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# *National Innovation Model*

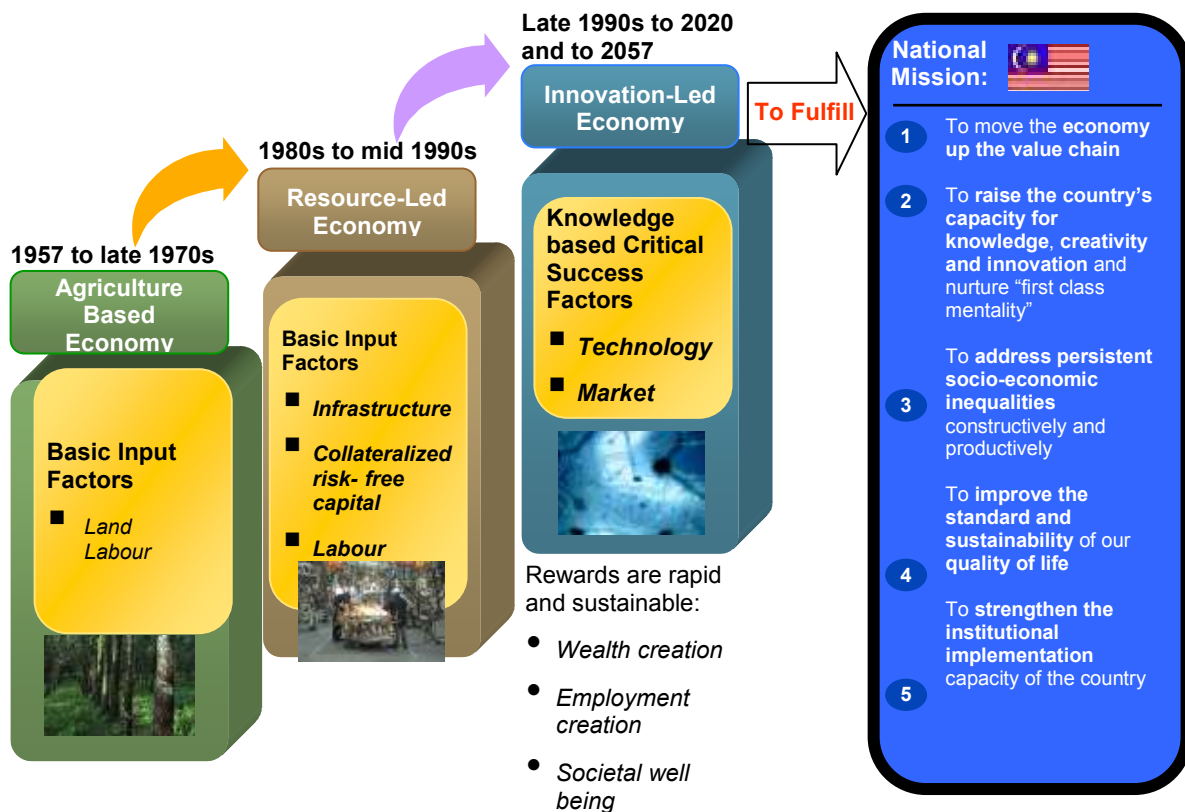
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 **NOVASI**  
MAJLIS INOVASI NEGARA

# Setting the Case of change

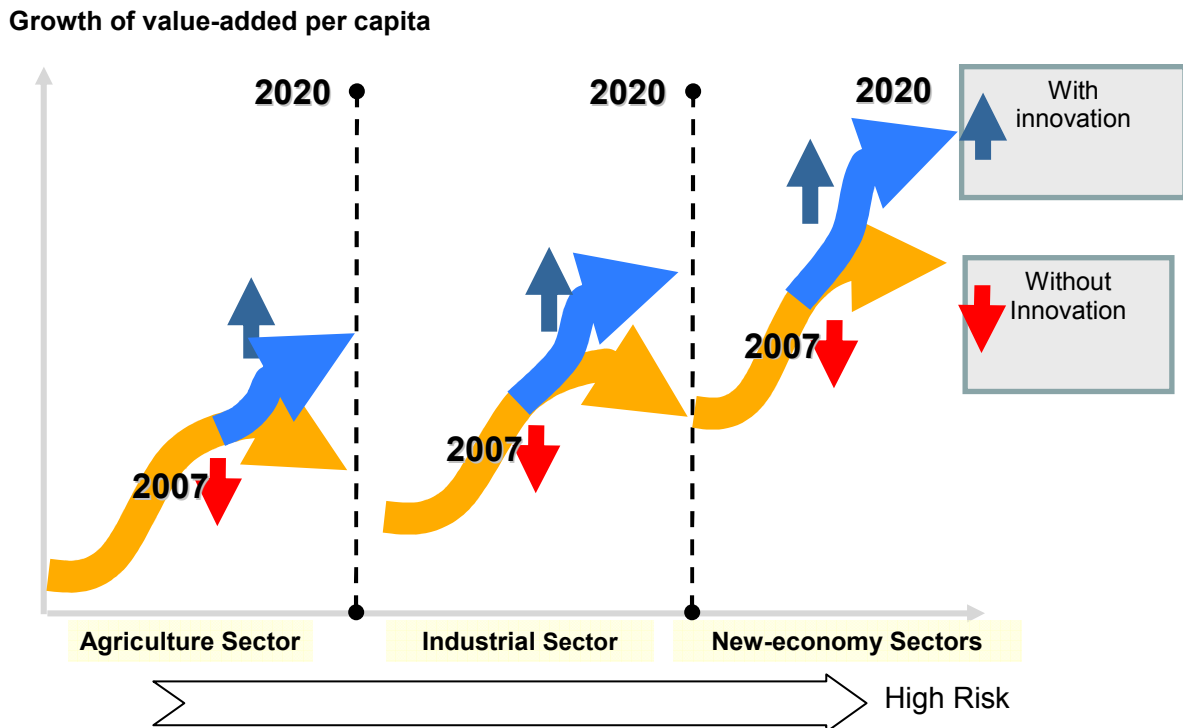
As we entered our next 50 years of independent and the next leap of Malaysian Economy, we have had to pause and examine if our strategies and activities were still relevant.

Developing countries like Malaysia in the past 50 years had experienced a substantial economic transformation, moving from a resource-based economy (Land and Labour) to a production and services-oriented economy where Infrastructure, Labour and Capital (collateral base) are the key element.



There is a need to shift the resources based economy and production based economy to sustainable economic where knowledge and "know-how" become the main drivers for economic growth. It is no longer enough to be assemblers or expert practitioners of old methods, as we will surely be overtaken by those

with cheaper labour. This has led to the migration into Innovation base economy. Thus the factors of production in traditional economy is NOT RELEVANT in the Innovation Economy.



The growth of value added per capita will increase in the various sectors (agriculture, industrial and New Economy) with innovation initiatives as compare without innovation.

The science and technology developed during this period is very much pivoted by the supply demand factor rather than on market demand. The characteristics of the New Economy can be better seen by looking at the characteristics of the Old Economy or better

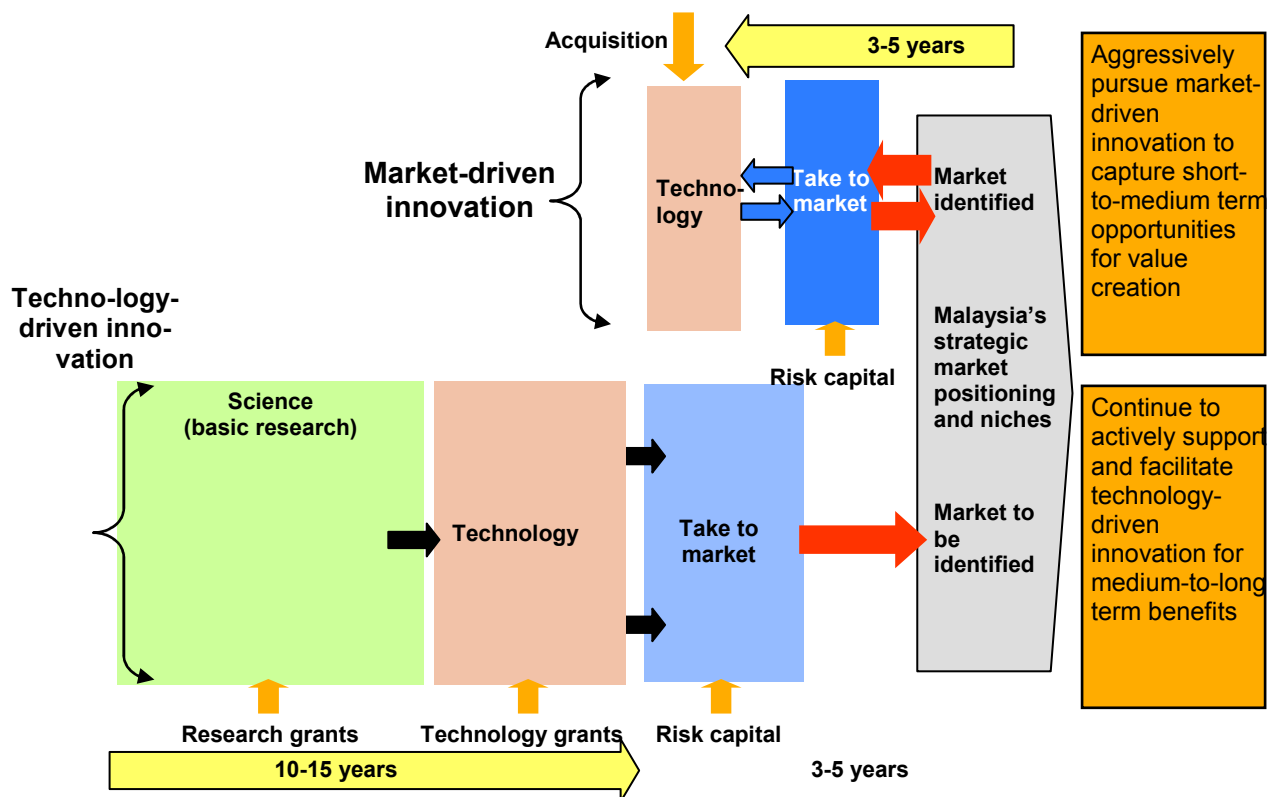
known as the Resource/Asset Led Economy and the New Economy or better described as the Innovation Economy. The characteristics of the Resource/Asset Led Economy are as follows:

Land and raw materials primarily for commodities

# Malaysia Innovation Model

Malaysia has experienced robust growth since independence with average GDP growth of 6%. Our growth has been based on national resources like petroleum; and commodities like rubber, palm oil and manufacturing. Our success has been mainly driven by traditional drivers of growth, which are land, and raw materials...cost-competitive labour... and capital.

## The Balance Approach of Market and Technology Driven Innovation Adopted by Malaysia



But the world is changing Malaysia runs the risk of being “stuck in the middle” between the industrial nations and emerging giants of India and China.

With traditional factors of an investment-led economy being challenged by cheaper labour and commodity based industries like palm oil threatened by other economies and FDI being diverted to other Asian countries.

Malaysia needs to supplement the investment led economy with innovation-driven with growth in core and new sectors, managing technology, market access, and risk-based capital as in Korea and Taiwan.

Innovation-led growth is driven by two models: technology driven innovation model and the Market-driven innovation model.

In a technology driven innovation model, scientists are funded for R&D, and technology will be developed organically thus eventually commercializing their ideas for the global market.

In a market-driven innovation model, the market is determined before hand by knowledge entrepreneurs who will acquire the best science and technology. This will provide rapid commercialization to meet the needs of the market.

The world is rapidly changing. Our successes in capitalizing our resources have bode well for our country, but the changes in the market landscape, threatens our future. How can we change ourselves to meet the challenges of the future and migrate ourselves into the innovation-led economy?

The National Innovation Council Meeting on 30<sup>th</sup> November 2007 had accepted the recommendations based on a comprehensive study on the National Innovation Agenda.

# THE RECOMMENDATIONS

## Recommendation 1

### Over-arching Recommendation

As a matter of priority, to shift from a resource-led economy to an innovation-led economy with significant global presence, driven largely by domestic private enterprise and activity in Malaysia (DDI), to meet the objectives of the National Mission

**Decision:** The shift to be incorporated with urgency in the nation's macro-economic framework, be adopted in EPU's 9MP mid-term review, and be reflected in MoF's '09 budget proposals

## Recommendation 2

Aggressively pursue market-driven innovation to capture short-to-medium term opportunities to create jobs and wealth; And to continue to actively support and facilitate technology-driven innovation for medium-to-long term benefits.

**Decision:** Realign resources to facilitate implementation of an appropriately balanced approach to innovation, i.e., market-driven and technology-driven innovation; Adopt this realignment in the 9MP mid-term review, and reflect the new approach in the '09 budget proposals

## Recommendation3

The government continues to lead research in basic science (supply-side), while private sector drives market-driven innovation (demand-side). Role of government will now emphasize risk mitigation for private sector's drive for market-driven innovation;

- (a) Government to drive basic science & research (supply-side)
- (b) Government and private sector to actively collaborate to drive in  
A purposeful way technology-driven innovation with  
Government mitigating risks
- (c) Private sector to drive market-driven innovation, with facilitation and support through risk mitigation from the Government (demand-side).

**Decision:** MOSTI, EPU, MoF and other relevant agencies to work out the implementation framework including the portfolio of incentives needed for risk mitigation, to be implemented and coordinated through the National Coordination Task Force on Innovation chaired by the Chief Secretary (with expanded terms of reference and to include private participation).

## Recommendation 4 (TECHNOLOGY)

Government to adopt a dual approach: Technology acquisition, and organic development of technology from science; specifically:

- (a) Technology acquisition: Facilitate acquisition of technology by private sector (both locally and globally) through mitigation of funding risks (e.g., provision of a portfolio of incentives & grants); Also, establish a global institutional mechanism to make available technology intelligence to domestic stakeholders
- (b) Technology development from basic science: Government to continue to drive organic technology development from science, with a focus on raising the yield of taking science to technology; in particular by encouraging merit-based allocation of funding among public research institutions for S&T research; Priorities on basic research to be set based on national technology needs and the need to maintain national technology security
- (c) IP and Patents: Modernize and make more efficient the process of IP/patent registration, including outsourcing where needed for efficiency, and increase the newly established technology grants and other incentives to facilitate conversion of IP to technology.

**Decision:** Approve these recommendations; MOSTI to work out and execute the modalities of implementation in consultation with MoF, EPU, and other relevant agencies

## Recommendation 5

### (Funding)

Private risk capital (CAPITALrisk) is the lifeline for innovative entrepreneurs to create products and services using technology as a tool. Organized CAPITALrisk hardly exists in Malaysia because of the high risk. The private sector (and not the Govt.) should directly manage risk capital; Govt. should mitigate risks (such as the acquisition of technology) by providing incentives (including the provision of risk capital and grants where needed). Equally important is an eco-system which rewards entrepreneurship, risk capital providers and risk managers.

(a) Develop a growing pool of CAPITALrisk :

- Transform public-funded VCs into commercially-driven ventures, governed by competent “non-risk-averse” boards, and run by professional risk managers who are adequately compensated for their performance (management fees and profit-sharing).
- Support and provide risk capital to new CAPITALrisk funds as a pure investor.
- To attract institutions and risk-taking individuals to invest in new CAPITALrisk funds through a portfolio of incentives (including fiscal incentives) to mitigate their risk (both institutions and risk-taking individuals) since CAPITALrisk has not been readily forthcoming

(b) Provide funds (including grants where needed) for technology acquisition, leveraging its funds with CAPITALrisk of private enterprise.

**Decision:** MOSTI, MOF, and other relevant agencies to work out the implementation framework including the portfolio of incentives needed for risk mitigation, to be implemented and coordinated through the newly-configured National Coordination Task Force on Innovation chaired by the Chief Secretary (with expanded terms of reference to include private participation)

## Recommendation 6 (Market)

Success in market-driven and technology-driven innovation to create income growth and jobs will require the private sector to actively lead in identifying market opportunities, and taking innovative products and services to market; government to facilitate this effort by mitigating market risk; specifically:

- (a) Facilitate “take to market” activities (especially global) by providing a portfolio of incentives (e.g., fiscal, equity participation) to support production, logistics, trading and distribution, sales, and branding, and where needed to assist through acquisition
- (b) Expand existing services already being provided to the private sector to facilitate access to global markets, including collaboration with foreign companies and experts, and ready access to extensive and up-to-date market intelligence
- (c) Introduce “Buy Malaysia First” in its procurement policy, and to encourage the private sector to do the same (for competitive Malaysian innovation products) (MOSTI recommendation)

**Decision:** Approve these recommendations; MOSTI to work out and execute the modalities of implementation in consultation with EPU, MoF, and other relevant agencies

## Recommendation 7 (SMEs / ENTREPRENEURS)

SMEs are a substantial part of the economy but are mainly in the services industry, where technology use is basic. The innovation economy demands a new breed of SMEs that can help drive market-driven & technology-driven innovation to create jobs and wealth. Unlike traditional SMEs, these new Innovation SMEs (I-SMEs) need to manage risks associated with market-driven and technology-driven innovation, namely technology risk, funding risk and market risk. Hence Government support is urgently needed to mitigate these high risks in order to achieve a critical mass of this new breed of I-SMEs, especially in ICT, biotech and other growth areas

- (a) Provide fiscal incentives (including lower individual income tax) to reduce their tax burden and encourage greater participation in high risk ventures
- (b) Launch a Fast-Track Programme for I-SMEs to shorten time-to-market by providing:
  - Ready access to CAPITALrisk, including for technology acquisition (as per Recommendation 5)
  - Priority access to Government's procurement(including GLCs) for competitive Malaysian innovation products – Buy Malaysia First (as per Recommendation 6)
  - IP / patents registration (as per Recommendation 4)
- (c) Provide I-SMEs with access to research for technology through the existing technology fund

**Decision:** Approve these recommendations; MOSTI to work out and execute the modalities of implementation in consultation with MoF, EPU, and other relevant agencies.

## Recommendation 8 (Human Capital)

Human Capital, in particular entrepreneurship, is the driving force of the Innovation-led economy; its use pervades both the market-driven and technology-driven innovation approaches. Serious gaps exist in critical skills and expertise reflecting rising demand for quality human capital and a shortage of quality supply, exacerbated by increasing talent outflow. The Government has a critical role in addressing the wide range of skills shortage, which can be mitigated in the short-term through a friendly regulatory regime and smart use of incentives, to attract global talent and aggressively upgrade human capital through training and mentoring:

- (a) Realign resources to support efforts to: (i) include entrepreneurship (including cross-cultural, multi-disciplinary, interactive communication) into the education curriculum, and (ii) develop further key technical disciplines (specifically researchers, scientists, prototype engineers and designers), as proposed in the recent National Higher Education Action Plan; in addition, expand the Plan's focus to (iii) include change of mind-set, and (iv) develop key financial and management disciplines (specifically innovation risk managers, production managers and brand managers) to add depth to I-entrepreneurship
- (b) Provide in particular a portfolio of incentives (including fiscal) and other measures to create a conducive environment to attract global talent to fill critical gaps, and transfer skills and knowledge (train and mentor). Specifically, retirees with relevant skills should also be targeted in this initiative
- (c) Conduct new programs targeted at entrepreneurship, innovation risk management, and mind-set change with university/industry, starting with Harvard and MIT (as offered by them) to all stakeholders, and extending program offerings through collaboration with specialist global institutions.

**Decision:** Approve these recommendations: MOSTI to work out the modalities of implementation in consultation with MoF, EPU, MoHE, and other relevant agencies, and to execute through the National Coordination Task Force on Innovation chaired by the Chief Secretary.

## Recommendation 9 (Institution)

The success of the market- and technology-driven approaches to innovation are critically shaped by effective institutions (e.g. administrative infrastructure, rule of law) that facilitate effective relations and interactions among stakeholders. Recommendations have been proposed to mitigate the key risk elements of the innovation-led economy, including SMEs and Human Capital. To complement these, cross-ministry/agency consultation is needed to align policies and prioritise reform measures as an on-going process supported by effective monitoring.

MOSTI should add to its responsibilities technology intelligence and scanning, and work together with MITI for market intelligence, with the objective of scanning available and potential technologies, and gathering and disseminating market intelligence, in key product and geographical markets.

**Decision:** Approve the recommendation: MOSTI to collaborate with MITI and other relevant agencies to implement