

# National Innovation Strategy Study

Stimulating Innovation among Large Firms in Malaysia:  
Strategy and Policy Recommendations

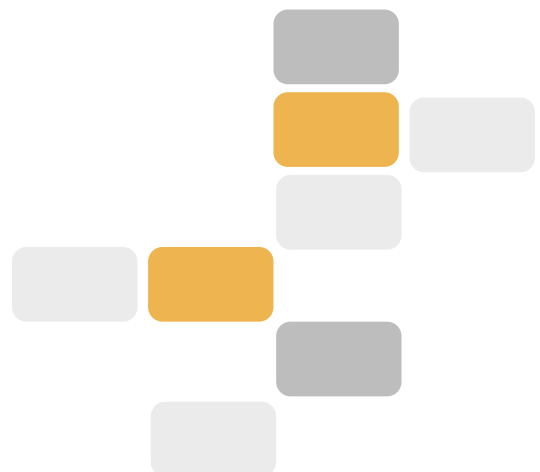
Commissioned by:



Special Innovation Unit,  
Prime Minister's Office.

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## About Alpha Catalyst Consulting

Alpha Catalyst Consulting (ACC) is an Asian based Innovation Consulting company. It was founded in the year 2000. As a pioneer of innovation consulting in Malaysia it has helped countless organizations create value through innovation. ACC's main focus is helping organizations build the capability and capacity to innovate and renew itself, to be competitive in the market place.

Through extensive research and consulting experience in Asia, Alpha Catalyst has pioneered a simple and pragmatic Innovation Framework to help companies that are curious to embrace the innovation agenda. Our insights have helped Asian organizations explore new approaches and ideas to innovate the way they innovate, whilst widening perspectives and embracing innovation without fear of uncertainty.

ACC's team has done work in diverse industries ranging from oil & gas , and the banking sector, right up to the telco industry. Apart from Malaysia, the ACC team has worked in Singapore, Indonesia and the Middle East.

The team from ACC had conducted the Malaysian Innovation Climate Survey in 2009 and published the book *Leading InnovAsian: Embedding Innovation Culture in Malaysian Organizations*.

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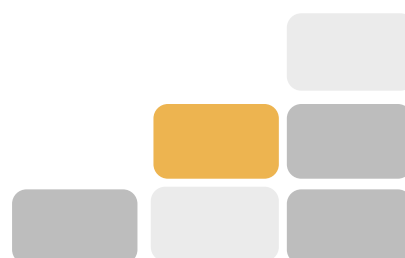
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# Executive Summary

## Study Objectives:

- Understand the state of innovation among large companies in Malaysia
- Explore current innovation policies and support
- Recommend strategy and policies that will spur large companies to create value through innovation

## Research Process

- Interviews with large companies by company type: GLCs, MNCs & PLCs.
- Stakeholder interviews: Government agencies, SMEs, Universities etc.
- Analysis of Alpha Catalyst Consulting's, 2009 Malaysian Innovation Climate Survey Data & Internal Innovation Research.
- Study of local and international publications.

## Framework for Analysis

Analysis was done using ACC's Innovation Process:  
 C1: Conception - Driver for innovation  
 C2: Creation - Portfolio of solutions  
 C3: Conversion - Solution/IP Generation  
 C4: Connection - Value creation

Other innovation factors:  
 Culture, Capacity, Cash & Capability.

## Key Findings on Large companies

- The need to innovate is not strong within many companies
- Innovation is happening in other forms - process, service, business model etc.
- Large companies are more risk averse compared to SMEs
- Collaboration with local universities/ SMEs to generate value via innovation is scarce

- The capacity to innovate is low due to low resource and time allocation
- Awareness of the government's innovation incentives and support are poor

## Key Findings on Current Policies

- Previous innovation incentives/ support are strongly tied to R&D and predominantly focused on science and technology
- Incentives and support mainly focus on start-ups, SMEs and University R&D.
- National Innovation Model(2007), explores balance between market & technology driven innovation.
- NEM & 10MP, began focusing on a wider scope and need for innovation

## Policy Considerations

- 1)What type of innovation does the policy want to support (operational, design, marketing etc.)?
- 2)How does the policy create a compelling desire for large companies to innovate?
- 3)How does the policy support innovation activities of companies that are ready to embrace the innovation agenda?
- 4) How can the policy encourage large companies to take on more risk?
- 5) How do we communicate and refine current policies to meet the needs of large companies instead of revamping the current policies? How do we ensure awareness of the policies so that they may be utilized.
- 6) How much support should be given to Malaysian organization through public procurement, monopolies and trade barriers?
- 7) Differentiate between innovation and academic research e.g. knowledge versus value creation.
- 8) Renew the model of innovation as innovation is now based more on collaboration and partnership.
- 9) Define the role of large companies in stimulating the innovation eco-system.
- 11) Explore the role of MNCs in our innovation eco-system.
- 12) Be prepared to help large companies deal with creative destruction.

## Policy Recommendations

### PR 1: Expand Scope of Innovation

- 1.1 Widen extend of support, funding & incentives
- 1.2 Recognize R&D beyond the labs
- 1.3 Share the risk
- 1.4 Increase support for Technology Acquisition
- 1.5 Support Open Innovation

### PR 2: Create the need to innovate

- 2.1: Encourage customers to be more demanding
- 2.2: Encourage shareholders to demand innovation
- 2.3: Introduce legislation/regulations that drive innovation
- 2.4: Encourage more competition

### PR 3: Drive innovation among PLCs

- 3.1 Publish a PLC Innovation Index
- 3.2 Report Social Innovation Activity
- 3.3 Recognize Innovative PLCs

### PR 4: Innovation as part of GLC Transformation Plan

- 4.1 Allocate Risk Capital
- 4.2 Review Board Composition
- 4.3 Spur innovation among SMEs/Vendors
- 4.4 Intensify the Creation Innovation Eco-system
- 4.5 Have a GLC Innovation Index

### PR 5: Support Creative Destruction

- 5.1 Transition Support
- 5.2 Social Impact

### PR 6: Make Innovation Easy

- 6.1: Make information Accessible
- 6.2: Have a Customer Centric Approach
- 6.3: Navigate & Connect
- 6.4: Innovation Vouchers

### PR 7: Creating Talent, Culture & Community

- 7.1: HRDF Claims wider scope
- 7.2: TCo-creative Innovative talents
- 7.3: Create an Innovation Community

List of abbreviations:

| Abbreviation |  |
|--------------|--|
| AWSJ         | Asian Wall Street Journal                                    |
| CRDF         | Commercialization of Research and Development Fund           |
| DAGS         | Demonstrator Application Grant Scheme                        |
| E&E          | Electric and Electronic                                      |
| EDB          | Economic Development Board                                   |
| EIU          | Economist Intelligence Unit                                  |
| EPP          | Entry Point Projects   |
| EPU          | Economic Planning Unit                                       |
| ETP          | Economic Transformation Programme                            |
| EU           | European Union   |
| G2G          | Government to Government                                     |
| GDP          | Gross Domestic Product                                       |
| GLC          | Government-linked companies                                  |
| GLIC         | Government linked investment companies                       |
| GTP          | Government Transformation Programme                          |
| ICLIF        | International Centre for Leadership in Finance               |
| IGS          | Industry R&D Grant Scheme                                    |
| IHL          | Institute of Higher Learning                                 |
| IMD          | Institute for Management Development, Switzerland            |
| IP           | Intellectual Property  |
| IRPA         | Intensification of Research in Priority Area                 |
| LNG          | Liquid Natural Gas   |
| MASTIC       | Malaysian Science and Technology Information Centre          |
| MGS          | MSC Malaysia Research and Development Grant Scheme           |
| MIDA         | Malaysian Investment Development Authority                   |
| MIGHT        | Malaysian -Industry Government for High Technology           |
| MITI         | Ministry of International Trade and Industry                 |
| MNC          | Multinational corporations                                   |
| MoF          | Ministry of Finance  |
| MOSTI        | Ministry of Science, Technology and Innovation               |
| MPC          | Malaysia Productivity Corporation                            |
| MSC          | Multimedia Super Corridor                                    |
| MTDC         | Malaysian Technology Development Corporation                 |
| MVNO         | Mobile virtual network operator                              |
| NEM          | New Economic Model   |
| NESTA        | National Endowment for Science Technology and the Arts       |
| OECD         | Organization for Economic Cooperation and Development        |
| PGB          | Petronas Gas Berhad  |
| PLC          | Public listed Company  |
| SERC         | Science and Engineering Research Council                     |
| SME          | Small and Medium Enterprises                                 |
| TAF          | Technology Acquisition Fund                                  |
| TFP          | Total Factor Productivity                                    |
| UKAS         | Unit Kerjasama Awam Swasta (Public Private Partnership Unit) |
| WEF          | World Economic Forum   |
| YIM          | Yayasan Inovasi Malaysia                                     |

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## 1.0 Introduction

### Is being Competitive Enough?

In 2010, Institute for Management Development, Switzerland (IMD) published its IMD World Competitiveness Yearbook and ranked Malaysia as the top ten most competitive countries in the world. This is a step jump from number 18 in the previous year. The key contributing factors are both augmented business and government efficiency, and better economic performance. Malaysia also ranked number 3, on AT Kearny's Global Services Location ranking in 2009. As a country, Malaysia's economic performance has shown tremendous progress since achieving independence. Every couple of decades, Malaysia has transformed its source of competitiveness and growth. The country has successfully transitioned from an agriculture-based economy to a resource-led economy. However, now, the time has come for Malaysia to be prepared to **make the leap into an innovation-led economy**.

Currently, Malaysia is ranked among the top 20-30 most innovative countries in the world based on various indexes- World Economic Forum (WEF), Economic Intelligence Unit (EIU) and INSEAD. Indicators from WEF position Malaysia as an efficiency-driven but not yet an innovation-led economy. The EIU also indicated that we may decline in our innovation ranking in the future as other countries such as China and India are catching up fast. Another indicator by World Bank, using Total Factor Productivity (TFP), showed that our growth is also not led by innovation. With less than 8 years left to achieve Vision 2020, the country needs to aggressively grow the GDP. Both the National Innovation Model (2007) and the New Economic Model (NEM) indicate that the way to move forward is via innovation; without it, Malaysia risks being stuck in the middle-income trap.

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## Growth through Innovation

To achieve high growth via innovation is a complex challenge. The country's innovation ecosystem needs to be primed for it to happen. There are many players in the ecosystem- the government, research centers, financial institutions, universities, start-ups, SMEs, large companies and many more. The right mix of talent, infrastructure, legislations and policies need to be present. Currently, there are several polices, initiatives, and legislations such as the Higher Education Policy for IHL in basic research, Promotion of Investments Act 1986, MSC, National Science and Technology Policy 2 (2002), Industrial Master Plan 3, Biotechnology Policy, Innovation Act 2010, and many others that are already in place. The New Economic Model as well as the Tenth Malaysia Plan have also outlined several policy recommendations and plans to further spur innovation.

In the past few months, thousands were involved in various labs, driven by PEMANDU for the Economic Transformation Programme (ETP) and Government Transformation Programme (GTP), to accelerate value creation through various initiatives. Billions of investment have been announced for manufacturing and infrastructure projects, for example RM 50 billion for the MRT project in greater KL. This will definitely create a positive impact to Malaysia's economy, but how much of this will help nourish Malaysia's innovation ecosystem such that it will propel us into an innovation led economy?

There are several other questions that also need to be explored; firstly, whether there are gaps with current policies/initiatives or do the challenges lie more with the implementation of the policies? Secondly, do the initiatives or policies reflect contemporary concepts of innovation?

Are there gaps with current policies or initiatives or do the challenges lie more with the implementation of the policies?

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## Time for a National Innovation Policy

**Current policies do not focus on contemporary approaches in innovation** (e.g. open innovation, service innovation, business model innovation) and are more oriented towards R&D or science and technology driven innovation - resulting in a marginalization of certain sectors, players, and approaches to innovation. Malaysia needs to develop a new innovation policy that is more contemporary, broader, and that is focused on value creation.

The policy formulated should optimally also address the culture and mindset of Malaysians. A 'one-off' lab to identify areas of growth would work and bear results in the short term. However **we ultimately need to develop a culture of innovation**. If a society depends on an external locus of control and not work towards permeation of innovation as a culture so that innovation is intrinsically driven, there will not be sustainable changes seen. Innovation needs to shift from being 'just a concept' to 'innovation as a process' and ultimately, **we should reach 'innovation as a mindset'**. Malaysians need to fully absorb the fact that this is not just another temporary initiative adopted by the government. It is not one that is here for a year or two or one that we can abandon once no one is monitoring. Innovation needs to stay and has to be part and parcel of our culture from here henceforth because it is integral to our goal to become a progressive nation .

2010 was a great start to introducing innovation to the masses, through 'Malaysia Inovatif'. However, the efforts cannot be halted just because the year is over. Instead, efforts need to be doubled and tripled. PEMANDU Labs are a great start, however we can't depend on them to drive everything. Similar initiatives need to be duplicated and adopted at all levels and corners of the public and private sector.

This reports attempts to examine the role of the key players in the Malaysian innovation ecosystem, that is, the large firms, which include government-linked companies (GLCs), multinational corporations (MNCs) and the large public listed (PLC) or large private companies, to identify the support and incentives these organizations want as well as suggest strategies that will spur these organizations to innovate further.



## The Study

The main objective of this report is to provide strategies and policies recommendations that will drive and support large companies to grow and create value through innovation. This was done by analyzing the following:

- current state of innovation among large companies, particularly on:
  - the strategic importance and drivers to innovate
  - the type and intensity of innovation activities
  - the strengths, challenges, and impediments for large firms to innovate
- needs and support for large companies to innovate
- existing Malaysian policies, legislation and government incentives that impact innovation
- policies, legislation and government incentives from other countries that Malaysia could emulate.

**OBJECTIVE:**  
provide strategies and policies recommendations that will drive and support large companies to grow and create value through innovation.

The study for this report was conducted between mid January to end March 2011. It was done via a series of in-depth interviews with the primary target players; the GLCs, MNCs, and PLCs and large private companies. Alpha Catalyst Consulting (ACC) also interviewed government agencies, SMEs, government grant/ funding recipients, as well as individuals from local universities and learning institutions. Among the companies and organizations that we directly interviewed/interacted with include:

### GLCs:

Chemical Company of Malaysia Berhad  
Petronas Dagangan Berhad  
Petronas Gas Berhad  
Petronas Technology and Engineering  
Telekom Malaysia Berhad  
Telekom R&D Berhad  
Teras Teknologi Sdn. Bhd.  
UEM Group Berhad

### PLCs/Large Private Companies:

AirAsia Berhad  
AirAsia X Sdn. Bhd.  
JobStreet.com Sdn. Bhd.  
KNM Group Berhad  
Maxis Berhad

### MNCs:

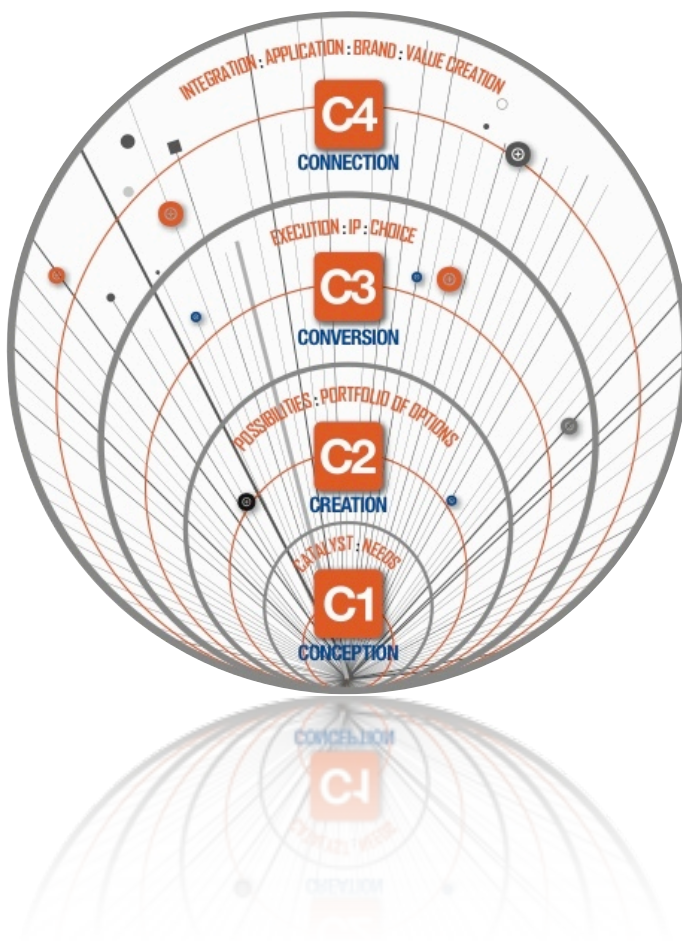
IBM Malaysia Sdn. Bhd.  
Microsoft (Malaysia) Sdn. Bhd.  
Nestle (Malaysia) Berhad  
Shell Malaysia Limited.  
Technip Geoproduction (M) Sdn. Bhd.

### Government Agencies/Institutions:

German-Malaysian Institute  
MIDA  
Malaysian Industry-Government Group for High Technology (MIGHT)  
Malaysian Biotechnology Corporation  
Malaysian Productivity Corporation  
SME Corporation

ACC also utilized data based on the ACC Malaysian Innovation Climate survey 2009, and the corresponding research that led to the publication of the ‘Malaysian Innovation Climate Survey Report 2010’, and the book “Leading InnovAsian: Embedding Innovation Culture in Malaysian Organizations” plus ACC’s portfolio of extensive consulting work within Malaysian organizations. Various academic papers, press releases, and numerous reports and publications from Malaysia and other countries (e.g. OECD, World Bank reports) were scoured to gather deeper insights on the best practices in innovation management and policies.

ACC’s Catalyst for Change® Innovation Process (Figure 1.1) was utilized to analyze the various companies’ innovation activities. Apart from looking at the process, we also looked at each company’s culture (risk appetite, failure tolerance), capacity (time, process and resources) and capability (knowledge, talent, network to innovate and finally, the level of investment (risk capital, R&D investment) in innovation.



#### C4: Connection

Connection stage brings the solution to the market/end user to create value

#### C3: Conversion

Conversion stage looks at the selection of the best idea and converts it into a specific solution

#### C2: Creation

Creation stage looks at the capability and capacity of an organization to generate a portfolio of breakthrough solutions

#### C1: Conception

Conception stage looks at the need for change, to ensure an organization can retain or create new value

**Figure 1.1:** Catalyst for Change® Innovation Process.

## 2.0 Large Companies and Innovation

### Global Innovation Giants

When it comes to innovative companies, Apple, Facebook, and Google now constantly top the list as the most innovative firms in the world. In 2010, Apple and Google were placed in the top two positions on the Bloomberg Business Week's list of the most innovative companies, while Facebook topped Fast Company's list. The top ten companies in each list is shown in Figure 2.1.

Many more Asian companies are emerging as innovative. Figure 2.1 highlights five Asian companies which are included in the top ten list and their country of origin is displayed in brackets. If we are to compare the list of companies with their country of origin, there seems to be no strong correlation between the ranking of the country and the number of innovative companies emerging from it. For instance, Singapore is among the top ten most innovative countries (according to the World Economic Forum, Innovation and Sophistication Subindex<sup>1</sup>), but there is no representation on board. The same goes for the top European companies. However, if we look at India and China, as a country, they are way down the list (according to The Global Competitiveness Index 2010-2011, Innovation and Sophistication Factor Subindex, India is listed at number 42 and China is at the 31st spot), yet they have many companies that are deemed as innovative; India has a total 4 companies while China

| Rank | Bloomberg Business Week | Fast Company   |
|------|-------------------------|----------------|
| 1    | Apple                   | Facebook       |
| 2    | Google                  | Amazon         |
| 3    | Microsoft               | Apple          |
| 4    | IBM                     | Google         |
| 5    | Toyota (JAPAN)          | Huawei (CHINA) |
| 6    | Amazon                  | First Solar    |
| 7    | LG Electronics (KOREA)  | PG&E           |
| 8    | BYD (CHINA)             | Novartis       |
| 9    | General Electric        | Walmart        |
| 10   | Sony (JAPAN)            | HP             |

**Figure 2.1:** Top ten most innovative companies in the world in 2010. The five companies originating from Asia are highlighted.

1. Global Competitiveness Report 2010-2011 by The World Economic Forum. Pg 17.

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has 7 companies which are listed in the Top 50 Most Innovative Companies as ranked by Bloomberg BusinessWeek and Fast Company magazine.

Singapore, for example, does not have a brand of an innovative company yet Singapore attracts numerous MNCs that are innovative. The island nation attracts talents from all over the world by offering permanent resident (PR) status and by ease of doing business in the country. Investments in Singapore have been mainly in infrastructure and entertainment, with presence of high speed communication technologies as supporting backbone, making it conducive to attract investors. In the past, Singapore was a trading nation, however, now they are landlords. Since 2001, Singapore's Economic Development Board (EDB) has been playing a pivotal role in identifying and enticing economic opportunities for Singapore's people and business partners. In short, the role of the EDB is likened to a headhunter, with the Prime Minister of Singapore as the chief headhunter. Along with this role, comes the empowerment of execution, with decision being made within hours!



As a case in point, 3M's senior vice-president of corporate supply chain operations, John Woodworth openly praised Singapore for being business-friendly (Business Times, March 2011). In 2009, 3M completed their USD 400 million Tuas 'superhub', one of their ten key bases for manufacturing, R&D and supply chain operations in the world. Nestle, Phillips and Dyson are just a few among the many MNCs that base their R&D operations in Singapore.

A key outcome from R&D is patents. IBM has been the world's patent king for the past 18 years, and in 2010 was the first company to register more than 5,000 patents in a single year (IBM registered 5,896 patents, an increase of 20 percent from 4,914 patents in 2009). Second on the list is Samsung Electronics followed by Microsoft (*Patent Intelligence & Technology Report; IFI Claims Patent Services*). As a country, the US holds the top position as patent holder followed by Japan in the number two spot. However, it is the value of the patents that count. To this end, a study for Bloomberg BusinessWeek by Ocean Tomo, an intellectual-property consulting firm, showed that Microsoft came out on top. Figure 2.2 shows the comparison between companies with the most number of patents versus companies with the highest value for the patents.

This is then paired with the top 10 most valuable companies as listed by rediff.com (as of January 2011). Only eight out of ten companies with the most number of patents granted appear on the 'Most Valuable Patents' list, even then not in any particular order. This further strengthens the fact that patent value is not proportional to the number of patents.

| Rank | Most Patents Granted | Most Valuable Patents | Most Valuable Company (market cap US\$ billion) |
|------|----------------------|-----------------------|---|
| 1    | IBM                  | Microsoft             | Exxon Mobil (377.69)                            |
| 2    | Samsung              | Samsung               | Apple (331.13)                                  |
| 3    | Microsoft            | Canon                 | BHP Billiton (254.13)                           |
| 4    | Canon                | Hewlett-Packard       | Petro China (241.58)                            |
| 5    | Panasonic            | Intel                 | Microsoft (240.30)                              |
| 6    | Toshiba              | Hitachi               | Petrobas (237.72)                               |
| 7    | Sony                 | Ricoh                 | Royal Dutch Shell (211.14)                      |
| 8    | Intel                | IBM                   | China Mobile (200.9)                            |
| 9    | Seiko Epson          | Panasonic             | Berkshire Hathaway (198.51)                     |
| 10   | Hewlett-Packard      | Seiko Epson           | General Electric (198.12)                       |

**Figure 2.2:** Top ten patent holders, top ten most valuable patents and top ten most valuable companies in the world.

With a market cap of 183.42 billion, IBM sits at number 15 on the most valuable company list. The top ten most valuable companies are understandably dominated by petroleum companies (five out of ten). It is also not surprising to see GE, ranked as the world's second largest company by Forbes, in this list of most valuable companies. The others on the list are Berkshire Hathaway, a company founded by Warren Buffett which owns a diverse range of businesses and China Mobile; one of the most valuable mobile telecommunications companies in the world, having one of the world's largest mobile phone subscriber base (over 570 million customers). There are only two technology-based companies seen on the list, Apple and Microsoft. This makes Apple the most valuable technology company in the world followed by Microsoft. It ought to be noted that apart from Microsoft, none of the top ten most valued companies are in the top lists in terms of patents!

Booz & Company, in 2011, also published a list of the top 10 most innovative companies, which was based on survey respondent's views (Figure 2.3). This was then paired with the amount of R&D spending (by each company) and the companies' ranking in terms of R&D budget (when compared to the other 1000 companies), company revenue and percentage of the R&D budget when compared to revenue<sup>2</sup>. What is interesting is that, 7 out of the top 10 most innovative companies are not the top ten spenders on R&D. The iconic Steve Jobs states that "Innovation has nothing to do with how many R&D dollars you have. When Apple came up with the Mac, IBM was spending at least 100 times more on R&D. It's not about money. It's about the people you have, how you're led, and how much you get it."<sup>3</sup>

If R&D efforts do not necessarily translate into financial value, what should Malaysian companies, which have relatively limited funds, do?

| Rank | Company          | R&D Spending 2009 in US\$ millions (ranking) | Revenue in 2009 (US\$ millions) | R&D spending (relative to revenue) |
|------|------------------|--|---------------------------------|------------------------------------|
| 1    | Apple            | \$1333 (81)                                  | 42,905                          | 3.1%                               |
| 2    | Google           | \$2843 (44)                                  | 23,651                          | 12%                                |
| 3    | 3M               | \$1293 (84)                                  | 23,123                          | 5.6%                               |
| 4    | General Electric | \$3300 (35)                                  | 155,777                         | 2.1%                               |
| 5    | Toyota           | \$7822 (4)                                   | 204,363                         | 3.8%                               |
| 6    | Microsoft        | \$9010 (2)                                   | 58,437                          | 15.4%                              |
| 7    | Proctor & Gamble | \$2044 (58)                                  | 79,029                          | 2.6%                               |
| 8    | IBM              | \$5820 (12)                                  | 95,759                          | 6.1%                               |
| 9    | Samsung          | \$6002 (10)                                  | 109,541                         | 5.5%                               |
| 10   | Intel            | \$5653 (13)                                  | 35,127                          | 16.1%                              |

Figure 2.3: Top ten most innovative companies as ranked by Booz & Company<sup>2</sup>.

2. Jaruzelski and Dehoff. The Global Innovation 1000: How the Top Innovators Keep Winning. *Strategy + business*. Issue 61 Winter 2010.

3. Linzmayer, Steve Jobs' Best Quotes Ever, *Wired* (taken from *Fortune*, Nov. 9, 1998); <http://www.wired.com>

## Asian Innovation Giants

As changes are occurring and intensifying in more regions and economies, Asia is not left behind. There are many pockets of innovation that are rising to create a mark in the global scene. When Boston Consulting Group aggregated a list of 100 emerging global companies, 21 of them were in India. Although China and India were ranked at 49th and 50th position globally, in terms of productivity growth, they are fast becoming leaders in the broad sense of innovation. China, with its immense population is climbing the innovation ladder very fast. From 1994 to 2004, the percentage of US-owned R&D centers in China have surged from 0.4% to 12.6%<sup>1</sup>. Seven out of the Top 50 most innovative companies in the world (according to Bloomberg Business Week and Fast Company) are from China (Huawei, Haier, Lenovo, China Mobile, BYD, Alibaba and Huayi).

Due to capital constraints, India appears to be delivering market driven innovations in bulk. Examples include mobile rates at 1 cent a minute (the lowest in the world), a portable electrocardiogram machine, which can take 100 EKGs on a single battery charge and weighs less than three pounds (appropriate for rural areas where electricity is not always readily available and patients cannot easily travel), single-serve sachet shampoo for the poor who can't afford to buy large quantities (this business model was subsequently replicated by P&G and Unilever), foot prosthesis that cost US\$ 28 (a small fraction of the normal cost in the US), that can be fitted in merely a day (this method was then adopted in many war-torn underdeveloped countries), cataract surgery not unlike a McDonald's production line, the world's cheapest car (due to design, production and marketing innovation), the world's cheapest tablet computer (the prototype was unveiled in July 2010 at US \$35, this was India's answer to the OLPC). All of these innovations are coming out of India - conceptualized by the Indians, mimicked around the world.





If we are to look at the top five most innovative companies in Malaysia, Singapore, China and India, according to the Asian Wall Street Journal (2010) (Figure 2.4), in almost all countries, the telcos dominate the picture, validating that its not about the creation of technology alone, but utilization of technology and innovation in other aspects of service, marketing, business process etc. that are critical.

| Country   | Company  |
|-----------|--|
| Malaysia  | <ol style="list-style-type: none"> <li>1) DiGi</li> <li>2) Nestle</li> <li>3) Maxis</li> <li>4) Astro</li> <li>5) Public Bank</li> </ol>   |
| Singapore | <ol style="list-style-type: none"> <li>1) Singapore Airlines</li> <li>2) Starhub</li> <li>3) Mobile One</li> <li>4) SingTel</li> <li>5) Hyflux</li> </ol>                                    |
| China     | <ol style="list-style-type: none"> <li>1) Alibaba.com</li> <li>2) Tecent Holdings</li> <li>3) Ctrip.com</li> <li>4) BYD</li> <li>5) Baidu</li> </ol>   |
| India     | <ol style="list-style-type: none"> <li>1) Bharti Airtel</li> <li>2) Maruti Suzuki India</li> <li>3) Infosys Technologies</li> <li>4) Hindustan Lever</li> <li>5) TATA Consultancy</li> </ol> |

**Table 2.4:** Top five Most Innovative companies the various countries, according to the Asian Wall Street Journal (2010)





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## Innovative Malaysian Companies

In Malaysia, there has been only one company (AirAsia) which has been included in Fast Company's "World's 50 Most Innovative Companies 2008". The accolades for AirAsia run a mile long; among others are the World's Best Low Cost Airline (by Skytrax), Airline Market Leadership Award (by Air Transport World, in 2005), lowest cost base airline in the world (in 2009, AirAsia X's costs is 2.8 cents per available seat kilometer) and Fastest Growing Foreign Airline for Cargo (from Guangzhou Baiyun International Airport, AirAsia offers cargo services at rates considerably lower than its competitors', tapping on their extensive network and flight frequencies). True to the ethos of business model innovation, in March 2011, AirAsia announced a new joint venture with Expedia, Inc., the world's largest online travel company. This is the first partnership of its kind globally between a low cost carrier and an online travel agent <sup>4</sup>.

Tune Hotel, a no-frills hotel similar to the AirAsia model, has also been featured in Fast Company's article under the heading of "Compact Hotels Big on Style". These appear to be the only brands which are associated with innovation globally. If these brands are the giants on the innovation front, who are the giants of Malaysia by other indicators? Figure 2.5 shows the top ten public listed Malaysian businesses, Figure 2.6 shows the top ten GLCs and Figure 2.7 shows the top ten PLCs (non-GLC and non-MNC), as listed on the Bursa Saham, by revenue.

4. Raghuvanshi, Expedia, AirAsia Announce Joint Venture For Tickets, Holiday Packages, The Wall Street Journal, 2011, March 28. <http://online.wsj.com>

| Rank | Company                 | Revenue (RM billion) | Net Profit (RM) |
|------|-------------------------|----------------------|-----------------|
| 1 *  | Sime Darby              | 33.8                 | 854.8 million   |
| 2 *  | TNB                     | 29.1                 | 853.0 million   |
| 3 *  | Petronas Dagangan       | 20.8                 | 757.5 million   |
| 4 *  | Malayan Banking         | 17.0                 | 3.968 billion   |
| 5    | YTL Corp.               | 16.7                 | 1.645 billion   |
| 6 *  | CIMB                    | 15.1                 | 3.047 billion   |
| 7 *  | MISC                    | 13.9                 | 822.2 million   |
| 8    | YTL Power International | 13.6                 | 1.212 billion   |
| 9 *  | Axiata                  | 13.1                 | 1.755 billion   |
| 10   | IOI Corp                | 12.5                 | 2.065 billion   |

Figure 2.5: Bursa Malaysia's Top ten companies by size of their revenue; in 2010<sup>5</sup>.  
The GLCs are marked with an asterisk \*

| Rank | Company             | Revenue (RM billion) | Net Profit (RM) |
|------|---------------------|----------------------|-----------------|
| 1    | Sime Darby          | 33.8                 | 854.8 million   |
| 2    | Tenaga Nasional     | 29.1                 | 853.0 million   |
| 3    | Petronas Dagangan   | 20.8                 | 757.5 million   |
| 4    | Malayan Banking     | 17.0                 | 3.968 billion   |
| 5    | CIMB Group Holdings | 15.1                 | 3.047 billion   |
| 6    | MISC                | 13.9                 | 822.2 million   |
| 7    | Axiata              | 13.1                 | 1.755 billion   |
| 8    | Malaysian Airlines  | 11.3                 | 493.1 million   |
| 9    | UMW Holdings        | 10.8                 | 647.2 million   |
| 10   | MMC Corp            | 8.8                  | 626.4 million   |

Figure 2.6: Bursa Malaysia's Top ten GLCs by size of their revenue; in 2010<sup>5</sup>

5.(Kaur, . "Business As Usual." Malaysian Business, Oct 16-31st, 2010: 27-39.)

| Rank | Company                 | Revenue (RM billion) | Net Profit (RM) |
|------|-------------------------|----------------------|-----------------|
| 1    | YTL Corp.               | 16.7                 | 1.645 billion   |
| 2    | YTL Power International | 13.6                 | 1.212 billion   |
| 3    | IOI Corp                | 12.5                 | 2.065 billion   |
| 4    | Public Bank             | 9.71                 | 2.551 billion   |
| 5    | Genting                 | 9.17                 | 1.782 billion   |
| 6    | MMC Corp                | 8.78                 | 626.4 million   |
| 7    | Parkson Holdings        | 8.62                 | 532.9 million   |
| 8    | Maxis                   | 8.49                 | 1.577 billion   |
| 9    | Berjaya Corp            | 7.05                 | 388.6 million   |
| 10   | AMMB Holdings           | 6.83                 | 1.042 billion   |

Figure 2.7: Bursa Malaysia's Top ten PLCs (non-MNCs and non-GLCs) by size of their revenue; in 2010<sup>5</sup>

Revenue for PLCs (non-GLC and non-MNC) is just over RM 100 billion while that for the GLCs are in excess of RM 160 billion. What would the impact be if these 'Malaysian giants' were to spend a small percentage of their revenue as risk capital for innovation?

5.(Kaur, . "Business As Usual." Malaysian Business. Oct 16-31st, 2010: 27-39.)

## Why Large Companies?

1. Large organizations contribute a significant amount to the country's GDP.

When reviewing the previous tables, it's clear the top 10 GLCs, top 10 PLCs (non GLC and non-MNC) and large private companies make up a sizable amount in revenue. If a fraction of this is spent towards innovation and stimulating the innovation ecosystem within, and around the company, the impact would be tremendous. If the top 10 revenue earners (Figure 2.5) were to spend 1 percent of their income on innovation, this will translate to a budget of at least RM1.8 billion spent on innovation.

2. Large companies act as a 'customer' to many SMEs.

Given that many of the GLCs and MNCs have vendor development programmes, and that PLCs and large private companies also have a whole host of SMEs which supply to them, by default they then act as a 'customer' to the SMEs. This then gives the large companies the clout to demand innovation from the SMEs, hopefully, raising the level of innovativeness from them. This is supported by the fact that 'customers' have been identified as the top driver of innovation (in the Malaysian Innovation Climate Survey 2009), followed by technology and competition. TM for example, which has thousands of vendors supplying to them, is planning to impose that their vendors comply with a certain standard of innovation practice, eventually engaging only the MSC Malaysia's 'SCORE+' or SME Corporation's '1-innoCERT', certified vendors. This arguably may not be able to be implemented immediately; however, it can be planned for in the near 3 to 5 years. These situations are especially important when it involves GLCs, who are in a privileged position.

Shell (M) Sdn. Bhd., for instance has stimulated the 'green' ecosystem through the building of their new headquarters at 348 Sentral. The building will be adopting green building features and is positioned as a development that saves energy and is environmentally friendly. When completed, it will be a certified US LEED (Leadership in Energy and Environmental Design) Platinum Standards Green Building. Vendors and suppliers for this project will be able to sharpen and stretch their skills and build a portfolio that hopefully will enable them to grow beyond the country.



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3. Government has a strong influence on the GLCs.

GLCs form seven out of the top 10 largest companies on the Bursa, and thus will most likely be the majority of 'customers' for suppliers and vendors. This is where the GLCs would have the capability and should take up the responsibility to support, grow and groom the local vendors. On the same note, considering that GLCs are at a privileged position, the government would be able to mandate that a certain percentage of the revenue is contributed by innovation.

4. There is a higher likelihood that large companies have an established brand outside Malaysia.

In terms of expanding outside Malaysia, it would be easier for large companies, who already have an established brand (e.g. Petronas, CIMB Bank, Maybank) to grow globally. These companies would usually have access to capital, access to market, in addition to a strong brand. These GLCs, PLCs or large private companies can therefore act as a platform for smaller SMEs to launch from. Supplying first to these giants for international projects, the SMEs can then venture into larger projects outside the country.

The big challenge however, that large companies may face, is their flexibility in adopting a new process or practice, as the sheer size of these organizations make them less nimble. Traditionally, these companies are also known to be more conservative.

### **Multinational Corporations (MNCs)**

MNCs have been with Malaysia for many years, some even before independence. Many have grown together with our country. During our humble beginnings, the MNCs formed the platform where many Malaysians were exposed to global best practices and where they sharpened their management and technological skills. However, now, over fifty years down the line, we have to take on the challenge to grow our own companies to rival these very MNCs, although they would still undoubtedly play a significant role in nurturing the talents and the innovation ecosystem in the country.

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As a country, we now need to rely less on the investments from the MNCs as much of the direction for growth is dictated by the HQs, whose decision is based on multiple factors. Malaysian companies should however, push themselves to be on par with the MNCs, in as many aspects as possible, from operational innovation to business model innovation and even social innovation.

Some of the MNCs based in Malaysia set a fantastic benchmark for Malaysian companies to emulate. For instance, Shell, with their ShellWorks (a work environment guideline), and DiGi, with their flat Scandinavian organizational culture. The MNCs also bring with them values and standards that can help Malaysian organizations rise to a new level, for example in safety standards, eco-friendliness, etc.

### **Public Listed Companies (PLCs) and Large Private Companies**

PLCs and large private companies are another key area the country can leverage on to spur innovation. Many of the PLCs and large private companies are family owned, for example, YTL, IOI, Maxis, KNM, AirAsia, Sapura and many more (the list of Malaysia's richest individuals will give a good indication of those involved). As a family-owned company, the drive to grow is strong and risks are normally taken by the figure-head in the company. This pattern correlates with outcomes of the Malaysian Innovation Climate Survey 2009 where employees in general wanted leadership support and trust, and a clear direction to innovate. These companies are frequently already quite innovative and are often on the forefront in terms of technology and innovation. However with even more intense support and incentives, these companies can accelerate their growth beyond our shores even more. Along with this growth, the supporting structure from Malaysia will also hopefully grow.

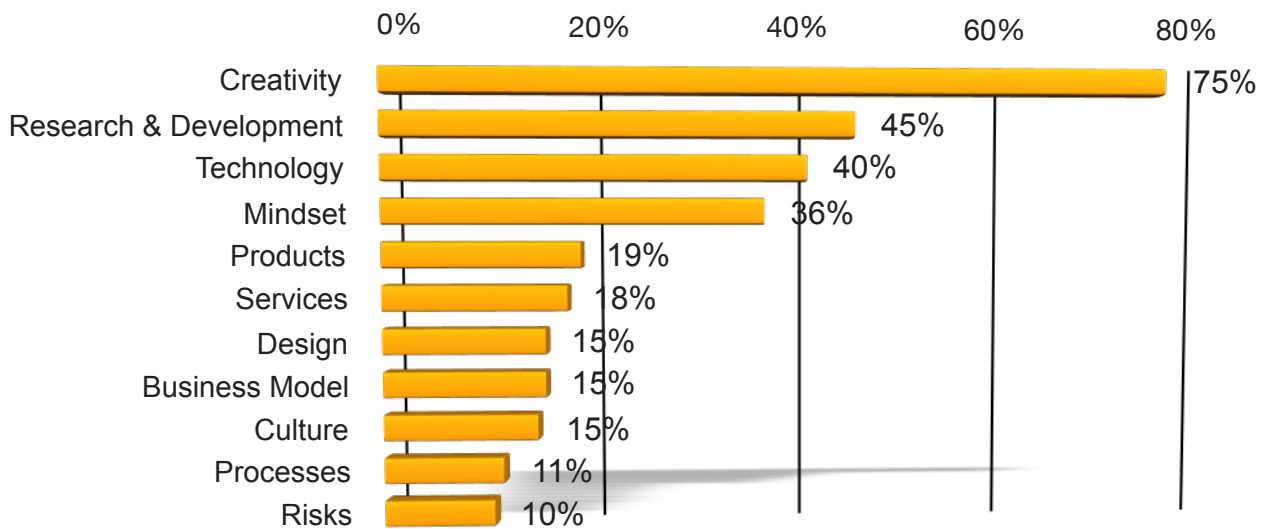
### 3.0 Innovation among Large Companies

#### Innovation - Definition, Types and Approaches

##### Definition of Innovation

One of the biggest challenges faced at the onset of the study when interviewing the different organizations was in clarifying the definition of innovation itself. In our experience, even with companies where innovation is part of their company’s mission or values, many employees had no clear understanding of their company’s official ‘definition’ of innovation. During our study, a few companies which in our view should be considered innovative, the senior management did not view their companies as such. This just goes to emphasize the fact that the understanding of innovation amongst organizations is still not clear.

In the 2010 Malaysian Innovation Climate Survey Report, which collated views from employees in organizations, many Malaysians viewed innovation as strongly related to creativity, R&D and technology, and least associated with risk and processes as shown in Figure 3.1. If we are to then refer to Malaysian policies and



**Figure 3.1:** Elements innovation is most associated with.  
Source: Leading InnovAsian: Embedding Innovation Culture in Malaysian Organizations.

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incentives, innovation is again strongly associated with elements of R&D, science and technology and less on processes and services.

The confusion on what is innovation is understandable as there are numerous definitions floating around. Furthermore, in the past few years, broader definitions have emerged. The OECD defines innovation in four areas - product innovation, process innovation (a markedly improved production or delivery method), marketing innovation (involves a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing) and organizational innovation (involves introducing a new organizational method in the firm's business practices, workplace organization or external relations).

The US Advisory Committee on Measuring Innovation in the Twenty-First Century Economy describes innovation as **“the design, invention, development and/or implementation of new or altered products, services, processes, systems, organizational structures, or business models for the purpose of creating new value for customers and financial returns for the firm.”**

Malaysia's own Innovation Bill 2010 defines innovation as “any idea or knowledge in whatever form which brings about changes in the form of product, service or process, resulting in positive impact to the economy, business, public service delivery system, social well-being or the environment”.

From this, what appears as glaring is that the definition of innovation is very diverse. That itself presents a challenge as we move forward because if the scope of innovation is unclear, then strategic initiatives in the area would also be hazy. Due to the strong association of innovation with R&D, many felt that it is not within their scope or capabilities, and hence shied away from looking deeper into innovation.

Throughout this study and in writing this report, we adopted the **definition of innovation** as **“the introduction of new products, services, processes,**

**Innovation according to Innovation Bill 2010:**

“any idea or knowledge in whatever form which brings about changes in the form of product, service or process, resulting in positive impact to the economy, business, public service delivery system, social well-being or the environment”

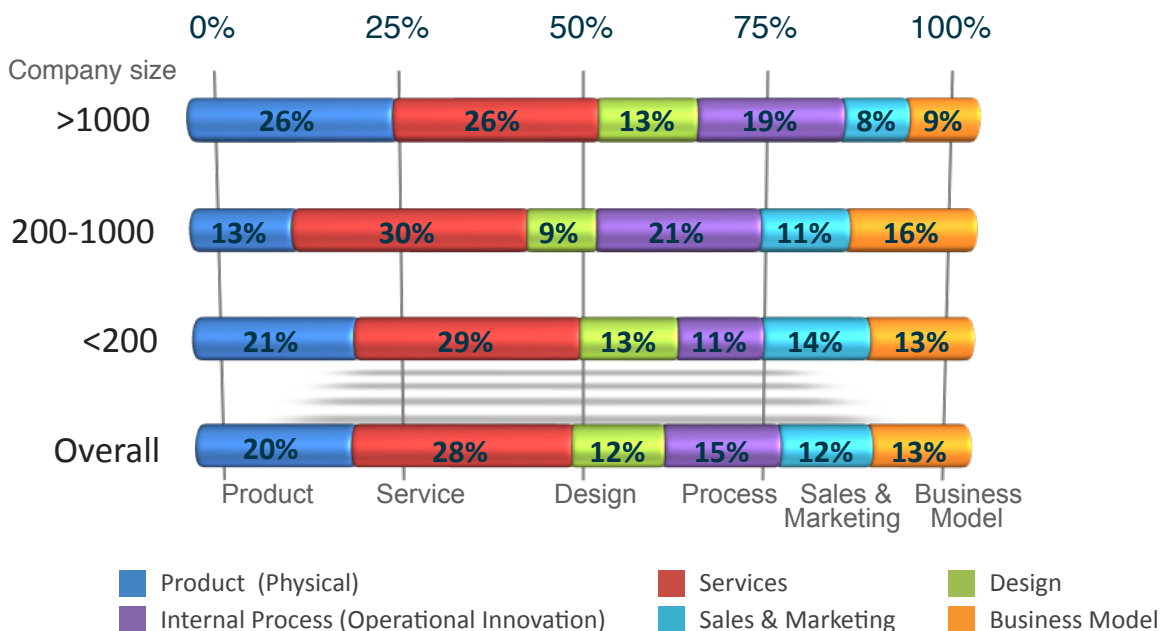


technologies, business models or management practices that have created significant value (financial/non-financial) for an organization.”

### Types of Innovation

There are many types of innovation present in organizations. The Malaysian Productivity Corporation defines operational/ process innovation as boosting productivity and performance. As seen from the Malaysian Innovation Climate Survey Report 2010, large companies (more than 1000 employees) in Malaysia practice predominantly product and service innovation followed by operational innovation, design, business model and lastly sales and marketing innovation (Figure 3.2) . In fact, among large companies, there is an equal balance between product and service innovation. Data from the Malaysian Innovation Climate Survey also revealed that GLCs predominantly engage in service, followed by operational and product innovation while MNCs do more service, product and operational innovation. Lastly, PLCs focus on service, sales and marketing, and operational innovation.

In our interviews, it was reinforced that large companies in Malaysia practiced the whole spectrum of innovation that include product, business model, service,



**Figure 3.2:** Types of Innovation practiced by companies in Malaysia, based on the company’s size (number of employees.)  
 Source: Leading InnovAsian: Embedding Innovation Culture in Malaysian Organizations.

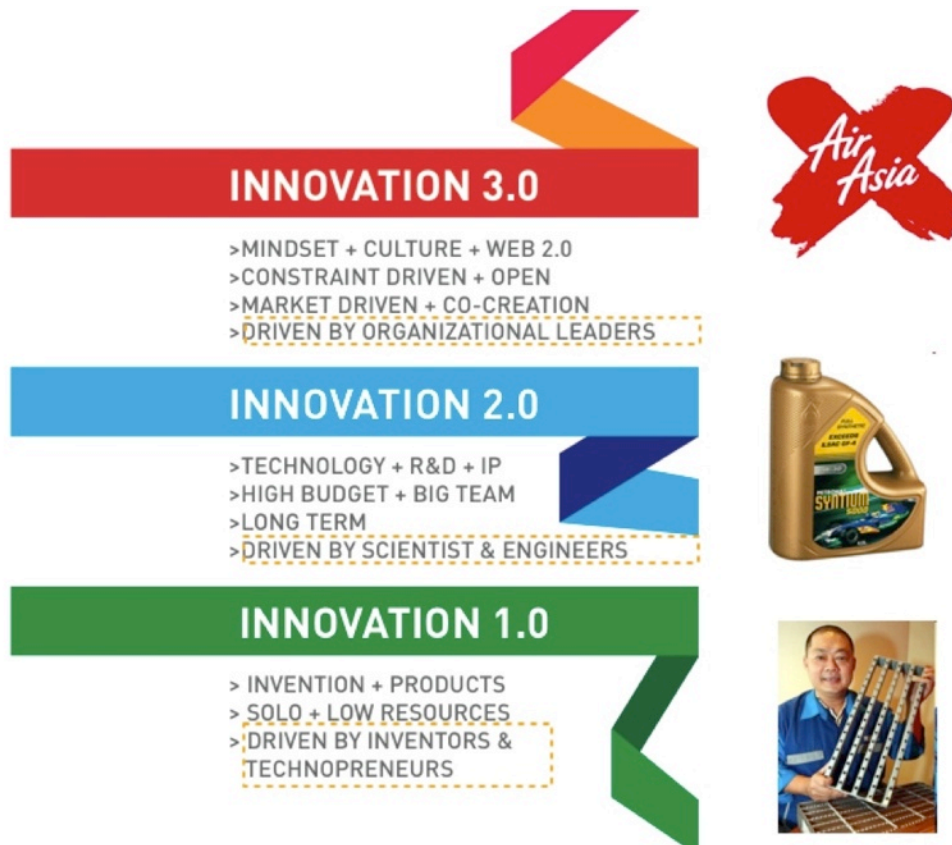
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operational, sales & marketing innovation. However, the majority focused much more on incremental innovation with a smattering few that practiced radical innovation.

As illustrated in the previous chapter, The Asian Wall Street Journal's (ASWJ) 2010 list of the most innovative companies coming from Malaysia (Figure 2.4) were mainly from the service sector. (AirAsia has been the only Malaysian company to be part of the top fifty most innovative companies in the world, as ranked by Fast Company, in 2008.)


## Approaches to Innovation

In this report, it helps to reference Alpha Catalyst Consulting's model of innovation that splits innovation into three distinct approaches. **Innovation 1.0** is predominantly driven by the lone inventor or technopreneur, producing products with very limited resources. **Innovation 2.0** on the other hand has a large budget, is driven frequently by an R&D team over a long period of time resulting in patents or IP production. Then there is **Innovation 3.0**, which is strongly market driven while littered with constraints. Innovation 3.0 is frequently inspired by organizational leaders who create a strong innovation culture and mindset within the organization. The Innovation 3.0 approach also regularly utilizes the web and open innovation.



**Figure 3.3:** Approaches to innovation. (Source: Leading InnovAsian: Embedding Innovation Culture in Malaysian Organizations ).

As we study the approaches to innovation more deeply, it becomes apparent that many policies and incentives surrounding innovation in Malaysia revolve around Innovation 1.0 and Innovation 2.0 (this is evident from the number of incentives which are targeted towards lab based R&D as opposed to ethnography, market study etc). Large innovative companies however are practicing or need to be performing Innovation 3.0.



What are the incentives and support for Innovation 3.0?

The US, with its strong start-up culture, venture capital and angel investor funding and strong IPO market, is a brilliant place for Innovation 1.0 to flourish. In some cases, the initial investment needed is not enormous. Another Innovation 1.0 example is Rovio Mobile, a Finnish computer game developer, which was initiated in 2003 by three students from Helsinki University of Technology who went on to create Angry Birds in 2009. Angry Birds is a puzzle video game which as of March 2011, had been downloaded over 100 million times<sup>6</sup>. This game has been called "the largest mobile app success the world has seen so far. Resulting from this success, in March 2011 Rovio raised US\$42 million in Venture Capital Funding. Rovio believes the greatest credit goes to the Apple's App Store: "It has opened up for innovation and given us a huge market. The game itself is made possible by the touch technology, which hit the market at the right time with the growth of smart phones and the launch of the App Store<sup>7</sup>.

Microsoft and IBM are excellent examples of Innovation 2.0. Since 2002, IBM has spent almost US\$50 billion in R&D and has been the top producer of patents in the US patent list for 18 consecutive years! In 2010 alone, IBM was awarded 5,896 US patents, the first time any company has been awarded over 5,000 patents in a single year. In June 2009, Microsoft announced that they will be spending US\$9.5 billion on R&D that year (almost nine times as much as Apple's US\$1.1 billion).

6. Leigh Alexander. "Angry Birds Sees 100 Million Downloads". *Gamasutra.com*. Retrieved 2011-04-27. [http://www.gamasutra.com/view/news/33509/Angry\\_Birds\\_Sees\\_100\\_Million\\_Downloads.php/](http://www.gamasutra.com/view/news/33509/Angry_Birds_Sees_100_Million_Downloads.php/)

7. Eriksen H Erik and Abdymomunov Azamat. "Angry Birds will be bigger than Mickey Mouse and Mario. Is there a success formula for apps?". *MIT Entrepreneurship review*. February 18, 2011. Retrieved 2011-04-27. <http://mter.mit.edu/article/angry-birds-will-be-bigger-mickey-mouse-and-mario-there-success-formula-apps>.

What then are examples of Innovation 3.0 around the world? Let's take a look at a few to help solidify the belief for this need in Malaysia.



**Grameen Bank (Bangladesh)** - a micro finance organization which makes small loans to the impoverished without a collateral. The idea was conceived from the realization that the poor had skills that were underutilized. This group-based credit approach uses peer-pressure to ensure borrowers comply with repayment schemes. This concept, a brainchild of Professor Muhammad Yunus has been duplicated around the world, earning him a Nobel Peace Prize in 2006.

**Jaipur Foot (India)**- This was first conceived due to the unavailability of affordable foot prosthesis. For the millions who lost their leg due to land mines, this was a revolution. While a prosthesis for a similar level of amputation can cost several thousand dollars in the U.S., the Jaipur Foot costs only US\$28. Currently the technology is adopted within many land-mine littered countries. In Cambodia, part of the foot's rubber components are scavenged from truck tires. In Afghanistan, craftsmen hammer the foot together out of spent artillery shells.



**Apple (USA)**- Apple, which started life as Apple Computer, Inc. has evolved to become the most valuable technology company in the world and the second most valuable company in the world, second to Exxon Mobil. As of January 2011 its market capitalization was valued at US\$330 billion, an increase by US \$50 billion in the 6 months prior (Tech Crunch, February 14, 2011). Apple was awarded a mere 563 patents in 2010 while IBM and Microsoft were awarded 5896 and 3094 patents, respectively, in the same year (The Irish Times, January 12, 2011)



**Tune Hotel (Malaysia)**- A limited service chain of hotels, modeled after the low cost carrier, AirAsia. It limits many traditional hospitality services, leases hotel space to retailers and rents out advertising space within the hotel (in the hallway,



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in the rooms, at room keys, toilets etc.). Tune Hotel adopts a well-known business model; low cost, no frills concept to a new industry, while leveraging off existing technology.

The common thread among all these examples are that they are not driven by high technology. Grameen Bank and the Jaipur Foot were born from a necessity, utilizing minimal technology but resulting in an enormous value creation. Apple, though technology-based, is far from the leader in number of IPs and patents, but utilizes the few that they have very well and incorporates a magnificent combination of design and marketing innovation into their product and culture.

At this juncture, the question that arises is, in the face of limited funds, what action should Malaysia take? In 2008, The Research Council of Norway assessed their policies on innovation and debated the usage of the word “high tech” when referring to companies (as in ‘a high tech company’). The term ‘high tech’ company is defined as a company that invests much in R&D but does not consider the company’s use of advanced or existing technology and knowledge. What is Malaysia’s take on this? Do we also disregard the emergence of this concept of creating value from high technology?

Do our policies ignore large companies that are not practicing Innovation 2.0, where they do not have a team of R&D scientist and engineers? This would rule out at least half of the companies in AWSJ’s list of Malaysian innovative companies, along with AirAsia.

*Policy Consideration #1:*

*We must really look at the definition, type and approaches of innovation. Does the policy only encourage companies to spend more resources and support Innovation 2.0, or are wider forms and approaches to innovation accepted?*

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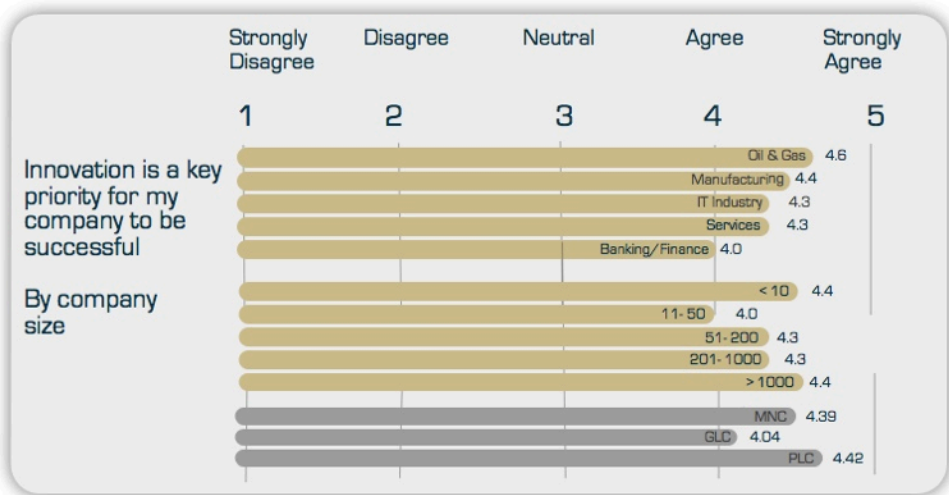
## The Strategic Need to Innovate

How many companies really need to innovate to grow and be competitive? Encounters with large organizations revealed that many GLCs were not pressed to innovate. This seemed to be more of a priority for the MNCs, PLCs and private companies. One of the key differentiators or push-factors appeared to be competition. Where there was intense competition present, even the GLCs involved were changing fast and doing things differently. For MNCs, apart from the electrical & electronics (E&E) sector, the Malaysian centers were not mandated to conduct R&D (i.e. Innovation 2.0). In a few MNCs, there is minimal R&D being done in Malaysia compared to their global network, and typically focused more on production, sales & marketing. Public listed and private companies tended to practice more market driven innovation, with many focusing on service innovation.

Research done by Chandran & Veera (2003)<sup>8</sup>, indicated that even though Malaysia recorded a significant level of high technology exports (57% of Malaysia's export in 2001 was in high technology industries), these were mainly contributed by the MNCs, with restricted spillover effect to the local technological companies. Chandran, Rasiah & Wad (2009)<sup>9</sup> attributed this to a couple of factors; Malaysia is mainly engaged only in the assembly stage of manufacturing, secondly, the failure to attract MNCs to locate their HQ in Malaysia (HQs normally contribute significantly to R&D activities), lack of skilled professional in supplementing the industry and finally, lack of entrepreneurial and innovative culture among Malaysians.

8. Chandran, VGR & Veera (2003). Export Specialization, Concentration and Intra-Industry Trade from Malaysia. *Jurnal Akedemik*, Issue 3. October, 99-111.

9. Chandran, Rasiah, Wad (2009). "Malaysian Manufacturing Systems of Innovation and Internationalization of R&D". Copenhagen Business School. CBDS Working Paper Series

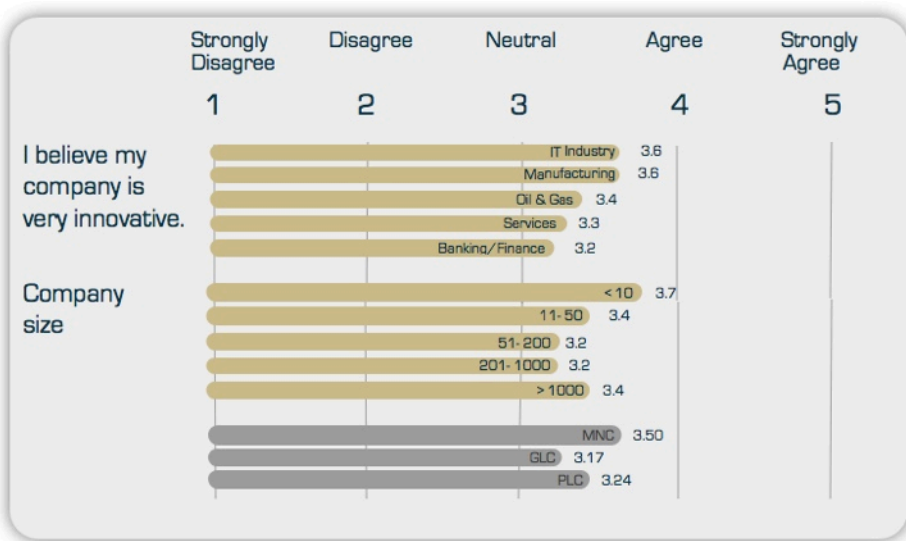


**Figure 3.4:** Innovation is a key priority for my company to be successful.

Results illustrate values based on the various industries, by company size and company type.

Source: Malaysian Innovation Climate Survey 2009

Data from the Malaysian Innovation Climate Survey (MICS) 2009 showed that employees across the board perceived innovation to be critical (Figure 3.4), be it in the large and small companies, in GLCs, MNCs or PLCs, where all scores are a minimum of four. However, interviews conducted during this recent study revealed that even though employees felt that innovation is of high importance, amongst the GLCs, innovation did not appear to be their key source of competitiveness or growth. This was reinforced with the fact that the data from the MICS 2009 revealed that not many employees from GLCs felt that their company is very innovative, compared to the PLCs and MNCs (Figure 3.5). As for the MNCs, even though at the global level innovation is of high priority, in Malaysia, the focus is on other areas, mainly in sales & marketing of their services or products. Amongst the MNCs, those who appear to be heavily investing in



**Figure 3.5:** I believe my company is very innovative.

Results illustrate values based on the various industries, by company size and company type.

Source: Malaysian Innovation Climate Survey 2009



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innovation in Malaysia are mainly in the E&E and chemical sectors. MIDA reported that in 2009 the total investment in R&D was RM 1.4 billion (over 105 projects). Investments from the E&E sector was RM 697 million while chemical and chemical products contributed RM 221 million (the total from these two sectors alone is RM 918 million.)<sup>10</sup>

Among the PLCs/large private companies, more emphasis is evident on innovation especially in the telecommunications sector. We see that companies which face more intense competition are more poised to innovate. In summary, the reality is that many companies in Malaysia have been progressing without much innovation. Data from World Bank (based on Total Factor Productivity Indicator) and WEF analysis, both support the fact that Malaysia is currently not growing through innovation.

*Policy Consideration #2:*

*Innovation is not the key source of growth and competitiveness for many large companies in Malaysia. Hence, how do we now get the large companies to innovate and support the innovation ecosystem?*

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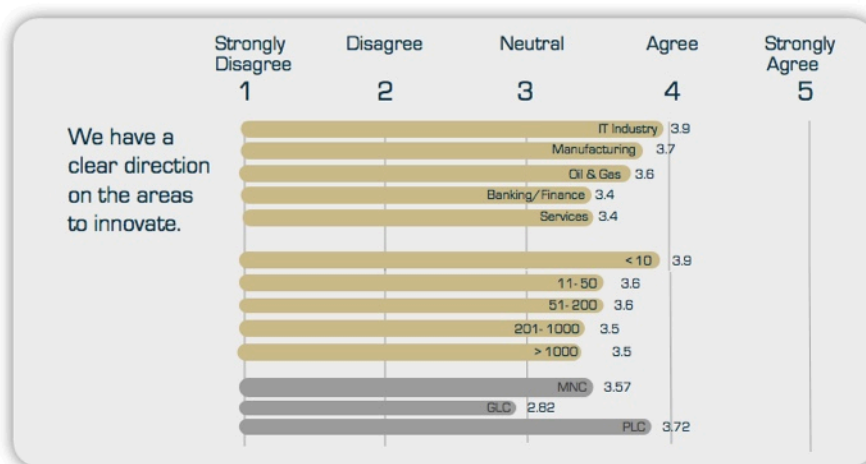
10. Malaysia: Performance of the Manufacturing And Services Sectors 2009; MIDA.

## Innovation Indicators

To innovate, first and foremost, companies need a culture that drives innovation, second, activities that boost organizational capability to generate insights and innovative solutions, third, a process or mechanism for ideas to emerge and be implemented, and finally, financial investment in innovation. In this section, analysis of these four areas was done to understand in greater depth the state of innovation among large companies. The starting point of innovation is having a clear understanding of why and where to innovate. The chart below (Figure 3.6) reveals that employees among the much smaller companies seemed to have a clearer focus on where to innovate as compared to large companies (especially the GLCs).

The PLCs lead in terms of communicating the path of innovation throughout the organization, followed closely by the MNCs. However, the gap with GLCs appear to be significant. In AirAsia for example, every employee knows that the goal is to reduce cost. One GLC manager that was interviewed, related that everyone in the company had a very clear direction- achieving 31% growth by 2013, via innovation.

Some of the MNCs reported that, at a global level, they undertake future scan and foresight sessions, looking at what may emerge or become the trend 10 or 20



**Figure 3.6:** We have a clear direction to innovate.

Results illustrate values based on the various industries, by company size and company type.

Source: Malaysian Innovation Climate Survey 2009

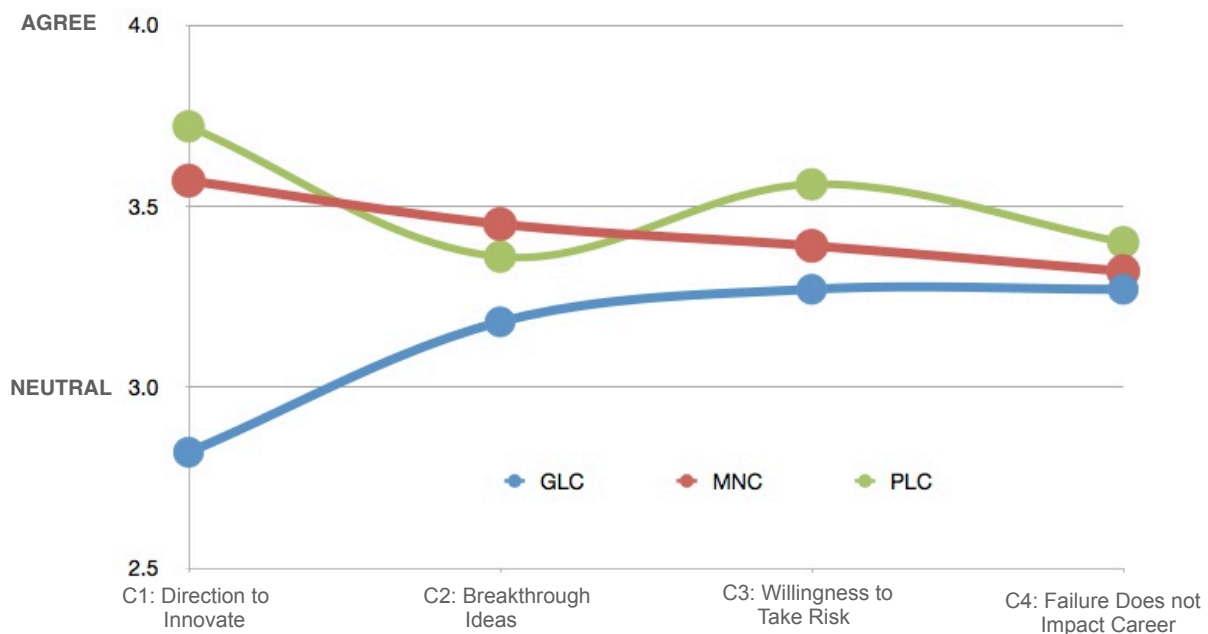
years down the line. How many of our GLCs do this? If they do, to what detail is it planned out and how well is it communicated to the lower ranks and throughout the organization? Do they then set targets based on this?

### **Policy Consideration #3:**

*How do we encourage more companies and individuals to be more strategic and clear with their innovation efforts?*

## Creating a culture for innovation

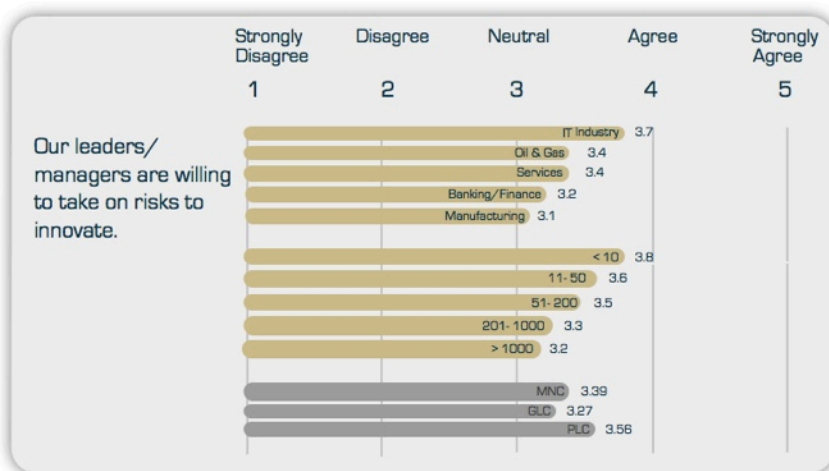
A culture within an organization consists usually of the said and unsaid practices in the company. These would mould the thinking, behavior and values that employees live and work by. In a nutshell, to create a culture of innovation there must be a clear direction on areas to innovate, emergence of breakthrough ideas, the willingness for leaders to take risk, and finally a promise that failure in an innovation project does not impact a person's career. The data from the MICS 2009 indicates that among the large company types, there is a vast difference in terms of clarity on areas to innovate.



**Figure 3.7:** Creating a culture for innovation.  
Source: Malaysian Innovation Climate Survey 2009

PLCs seemed to be ahead of MNCs and GLCs in the previously mentioned four indicators (except on coming up with breakthrough ideas where it falls slightly below the MNCs), especially in the area of willingness to take on risk. What is also interesting is that ratings for the various company types almost converge at the same final point, on whether failure impacts a person's career. Regardless whether they are from the MNCs, GLCs or PLCs, failure is viewed similarly- almost having a neutral impact on one's career. The pattern was also similar when results were aggregated across the various industries. What it means here is that individuals within large companies would not be willing to take on innovation projects that have a high risk of

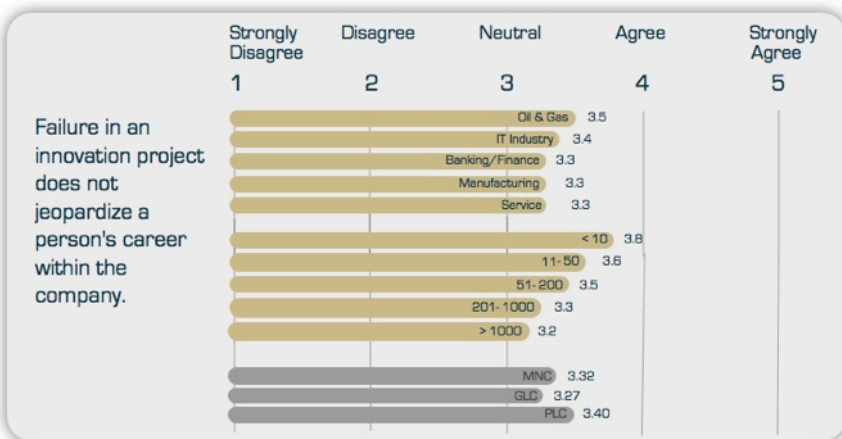
failure as it is more likely to jeopardize their career. Hence, many tend to be cautious in attempting something new. As a result, many large companies focus on incremental innovation where, even though the impact may be small, the risk of failure is slim.



**Figure 3.8:** Our leaders/ managers are willing to take on risks to innovate.

Results illustrate values based on the various industries, by company size and company type.

Source: Malaysian Innovation Climate Survey 2009



**Figure 3.9:** Failure in an innovation project does not jeopardize a person's career.

Results illustrate values based on the various industries, by company size and company type.

Source: Malaysian Innovation Climate Survey 2009

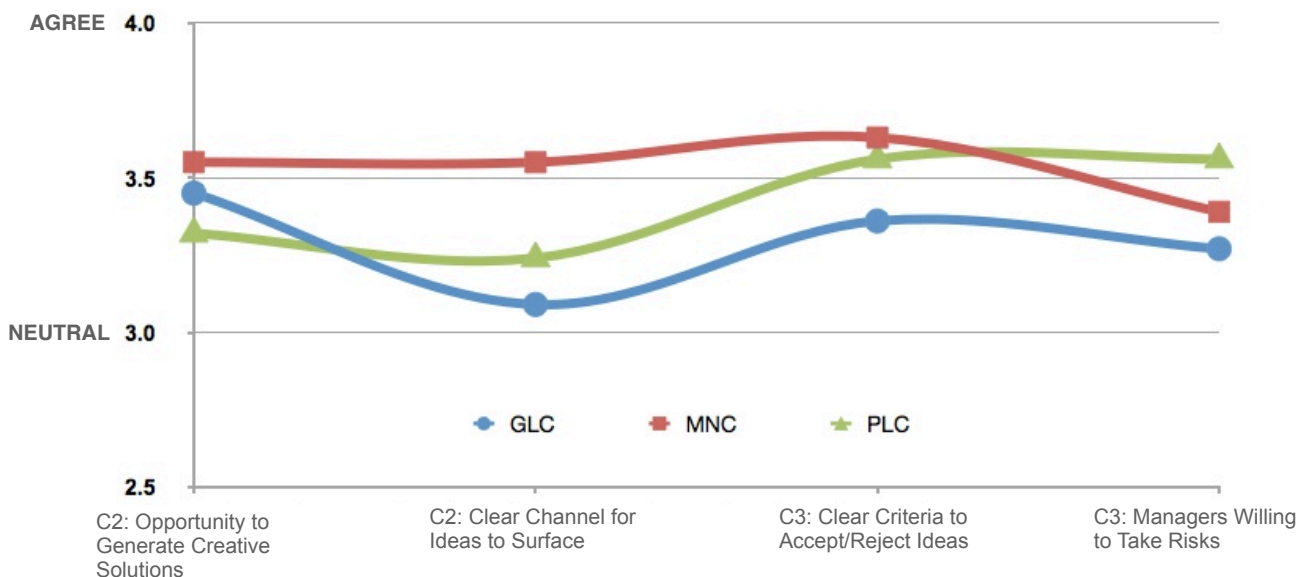
**Policy Consideration #4:**

*How do we encourage companies and individuals to take on more risk? What types of risks are crucial to support- financial, brand, or culture?*

## Capacity to Innovate

Employees need the opportunity and a clear channel within the company to contribute towards innovation. This includes the time and resources to generate new solutions and a clear channel for these ideas to emerge. In evaluating the ideas, there must be clear guidelines for ideas to be accepted or rejected. This will somehow reflect on the willingness of the decision maker (this can be managers, VPs etc.) to take on risks. As evidenced from Figure 3.10, levels for MNCs outperform GLCs at all points. The largest gap between the two types of organization appear to be a clear channel for ideas to surface and a clear criteria for accepting or rejecting ideas.

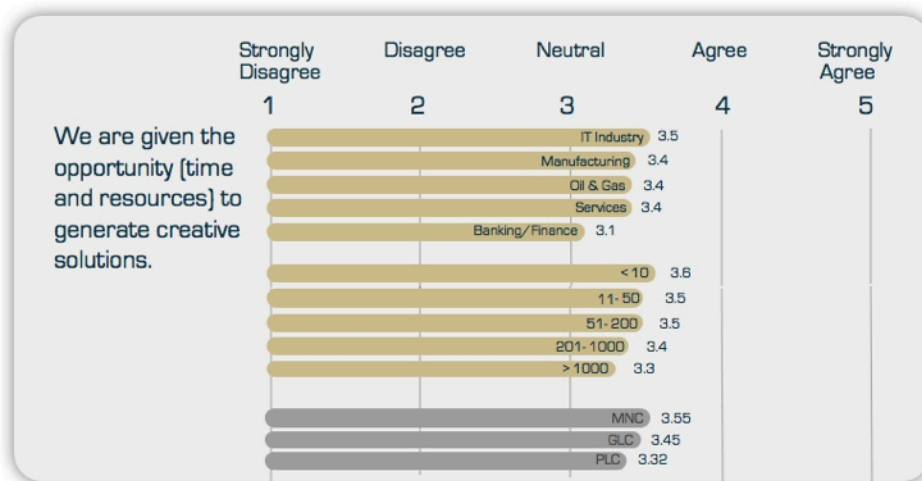
In terms of taking risks, there appears to be minimal difference between MNCs and PLCs though PLCs appear to be more risk-taking. Employees in PLCs however feel that they are not given the time and opportunity to generate creative solutions. Reflecting this, interviews during this study supported that many from the PLCs and large private organizations described a very hurried environment within the company; with so much on their hands, they have difficulty to sometimes take a step back and explore other possible solutions, always needing a solution yesterday! Many were also too bogged down with day to day activities and quarterly reports, that the easiest way is to just perfect the known.



**Figure 3.10:** Capacity to innovate.

Results illustrate values based on the various industries, by company size and company type.

Source: Malaysian Innovation Climate Survey 2009



**Figure 3.11:** We are given the opportunity to generate creative solutions.

Results illustrate values based on the various industries, by company size and company type.

Source: Malaysian Innovation Climate Survey 2009

Many employees, especially in the MNCs feel that Malaysia has the talent needed to bring the country into the innovation economy. However, there needs to be a system to tap on these talents to allow them to thrive. One common framework which is shared by innovative companies in Malaysia is that they have a clear channel for ideas to surface. Interviews conducted with AirAsia, Bank Rakyat, Petronas Gas Berhad revealed that they have some form of IT system to capture ideas.

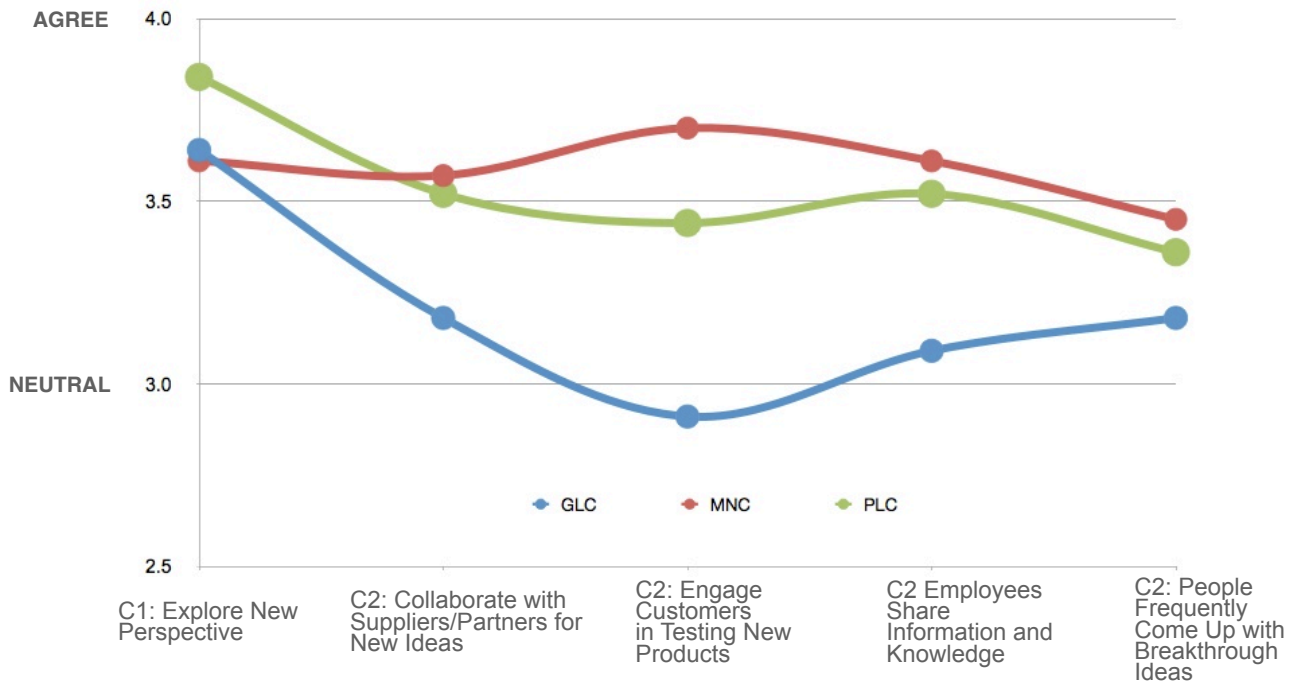


Figure 3.12: Capability to innovate. Source: Malaysian Innovation Climate Survey 2009

## Building the Capability to Innovate

Innovation does not happen in isolation; companies need to collaborate with various parties (customers, suppliers, employees and their business partners), to explore new perspectives or understand customer needs and frustrations. This will hopefully spark the creation of fresh products that create value. Collaboration has become such an important factor when one talks about innovation that it needs a special in-depth section in this report.

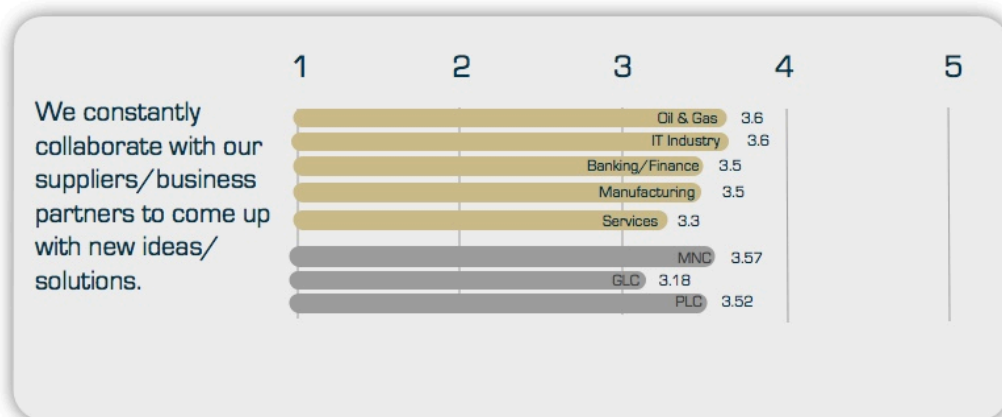
We need to question how much collaboration truly occurs within the walls of our Malaysian companies and within our universities or other research institutes? Results from the MICS 2009 (refer to Figure 3.12) indicated that all the three types of companies explore new perspectives inside and outside the industry to the same level; however, when it comes to collaboration, be it between suppliers, partners, customers or fellow employees, the scores for the GLCs drop significantly. This fact was further supported by our interview with representatives of the respective company types.

How do we foster more collaborations in GLCs?

*“Technology has become so sophisticated, broad and expensive that even the largest companies cannot afford to do it all.”*

*Robert Gussin (previous Corporate Vice President of Science & Technology and Chief Scientific Officer of Johnson&Johnson)*

What are the barriers to collaborations?



**Figure 3.13:** We constantly collaborate with suppliers & partners.  
 Results illustrate values based on the various industries, by company size and company type.  
 Source: Malaysian Innovation Climate Survey 2009

There are a few parties which we view as potential collaborators with the corporate sector; universities, partners/suppliers/vendors and customers. In the next couple of pages, we will look at each one of these in more detail.

### 1) Collaboration with Universities

In the US, many researches were feeling the pinch as in 2010, the state funding for higher education had dipped to a twenty-five year low<sup>11</sup>. This further fueled the demand for accountability and emphasis on results. There has also been a shift in pattern where the traditional philanthropists are more deeply involved in selection and structure of the programs they endow. This has compelled many universities in the US to adopt a more ‘entrepreneurial science’ approach: a high-impact, problem based or applied research, that produces measurable results<sup>12</sup>.

In Malaysia, millions of ringgit have been spent on research in universities to date, however to this day, the output has been questionable. During interviews with the various companies, very few could cite successful collaborations with local universities. More often than not, companies were unhappy with the performance of the universities. Many companies do not see universities as a core source of new ideas or potential technology. A couple of companies have stated that university lecturers only approach them once the product is done and expect them to commercialize it. Many in the private sector find this an impossible and futile gesture at this stage. This disjointed approach towards research can probably improve with more intentional collaborative efforts.

“The university lecturers came to us after the product is finished and asked us to commercialize it however we find its not something that the market wants or needs.”

11, 12. Thorp & Goldstein. Engines of Innovation- The Entrepreneurial University in the Twenty-First Century; North Carolina Press 2010. Pg17-23.



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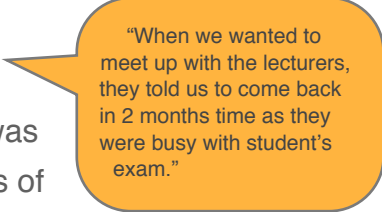
When we consider Malaysia, with its limited funds, a close collaboration between the industry and university from the early stage, appears to be the likely measure to ensure that the research is what the market needs. Close collaborations can also trigger possible solutions from the corporate sector that can be integrated into future research.

During encounters with the local industry players, there were several sore points that surfaced when the issue of university collaboration arose. For ease of discussion these are divided into :

- a. Time & efficiency
- b. Talent
- c. IP ownership & value
- d. Equipment & facilities

#### **a) Time & efficiency**

University lecturers are assessed by the total amount of grants secured. As such, it would be in the best of interest for the lecturer to try and prolong the research as much as possible so that they do not have to hunt for new projects ever so often. Also, university lecturers have the additional task to teach, cover administrative positions/post or supervise undergraduate/postgraduate students. Therefore, time is limited for them to devote to research. Industry players on the other hand, who invest in research would want and expect returns on investments in the minimum time possible. In some cases, industry players have cited instances where they wanted results in 6 months whereas the lecturers wanted to do the project over 1 or 2 years!



“When we wanted to meet up with the lecturers, they told us to come back in 2 months time as they were busy with student’s exam.”

Another area of contention that was communicated was the lack of professionalism by the lecturers. This was in terms of time management, commitment to the project and enthusiasm in discussing the project. When approached by the industry, the lecturers don’t see it as a priority to frequently review progress.

#### **b) Talent**

Much of the research that are of interest to the industries are in highly specific domains. This requires talents/people with knowledge in specific sub-specialized areas, usually in the more recent/new areas, which are still predominantly lacking coverage in Malaysian universities. In some areas, there are not many post-graduate students in the field. In the oil & gas sector for example, there are not many who take

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up Masters or PhDs as they would prefer to venture early into the industry due to the lucrative pay. In addition, many of those taking up post-graduate studies in our local universities (especially in the oil & gas sector) happen to be expats and our current labour laws do not easily facilitate post graduate students to remain in the country after the tenure of studies.

### **c) IP ownership & value**

Intellectual property laws in Malaysia are not well established and spelt out. In many instances, there have been tussles over who owns the IP and how much they should be valued at. Industry correspondence have related instances when the tussle was not only between universities but also sometimes between departments within the same university. At other times when the researchers involved have managed to iron out the ownership of IP, the question of value arises. Many a time there have been situations where the researches/university demanded too high a figure for the IP, that the industry eventually lost interest, citing that “at that price it was not worth commercializing”. To the industry players, it appears as though researchers are not aware that manufacturing, design and marketing, all cost a substantial amount and the IP is only one part of the equation.

### **d) Equipment and facilities**

Many high-technology centric research studies require top-notch machines, which frequently are not available in the country due to the financial constraint. Collectively, Malaysia has spent a lot of money equipping the universities and public research institutions. In some, there is duplication of equipment as individual departments/faculties have the mentality that “this machine belongs to me and you cannot use it”. This leads to underutilization of the equipment and if there is a need for a similar machine by a different department, they have to raise the funds themselves. This attitude will also fuel the ‘silo’ mentality as inter-department or inter-faculty collaboration will decrease. Universities and research institutes need to collaborate not only within the faculties in their own university but also with those in other universities and with research arms of companies. We can then increase the utilization of equipment and hopefully generate more, higher quality research.

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With all these reasons, it is no surprise that the level of company collaboration with public research institutes/universities is marginal. In some instances, due to the multitude of challenges with local universities, our domestic companies and GLCs have gone abroad and collaborated with foreign universities. How do we reach the likes of collaboration that even the mammoths of the US are doing? In the USA, 50% of Proctor & Gamble's ideas come from outside the organization. However, in Malaysia, based on MASTIC's report, ideas mainly come from internal channels. Why is this so?

***Policy Consideration #5:***

*How do we encourage universities and large companies to collaborate?*

### Extreme Collaboration:

The Singapore government has built Biopolis- a high-tech biomedical park, at a cost of S\$500 million, located in close proximity to the National University of Singapore, National University Hospital and the Singapore Science Parks. Here, scientists can interact at both personal and scientific levels with colleagues of several A\*STAR (Agency for Science, Technology and Research) Institutes as well as corporate research groups. The Biopolis offers a wide spectrum of services under one roof, and seek to maximise usage of key scientific equipment to capitalise on cost sharing. They also provide a range of scientific services and research support. Today, there are R&D organisations, universities, polytechnics, hospitals and companies, both in and outside of the Biopolis using the facilities.

What discriminates the Biopolis from other traditional science parks around the world, is the emphasis on results. Every project has to be aligned with A\*STAR's mission "to have impact on the economy". Results are also demanded from the researchers, where everyone is on a short contractual leash of three to five years. Even those that head some divisions at Biopolis are not spared. This prevents 'deadwood' or underperformers from accumulating.

The other element in driving innovation at Biopolis has been the creation of an entrepreneurial environment. In the US, the 1980 Bayh-Dole Act provided incentives for US universities to share their scientific discoveries with the industry. However, even with the university's permission to license the discovery, it would not have helped create a business plan, participate in managing the new company or recruit investors. This is where Singapore does it differently. The A\*STAR stand ready to help researchers take science from the laboratory to the marketplace. A\*STAR helps not only in financial backing but also business acumen. They help license the discovery, form a company, raise funds, negotiate with investors and hire a management team. They have also been known to go to the lengths of hiring public-speaking coaches to help nervous scientists make pitches to venture capitalists. In return, A\*STAR gets a piece of the new companies.

Collaboration forms another pillar in the innovation equation, and at Biopolis, it isn't left to chance. Here, cross-disciplined projects are encouraged. The chairman also personally oversees mandatory meetings of scientists from different fields at sessions whose sole purpose is to foster interdisciplinary work. "It felt like a campus with corporate and academic entities mixed together".

Singapore did not stop at the formation of Biopolis. With the success of Biopolis, it went on to establish Fusionopolis (for infocomm technology, media, science and engineering industries) and are now embarking on their third strategic industry cluster, the Mediapolis (for creating and distributing content from Singapore to the world).<sup>13</sup>

"With Fusionopolis, we are trying to create a new model of doing research that cuts across many different borders. This mixing of different interests and backgrounds will lead to unexpected solutions to problems about which society cares. It is a unique environment that I do not see anywhere else in the world."

-Charles Zukoski, Ph.D.,  
who chairs A\*STAR's  
Science and Engineering  
Research Council (SERC)

13. Sethi L Meera. "The Science Factory". Protomag.com. Winter 2010.

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## 2) Collaboration with Suppliers and Vendors/Open innovation

As interviews with various stakeholders progressed, it became evident that GLC collaboration with local suppliers/small companies were deemed scarce. There was a strong sentiment from the SMEs that the “GLCs are like fortresses”. GLCs however have responded that they are sometimes over-flooded with requests from SMEs and they have to balance between spending the time to assess the new product (which sometimes does not save significant cost) with other responsibilities. Many of our GLCs have some form of vendor development program, however these are not set up to focus or drive the vendors towards innovation. Many of these seem to help the vendor get the basics right, to achieve a certain standard. There was also feedback from the GLCs that vendors “feel that it is their right to get the contract just because they are a ‘bumi’ company”. This would then make it more challenging to drive the vendors towards innovation and being performance driven. It is true that some of the companies from Petronas’s Vendor Development Program, like KNM, have expanded beyond the shores of Malaysia, but these success examples are few and far between. How did these successful companies expand their scope and what sort of incentives worked for them? Telekom Malaysia has just begun to embark on their ‘blue lane’ project that provides a portal for their vendors to submit ideas or suggestions to them.

What about collaborations between large companies? How rampant are they? Maxis has had a success story collaborating with multiple large, well established companies, each a leader in their own domain.

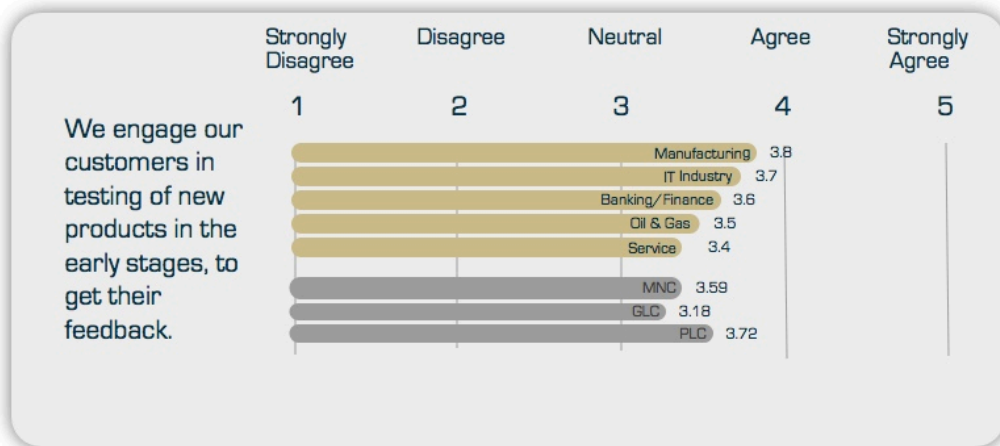
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#### Collaboration in Action:

In April 2009, Maxis launched the Maxis FastTap service, a collaboration with Nokia, Visa, Maybank and Touch 'n Go. The collaboration extended from conception to trials to the commercial rollout. According to Maxis, this is a "first-in-the-world" milestones for contactless mobile payments using Near Field Communication (NFC), a short-range wireless technology that allows communications between devices at close range.

Maxis FastTap was the first commercial NFC service launched globally that integrated multiple applications for contactless payment – both Maybankard Visa payWave (in collaboration with Maybank and Visa) and transit payment (with Touch 'n Go) on the same device (the NFC-enabled Nokia 6212). With this, customers can perform contactless payments at any Visa payWave merchants or Touch'n Go points nationwide with the NFC-enabled Nokia 6212, to purchase goods and services at more than 1,800 Visa payWave merchant locations as well as paying for toll, transit, parking and theme park charges at over 3,000 Touch 'n Go points nationwide.





**Figure 3.14:** We engage our customers in testing new products. Results illustrate values based on the various industries and company type. Source: Malaysian Innovation Climate Survey 2009

### 3) Collaboration/Co-creation with Customers

Figure 3.14 above shows the response from the Malaysian Innovation Climate Survey 2009. The score for GLCs, in terms of collaboration with customers is significantly lower than that of the MNCs and PLCs. AirAsia, in their bid to provide more options to the customers, engaged customers and potential suppliers to source for ideas on what food they wanted on the in-flight menu (the potential suppliers were present during customer focus group sessions). This way, suppliers could engage the end-user directly. AirAsia pre-provided potential suppliers growth forecasts and expansion plans of the airline. This eliminated the pitching aspect that they would have had to give to convince suppliers to come on board.

YTL Communications also has been sourcing from the customers. In their effort to launch the world’s first nationwide 4G network, in 2010 it launched a global competition, mYprize, to challenge innovators and creative entrepreneurs around the world to create original ideas or unique applications and devices for the 4G network. A total of US\$ 1 million was awarded.

#### **Policy Consideration #6:**

*If open innovation and co-creation are to be practiced by large companies, what policies should be introduced to encourage this?*

### Shell GameChanger Solution:

In the mid 90's Shell worked with Gary Hamel to create a program called GameChanger, modeled after the Silicon Valley venture-capital ecosystem<sup>14</sup>. Through this, ideas can be submitted through a website by anyone in or outside of Shell, at any time. These ideas are then viewed by a team who then decides whether to reject, fund, or modify the plan. The team is an autonomous group of people who invest a separate pool of funds amounting to roughly 5 to 10 percent of the total R&D budget. The ideas submitted go through multiple screening stages. At the later stages, Shell may act as multi-skilled consultants — they may be technical advisers, marketers, or an interface with lawyers as many of the idea contributors are scientists and engineers, who may be less skilled in the business and commercial dimensions. Successful projects graduate for further development under a core R&D program, to be licensed to another firm, or under a new venture company. Projects that fail are reflected on to capture learnings.

As of 2008, GameChanger has seen more than 2000 ideas and graduated more than 200 projects. At least 40 percent of Shell's core Exploration and Production business R&D program has emerged or evolved from former GameChanger projects. Some of these are EZIP (an elastomer that swell in the presence of water) , Algae Fuel (Natural algae is very efficient at making oil and can double their mass several times a day, producing at least 15 times more oil per acre than other land crops) and Production Universe (a new method of data modeling)<sup>15</sup>.



14. Bringing Silicon Valley Inside” by Gary Hamel, *Harvard Business Review*, Sept.-Oct. 1999

15. Conser Russell. “Shell GameChanger: Space to Free the Mind”. *Innosight; Strategy & Innovation Articles* July-Aug 2008, vol 6, no 4. Retrieved 27 April 2011. [http://www.innosight.com/innovation\\_resources/article.html?id=628](http://www.innosight.com/innovation_resources/article.html?id=628)



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#### 4) Supporting the Innovation Eco-system

Though not a direct form of collaboration, a crucial component of collaboration is the fostering of a culture for innovation within Malaysia. There are many companies that contribute towards stimulating and moulding the ecosystem towards innovation. Many organize competitions that act as a platform for start-ups or university students to channel their thoughts and ideas into.

IBM Malaysia has for many years been a strong supporter in terms of educating our younger population. The last couple of years has probably been the most significant by far, done by a single company. Ten years ago, IBM had the epiphany that the service industry will be a major component of the economy landscape. If sixty years ago IBM helped to create the computer science syllabus for universities, a decade ago it developed the service science and engineering degree. Two years ago, IBM Malaysia offered this program to USM, creating the Service Science and Management Engineering (SSME), a 2 year post-graduate MBA program. Since its inception, there has been eleven MOUs signed with various public and private universities in Malaysia, to offer this program. However, IBM did not stop at purely giving away the curriculum; it also sent some of its employees to help teach in the initial stage (till the universities could cope on their own) and provided access to the global website for additional content. Microsoft Malaysia has also contributed to the innovation ecosystem by providing free software to start-ups for the initial 2 to 3 years, through their BizSpark initiative. At the university level, Microsoft Malaysia provides free software applications to students and also organized Imagine Cup (a global innovation challenge to generate applications to achieve UN's eight millennium goals).

Other examples of large organizations nurturing the innovation ecosystem locally are seen in Shell Malaysia who also provides similar platforms for innovation with their eco-challenge, while DiGi does it with their green solutions. Likewise, Maxis does it through their Mobile Content Challenge (MCC) program (which is jointly organised by Maxis Berhad, the Malaysian Communications and Multimedia Commission and the Ministry of Information Communications and Culture). The program is

Microsoft® BizSpark™ 

This is a global program that assists software startups by giving them access to current full-featured Microsoft development tools, platform technologies, and production licenses of server products. This helps them develop and bring to market innovative and interoperable solutions. In addition, Microsoft® also connects them with key industry players and investors.

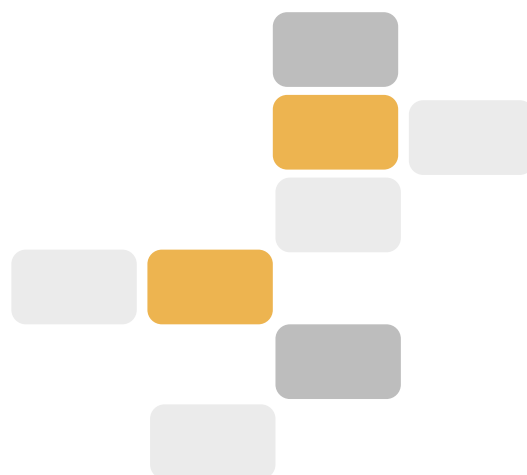
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aimed at encouraging students to develop mobile content, applications and services. To date, 5 previous winners from Malaysia have started their own company with one of them already venturing into Bangladesh, with a turnover of US\$ 2.5 million in 2010. Maxis, through the Maxis 1 Store also provides professional or amateur Malaysian content developers with an easy-to-use platform and tools for application development for the local and global markets.

There have also been many successes quoted. However, the question is, are the initiatives from these small quarters enough to propel our nation into the innovation economy? If not, how can we capitalize and augment these efforts, encourage more of similar initiatives, for the betterment of our country?

***Policy Consideration #7:***

*How do government policies support these forms of activities by the MNCs and PLCs, and how do we encourage more GLCs to also be part of the agenda in creating the innovation eco-system?*



## Investment in Innovation

Most of the companies that were engaged in this study indicated that they spent less than 1 percent of their revenue on innovation. Innovation here encompassed market research, training, and research for introduction of new products or services to market. It was comforting to know that most of the respondents viewed doing internal R&D (to explore new solutions) as a high priority. Unfortunately, when it came to managing the IP rights and rollout (branding, logistics, manufacturing) of the product, there is less emphasis given.

In terms of protecting IP, companies actively use patents, trademarks, copyrights, trade secret and confidentiality agreements as the main method. This is a clear indication that most of the companies are aware of these options. What was not captured, because the firms themselves were unaware, was how many of their IPs were not protected in any form. In the interviews with the various companies, it was evident that some don't bother to protect the IP. Maybe what we need is to fine tune what can be protected, coach employees to always ask "can this be protected?"

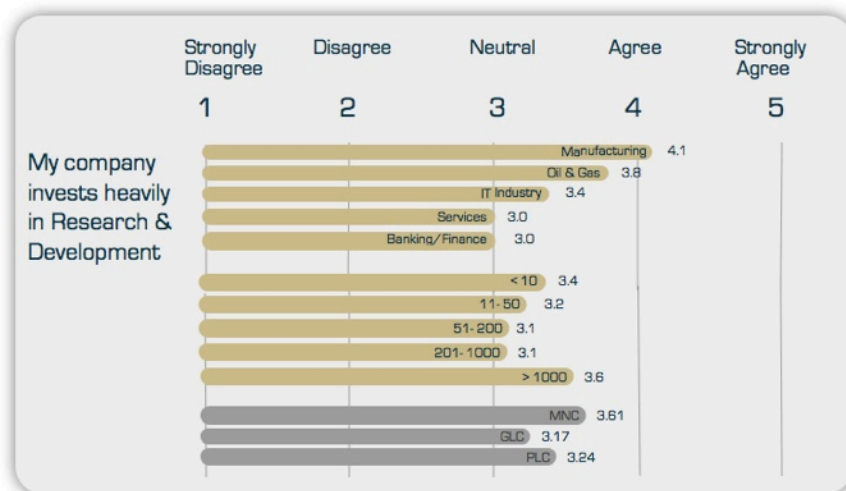
R&D investment, although not an absolute indicator of innovation, is still important. As a country, we spend 0.64% of our GDP on R&D, which, based on MASTIC's report, a high percentage is from the private sector. A World Bank Report also indicated that we are now spending less compared to the past, indicating a decline in spending from 2002 to 2007 (Figure 3.15).

Share of manufacturing firms carrying out innovation activities, percent

| Innovation activity                                   | All firms |                  | E&E firms |                  |
|---|-----------|------------------|-----------|------------------|
|   | 2007      | Change from 2002 | 2007      | Change from 2002 |
| Upgraded an existing product line                     | 48.0      | - 4.6            | 81.3      | 0.0              |
| Developed a major new product line                    | 26.2      | - 3.6            | 46.9      | -18.7            |
| Upgraded machinery and equipment                      | 60.3      | - 2.0            | 84.4      | 0.0              |
| Introduced new technology to change prod. process     | 27.6      | - 1.7            | 50.0      | +12.5            |
| Filed patent/utility or copyright protected materials | 11.1      | - 3.2            | 9.7       | -6.4             |
| Subcontracted R&D projects to other organizations     | 6.1       | + 1.5            | 6.3       | +6.3             |
| Agreed a new joint venture with foreign partner       | 5.2       | + 1.0            | 6.3       | -9.3             |

**Figure 3.15:** Innovation efforts by firms between 2002 and 2007.

Source: World Bank (2005, 2009a and 2009c) and World Bank staff calculations.



**Figure 3.16:** Company investments in R&D.  
Source: Malaysian Innovation Climate Survey 2009

The Malaysian Innovation Climate Survey 2009 indicated that there is not much R&D going on in Malaysian organizations. When we consider large organizations, the leaders appear to be the MNCs. R&D done by PLCs and GLCs appear to be very small (Figure 3.16). From our interviews, many of the MNCs generally concede that although R&D is typically important for the company, at a global level, the decision from the headquarters is that their centers in Malaysia are not mandated nor supported (financial etc.) to do R&D. Most of the R&D done is at their regional centers, many of which are just across the border from us. We need to question ourselves objectively, why is this so?

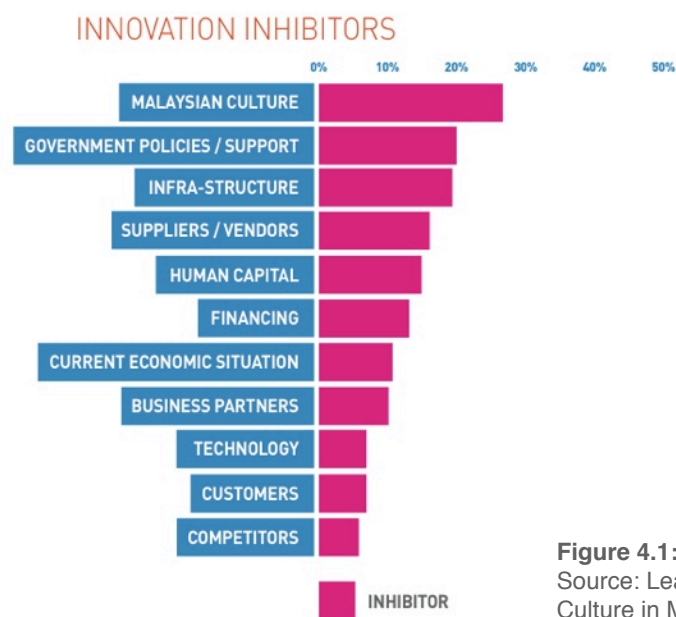
***Policy Consideration #8:***

*Investment into innovation is still low, with certain industries significantly lagging behind. What is holding Malaysian companies back when it comes to R&D? Are there enough incentives and does Malaysia have the right kind of talent?*

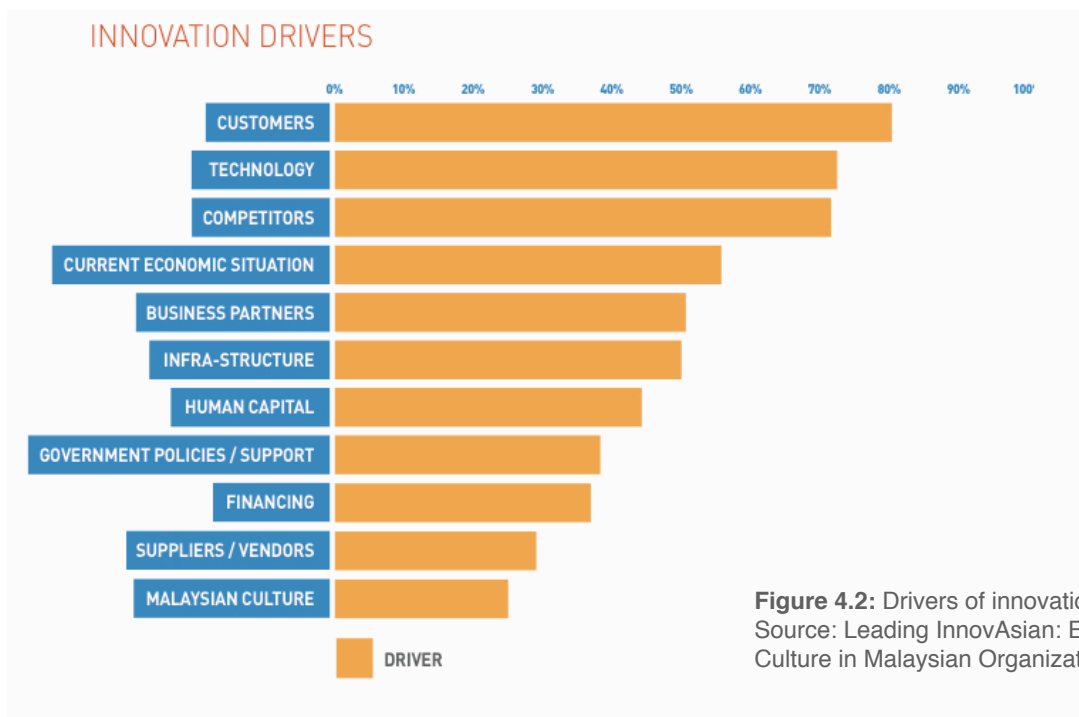
## 4.0 Challenges and Drivers for Innovation

As the daunting challenge of innovation is put forth to large organizations, confronting the CEOs that believe innovation is crucial and critical, the acid test lies in whether the organization can muster the courage to reallocate resources and question inherited practices.

The Malaysian Innovation Climate Survey 2009 data below (Figure 4.1) shows the perception of employees on whether certain factors are barriers or drivers of innovation. Figure 4.1 shows that the largest barriers were the Malaysian culture, followed by government policies and infrastructure. Figure 4.2 shows that the top three drivers of innovation are customers, technology and competitors. As we delved deeper through the interviews with various organizational leaders, we began to understand with more depth the barriers and drivers of innovation within organizations.



**Figure 4.1:** Barriers to innovation in Malaysia.  
Source: Leading InnovAsian: Embedding Innovation Culture in Malaysian Organizations



**Figure 4.2:** Drivers of innovation in Malaysia.  
Source: Leading InnovAsian: Embedding Innovation Culture in Malaysian Organizations

## Customers, Competitors & Talent

### Customers

More often than not, customers are reckoned to be drivers of innovation. If we are to look at Figure 4.2, customers are the most significant driver to innovation. However, in certain situations, the customer readiness to accept a new product or service can be a challenge. When Air Asia first started, many were not used to online purchasing of tickets. This was due to an underlying fear of credit card fraud and safety. However, with time and possibly out of necessity (if you wanted to travel low cost) customers had to learn to embrace this new technology. Many also took the opportunity to be ‘agents’ to purchase these tickets for the not-so-IT-savvy customers.

The Malaysian Innovation Climate Survey 2009 showed that ‘lack of readiness for customers to accept new solutions’ was the second most significant barrier after ‘lack of understanding of customer’s needs’ for PLCs. For the GLCs and MNCs, the most significant barrier was the absence of a clear direction to innovate. This was followed by ‘lack of innovative ideas’ for GLCs and ‘risk adversity of leaders’ for MNCs.

In another scenario, customers may also be reluctant to change due to the switching cost. For example, in implementing a new IT system within an organization, the cost of disruption and re-training can cripple an organization, making it easier to just maintain status quo.

In the oil and gas industry, some companies relate that their customers (Malaysian companies) only want proven technology. They are always asking “where

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else have you done this?” However, at the same time, these same customers want to be the first in world in that domain. How would these two parameters exist simultaneously? This scenario would correspond with the risk aversion culture prevalent in Malaysian organizations.

In our interview with Technip, a France based oil and gas engineering company which has been at the forefront in terms of being first in the world, they share that its not about not taking risks but about how you manage and mitigate risks. AirAsia X would also not be around if Tony Fernandes had waited for there to be a proven operating model of doing low cost long haul flights.

There are also instances when companies want to be at the leading edge but are unwilling to spend on new technology. This may result in the company being left behind in terms of innovation. IBM and Microsoft shared that many small and medium sized organizations do not want to spend on IT infrastructure (e.g. online document and payment solutions etc.) when this can sometimes propel the company to another level, or free some resources so that they are able to concentrate on more value added activities.

Customers may also play a different role, in terms of demanding innovation. If given the mandate to achieve a certain level of customer satisfaction and simultaneously allowing for the customer’s voice to be publicly heard, can some of our GLCs be forced to be more innovative? For instance, if customers insists on zero downtime or on a reduced carbon emission, it forces the firms to take productivity and corporate responsibility to a new level. When we interviewed Teras Teknologi, a subsidiary of PLUS, they mentioned that it was the government that drove them to innovate as the government demanded PLUS to reduce congestion at toll booths and at the same time reduce fraud cases. As such, they had to come out with many technological solutions to face these demands.

### ***Policy Consideration #9:***

*What policies should be introduced so that customers can demand more innovation from large firms?*

## Competitors

Due to the intense and almost level playing field within the telco industry, the various industry players are competing against one another in terms of new products and marketing innovation. We have also borne witness as to how competition played a role in driving innovation within this industry in Malaysia. It has driven some of the giants in the industry to adopt radical operational innovations.

The telco industry is an illustration where competitors have also become collaborators. In 2009, Tune Talk, a mobile virtual network operator (MVNO), was launched, riding on the extensive Celcom network. It offered no-frills voice and short messaging service (SMS) to the underserved market segment. As an MVNO, Tune Talk's business model allows it to focus on its product, marketing and customer service without the need to build and maintain a full cellular network. In January 2011, it had set up presence in Thailand<sup>16</sup>. In the same manner, in January 2011, DiGi Telecommunications Sdn Bhd entered into a Network Collaboration Agreement with Celcom Axiata Berhad to explore the viability of a long-term collaboration on network infrastructure sharing in Malaysia, which would result in potential cost savings of RM2.2 billion over 10 years. The collaboration is expected to increase operational efficiencies for the parties. It will initially focus on the sharing of telecommunication sites, access transmission (microwave links), aggregation transmission and trunk fibre transmission<sup>17</sup>.



Competition is very clear among the PLCs and MNCs in various sectors. There are however many other industries which do not offer such openness. How companies are responding to competition is critical as the norm for many organizations is to compete on cost or by copying what each competitor is doing. In the case of GLCs, many do not have strong competitors or none exist, thus lack of competition decreases the urgency to innovate.

16. Wikipedia. [http://en.wikipedia.org/wiki/Tune\\_Talk](http://en.wikipedia.org/wiki/Tune_Talk)

17. Sidhu (2011, January 18). DiGi and Celcom collaboration to save RM 2.2 billion over 10 years. *The Star Online*. Retrieved 14 April 2011 from <http://biz.thestar.com.my/news/story>.



## Policy Consideration #10:

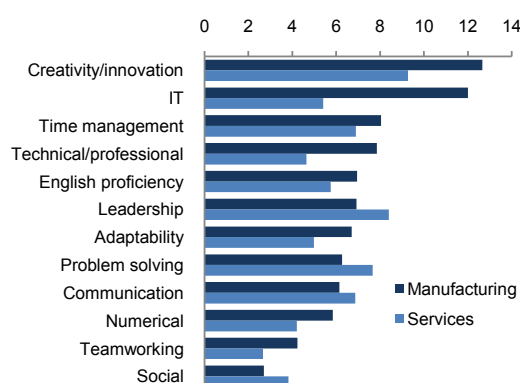
*Firstly, how do we encourage competition in a way that would drive companies to innovate? Secondly, where there is little competition, what can be done to create the pressure to innovate?*

### Talents

Innovation rests mainly on talent's capabilities the capability to develop new ideas, to absorb and process knowledge and to turn these into ideas. The World Bank (2005 and 2009) assessments show that about 10 percent of managers lack the skill to innovate (Figure 4.3). The Global Innovation Index by INSEAD 2009-2010, ranked Malaysia's human capacity at number 33 in the world, and the Global Competitiveness Index by the World Economic Forum (WEF) ranks Malaysia's labour market efficiency at number 35 globally. The former assesses the investment in education, quality of education institution, and innovation potential (researchers, engineers and scientists), while the latter assesses the efficiency and flexibility of the labor market (targets to ensure that workers are allocated to their most efficient use in the economy).

Many of the respondents during our interviews had the view that Malaysia's current talent pool was not on par when compared to other countries. This was especially resonant among the MNCs. However, there were also those who viewed that Malaysian talent can be nurtured; given the right platform and grooming, they can measure up and perform at international standards. Here is probably where the role of organizational culture comes into play. AirAsia, which has always believed in an individual's potential, allows their employees to grow beyond their initial entry point, based on merit and not academic qualification alone. Quoting AirAsia's CEO, Dato' Seri Tony Fernandes "Malaysians have talent, all they need is the opportunity".

"Malaysians have talent, all they need is the opportunity"  
- Dato' Seri Tony Fernandes



Source: World Bank (2005 and 2009c).

**Figure 4.3** Skill deficiencies for local professional workers.

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Another aspect we must do is to tap on our brilliant talents. We have had decades of graduates from the top universities in the world, however, once absorbed into the company, they get indoctrinated with the pervasive risk-averse culture and we find that the bright ideas and innovative hunger they had disappears with time.

Many have brought up how we let talents slip through our fingers- talents from the post-graduate courses we offer at the local universities, talents that are frustrated with the working culture in Malaysian organizations and thus migrate to Singapore or Australia and talents in terms of expat spouses who have much difficulty in obtaining a working visa (though, at the time of writing this, the Ministry of Home Affairs, via the Immigration Department of Malaysia with the cooperation of Talent Corporation Malaysia, has just announced that they will be issuing the Residence Pass for spouses of the expats hired which would allow the spouses to work.)

In an attempt to address the gap in the talent market, IBM has gone one step further and created the kind of talent they would like to see. This is done through their SSME program with USM where the course is deeply rooted in engineering but the students are also given the exposure in terms of management skill, forming a more 'T' shape individual (refers to an individual that has both deep knowledge in a specific area such as the discipline in which they have studied (engineering or science) as well as a breadth of skills in different areas, such as business, management or communication.) Another well received course is the mainframe technology course offered by University Malaysia Pahang. Graduates from this course are certified by IBM and the entire batch of graduating students are offered jobs even before they graduate (not by IBM alone, but by other companies, demonstrating the demand for such graduates).



In terms of equipping our talents with the needed skill sets, some employers are willing to invest in training. However, some, like in the E&E sector expect the government to support and share the cost of training. GLCs on the other hand, appear to invest significantly on developing their employees, up to a point that it seems lavish (many are sent for the latest fad on management skills). This is to be contrasted with MNCs, who are very selective in what training is made available, or the PLCs and private companies that ensure the trainings are really necessary for the growth of the company.

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Within the financial industry, the International Centre for Leadership in Finance (ICLIF) together with the Institution of Malaysian Banks (IBBM), have programs to boost the competency of talents in the banking sector (RM 500 million was allocated by Bank Negara for ICLIF). Through these programs, many have been exposed to the various competencies in the financial world. Similarly, Khazanah had set up the Malaysian Institute of Directors (MINDA) to boost board of directors effectiveness through various programs offered by IMD (Switzerland).

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## Government Policies & Support

The government plays a crucial role in driving innovation. In the case of Teras Teknologi, the driving force behind the fabrication of the Smart Tag lane was a government decision to decrease traffic at the toll booths. This gives the company a clear direction to innovate. Another example is what is happening in the European Union (EU), in December 2008, EU leaders reached an agreement on a new Renewable Energy Directive, which requires each member state to satisfy 10 percent of its transport fuel needs from renewable sources, including biofuels, hydrogen and green electricity, by 2020.

However, government policies may also be crippling, as many can attest. On a couple of occasions, a few organizations have shared that the unclear guidelines and policies, poor management, and fragmented information from the government make it difficult for them to embark on projects (to maximize benefits).

Another role the government has played recently was in Entry Point Projects (EPP). One of the companies responsible for a particular EPP related how difficult it was to hasten their project due to blockages at multiple ministries (immigration, customs etc.) and that these ministries only relented when they say “well then we will have to get PEMANDU or PEMUDAH involved”. This difficult attitude or non-alignment within the supporting ministries will paralyze the good mechanisms set in place to move the country forward.

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## Shareholders, Technology, Culture & Funding

### Shareholders

Many GLCs, through the interviews have given the feedback that their shareholders/government linked investment companies (GLIC) tend to be relatively risk averse. There were instances quoted where the GLIC tended to micro-manage. This being the case, it would be difficult for the GLC to take risks and grow beyond the norm.

MNCs on the other hand frequently have their direction set by the headquarters, which decide where to base operations or R&D centres on a multitude of elements; inter alia incentives from the government, availability of talents, security, and IP laws present in the country. Some have reported that although courted by MITI to invest more in their R&D division in Malaysia, the HQ would not approve (a result of their assessments on the various factors mentioned above).

### ***Policy Consideration #11:***

*The GLC transformation programme focuses a lot on boosting performance and efficiency and many have shown results. However, how can innovation be a driving force in further GLC transformation?*

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## Technology

There are a few options for companies to acquire technology. The easiest approach is to use license or use technology that is already in the market and then customize to the company's needs as we have seen in the telco and oil and gas sector. Another option is to invest in developing internal R&D and capability to develop their own technology internally. A third alternative is to engage in open innovation or simply outsource innovation, commissioning an outside party to develop a customized solution to meet the company's needs. In this case, the IP belongs to the requesting company. This mechanism is the basis for InnoCentive (see special insert on the next page).

There is another option that global large companies normally take, which is technology acquisition via mergers and acquisition. We have seen this attempt with Proton in the past, yet success is still elusive. One success story came from an oil and gas engineering company, KNM. In 2006, KNM took advantage of the Technology Foreign Company Acquisition Fund incentive and acquired an Australian company, W.E. Smith Engineering Pty Ltd., which had over 80 years of history in the supply of process and heat exchange equipment for the oil and gas, petrochemical, and mineral industries. W.E. Smith autoclaves incorporate its patented "Flush Batten Strip", which reduces wear significantly. Through intensive knowledge transfer, in 2009, KNM was able to manufacture titanium clad brick wall autoclaves for the gold refining industry from their plant in Kuantan, and now are supplying to Australia. This is a good example where acquisition of technology, patents, supply chain and brands supersede in-house R&D development. KNM was able to ride on the long established brand, and enter into new markets. In the past, KNM also acquired companies in Germany and Italy; through these, not only do they have a portfolio of IPs, but also the brand and global market access. Sime Darby too have followed suit by acquiring a R&D lab in Europe as this opens up their access to the European market.



As we have illustrated, technology is one of the key drivers for innovation. In the past, corporate R&D centers focused the technology creation for internal purpose only; lately there's been a shift. For instance, in 2010 alone, TM R&D had commercialized 10 IPs through licensing arrangements with Malaysian technology companies.

## **Policy Consideration #12:**

*What incentives and support need to be provided for technology development and acquisition, both locally and from abroad?*

### **InnoCentive:**

InnoCentive is an online crowd-sourcing community. Since 2006, InnoCentive has recruited corporations which sponsor crowdsourcing challenges for its over 200,000 "solvers." It tackles a broad range of domains such as engineering and design, computer science, math, chemistry, life sciences, food sciences, physical sciences and business. Cash awards are given for the best solutions. The 'solvers' are partly scientists, engineers, and doctors from all over the world; 61 percent of them having PhDs or Masters degrees. They have tackled heavy issues for organizations like Proctor & Gamble and NASA, ranging from tuberculosis prevention to the successful clean up of oil spill in Alaska<sup>18</sup>.

Harvard's medical research departments used InnoCentive to source for questions and ideas on Type 1 diabetes. Why? "It's about reaching into the formerly unconnected, or poorly connected, pockets of information and knowledge that are out there, that are otherwise not wired in..." Dr. Eva Guinan of the Dana-Farber Cancer Institute, Director of Harvard Catalyst Linkages<sup>19</sup>.

Not only does the InnoCentive method save on costs by allowing companies to outsource some of their research and development, but it also mines a sprawling network of experts from a diverse array of fields, raising the chance that someone might come up with a true out-of-the-box solution. A true illustration of the concept was seen in the final design for the SunNight Solar's solar-powered flashlight. Mark Bent, CEO of SunNight Solar and inventor of the BoGo light, posed the shortcomings of his initial flashlight design as a challenge. The flashlight, was being distributed in electric-scarce Africa but was found to be inefficient to illuminate whole rooms, something a kerosene lamp could do. Through InnoCentive, an engineer in New Zealand named Russell McMahon, came up with a new design that makes better use of both the solar battery and the LEDs, allowing for a stronger, more dependable light<sup>20</sup>.

To date, InnoCentive has received 11,872 solution submissions to 800 posted challenges and has handed out 348 awards<sup>21</sup>.

**"The whole point of crowd-sourcing is you're looking for people who think differently"**

**Dwayne Spradlin, InnoCentive's President and CEO**

18. Walker Alissa. "BP to InnoCentive: Sorry, We Don't Want Your 908 Ideas for Saving the Gulf". Fastcompany.com. Accessed 29 April 2011. <http://www.fastcompany.com/1663156/bp-to-innocentive-sorry-we-dont-want-your-908-ideas-for-saving-the-gulf>.
19. Buskirk Eliot V. "Harvard-Based Crowdsourcing Project Seeks New Diabetes Answers — and Questions". Wired.com. Accessed 29 April 2011. <http://www.wired.com/epicenter/tag/innocentive/>
20. Walsh Bryan. "How Many People Does It Take to Make a New Light Bulb?" Time.com. Accessed 29 April 2011. <http://www.time.com/time/health/article/0,8599,1721082,00.html>
21. Wicklund Eric. "InnoCentive raises the bar on R&D". Healthcarefinancenews.com. Accessed 29 April 2011. <http://www.healthcarefinancenews.com/news/innocentive-raises-bar-rd>.

## Culture

Malaysian organizations have a strong compliance, risk averse, top-down culture, a legacy from the efficiency driven industrial era. In some GLCs, it is still strongly a seniority game. However to innovate, we need a new kind of culture - more performance driven, more intrapreneurial. Air Asia and DiGi have shown that it is something possible. Even with most of their employees being Malaysian, it is not about 'losing' our Malaysian culture but about embracing or incorporating a new culture. Some GLCs, driven by necessity, have already begun to embark on this performance-driven culture.

Bank Rakyat has been able to bypass the 'alternative' culture change by creating a pathway for ideas to emerge within their still very conservative corporate structure. By adopting technology, they are able to democratize the capture and reward of great ideas. This has been seen within a few GLCs as well; however, one of the challenges is that not many breakthrough ideas have emerged and in cases where it has, the top management have been reluctant to implement them. Hence, the innovation process stops at the ideation stage only.

### **Policy Consideration #13:**

*What initiatives can be done to boost the competency and culture of innovation among large companies?*

#### **Bank Rakyat**



Bank Rakyat is probably one of the first banks in Malaysia to set up the innovation department. Through this, they have initiated a multitude of initiatives, from awareness programs, suggestion channels and innovation development programs. All employees are encouraged to submit ideas through the innovation channel, which is presided over by the Managing Director. This approach has given birth to many ideas which have strengthened their brand, efficiency and created value in many ways.

Some of these innovative ideas have translated to one of AirAsia's aeroplanes being wrapped up with Bank Rakyat's logo; the plane flying within the region has strengthened the bank's brand. Bank Rakyat has also been able to give continued service to customers and aggregate new customers by doing mobile banking - only using a USB modem. This has helped them access customers in flood-stricken areas.



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## Funding

For many companies, risk capital is not within their allocation. How do we propose to move forward in innovation when we don't set aside a budget for it? Sometimes, it's not that the companies do not have the budget but it is allocated to other activities, sometimes team building! AirAsia always keeps a flexible budget, always ready to embrace a fantastic idea if it emerges. This is unlike many GLCs we have come across, where employees relate instances of "it sounds like a good idea however we don't have the budget this year".

Another aspect of funding is the awareness of tax incentives. Many are not aware of incentives for R&D and some are confused as to where they can head to find out information. This has resulted in many companies not tapping on government grants for collaboration.

There is also a sentiment present in some of the GLCs that they should not be applying for the tax deduction for R&D as "they are a GLC and its the government's money". If such restrictions do or do not exist, these should be clearly communicated to prevent underutilization or doubts.

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## 5.0 Current Policies and Support for Innovation in Malaysia

We've previously touched upon the road Malaysia has traveled thus far on her innovation journey, the transition from a resource and production-based economy, to one that is knowledge-based. There were three priority areas identified, Science and Technology (S&T), research and development (R&D), and talent development. Over the last four decades, these areas were allocated the bulk of the Federal Government's funding expenditure. About 30 percent was consistently earmarked for capital-intensive infrastructure (transport, utilities, communications, and energy) projects. *(source: EPU)*

In this chapter, we endeavor to summarize and take a snapshot view of the initiatives to support innovation in Malaysia to-date, particularly in the government policies that were in place. Up till recently (for the last two decades or so), the main institutions or ministries related to innovation were the Ministry of Science, Technology, and Innovation (MOSTI), Ministry of International Trade and Industry (MITI), Ministry of Higher Education (MOHE), Ministry of Finance, and the SME Corporation. However, policies that were written back then, were strongly rooted in Science & Technology alone as will be evident in the list below:

### Early Science and Technology Policies (S&T)

- 1986 S&T Policy - implemented through the National Plan of Action for Industrial Technology Development (1990)
- "Since 1988, the government has implemented a centralised grant system of financing S&T in public institutions and research agencies. MOSTI is charged with the responsibility of managing the fund and the implementation of S&T and R&D programmes in the country."
- Intensification of Research in Priority Areas (IRPA) – also introduced in 1988- to focus the largest R&D grants especially for public research institutes and universities, to "catalyse the generation of new products, processes, services and solutions", with the majority of funding reserved for efforts leading to commercialization. Grants went to:
  - projects that are of high national priority and can be commercialized
  - fund projects that address the needs of Malaysian Industry;
  - projects that encourage collaborative efforts among research institutions

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- enhance R&D linkages between the public and private sectors
  - Industry R&D Grant Scheme (IGS) – 1996
    - for Malaysian firms in high technology and advance science sectors to augment their technological capabilities and innovation
    - to cultivate private-public collaboration
  - Multimedia Super Corridor R&D Grant Scheme (MGS) – 1997 to promote R&D clusters
  - Technology Acquisition Fund (TAF) – 1997- operated by the Malaysian Technology Development Corporation (MTDC) to facilitate Malaysian private firms' acquisition of technological capacity (including buying sophisticated machinery, technology licensing, acquisition of patent rights) – particularly beneficial to SMEs
  - Demonstrator Application Grant Scheme (DAGS) - managed by the Malaysian Institute of Microelectronics (MIMOS), whereby funds are given to less-than-1-year projects especially if local IT and multimedia technology-based
  - Commercialization of R&D Fund (CRDF)-1997- provides grants for
    - market survey and research
    - product and process design
    - Human Resource Development Fund (HRDF) for training of private sector workforce, with a specific one in S&T to build the minimum required researchers and scientists in the country
  - Tax incentives - allow for technology acquisition and double deduction for R&D. Programmes such as the Technology Acquisition Fund (TAF) provide partial funding for the private sector to acquire and enhance their technological capacity.
  - Government Research Institutes (GRIs) –established research institutes in agriculture and related fields , e.g. RRIM, PORIM, then with SIRIM to encourage scientific industrial R&D objectives

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Consistent with the focus on S&T, the government also set up MTDC in 1992 to lead the growth of technology businesses in Malaysia. MTDC's original strategies then were to help promote commercialization of local research results, and to invest in new ventures that can pull in new technologies from across the ocean(s). [Note: *MTDC has now evolved to be a comprehensive venture capital provider for high technology firms, from laboratory stage to complete commercialization of the seeded ideas.*]

S&T Policies were then reviewed, giving birth to the Second National Science and Technology Policy (STP II), which had 7 core priority areas that had the potential for big impact on the innovation ecosystem. The 7 critical focus initiatives are as follows:

- i. Strengthening research and technological capacity and capability
- ii. Promoting commercialisation of research outputs
- iii. Developing human resource capacity and capability
- iv. Promoting a culture for science, innovation and techno-entrepreneurship
- v. Strengthening institutional framework and management for S&T, and monitoring of S&T policy implementation
- vi. Ensuring widespread diffusion and application of technology, leading to enhanced market-driven R&D to adapt and improve technologies
- vii. Building competence for specialization in key emerging technologies”

Then, in 2005, the National Biotechnology Policy was published, which included incentives to jumpstart Malaysia's foray into biotechnology, with lofty goals of Malaysia being a global player in the field, while having 20 global Malaysian companies in the field.

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## The Ninth Malaysia Plan (9MP)

In the Ninth Malaysia Plan (9MP), launched in 2006, R&D stood out again as a critical driver of industrial innovation. Funding assistance was disbursed through the previously mentioned policies such as IRPA, IGS, MGS, DAGS & CRDF, to both public and private sector R&D initiatives. Example areas that benefited were advanced materials manufacturing, biotechnology, and environmental technology. New measures in the 9MP include the “double deduction benefit for R&D as well as special incentives for researchers and companies to commercialize research findings”. Also, in the 9MP, the electronics industry remained as a prominent subsector, with the aim for innovation and industrial growth. There was a certain expectation of local and components parts sourcing, amongst the electrical and electronics MNCs. The government also planned to aid development of pertinent skills and technology capability among the research institutes and partner MNCs.

Malaysia’s first attempt to deliberately utilize innovation as an engine for growth started less than five years ago. The most significant effort then, that marked Malaysia’s foray into innovation, was the release of the Malaysian National Innovation Model (in November 2007) by the National Innovation Council. A series of recommendations and subsequent decisions stemmed from this model were as follows:

- realignment- to have a balance of both market-driven innovation and technology-driven innovation, mentioned in the 2009 budget and during the 9MP review
- coordination of agencies; MOSTI, EPU, Ministry of Finance etc. in implementing a framework to mitigate private sector risks on market-driven innovation
- provision of incentives or grants for the acquisition of technology by the private sector (both locally and globally)
- establishment of a global institutional mechanism to make technology intelligence available to domestic stakeholders
- merit-based allocation of funding to public research institutions, in science and technology, particularly in areas of national technology needs
- more efficient IP/patent registration process, even via outsourcing

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- transformation of publicly funded venture capitals into commercially-managed ventures, where the managers are able to share in potential gains
  - facilitation of take-to-market (especially global market) by providing incentives (e.g. fiscal, equity participation)
  - supplying the private sector with global market intelligence
  - encouraging public & private sector to first buy Malaysian innovative products instead of going to other sources
  - introduction of entrepreneurship skills in the National Higher Education Action Plan, for instance to develop innovation risk managers
  - attraction of global talent and skilled retirees by providing incentives
  - establishment of new programs on mindset change and innovation risk management with leading universities such as MIT/Harvard
  - coordination by MOSTI and MITI on responsibilities in technology intelligence and market intelligence, respectively, in important geographic and product markets

The National Innovation Center was announced in October 2009 with the mission of creating an ecosystem that focuses on R&D through commercialization, and generating technology for development of entrepreneurial technocrats. However, the actual implementation aspects have yet to be announced at the time of this writing.

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At the same time, as though setting a clear direction for the country, the Prime Minister of Malaysia, Datuk Seri Najib Tun Razak, earmarked 2010 to be the Malaysian Creativity and Innovation Year. At the launch in January 2010 he expressed:

- the need to correct the misconception among many that innovation is only limited to technologists, scientists and academicians or intellectuals (i.e. encouraging all layers of the public to innovate)
- his intent of making innovation as a key national agenda
- a suggestion for the establishment of a special innovation unit within each ministry and government agency, where the unit will be responsible for carrying out various innovation-related programs and activities.
- the wish to see new developments that extend to all forms of public communication systems and customer touch points
- a suggestion to compensate individuals, groups, and government agencies that are successful in bringing about innovation, commensurate with the value achieved
- the desire to spur the growth of private firms that have intellectual property by locals
- that government procurement of products and services should give priority to locally produced goods
- the need to develop more intellectual capacity and experts, since the current ratio of scientists and engineers per 10,000 workers is only at 18, which is low.
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## The New Economic Model (NEM)

More recently, the now often-cited New Economic Model (NEM), unveiled in March 2010, also has focused on innovation (besides creativity and high value industries) to achieve its objectives. Some of the important recommendations and strategies on innovation from the NEM are as follows:

- limit government ownership of even strategic GLCs to not more than 30% of issued shares, and to not affect market dynamics of the industry substantially by imposing limits on foreign ownership and dictating industry policies
- divest non-strategic GLCs (i.e. all except those that perform public sector functions that are vital for the country's civil society such as the utilities, transportation, finance & telecommunication sectors)
- **re-engineer the roles of GLCs** that remain such that they are supportive of the private sector
- focus on **government's role to mitigate risks** and help the private sector pursue market-driven innovation
- convert Malaysian standards (especially those in the service industries and where Malaysia is particularly recognized, such as in rubber & oil palm) into international standards, so that the global metrics drive us to be more competitive, and set KPIs for measurable and improved rankings of Malaysia over a predetermined period
- reform the regulatory and licensing framework in Malaysia so that it is easier to do business in the country without too many overlapping processes and agencies
- transform publicly funded venture capitals into commercially-managed ventures, where the managers are able to share in potential gains
- **encourage utilization of IPs** – e.g. confiscate unused publicly-funded IP if not adopted within 5 years
- promote human capital development by awarding **supplementary tax incentive** (e.g. from HRDF or SOCSO) and conferring “Responsible Employer” status for high-performing employers in this area

As can be seen, innovation really only started to gain more prominence and extend to a wider coverage with the roll-out of the NEM.



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Initiatives under the **10MP**, tabled in June 2010, that are aimed at catalyzing innovation can be categorized into 4 broad groups (some of these had been mentioned as previous recommendations as well) :

- spurring innovation opportunities – provide incentives and stimulate Malaysian companies to innovate by crafting regulations and **considering innovation as part of the public sector’s procurement process**
- improving innovation enablers – fortify IP management
- funding innovation – give monetary support for R&D and commercialization phases
- molding a supportive ecosystem – develop human talent and innovation infrastructure to help bring forth new ventures

Then, in mid July 2010, Datuk Seri Najib Tun Razak announced the establishment of the Special Innovation Unit (UNIK) under the Prime Minister’s Office, to ensure there is an **overall strategy or direction, cohesiveness and synergistic benefits from the various innovation initiatives** in Malaysia, be they in the education, public, or private realms.

The much anticipated Economic Transformation Programme (ETP), unveiled in October 2010, highlighted the roles government agencies can play in the entry point projects (EPPs). Although the main task of delivering the EPPs falls to the private sector, the government agencies have critical roles in making all the EPPs, vehicles to achieving the NEM, work. To further devise the role of the government in catalyzing innovation, let’s take a look at the example roles listed for government agencies in the ETP:

- i. Ministries are to resolve issues when required during EPP implementation, especially where there isn’t a private firm ready to take up ownership of the EPP
- ii. Regulators are to turn to people from the industry when amending regulations that may be necessary to support the EPP
- iii. The Ministry of Finance and the Economic Planning Unit (EPU) will be the ones to distribute public funds when needed for the EPPs

- iv. MIDA will be charged with attracting investment in the EPPs, both foreign and local, and be the single point of contact for, and negotiator with, potential investors
- v. Talent Corporation will be accountable in ensuring sufficient supply of talent for the EPPs
- vi. PEMUDAH will help simplify procedures in conducting business in Malaysia
- vii. UKAS (Unit Kerjasama Awam Swasta), a unit under the Prime Minister's Department, is to help structure and disburse funding for public-private partnerships (PPP)
- viii. Strategic GLICs will help co-invest in EPPs

Drafting of the Innovation Act was announced in November 2010, to lend legal credibility and systems, to strongly propel innovation within the country. A new Bill, the Malaysian Innovation Agency Act 2010 was swiftly passed in December 2010 to establish a government statutory body under the Prime Minister's Office. The functions of the Malaysia Innovation Agency are as follows:

- (a) to formulate national policies, strategies and directions relating to innovation;
- (b) to organize, co-operate in, and coordinate the performance of activities with the public and private sector to stimulate innovation in Malaysia;
- (c) to conduct inquiries, survey and analysis of data, relating to innovation and the national innovation eco-system;
- (d) to promote and facilitate investment activities and initiatives by the public and private sector in relation to innovation

In short, the agency will centralize, manage, and promote innovation and creativity in Malaysia.

Besides questioning whether we have government agencies with the appropriate level of flexibility or openness to encourage innovation, we'd like to underscore that we must ensure innovation is an integral part of various projects and functions. Let's turn to the ETP projection, to drive home this point - Excluding the broad range 'Greater KL/KV' NKEA, the top five NKEAs that are estimated to provide the most increase in Malaysia's GNI are 'oil, gas and energy,' 'palm oil,' financial services,' 'wholesale and retail', and 'tourism'. The projected incremental GNI (2020) from these aforementioned NKEAs is worth RM 552 billion! **How much are we allocating to spend on innovation to make the target a reality** in those areas? It

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ought to be noted that many of these NKEAs that are crucial to Malaysia achieving a high-income nation status fall in the service sector. Therefore, for example, we must plan to spend money and **be ready to deliver service innovation** in tourism, instead of merely spending the majority of funding on E&E alone (E&E sector falls lower down the rank in terms of expected contribution to incremental GNI.)

While there was much anticipation and hope on what the various announcements would mean, the year 2010 ended without very many publicized, completed events or proven results but undoubtedly, several bodies or systems were created to begin driving innovation in a more structured manner. Declaring Year of Innovation and Creativity 2010 was quite successful in starting to promote innovation at the grass-root level, and inculcating the general public with the concept of innovation as a key national agenda.

With all the aforementioned resources in place, there is no denying that the **attention on innovation is stronger than ever before**. Yet, the typical indicators of innovative nations – namely R&D spending as a percentage of GDP, the number of patents granted to local residents, the number of researchers involved in innovative studies, broadband penetration rates, and of course the various global innovation indexes – show that little progress has been made in earlier years.

Innovation is not a solo effort, the establishment of UNIK or AIM (Agensi Inovasi Malaysia) does not mean others should abandon or be dropped out from driving innovation. The entire host of government agencies and ministries must have a hand in either supporting or promoting innovation amongst the various quarters. This includes EPU, MIDA, MIGHT, MITI, MoF, MOSTI, MTDC, PEMUDAH, Talent Corporation, UKAS, MPC, and MDeC. The initiatives may range from providing funding for the various innovation related activity, providing guidance/training, providing certification of standard for various companies, organizing competitions and many more. In an effort to provide a more conducive ecosystem for innovation, the government and government linked agencies should streamline initiatives, to avoid duplication of efforts.

#### ***Policy Consideration #14:***

*Are our systems for spurring innovating not established well-enough or unclear? Are the indicators not relevant to Malaysia? What should be done to get clearer results or big positive changes in the innovation climate in Malaysia? How shall we measure innovation in Malaysia?*

| Stage                                     | C1              | C2           | C2                     | C2 to C4                                   | C2 to C4                | C3   | C3                              |
|---|-----------------|--------------|------------------------|--|-------------------------|--|---------------------------------|
| General type or goal of policy/ incentive | Demand creation | R & D grants | Acquisition tax grants | Innovation ecosystem support (e.g. talent) | Collaboration promotion | Commercialization incentives/ funding/ support | Coordination of agencies/ funds |
| Early S & T Policy                        |                 | yes          |                        |  | yes                     |  | yes                             |
| IRPA                                      |                 | yes          |                        |  | yes                     | yes  |                                 |
| IGS                                       |                 | yes          |                        |  | yes                     |  |                                 |
| MGS                                       |                 | yes          |                        |  | yes                     |  |                                 |
| TAF                                       |                 |              | yes                    |  |                         | yes  |                                 |
| DAGS                                      |                 |              |                        |  |                         | yes  |                                 |
| CRDF                                      |                 |              |                        | yes  |                         | yes  |                                 |
| HRDF                                      |                 |              |                        | yes  |                         |  |                                 |
| STP II                                    |                 | yes          |                        | yes  | yes                     | yes  | yes                             |
| 9MP                                       |                 |              |                        | yes  | yes                     | yes  |                                 |
| National Innovation Model                 | yes             |              | yes                    | yes  | yes                     | yes  | yes                             |
| 2010 Year of Innovation & Creativity      | yes             |              |                        | yes  |                         | yes  | yes                             |
| NEM                                       | yes             |              |                        | yes  |                         | yes  | yes                             |
| 10MP                                      | yes             | yes          |                        | yes  |                         | yes  | yes                             |
| UNIK & Malaysian Innovation Agency Act    |                 |              |                        | yes  | yes                     | yes  | yes                             |
| ETP                                       |                 |              |                        | yes  | yes                     | yes  | yes                             |

**Figure 5.1:** Current Policies and Incentives, matched against ACC's Catalyst for Change Innovation Framework. In the earlier years, there was a paucity of efforts at the C1 stage- a critical stage to identify needs for innovation.

It is encouraging to note that programmes in the more recent years have a wider range of incentives and support for the different stages of innovation.

Redefine polices. Include new scope and approaches in innovation. Create the need to innovate. Open innovation. Stimulate the ecosystem. Encourage customers to be more demanding. Encourage shareholders to demand innovation. Introduce legislation that drive innovation. Encourage more open and fair competition. Drive innovation in Public Listed companies. Have a GLC Innovation Index. Allocate Risk Capital. Review Board Composition. Spur Innovation in SMEs. Collaboration with Suppliers. Leverage on universities. Countertrade. Create a culture for innovation. Open innovation. 1-innoCERT. Destructive innovation. Redefine polices. Include new scope and approaches in innovation. Create the need to innovate. Open innovation. Stimulate the ecosystem. Encourage customers to be more demanding. Encourage shareholders to demand innovation. Introduce legislation that drive innovation. Encourage more open and fair competition. Drive innovation in Public Listed companies. Have a GLC Innovation Index. Allocate Risk Capital. Review Board Composition. Spur Innovation in SMEs. Collaboration with Suppliers. Leverage on universities. Countertrade. Create a culture for innovation. Open innovation. 1-innoCERT. Destructive innovation. Redefine polices. Include new scope and approaches in innovation. Create the need to innovate. Open innovation. Stimulate the ecosystem. Encourage customers to be more demanding. Encourage shareholders to demand innovation. Introduce legislation that drive innovation. Encourage more open and fair competition. Drive innovation in Public Listed companies. Have a GLC Innovation Index. Allocate Risk Capital. Review Board Composition. Spur Innovation in SMEs. Collaboration with Suppliers. Leverage on universities. Countertrade.

Create a culture for innovation.

# Recommendations

Open innovation. 1-innoCERT. Destructive innovation.

Redefine polices. Include new scope and approaches in innovation. Create the need to innovate. Open innovation. Stimulate the ecosystem. Encourage customers to be more demanding. Encourage shareholders to demand innovation. Introduce legislation that drive innovation. Encourage more open and fair competition. Drive innovation in Public Listed companies. Have a GLC Innovation Index. Allocate Risk Capital. Review Board Composition. Spur Innovation in SMEs. Collaboration with Suppliers. Leverage on universities. Countertrade. Create a culture for innovation. Open innovation. 1-innoCERT. Destructive innovation. Redefine polices. Include new scope and approaches in innovation. Create the need to innovate. Open innovation. Stimulate the ecosystem. Encourage customers to be more demanding. Encourage shareholders to demand innovation. Introduce legislation that drive innovation. Encourage more open and fair competition. Drive innovation in Public Listed companies. Have a GLC Innovation Index. Allocate Risk Capital. Review Board Composition. Spur Innovation in SMEs. Collaboration with Suppliers. Leverage on universities.

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## 6.0 Strategy and Policy Recommendations

### Summary of Findings

Many factors need to be considered and we need to balance between carrot and stick when outlining policies. Change is not easy and will surely cause disruption. Policy makers need to balance between long term and short term, and consider the medium term. Explore possible tradeoffs with each strategy. Differentiate between popular strategy versus pragmatic strategy. All these decisions are not easy but necessary. We need to help our country move to the next curve of growth, innovation-led.

The current state of innovation among large companies in Malaysia and some key policies and support that are present relating to large companies have been reviewed in previous sections, all pertaining to innovation. Among the key observations that have been captured on innovation amongst GLCs, MNCs, PLCs and large private companies in Malaysia are as follows:

1. Currently there is no clear scope and definition of innovation that large companies are uniformly adopting. There is strong perception that innovation is closely tied to R&D and technology.
2. Innovation is happening in many large Malaysian companies, but more in process, service, marketing, organizational and business model sectors.
3. Overall, the direction to innovate is not clear within many companies.
4. The need to innovate is not very strong across many companies. GLCs are focusing on efficiency and growth but seemingly not through innovation. As for the MNCs, their level of investment in traditional R&D in Malaysia is low; however, they are very much more involved in social innovation, strengthening the innovation ecosystem. The PLCs/large private companies do seem to leverage on innovation as a source of competitiveness.
5. Generally, the people within large companies are more risk averse compared to small companies. Hence, most of the innovation projects are incremental in nature.
6. The level of collaboration to generate value through innovation between large companies and external parties is still very low especially with public universities. Many of the collaborations are at initial stages and not much value has been generated.
7. The capacity for innovation is low for many organizations. Moderate level of time and resources are allocated for innovation. The PLCs are on constant fire-fighting mode with limited time to spend on innovation. Innovation is not forced upon many GLCs.
8. The level of awareness of government policies, incentives and support for innovation is still very low amongst the various companies. In addition, policies which support the large companies are scarce.

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## Policy Considerations

In driving innovation in large companies, we would need to:

1. Expand the definition of innovation to support or broaden policies to cover the other types of innovation (operational, design, marketing etc.)
2. Create conditions that stimulate large companies to innovate. This includes having innovation as a strategic priority, brought about by competition, customers' demand and shareholders' demand for innovation. Secondly, government should provide growth potential via government to government (G2G) arrangements and trade agreements.
3. Create conditions that support the innovation activities of companies that are ready to embrace the innovation agenda. This includes having access to talents, technology, innovative suppliers/partners and collaboration with universities.
4. Help companies take on more risk via 'risk taking - tax incentives', soft loans, or collaboration in innovation activities.
5. Decide how much support to give Malaysian organizations through public procurement and monopolies.
6. Differentiate between innovation and academic research e.g. knowledge versus value creation.
7. Renew the model of innovation as innovation is often based more on collaboration and partnership.
8. Define the role of large companies in Malaysia in stimulating the innovation eco-system. GE for instance is re-thinking innovation in the context of "doing well by doing good". To them, innovation for profit alone is not enough.
9. Explore how to support innovation in large companies without an increase in capital expenditure (spending tax-payers money.)
10. Explore the role of MNCs in our innovation eco-system. Are we going to be a landlord like Singapore and attract MNCs to Malaysia to invest in innovation or are we going to follow Korea's footsteps and use local large companies as a platform to innovate, or do we instead mimic Taiwan's footsteps and tap on their network of SMEs as a source of innovation? We need to ask ourselves in what way we want to be competitive.
11. Be prepared to help large companies move to the second curve and deal with the creative destructions that comes with innovation.
12. Communicate and refine current policies to meet the needs of large companies instead of revamping the current policies. Ensure awareness of the government policies so that they would be utilized.

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## Policy Recommendations

### Recommendation 1.0: Expand scope of innovation

#### 1.1 Widen the extent of support, funding and incentives

Evidence from earlier chapters illustrate that large companies in Malaysia are involved in various types and approaches of innovation. Hence, the traditional measures of the number of scientists and engineers, patents, investment in R&D, and publications, are no longer enough. We need to be cautious at adopting global indexes as innovation does not happen through R&D investments alone. Norway has proven this by focusing on technology utilization to create value instead of technology creation. Malaysia's current strength is not in technological innovation, but there is scope to innovate in other areas, and especially via technology adoption.

This has been demonstrated by the success of Apple, where their products are commonly not the most sophisticated in terms of technology; however, they have an almost cult-like following due to their brand and design innovation. This shift towards a broader scope of innovation is also seen by OECD and NESTA. Shifting this definition means **widening the scope of support, funding and incentives for innovation**. Instead of tax incentives for R&D centers, companies could gain tax incentives by opening consumer insight and innovation centers instead. The same would apply for providing tax incentives or support for open innovation.

#### 1.2 Recognize R&D beyond the labs

At times, innovation does not happen in the R&D labs but it happens on the front line. The national innovation policy needs to take into consideration this new approach of innovation that happens by experimenting on the ground. AirAsia X, for instance, has introduced many world's first, among them, the online pilot manuals. However, they also have had their fair share of blunders, for example after spending millions installing new seats, they found that it did not meet the customers' expectations. Government support and incentives should partially support these forms of experiments and failures, as it will help large companies in Malaysia take on more risks.



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Many manufacturing-based SMEs also profess to experimenting on the production line, not inside a R&D lab. Limiting incentives to those who only have R&D labs will sideline these organizations.

### **1.3 Share the risk**

In our research, we found that large companies possess the funds to innovate, through their capital expenditure process. The challenge with many companies is that they are highly risk averse when it comes to spending the money. In cases where companies saw the dire need to innovate, they went ahead, regardless of the incentives from the government. More often than not, companies will rather spend on 'safe' events such as the 'family day', team building or grooming workshops for the managers instead of putting aside risk capital for innovation projects. This risk capital should be funds that they are prepared to lose if the project does not yield the desired outcome. However, if successful, the project may yield many times more in returns.

Government may support this by giving incentives for taking risks. For example, if the company were to engage a SME which offers a new product, if the product were to fail, the company would be able to get tax deduction on the amount spent. This would encourage more companies to embark into new territories, and simultaneously open doors for SMEs to market innovative products.

### **1.4 Increase Support for Technology Acquisition**

Many high-tech manufacturing based companies rely on the technology they possess. An advantage can be achieved via a few means- developing a new technology in-house or acquiring a new technology from another company. The amount involved may range between thousands and millions of ringgit, depending on the technology and industry concerned. In the oil and gas industry, a single acquisition may require hundreds of millions.

The Technology Acquisition Fund, which subsidizes 50 percent of the total cost or a maximum of RM 2 million, would therefore be highly insufficient for many companies. KNM for example, spent tens of millions on technology acquisition from Germany or Australia. Companies that we have spoken to have shared that they prefer the tax incentives that were previously available to acquire companies abroad (as the amount available under the TAF is insufficient). The tax incentive approach as

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compared to getting a grant, would also ensure that the company would be more prudent with their spending. This move can significantly help large companies leap frog their efforts to innovate.

### **1.5 Support Open Innovation**

Open innovation has already begun to make waves in Malaysia and is present to a more significant degree in developed countries. This has become a necessity as the cost for R&D escalates all around the world. Open innovation also gives another advantage as it allows the sponsor to tap onto a larger pool of idea generators, even from the whole world. In our bid to embrace the rising need to innovate, it would be such a shame if we are to disregard such overwhelming capacity to harvest ideas. Incentives in this area will enable Malaysia to expedite innovative measures, simultaneously capturing valuable ideas while stimulating the population to think diversely and creatively.

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## **Recommendation 2.0: Create the need to innovate**

Currently the drive to innovate among large companies is not very high. There are many avenues that can be further enhanced- customer service, productivity, carbon footprint, environmental impact and many others. No matter what the incentives are, if there is no drive to innovate, innovation will still be elusive.

### **2.1 Encourage customers to be more demanding**

This is key, especially in areas where there is limited choice of providers (limited players), or performance is poor. This may range from public transport, broadband service, utility providers (garbage collectors, sewerage and water management) and many more. Encouraging customers to demand more may comprise of inculcating consumer rights awareness or providing stronger consumer voices; all forcing companies to live up to their service level agreements.

### **2.2 Encourage shareholders to demand innovation**

Company shareholders, stakeholders, and the capital markets should be encouraged to demand growth and value creation through innovation from the large companies. In the US for instance, there's a specific index for public listed innovative companies, and these companies have a higher shareholder premium. In Malaysia, we can see that the stock market reward innovative companies like AirAsia and DiGi with higher share values compared to those who are innovation laggards.

### **2.3 Introduce legislation/regulations that drive innovation**

The government can impose a clause for innovation on GLCs for certain large government projects. This may be done either through forward procurement, open innovation, collaboration with local universities or counter-trade programmes. For instance with the proposed MRT project, the key contractor could create an open innovation competition to create applications, services and tools that would benefit or attract passengers of the MRT. In other construction projects, especially in congested areas, requirements could be imposed that the project needs to be completed within a short period and with minimal disruption. This shall force the contractor to be more innovative in project management and construction technology.

The EU had stimulated innovation using environmental legislations; for instance, all planes landing in the EU must use 10 percent of their fuel from renewable energy. This has spurred many companies to invest and innovate in providing cheaper, green energy. In Malaysia, for instance, what if a new environmental legislation no longer allows plantations to expand, and instead impose that 30 percent of their pesticides/fertilizer must be organic or biodegradable? This can spur the plantation sector to drive innovation by looking further on how to increase yields and explore innovation in pesticides and fertilizers. This may open up Malaysia to a new growth area of Green Palm Oil as many EU countries are looking at green oils.

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## 2.4 Encourage more competition

Healthy competition is one of the most effective ways to drive innovation among large companies. We have seen intense competition in the telecommunications industry and many service related sectors. It is worthy to note that, in an effort to control monopoly and cartel activities, The Competition Bill 2010 had been passed last year, and should take effect by mid or end of 2011. The bill, will apply to all companies, including GLCs<sup>22</sup>. At the time of this writing, the full impact of this act is yet to be seen.

Healthy competition need not only manifest from private companies. As seen in the telco industry, it can also arise from other GLCs. This would drive both types of companies to be more dynamic and innovative.

22. Mahalingam Eugene. "Promoting competition". The Star Online. Accessed April 2011. <http://biz.thestar.com.my/news/story.asp?file=/2010/6/12/business/6442566&sec=business>

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## **Recommendation 3.0: Drive innovation among Public Listed Companies**

In the earlier chapters we have seen the size and scale of large public listed companies. If the top 10 public listed companies decide to allocate 1 percent of their revenue towards innovation, the impact would be tremendous. Lately, many public listed companies have started reporting CSR in their annual report, while some even produced a sustainability report. These reports include elements such as the use of renewable resources, effort to reduce negative impact on climate change, safety, biodiversity and carbon footprint. In contrast, most firms do not report their impact on the innovation eco-system; for instance, the number of collaborations with universities, support for start-ups and emerging companies, vendors they help go global and many others.

### **3.1 Publish a PLC Innovation Index**

As we begin the innovation journey, we need to have a way to recognize and reward innovative companies, in an objective and transparent manner. Therefore, one of the recommendations is to create an innovation index for public listed companies which measures how much value (both financial and non-financial) had been created through innovation. This would be an expansion to the already present ‘sustainability’ indices in their annual report and can include factors like, IPs the companies have amassed or value the companies have created through their various innovation activities.

### **3.2 Report Social Innovation Activity**

Many companies, particularly MNCs, are already contributing significantly to the innovation ecosystem, generating value that impacts Malaysians directly. We can foster more of such activities by promotion of a social innovation index, which would measure the company’s impact on the innovation eco-system. The government could then use this index to give recognition the public listed/private companies that contribute towards enhancing the innovation eco-system.

### **3.1 Recognize Innovative PLCs**

All the efforts and investment that companies put into innovation will be more meaningful if rewards are given. The data from the innovation index and social innovation index can be used to guide local/foreign investors and analyst to look at the long term potential and contributions of Malaysian companies. This would also be critical to attract investors from developed countries as they are more conscious on the objective measures of innovation, the innovation environment and sustainability issues.

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## Recommendation 4.0: Make ‘Innovation’ as part of GLC Transformation Plan

The GLC transformation programme has been running for a few years and many positive results have been seen. Yet, our interviews indicate that level of intensity and culture for innovation is still low. Much of the focus has been to ensure high performance and good governance. **GLCs should now be given a mandate to grow and create value through innovation** as it has all the key elements; financial support, best talents (via scholarship programmes) and access to the best training programs for its managers (INSEAD, IMD, MIT, ICLIF etc.)

### 4.1 Allocate Risk Capital

Many ventures have been sidelined due to the apparent risk that surrounds it. Through our interviews with top and middle level management, many have related that only projects with guaranteed success are acceptable, and if a project fails, an individual’s career is jeopardized. These sentiments do not bode well if we want to cultivate a culture that nurtures experimentation and innovation. This however can be remedied, if there is specific funding for innovation projects.

GLCs or GLICs themselves can set aside a certain amount of risk capital which is to be used for new ventures (these can range from a high to a moderately risky project). This can encompass appraising a new technology, supply chain or testing a new market. The objective should be to have funds to ‘test’ possibilities safely. This may include testing products which have shown proof of concept but not commercialized yet. This way, we are also able to grow and build expertise of our SMEs.

Risk capital can additionally be used for acquisition of new companies, as what KNM did, or to create new high risk ventures, for growth into new areas. For example, AirAsia created AirAsiaX as a separate entity, to explore the low cost long haul model, and recently they have done the same with the creation of AirAsia’s cargo. Both still utilize AirAsia’s strategic asset and brand.

### 4.2 Review Board Composition

As GLCs embark on this new journey, there is a more urgent need to have visionary board members that demand high performance through innovation. To make this happen, the mix at the board and management level should shift. As this study has shown, many GLC board members are too conservative to explore growth via innovation. One of the ways to manage this, is to alter the KPI of top management within GLCs to include innovation, and not focus on cost-cutting, short-term profit or efficiency alone. It should also be made mandatory for board members to fully understand innovation and ensure that the company is creating value through innovation. The NEM has outlined this in great detail; the key now is to adopt the crucial recommendations that relate to innovation.

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### **4.3 Spur Innovation in SMEs/Vendors**

Another critical role of the GLC is to support the innovation effort of vendors. In our interviews with SMEs and even some government agencies, GLCs are viewed as fortresses; extremely difficult to penetrate. There's a strong perception that the GLCs prefer to buy foreign products and prefer to work with established foreign companies, hence, marginalizing local start-ups and innovative SMEs. On the flip side, the GLCs respond that they have their resources tied up trying to entertain the thousands of companies that are trying to get a foothold within the GLCs.

Efforts should be made to filter and segregate the vendors, based on performance. There are a few measures currently present, amongst them, MSC Malaysia's SCORE+ (SME Competitive Rating for Enhancement) programme, 1-InnoCERT by SME Corporation, Malaysia Productivity and Innovation Class (MPIC) by MPC (which recognizes organizations that have achieved a standard of excellence based on the Business Excellence Framework). However, efforts need to be made to streamline these various recognitions, to facilitate an ease of comparison. Whatever the means of measuring, the end result should be that innovative vendors can be singled out and get the recognition they deserve.

### **4.4 Intensify the Creation of an Innovation Ecosystem**

Many MNCs have been active in cultivating the innovation ecosystem in Malaysia. GLCs have also played their part in providing support to local schools and universities. We are however advocating a more intense involvement by the GLCs, to support activities that will result in sustainable advantage for the community.

These activities may range from a closer collaboration between the company and university or school in providing exposure and experiences, beyond normal attachments and training. This may be about partnering with universities in market driven innovation research or about providing other forms of value creation for the local community.

Some of these activities are already taking place in small quarters, for example, Maxis's CyberKids Camp, which teaches 13 and 14 year olds, and their teachers, how to better use computers and the Internet.

### **4.5 Have a GLC Innovation Index**

Similar to the recommendation for the public listed companies, GLCs should have their own innovation index (a GLC Innovation Index). This will facilitate a different type of competition within the group of GLCs in Malaysia. Indices evaluated however may be similar to the overall innovation index.

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## Recommendation 5.0: Support Creative Destruction

Innovation causes disruption or destruction. For instance when, the banking sector introduced electronic banking and ATMs for depositing money, cheques and performing many other transactions, much of the bank's workforce became redundant.

### 5.1 Transition Support

Many companies face large hurdles when trying to create a change, sometimes due to the trade unions. As many employees face the reality of change, fear becomes a dominant reaction. This reaction however may be minimized with the right support and incentives. For example, benefits could be given to companies that can absorb the redundant workers. This kind of move however would need close collaboration between various government agencies to coordinate the different needs of various industries. Simultaneously, the company affected would find it easier to move to its next growth curve, and progress the company further.

### 5.2 Social Impact

Along with change or the introduction of new technology, there will need to be a shift in the workforce. Government can facilitate this through giving support for re-training of employees to be more skilled or to be equipped in another area. Incentives can also be given to companies that embark on re-training of employees. We must recognize that **the government, employers and trade unions have to work closely** on this issue to ensure a smooth transition.



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## **Recommendation 6.0: Make Innovation Easy**

One of the challenges that many large companies face is the complexity involved in making innovation happen. At present, there are many agencies that are involved in either promoting or supporting innovation in Malaysia (MIDA, MITI, MDeC, UNIK, MPC, YIM; just to name a few). There is a need, however, to choose between having a centralized agency or giving autonomy to the many agencies involved, to ensure speed and flexibility of implementation of innovation within the country. Studies have shown that many projects within the Asian regions are based on ‘relationship’ formation. Innovation is no different. We should therefore not discard the networks made previously and instead build and enhance these relationships to translate the urgency of innovation in Malaysia. We need to **‘renovate and not recreate’**.

### **6.1 Make Information Accessible**

Due to the multitude of agencies involved, there has been fragmentation of information on innovation, making it difficult to access details. This has resulted in many organizations not utilizing the incentives. There must be a central body monitoring the innovation activities done by the various agencies. The key is for the selected government agency to help create the awareness on the importance of innovation, make information easy to access and navigate, as well as make available current support and incentives that are present to spur large companies to innovate.

### **6.2 Have Customer Centric Approach**

In relation to the above recommendation, the KPIs of the managers from the agencies should be shifted to ‘how many companies have applied for incentives’, ensuring that they would act in a more facilitative manner (as it would affect their performance). In rendering this role, the agency responsible should view companies as a ‘customer’ and themselves as ‘partners’.

### **6.3 Navigate and Connect**

Due to the vast areas that innovation covers, one of the roles of the agencies would be to facilitate encounters with the various government agencies, such as Talent Corp, GLICs, Ministry of Finance, EPU and others, to accelerate innovation in Malaysia.

This role would also entail introducing the various companies to prospective partners, in an effort to promote cross-fertilization of ideas. These ‘innovation agents’ will have to be trained and will have to be aware of the full innovation ecosystem. Again, results oriented KPIs should be the measure of success. These ‘innovation agents’ should be specific to an industry/ministry, so that they are familiar with the particular field. However, frequent discussions should also be held between the various ‘innovation agents’ to constantly update information between the respective agencies.

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## 6.4: Innovation Vouchers

Many organizations embarking on innovation may experience an increase in operating cost, partly due to a gap in expertise. The government may play a role in alleviating this challenge by providing innovation vouchers that, among others, may be used for:

- large companies/SMEs to collaborate or utilize equipment in universities or public research institutes (PRIs).
- purchase of IPs from universities
- tailoring development of the human capital in innovation related areas (innovation process, management of innovation projects or risk assessment etc.)
- product and service testing at research institutions

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## **Recommendation 7.0: Create Talents, Culture and Community for Innovation**

### **7.1: Widen the scope for HRDF Claims**

As the scope of innovation broadens, the incentives need to follow suit. In Singapore for example, companies can enjoy up to 400 percent tax deductions for acquisition or leasing of prescribed automation equipment, acquisition of IP Rights or investment in approved design projects.

### **7.2: Co-create Innovative Talents**

Talent supply has constantly been cited as one of the key challenges to innovate. The issue ranges from the quality and quantity of fresh graduates. Certain sectors have played a dynamic role in this area, for instance within the banking sector, IBBM (Institute of Bankers Malaysia), focuses on building the competency of those in the banking sector, including developing high potential fresh graduates and building the capabilities of their current talents.

The E&E sector in Penang has also established PSDC (Penang Skills Development Centre), the first industry-led skills training centre to be set up in Malaysia. It is a non-profit organization, set up by the E&E sector in Penang. In 1996, the PSDC was selected as one of the 10 recognized 'Best Workforce Development Institutions' in the world. Its latest project, the Shared Services Centre comprises of high-end testing equipment and infrastructure. Other large companies have also created something similar, for instance IBM with the Master of Service Science Programme with the local universities and Shell with their eco-challenge and environmental programme. These large companies, involved in building the capability of local talents to innovate should be encouraged and recognized.

Although there are many efforts in building competency, there is still a gap in the full breadth of innovation management (ranging from knowledge in IP management, innovation project management, managing risks etc.) as many still focus on technical knowledge or functional expertise, and these are insufficient in driving innovation.

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### **7.3: Create an Innovation Community**

Since collaborations and cross-fertilization of ideas are crucial to innovation, we need to create an environment where paths are crossed by design. Malaysia would need more active intervention in improving the innovation ecosystem. There has to be a space where industries, the public, government sector and the research community can exchange ideas and thoughts.

There also has to be an active measure to solicit ideas and insights from various sectors. Many companies have been successful at accessing tacit information from employees to create a web of knowledge, thereby sparking the creation of new ideas.

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## Conclusion

The time to ponder or debate on the need to innovate has passed. We now have to focus on making innovation an ingrained part of the Malaysian culture. Malaysia needs to develop its own strategic direction in innovation to have any hope of becoming a well-developed and advanced nation in less than a decade. This does not mean we are ignoring other aspects such as job creation or productivity, in fact, innovation will further enhance this. However, investments into innovation have to be prudent, due our finite resources. We will have to choose which battles we face, embrace the constraints and make the necessary trade-offs. Most of all, we need to have the will to implement the changes that need to transpire.

A clear and strong innovation policy will provide the much needed strategic direction for the country. Malaysia can then leverage on its pool of large companies to accelerate growth (to achieve a high income status) and to propagate a culture of innovation. However, for this to occur, several factors needs to be in place:

- There must be a compelling need for large companies to innovate. This can either be driven by customers, competitors, or their sense of purpose.
- Companies have to possess the capacity and capability to generate or gain access to breakthrough ideas or solutions.
- Companies must be willing to take on more risk to invest their cash and talents, to convert great ideas/solutions into a reality.
- Companies ought to invest time and effort to connect their innovative solutions to the market or end user, to create value.
- Most importantly, companies need to be willing to fail in their endeavors, however, they should also learn quickly and move on to their next competitive agenda.

We believe that this study has provided greater clarity on the root cause of the innovation gap that many large companies in Malaysia face. What lies next is the courage to make the right choices, even if it means creating short term disruptions and facing resistance. In conclusion, we believe that the time has come for Malaysia to embark on a tough but critical journey into the innovation economy.