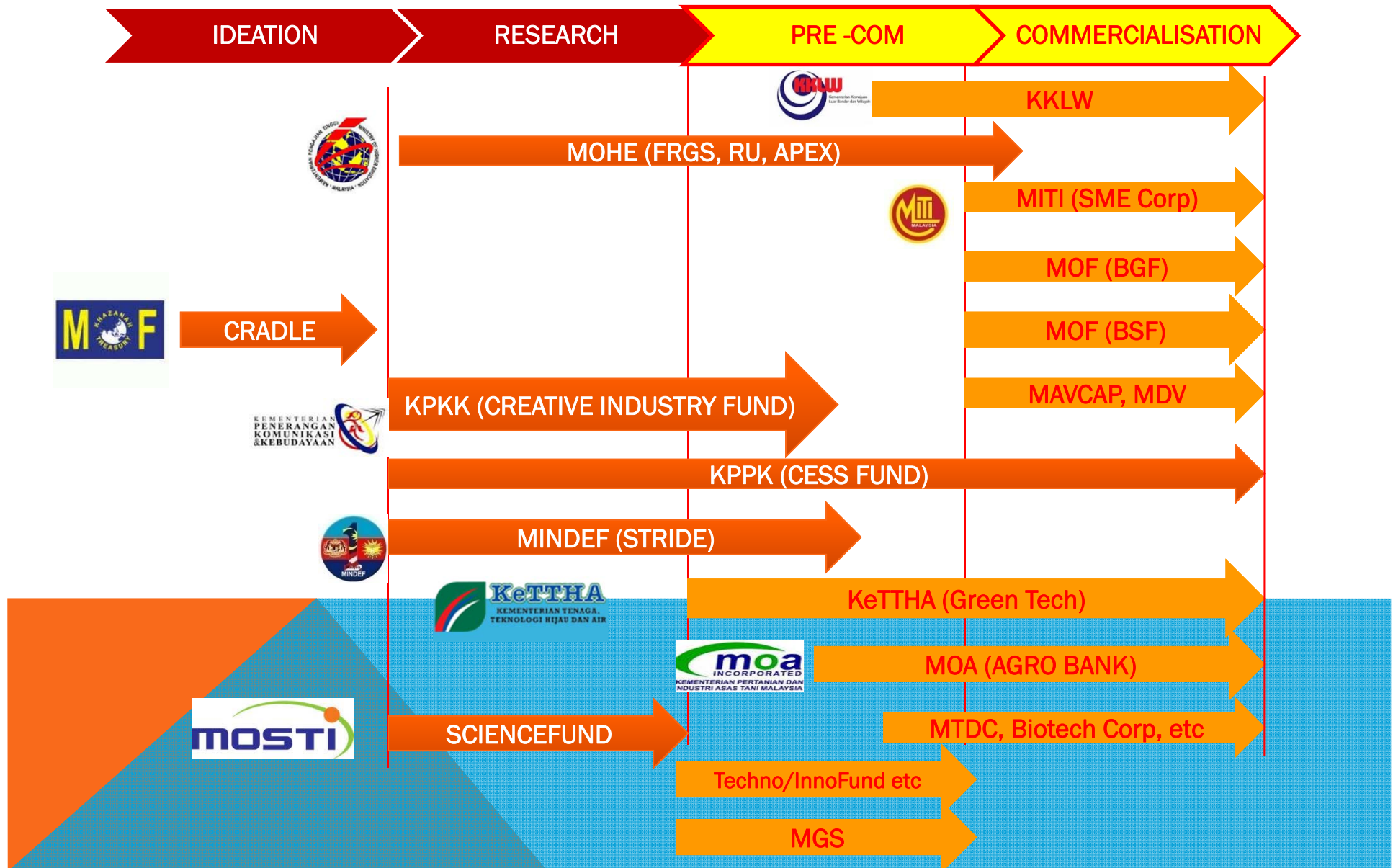
OBJECTIVES

- ❖ Reprioritise areas of Research to be focused on Agriculture, Biotechnology, ICT, Advanced Material and Industry;
- ❖ Strengthening industrial commitment;
- ❖ Accelerate the commercialisation of R&D outputs: and
- ❖ Competitive bidding for prioritised projects

MOSTI : R,D&C FUNDING CONTINUUM



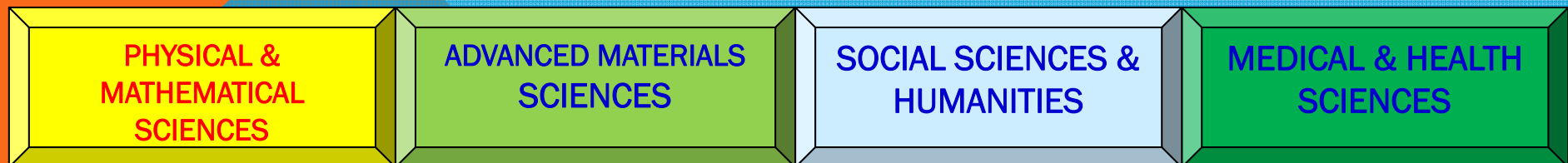
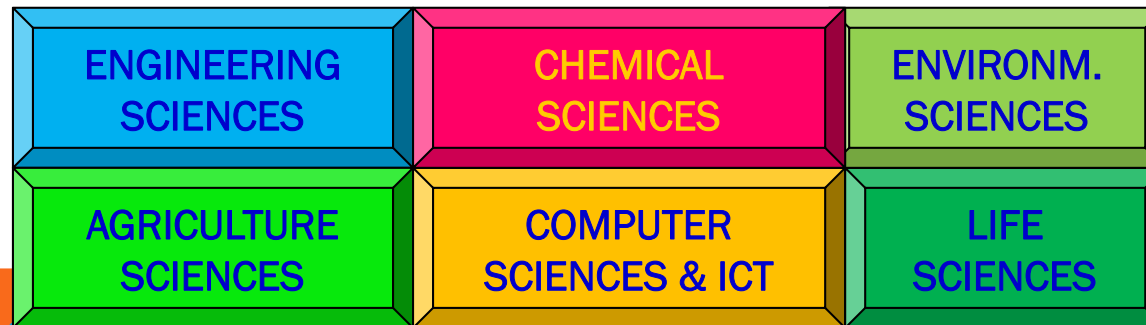
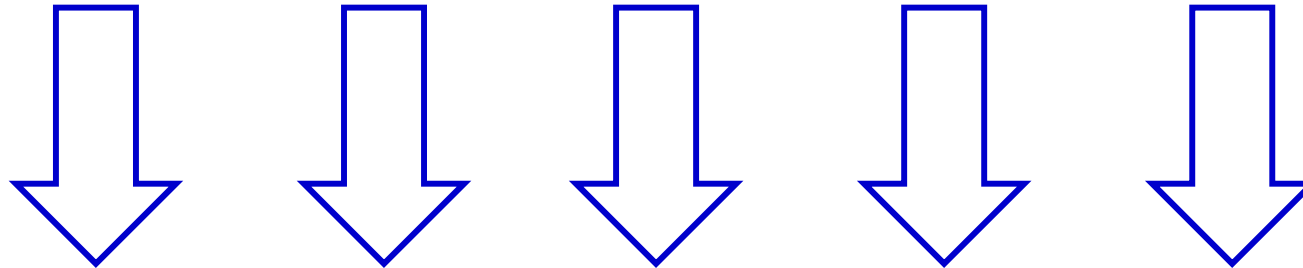
FUNDING FOR R,D&C IN 10th MP



10TH MP MOSTI R,D&C PRIORITY AREAS

MOSTI R,D&C FUNDING

BIOTECHNOLOGY S2S ICT INDUSTRY S&T CORE



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EVALUATION OF TECHNICAL CONTENT IN MOSTI R, D & C GRANT PROPOSAL

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CHAPTER I

EVALUATION OF TECHNICAL CONTENT IN MOSTI R, D & C GRANT PROPOSAL

CRITERIA 1 : NOVELTY

ScienceFund

1. **Must be able to show the uniqueness** and novelty aspect of their technology/product in terms of new product/ technique/ process, modification of existing product/process, additional application, and cutting edge technology.
2. The applicant must shows:
 - **Supporting data form basic research** and literature review on the related research;
 - End product/platform technology;
 - Relevant research.

CRITERIA 1 : NOVELTY

3. Prior art search on the study or review of previous people do (benchmark).
4. High impact research: clear and measureable expected output, outcome and impact in terms of:
 - Human capital development – new job creation, new RSEs;
 - Economic contribution;
 - Societal and environmental well-being.

CRITERIA 1 : NOVELTY

Pre-Commercialisation

5. Mandatory criteria for project approval, the project proposal must:

- **Have workable Proof of Concept (POC)** to generate tangible product or platform eventually;
- The POC must be a functional laboratory prototype, demonstrating the core novelty of the product, optionally supported by engineering drawings and/or simulated result.

CRITERIA 1 : NOVELTY

- The POC must be able to show the uniqueness and novelty aspect of their technology/product in terms of new product, new technique, new process, modification of existing product/process to come out with different area/additional application, cutting edge technology;
- Technically feasibility;
- Up-scalable.

CRITERIA 1 : NOVELTY

6. Applicant **must conduct a novelty search to verify on the patentability aspect.** However, in the event that a patent has been filed (either pending or granted) in the previous research work e.g. ScienceFund, and the applicant is now applying to do the pre-commercialisation, then the applicant no longer needs to conduct a novelty search.

CRITERIA 1 : NOVELTY

7. The new technology of the research in MOSTI R, D & C proposal can be measured through:

- New innovation on existing invention/product; and/or
- New improvement in terms of material properties and performance/product/process/method/technology/patent/and strategic values defined by NKEA and NKRA; and/or
- New application of existing technology/invention; and/or
- Import substitution;
- New market creation.

CRITERIA 1 : NOVELTY

8. High impact research: clear and measureable expected output, outcome and impact in term of:
- Human capital development – new job creation, new RSEs;
 - Economic contribution;
 - Society well-being;
 - Environment.

CRITERIA 1 : NOVELTY

General

9. The expected output must be in line with National Key Economic Areas/National Key Result Areas (NKEA/NKRA) as follows:

- Oil, gas and energy;
- Palm oil;
- Financial services;
- Tourism;
- Electronic and electrical;
- Wholesale and retail;

CRITERIA 1 : NOVELTY

- Education;
- Healthcare;
- Communication content and infrastructure;
- Agriculture;
- The Greater Kuala Lumpur/Klang Valley; and / or
- Any new updates.

CRITERIA 2 : VIABILITY OF PROJECT TITLE AND OBJECTIVES

1. The title **should be concise, clearly indicating the subject of the proposal and reflecting the key idea(s) of the project** and should be:

- Precise and specific;
- Limited words (15 words or less);
- Give a clear indication of what one wants to achieve;
- Easily captured electronically.

CRITERIA 2 : VIABILITY OF PROJECT TITLE AND OBJECTIVES

2. Objectives are the goals set out to attain in the research work. Objectives should be wherever possible being:

- **SMART** - **S**pecific, **M**easureable, **A**chievable, **R**ealistic, **T**imeline;
- Parallel with the intended aim of project;
- Clearly but concisely explain **WHAT** is to be done and achieved in the project;
- Clear demarcation between objectives and activities;
- Correspond to research methodology.

CRITERIA 2 : VIABILITY OF PROJECT TITLE AND OBJECTIVES

3. The objectives of the project must be in-line with the research methodology and the project title.

CRITERIA 3 : PROJECT SUMMARY

1. Project summary should **briefly describe problem statement, methodology, expected output, conclusion.**
2. Research background should covers:
 - Summary of project proposal;
 - Problem to be addressed and the necessity of the problem being resolved;
 - The relation of research output with SF & Pre-Commercialisation funding objectives;
 - Overview of current status of existing research work.

CRITERIA 3 : PROJECT SUMMARY

3. Specific definition on the research necessity:

- Enhancing national revenue;
- Improving social well-being;
- Meeting national target in key areas;
- Value-adding to existing product;
- Development of cutting edge technologies;
- Creation of new businesses.

4. **For Technofund proposal**, project summary/project background should include **brief description of commercialisation plan.**

CRITERIA 4 : LITERATURE REVIEW SUMMARY

1. In the Literature Review Summary, the applicant is to explain clearly **WHY** he/she is proposing to undertake such research by zooming into the problem statements and giving a thorough review on all relevant research done in the past and those presently being undertaken around the world.

CRITERIA 4 : LITERATURE REVIEW SUMMARY

2. The applicant should give a **thorough and up-to-date literature review on the proposed research topic**, and indicate clearly where he stands and how he positions himself for the research topic proposed as compared to other relevant/similar past or on-going research. References must be made to all major relevant publications including the applicant's own papers, if there is any.

CRITERIA 5 : TECHNICAL FEASIBILITY & RESEARCH APPROACH

1. The applicant should be evaluated with respect to the applicant's ability to successfully complete the project such as:

- ✓ **Methodology must not be complicated;**
- ✓ **Materials must be easily available and not be too expensive;**
- ✓ **Achievable within timeframe;**
- ✓ Measurement of parameter should be identified;
- ✓ Background literature review should be comprehensive;
- ✓ Should have **problem statement;**
- ✓ Research design must be properly addressed;
- ✓ **Has potential for further development and commercialisation.**

CRITERIA 5 : TECHNICAL FEASIBILITY & RESEARCH APPROACH

2. The research methodology demonstrates how the applicant plans to tackle the research problem. It should have details of:

- Analytical techniques;
- Research design and description of research activities;
- Specialised equipment, facilities and infrastructure, whether new or existing, required for the project, should also be identified at this stage;
- Formulating the research problem;
- Developing approach to achieve objectives;
- Preparing the research design including sample design;

CRITERIA 5 : TECHNICAL FEASIBILITY & RESEARCH APPROACH

- Collecting the data;
 - Analysis of data;
 - For TF – Proven method for scale up processes and any relevant regulatory/standards requirements.
3. The applicant should provide sufficient information (clear sequence of stages & phases of the proposed methodology) for the evaluator to determine whether the chosen methodology (new or established methods/techniques) is appropriate to achieve the project objectives. Research Methodology is about **HOW** the applicant achieves the project objectives.

CRITERIA 5 : TECHNICAL FEASIBILITY & RESEARCH APPROACH

4. The applicant should compare the methodology with alternative methods and justify why the approach chosen is the most appropriate.
5. Milestone is a stage into which a project is divided for monitoring and measurement of work performance. It should be tangible.
6. The applicant should provide the work plan and the list of activities necessary for the project to meet its objectives and, the transfer of research results to customers/beneficiaries.

CRITERIA 5 : TECHNICAL FEASIBILITY & RESEARCH APPROACH

7. Phases of the project or completion of research activities that result in a significant output. There must be at least two (2) milestones per calendar year. The timing of the milestones must be reflected in the Gantt chart.

CRITERIA 5 : TECHNICAL FEASIBILITY & RESEARCH APPROACH

8. It should also outline the sequence of the proposed activities and identify them in numbered stages, steps or phases. Research activities including all timelines must be reflected in the Gantt chart:

- Milestone is a marker of project progress and comprise of a set of activities.
- Milestone should be in sequence where applicable;
- The deliverables / indicators of milestone have to be declared;
- Must clearly differentiate between milestones and activities.

CRITERIA 5 : TECHNICAL FEASIBILITY & RESEARCH APPROACH

9. The applicant must state the possible risks (technology risk, financial risk and time risk) that may affect the implementation or completion of the project, including:

- The element of risks must be well defined;
- Strategic and regulatory risk (procurement restriction in certain country);
- Risk matrix table to elaborate the level of risks and its impact to stakeholders;
- Risk mitigation plan.

CRITERIA 6 : LABORATORY PROOF OF CONCEPT (POC)

1. **Lab POC is a mandatory criteria in TechnoFund** application and the applicant needs to proof that:
 - The prototype is functioning/workable/fit the purpose;
 - Reproduction of prototype which give minimal impact to environment should be given a merit;
 - Technical data availability is a must to support the POC;
 - POC of different application should not be considered as the POC of project being applied.
2. POC shall be validated and verified by the evaluator/MOSTI.

CRITERIA 6 : LABORATORY PROOF OF CONCEPT (POC)

3. POC shall clearly show or reflect the *core* Novelty of the project/technology. A partial POC not showing the core Novelty of the project/technology shall not be accepted.
4. **Project shall not be approved without functional POC,**
technical data and/or technical design.

CRITERIA 7 : PROJECT TEAM COMPETENCY

1. Core business of applicant/collaborator must be related to area of research.
2. **Project leader must have the relevant technical background and professional qualifications** necessary for satisfactory performance of the proposed project and shows:
 - Adequate commitment in term in of man month of the project team [excluding Research Assistant (RA)] - 60% minimum;
 - Relevant professional/academic qualifications/research experience necessary for satisfactory performance of the proposed project;

CRITERIA 7 : PROJECT TEAM COMPETENCY

- Experience (min of 3 years of research experience), Master and PhD are an added advantage for project leader;
 - Project leader must be technically fluent & competent in the related project.
3. The senior researchers with excellent track record will be given a credit in the grant access.

CRITERIA 7 : PROJECT TEAM COMPETENCY

4. Research competence:

- The research team must have the knowledge and competency to carry out the research successfully to completion;
- Project teams should consist of qualified and competent members with respect to technical and commercialisation aspects.
- Have at least one domain expert as member;
- Listing past project and achievement; and
- Team members should be considered as a whole rather than on individual basis (Curriculum Vitae as supporting documents)

CRITERIA 7 : PROJECT TEAM COMPETENCY

5. Project collaborator:

- **Collaboration in SF and CIF should be given a merit;**
- **Collaboration in TF is not compulsory BUT highly recommended to make sure project continuity;**
- CIF must have community involvement and can proof sustainability of the project;
- Engagement of collaborator with specific scope of work and targeted outcomes/deliverables;
- Collaborator must detail out the contribution in term of technical and/or financial assistance, directly involve with the project and technology provider and/or commercialisation of project output;

CRITERIA 7 : PROJECT TEAM COMPETENCY

- Technical services and consultancy cannot be considered as collaborator.

6. Project consultant:

- Consultant required for specific aspect/stage of the project activities and not for entire project;
- Involvement of consultant in the project should be justified and with details submitted - consultant technical experience, job scope and related costing;
- Preferences should be for local consultants;
- Appointment of consultant should follow MOF's circulars on appointing consultant.

CRITERIA 8: PROJECT DELIVERABLES

1. TF and IF must have product detailed technical specification on the capability and reliability on the proposed develop product.
2. The applicant should be able to indicate clearly the type of output expected, market size and able to demonstrate its potential for commercialisation of new/innovative technologies and/or new IPs derived from the project.
3. The project deliverables of a ScienceFund project must include a functional prototype, which can later be up-scaled and developed for commercialisation.

CRITERIA 8 : PROJECT DELIVERABLES

4. Output expected can be in form of:

- Workable prototype, benchmarking against existing method, technique, product, device, process, software, material, service, IPR;
- Records of Scientific knowledge;
- Technologically / scientifically skilled manpower;
- Potential basis for formulation of Malaysian standards;
- For Research Institutes, human capital indicators should considers new specialization areas by researchers;
- **Economic contribution** - The indicators are as follows - import substitution, royalties from licensing, revenue from consultancies, cost savings, time savings, others.

CRITERIA 9 : INTELLECTUAL PROPERTY (IP) PATENTABILITY

1. Applicants must indicate the organization(s) that will own the IP rights that may arise from this project.
2. The end product and processes developed under the Pre Commercialisation Fund (TechnoFund) is encouraged to be patented and registered for IP Rights. The grant recipient has to inform the Pre Commercialisation (TechnoFund) Secretariat in writing upon the successful registration of the IP.

CRITERIA 9 : INTELLECTUAL PROPERTY (IP) PATENTABILITY

3. The IP rights of the project shall be wholly owned by the recipient as specified in the Pre Commercialisation Fund (TechnoFund) Agreement.

4. But it is proposed if the collaborator (if the collaborator has contributed knowledge, providing facilities, and advisory inputs) need to be given some recognition with regard to the IP.

CHAPTER II

EVALUATION OF FINANCIAL AND COMMERCIAL CONTENT IN MOSTI R, D & C GRANT PROPOSAL

CRITERIA 1: MARKET POTENTIAL (PRE-COMMERCIALISATION FUND)

1. Weightage for market potential shall be higher;
2. Value proposition:
 - Superiority of the product
 - Niche
 - Product offerings-special features

CRITERIA 1: MARKET POTENTIAL (PRE-COMMERCIALISATION FUND)

3. Market potential indicator is specifically designed to help make decision regarding penetration / expansion into a specific market segment. They include market size, market growth rate, economic freedom, risk, etc.
4. Personnel with marketing and business development experience should be in the evaluation panel.

CRITERIA 2 : FINANCIAL CAPABILITY

1. Applicant to submit:

- 2 years' audited financial statements;
- Data from the financial statement being translated into financial ratios related to liquidity, efficiency, profitability, debt ratio;
- Company and director background / track record, insolvency and physical infrastructure (which include check on office, pilot plant, HR, asset etc whenever needed).
- Financial proof of capability on how to sustain and injection of the shareholder fund to cover the remaining project cost that not covers by TechnoFund/InnoFund.

CRITERIA 2 : FINANCIAL CAPABILITY

2. Cost projection:

- Panel should check against the quotation for purchase of major equipment.
- Distribution network and strategic alliance should be covered under Marketing Strategy;
- Indication of distribution network is an added advantage.
- Declaration that entity has not received any funding of other ministries.
- Details of costing – Relevancy of equipment, components, raw materials, consultancies, testing, special services, standards & regulatory aspects, price.

CRITERIA 3: MARKETING STRATEGY AND DISTRIBUTION NETWORK

To adopt 4P's marketing plan strategy:

- Pricing (benchmarking/elasticity);
- Placement (distribution);
- Product (features);
- Promotion (advertisement/sample);

CRITERIA 4 : STRATEGIC ALLIANCE

Collaboration and industry linkages:

- The strategic partner must be active and should have role to play;
- Terms of reference for strategic partner e.g. ability to market / commercialise the product, proven track record of successful marketing of similarly related product, have the understanding on the technology being developed etc.;
- To identify specific roles of each party and commitment indication;
- Collaborator can be the strategic partner to enhance commercialisation initiative.

GUIDELINES AND APPLICATION FORMS????

Please visit our website:

<http://www.mosti.gov.my>

mfaizal@mosti.gov.my

011-15674505

Ministry of Science, Technology and Innovation



THANK YOU