Halal Industry Development Corporation

“Developing Malaysia into a Global Halal Hub”

Bachelor Thesis

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University of Twente

November 2007
“Developing Malaysia into a Global Halal Hub
Singapore: Halal Threat or Opportunity?”

A study to contribute to the development of Malaysia into a global Halal hub by the analysis of characteristics and developments of the Halal industry in Singapore.
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Executive Summary

The Halal Industry Development Corporation (HDC), incorporated in September 2004, is wholly owned by the government of Malaysia through the Ministry of Finance and is placed under the National Halal Task Force (NHTF), which is chaired by the Prime Minister of Malaysia, Dato' Sri Haji Abdullah Badawi. HDC has the overall goal to develop Malaysia into a global Halal hub by 2006. As the cooperation is in its very initial phase, HDC hopes to establish a cluster on which areas to focus in order to develop the Halal niche market to build the exact Halal hub model, and how to cope with increasing regional and international competition in the development of Malaysia as a global Halal hub. MDS Logistics has been appointed to execute a study on how to build and best implement the Halal hub.

The development of Malaysia into a global Halal hub is related with Michael Porter’s cluster theory (1990). Porter (1990) defines a cluster as a geographic concentration of interconnected companies and institutions in a particular field. Based on Porter’s definition of a cluster (1990), a global Halal hub is defined as a geographic concentration of interconnected companies involved in Halal production, logistics, and trade; Halal service providers; Halal certification and auditing institutions; and institutions involved in R&D on Halal matters.

As the competition for Halal products and services intensifies, the challenge for Malaysia is to ensure that it remains competitive and is able to capitalise upon the advantages the country has in terms of standards and a well-developed manufacturing infrastructure. Singapore has been identified by HDC as a competitor for the development of Malaysia as a global Halal hub which means they might develop their Halal industry as well. We have carried out a cluster study on Singapore to determine possible strategies for HDC to put the management of this competition in practice and benefit from complementarities and economies of scale between Malaysia and Singapore in Malaysia’s ambition to develop into a global Halal hub.

Although currently no dedicated Halal industry cluster exists in Singapore, a strong, robust Halal foundation is present and therefore the barrier to transform into Halal is very low. The present clusters in Singapore which can play a key role in Halal industry are food, knowledge, logistics, and R&D. These clusters are developed very well and are able to become a strong foundation for a potential Halal industry cluster. Second, Singapore has a robust intellectual property right regime, which can protect developments in research and technologies concerning Halal. Third, Singaporeans are well known for their discipline, that is the fear of not surviving or falling behind. As a consequence, the Singapore business environment is characterised by entrepreneurship, strong discipline and anticipation. These aspects might play a role in the Halal industry just through an exponential growth and might trigger the interest of Singapore enterprises. Fourth, the Singapore government has substantial funds available for GDP growth targets and development goals and might apply these funds when the Singapore government decides to develop the Halal industry in Singapore.

The strengths and weaknesses with regards to Halal of both Singapore and Malaysia can be seen in the table below.

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of a strong Halal cluster</td>
<td>No Halal industry by the Singapore government</td>
</tr>
<tr>
<td>Presence of a strong Halal industry</td>
<td>Limited Halal market</td>
</tr>
<tr>
<td>Presence of a strong logistics and trade foundation</td>
<td>Undeveloped Halal production and supply infrastructure</td>
</tr>
<tr>
<td>Malaysian spirit of “nothing is impossible”</td>
<td>High labour costs compared to Malaysia and Singapore</td>
</tr>
<tr>
<td>Profitability offered by the Singapore government for Halal production and development park</td>
<td>High land price due to development of dedicated Halal parks</td>
</tr>
</tbody>
</table>
### SW-Analysis Halal Cluster Malaysia

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Malaysia's role in global market</td>
<td>- Insufficient research and development</td>
</tr>
<tr>
<td>- Strong international relationships and export potential</td>
<td>- Front of supply chain security, manpower and transportation</td>
</tr>
<tr>
<td>- Presence of supporting industries in Malaysia</td>
<td>- Inadequate Halal certification and audit system</td>
</tr>
<tr>
<td>- Strong Halal certification and auditing system and its international recognition</td>
<td></td>
</tr>
</tbody>
</table>

However, a major shift to the Halal industry is not (immediately) expected. In the first place, Singapore will further continue to grow economically with the focus on high-end products. Secondly, related to the economy, no Halal agenda on macroeconomic scale by the Singapore government does exist. Thirdly, Singapore is a large trading partner and is a leading Halal market. This image will not match the branding of a dedicated Halal hub in Singapore. Fourthly, the extensive regulation of goods required for dedicated Halal facilities requires space and low utilization and might not be cost-effective and therefore less attractive to invest in.

Malaysia can strengthen its Halal cluster by making use of the well-developed logistics sector and gateway function of Singapore in the distribution of Halal products in Asia and to the world. Singapore in this turn can benefit from the skill-to-serv ice nature of the Malaysian workforce, the lead availability, and the Halal integrity (e.g., Halal certification and audit). Malaysia and joint for co-production to the planned Halal industry parks at the southern part of Malaysia, especially Johor. Singapore can participate in such parks, like the Vietnam Singapore Industrial Park, and the Johor Bahru Industrial Park and the Kota Kinabalu Industrial Park in Borneo, and hence participate in the opportunities and benefits the Halal industry has to offer. A rough time line, from a Malaysian point of view, for this process can be seen in the figure below:

![Diagram](image)

To conclude we can state that despite the fact that Singapore is labelled by HDC as a competitor and has not developed its own Halal industry, this research has made clear that Singapore is more likely to be an opportunity than a threat in the development of Malaysia into a Halal hub and that the country can fulfill a complementary role, especially in the field of logistics and transportation.
Preface

This report is the result of my bachelor assignment which I carried out for MDS Logistics, one of the MDS Consultancy Group, located in Penang, Malaysia. The bachelor assignment is the final step of the bachelor programme Industrial Engineering and Management of the University of Twente located in Enschede, the Netherlands. My bachelor assignment started at the 14th of February 2007 and lasted until the 8th of June 2007.

Participating in this bachelor assignment has had multiple aims for me: from an academic point of view to use scientific knowledge in order to contribute to the management of a company and get experienced in the complexity of formulating research goals, questions and problems, and solving these problems on a scientific substantiated base. From a business point of view, this assignment offered me the ability to get acquainted with the professional world of consultancy and its dynamics. From a personal perspective this assignment offered me the opportunity to experience the Asian culture and working environment, which both have had a big impact on me and have offered me a steep learning curve on how business is conducted in this part of the world. Taking into consideration that I have participated in the International Management track of the master programme of the study Business Administration at the University of Twente.

The objective of this bachelor assignment is to determine strategic direction for the Malaysian Halal Industry Development Corporation in capitalizing upon complementarities and synergies of scale between Malaysia and Singapore. Main part of the execution of this assignment is crucial for the development of a cluster analysis of the Singapore Halal industry. The assignment has been carried out as part of a larger coordinating earlier study including Indonesia, Malaysia, Thailand and Vietnam, with the overall objective to develop Malaysia into a global Halal hub by 2008, an ambitious goal set by the Malaysian government in its Third Industrial Master Plan.

This assignment would not have been possible without the intellectual, financial and administrative support of MDS Logistics. I would like to thank the team of MDS Logistics for the challenging opportunity to involve me in such a high strategic level project and the good care during my stay in Malaysia.

In particular I would like to thank Ir. Maroo Tewan, Managing Director of MDS Logistics, for providing me the opportunity to come to Malaysia, offering me comfortable residence, and giving me close supervision, useful support and feedback, and enthusiastic help in the activities I’ve carried out for the assignment, including a memorable business visit to Singapore.

Besides, I would like to thank Stefan Matter of MSc. For his professional supervision and convenient contact moments before, during and after the assignment period in Malaysia. I enjoyed his cooperation and discussions and appreciated your visit to Malaysia in May 2007. In addition, I would like to thank Dr. Peter Schaart for his willingness to act as secondary supervisor and having a critical look at this bachelor thesis.

Lastly, I would like to thank my girlfriend Sadia! Without her support and patience during my stay in Malaysia, I would have never been able to write this thesis. The prospect of traveling throughout Asia together made the long period of missing each other easier to cope with. Truly enjoyed our travel and I am sure much more will follow.

Enschede, Penang Island
November 2007

Jesper Djikeman
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1. Introduction

In this section, the cause of the bachelor assignment is pointed out. First, the background and the objective of the assignment are given. Derived from the background and objective of the project, the problem definition will be defined, followed by the research questions and the research structure.

This bachelor thesis is part of a large cluster study as executed by MDS Logistics including Indonesia, Malaysia, Thailand, Singapore, and in a smaller extent Vietnam. From this point of view, the theoretical part of this thesis is written in a cooperative cooperation with a fellow student of the University of Twente, namely Bishani Jane, responsible for the study of Thailand. We both executed the same kind of study and therefore, from an efficiency point of view, we have split the substantiated theory for the studies of Thailand and Singapore. As a result both of the theses show overlap in the theoretical background.

1.1 Background

Malaysia's objective

Malaysia has set itself to be a developed country by 2020. It is for this purpose that the Government of Malaysia has presented the National Mission, a policy and implementation framework that outlines the country's priorities for the next 15 years, along with the Ninth Malaysia Plan (NMP). The National Mission underscores the need to pursue programs that enhance the nation's capacity to compete globally, to strengthen national unity and to bring about a better distribution of income and wealth and higher quality of life among people. The National Mission identified five key thrusts which must be realised in order to achieve the country's goals and objectives:

1. To move the economy up the value chain;
2. To raise the capacity for knowledge and innovation and nurture first-class mentality;
3. To address persistent socio-economic inequalities constructively and productively;
4. To improve the standard and sustainability of quality of life;
5. To strengthen the institutional and implementation capacity.

The Ninth Malaysia Plan will chart the nation’s development agenda for the first five years (2006 - 2010) of the mission, aiming to translate its thrusts into programs and results. The development initiatives undertaken during the Plan period will also be guided by the universal principles of Islam Hadhram - government practice based on the principles of Islam as derived from the Qur’an.

The first strategic thrust is further subdivided into the following objectives for the Ninth Malaysian Plan (Economic Planning Unit, 2006):

- Increasing the value-added of manufacturing, services and agriculture;
- Generating new sources of wealth in technology-and knowledge intensive sectors;
- Reforming job creation;
- Giving a lead role to the private sector in economic development;
- Instilling excellence and a high performance culture;
- Expanding the market for Malaysian products and services.

The pursuit for competitiveness in the next 15 years is translated by the Malaysian Government in the Third Industrial Master Plan (MP3I) to drive industrialisation to a higher level of global competitiveness. The plan consists of policies and strategies to enhance competitiveness of targeted industries and services. Among the objectives of the plan is to make Malaysia a global Halal hub for the production and trade of Halal goods and services. In the Master Plan, it is stated that Malaysia has the edge in the development of the Halal industry, as it is a modern Islamic country with an open economy and a well-known physical and institutional
infrastructure, capable of supporting initiatives and programmes to develop and promote the industry. Next, the plan states that there is a big potential for developing and promoting Halal products and services for the global market, because:

- The Muslim population is about 1.6 billion and spread across the world. It is estimated that by 2050, the global Muslim population will be approximately 2 billion;
- Halal products and services are gaining increasing acceptability among non-Muslims;
- The global market value for trade in Halal food and non-food products is estimated at $529 billion annually. This market has created interest among food producing countries, both Muslim and non-Muslim.

Increasing regional competitiveness in Halal products and services

Among others, one of the challenges for Malaysia in becoming a global Halal hub is the increasing competition from countries in the region; the competition for Halal products and services is intense in South-East and West-Asia, as suppliers seek to gain access to the Halal markets of these countries. Within the Association of South-East Asian Nations (ASEAN), there is also a fast developing Halal food production industry, seeking to supply these markets. It is also in these markets that the development of Halal certification is taking place. The combination of a vast consumer market and a fast developing Halal food production and certification places the South-East and West-Asian market among the most important and competitive markets.

This trend has resulted in one of the strategic thrusts which have been set by the Malaysian government for the development and promotion of Malaysia as the global Halal hub, namely managing the increasing competition from countries in the region in the production for Halal products and services that intensifies the challenge for Malaysia to ensure it remains competitive and able to capitalise upon the advantages the country has, in terms of standards and a well-developed manufacturing infrastructure. One of the measures to enhance the country's competitive advantage is fortifying greater collaboration among countries in the region and capitalising on local complementarities and economies of scale (Economic Planning Unit, 2006).

Halal Industry Development Corporation

The Halal Industry Development Corporation Sdn Bhd (further referred to as HIC), incorporated on September 18, 2006 as a private company, is wholly-owned by the government of Malaysia through the Ministry of Finance and is placed under the National Halal Task Force (NHTF) which is chaired by the Prime Minister of Malaysia, Datuk Seri Abdullah Badawi. HIC has the objective to coordinate efforts to review standards, to develop the local Halal industry, to promote Malaysian Halal products and services in international markets, and to initiate investments in the domestic and international Halal sector.

The core objective of HIC to develop Malaysia into a global Halal hub is translated into one of the strategic thrusts of MDO3 to manage increasing regional competition as mentioned above. Discussions with HIC, and economic facts show that Malaysia's neighbouring country, Singapore, is renowned for its fast development and gateway function for Asia, and therefore, the site-state is pointed out by HIC as a regional competitor.

1.2 Research Objective

Derived from the above mentioned background of the assignment the objective of this report can be stated as:

"To contribute to the development of Malaysia into a Halal hub by HIC, by the means of an analysis of characteristics and developments of the Halal industry in Singapore".

The research objective is translated into the following deliverables:

- Identification of the Halal cluster in Singapore;
1.3 Problem Definition

Based upon the background of the research and the formulated objective, the problem definition is defined. The following aspects are considered in order to create a well-defined problem definition:

1. Aim of the Malaysian government in the development of the country as a global Halal hub is to facilitate greater competition and to capitalise upon complementarities and economies of scale.

2. Singapore is identified as regional competitor in the development of Malaysia as Halal hub.

The problem definition can then be formulated as:

"How can HDC capitalise upon complementarities and economies of scale between Malaysia and Singapore in the development of Malaysia as Halal hub?"

After the analysis of Singapore is carried out and evaluated with Malaysia’s Halal hub foundation, MDS is expected to present well founded arguments on how HDC can facilitate the collaboration with Singapore and how to capitalise upon complementarities between Malaysia and Singapore and their potential economies of scale.

1.4 Research Questions and Research Structure

As stated in the introduction, HDC aims to manage increasing regional competition in the Halal industry in their efforts to develop Malaysia into a global Halal hub, whereby this report focuses on Malaysia’s neighbouring country, Singapore, and the manner in which Malaysia should capitalise on the cooperation with the adjacent city state. In this section the research questions and research structure, required for the determination of collaboration options, complementarities and economies of scale between Malaysia and Singapore, will be discussed.

Research questions

The answers to the research questions form the solution to the problem definition. The following research questions have been formulated:

- What is a (global) Halal hub?
- What framework can be used in order to determine the Halal hub foundation in Singapore?
- What are the characteristics and developments of the Halal industry in Singapore?
- How sustainable is a Halal hub in Singapore?
- What are the characteristics and developments of Malaysia’s Halal cluster?
- What is the outcome of the evaluation and confrontation of the Halal hub foundation in Singapore with the Halal hub in Malaysia?

The answers to the research questions as stated above will provide the answers to the problem definition:

"How can HDC capitalise upon complementarities and economies of scale between Malaysia and Singapore in the development of Malaysia as Halal hub?"
First, the term 'global Halal hub' will be defined. After that, this phenomenon will be explained and substantiated with theory. From this framework, the characteristics and development in Singapore with regards to Halal will be derived. These characteristics and developments will be evaluated with the current Halal hub foundation and Halal policy in Malaysia. This evaluation will result in recommendations on how Malaysia can capitalise upon complementarities and economies of scale between Malaysia and Singapore. Based on the evaluation, the conclusion of the research will be given, as well as the recommendations for HDB for how they can collaborate and capitalise upon complementarities and economies of scale with Singapore.

In the figure below, an overview of the research structure can be seen.

**Figure 1.1: Research Structure**

After constructing the research structure, a remark needs to be placed with regards to this structure due to a lack of time and limited data availability by Malaysian local governments, it is decided to assess the Malaysian Halal hub foundation by the means of interviews with industry experts and is summarised in a SWOT analysis which can be found in Chapter VI. As a consequence, the Malaysian Halal hub is analysed in a less extensive manner than the Singapore Halal hub foundation.
1.5 Research Approach

Cluster analysis is regarded as a useful framework for the understanding of a region and economy (Carroy et al., 2006). The current characteristics and development of the Singapore Halal industry are therefore identified, based on presence of key elements of a Halal cluster in Singapore. In order to identify the characteristics and developments in the Singapore Halal industry, a framework based on Porter’s Diamond Model (1990) is created. The focus of the framework is placed on three different aspects, namely:

- Identification of the Singapore Halal cluster
- Sustainability of the Singapore Halal cluster
- Customer value proposition of Singapore

In the following chapter the framework and the choice for above mentioned aspects will be explained with relevant literature. In Chapters 3, 4, and 5 the different aspects of the framework are elaborated. As mentioned earlier, the outcome of this cluster analysis is evaluated with the Halal hub foundation in Malaysia and based on this evaluation recommendations will be made on how Malaysia, embodied by HDC, can capitalise upon complementarities and economies of scale between Malaysia and Singapore in the development of Malaysia as global Halal hub.
II. Theoretical Framework

In this chapter a theoretical foundation is presented for the term Global Halal Hub and the framework which is used to assess the Local hub foundation in Singapore.

2.1 Global Halal Hub

To create a formulation of a global Halal hub it is necessary to split the term into three different parts. The definitions for global, Halal, and hub are given:

- **Global**: Relating to the whole world, worldwide (Oxford Dictionary)
- **Halal**: Things or actions permitted by the Shariah law without punishment imposed on the derer (MS 1500:2004).
- **Shariah**: The Shari'ah law means the laws of the Islam in the Madhab of Shafi’i or the laws of Islam at any of the other Madhabs of Malik, Hanafi and Hanbali which are approved by the Yang di-Pertuan Agong to be in force in the Federal Territory or the ruler of any state to be in force in the state or within approved by the Islamic authority (MS 1500:2004).
- **Hub**: The centre of an activity, region, or network (Oxford Dictionary)

In the MS 1500:2004 Malaysian standard for Halal Food, published by the Department of Standards Malaysia Halal food is described. To create concrete view of each food law are mentioned:

- The food or its ingredients that do not contain any parts or products of animals that are non-Halal to Muslims by Shariah law or products or animals which are not slaughtered according the Shariah law;
- The food does not contain any ingredients that are Najis (e.g. things that are themselves not permissible such as pig and all its derivatives, blood and carcass) according the Shariah law.
- The food that is not prepared, processed or manufactured using equipment that is contaminated with things that are Najis according the Shariah law.

Under IMF3 (Economic Planning Unit, 2003) is envisioned to expand the food processing industry and diversify towards making Malaysia a regional food productions and distribution hub, with particular emphasis on Halal products. These products include:

- Food;
- Non-food products, including pharmaceuticals, health products, medical devices, cosmetics and toiletries;
- Services, including logistics, packaging, branding and marketing, printed and electronic media and travel and tourism.

Regarding the production and distribution hub, it is envisaged that by 2008 Malaysia will be the centre for:

- The production and distribution of Halal products;
- Halal service providers;
- Reference on the Halal standard;
- R&D on Halal matters.

The Halal industry is regarded as all companies and institutions involved in one of the Halal activities as mentioned above.
Besides the above-mentioned definitions, the development of KLIA2 into a global HUB is related with Michael Porter's cluster theory (1990). Porter (1990) defines a cluster as a geographic concentration of interconnected companies and institutions in a particular field.

Based on Porter's definition of a cluster (1990) and the definitions as mentioned above, a global HUB can be defined as:

- A geographic concentration of interconnected companies involved in HUB production, logistics, and services; HUB-related providers; HUB certification and rating institutions, and institutions involved in related or HUB-related matters.

2.2 Framework Cluster Analysis

The concept of industrial clusters goes back for many years and goes by many different names, including 'industrial district', 'agglomeration', and others. For this thesis, definition of the term cluster is based on Porter (1990) (see section 2.1), who is widely credited with popularizing the term. Clusters include:

- Linked industries and other entities, such as suppliers of specialized inputs, machinery, services, and specialized infrastructure;
- Distribution channels and customers, manufacturers of complementary products, and companies related by skills, technologies, or common inputs;
- Related institutions such as research organizations, universities, standard-setting organizations, training entities, and others.

Porter (1990) describes industrial clusters as the product of four factors which are covered in the diamond of competitive advantage, consisting of factor conditions, demand conditions, related and supporting industries, and firm strategy, structure, and rivalry (see figure 2.1). The four elements of Porter's diamond are integral to understanding why industry clusters are more competitive than isolated firms.

![Figure 2.1: Diamond Model (Porter, 1990)](image-url)
Role of cluster analysis

The role of cluster analysis can be interpreted as an organizing principle for economic development, a useful framework for building an understanding of a regional economy and an underpinning action. By itself, clustering does not determine economic success. A cluster analysis can help diagnose a region’s economic challenges and opportunities and identify what actions a region might do to influence its economic future (Conright, 2006).

A further implication of cluster theory is that different regions have very different sets of development opportunities derived from their existing industry clusters and the related human capital and knowledge those clusters have generated (Doddington, 2005). The path dependent quality of development means that growth in any region is most likely to come from extending, refining or recombining existing strengths.

In policy context, the utility of cluster theory should not necessarily be judged by whether it represents a perfect description of regional economic functions, but rather by whether it is a better mental model than the alternatives currently used. Regarding the wide scope of IMD using the cluster concept to study the structure of a regional economy represents a major advance. However, the feasibility of the concept means that it occasionally is used inappropriate.

Cluster as a framework for policy

Since the study is performed at order of HIC, a government initiated corporation with direct links to the Prime Minister’s Department, the cluster study will be used to form a basis for proper policy development to stimulate economic development by Muslim related activities.

The appropriateness of specific definitions, methodology, units of analysis, and so forth depends on the policy context at hand. It follows that any findings from such analyses cannot be divorced from those policy issues and the preferences and values that brought them to be true. When the link between the methodology of technique and the policy context is explicitly recognized, applied cluster analysis has much to offer (Pinder and Tang, 2003).

Identification and analysis of clusters

Analysts have employed a wide range of tools and techniques to describe and analyse clusters. Broadly speaking, two approaches have emerged: top down and bottom up, which generally rely on quantitative data to reduce the individual structure of a regional economy and bottom up analyses, which examine the inner workings and inter firm connections of a particular cluster in a particular location (Conright, 2006).

In this research a framework, based on Porter’s Diamond model (1990), is created consisting of three main issues, namely, (1) the identification of the Halal cluster; (2) the sustainability of the Halal cluster; and (3) the customer value proposition of Singapore as a country. In the following sections, the choice for these aspects is substantiated with theory.

Considering the limited time available, the limited (relevant) availability of Halal specific statistics on Singapore and the political sensitivity analysis by a neighboring country (in this case Malaysia) it was decided to gather cluster information through desk research and in person meetings with experts on Halal and perishable food business and general competitiveness of Singapore. Stough (1997) states that such experts are the agents who know the regions industries (best) in terms of basic practice, supply chains, current investment patterns and potential opportunities for new products, and this is recognised by Feser and Tager (2003). Large quantities of subtle and contextual information about a region’s business and industry base can be gathered through such largely qualitative methods (see also Roberts and Simmons, 1998). Feser and Tager (2003) state, however, that some risks are related to this method:

- Many such studies implicitly invoke knowledge of what you are researching because nothing is being measured in quantitative terms, it is easy to avoid clarifying concepts at the outset.
2.2.1 Identification of the Halal Cluster

Clusters are the key organizational unit for understanding and improving the performance of regional economies (Cortright, 2006). To get insight in the strength of Singapore as competitor in the Halal hub development of Malaysia, it is therefore of importance to identify its current Halal cluster.

For the identification of a cluster it is essential to understand what elements comprise a cluster. The model of a cluster described by Padovich and Al-Rawie (2003) (based on Porter) is used as reference model for the identification of the Singapore Halal cluster. It identifies four key elements: core firms, supporting firms, social infrastructure and hard infrastructure - that interact within related industry groups through complementary and competitively linked value chain activities in the local region.

- Core set
  At the centre is the core set of highly specialized and complementary firms. They form the critical core of the cluster group, and display distinctive characteristics that are unique to the local region. Specialization by these firms creates an independence where partnerships are required in order to build a comprehensive production system.

- Supporting firms
  The second layer, supporting firms, involves related industry specialists and these firms have close links with the core cluster. They may include functional activities, such as banks, accountants, lawyers, designers, supplier firms, or secondary activities that add value to the core firms. The key test of whether a firm is a related and supporting industry to the core firm is to ask if the core firm would be viable if the related and supporting industries were not there.

- Soft infrastructure
  The third layer of a cluster is the social or soft infrastructure. Organisations within this layer involve public and private partnerships, local government, educational institutions, professional bodies and industry associations. Their main function is to facilitate the coordination of the core and supporting firms, which would remain fragmented without this structure.

- Hard infrastructure
  Finally, the hard infrastructure includes the facilities that assist with energy requirements, transportation and communication both within the network and managing external linkages. The physical infrastructure is essential if inputs and outputs are to be gathered and distributed within the cluster, both regional and international, which is why the upgrading or development of an effectively functioning infrastructure is critical to the cluster.

In order to identify the Halal cluster the following Halal elements, based on these key elements, are identified: Halal Manufacturing, Halal Toiletries, Halal Logistics, Islamic Banking and Finance, Halal Certification and Auditing, Halal Research and Development, and Universities.

As can be seen in Figure 2.1, Porter’s 3 industry Model (1990) consists also of governmental variables. Although many say that a vital determinant of competitive advantage is a good state in national competitive advantage is not influencing positively or negatively, the four determinants. This influence can be exercised with, formation, subsidies for labor conditions (e.g., labour, infrastructure, or policies towards the Halal industry. From this point of view it is thus of importance to identify the role of the Singapore government in
the development of the Halal industry in Singapore. In order to identify this role, the following aspects will be investigated: General policy and direction of the Singapore government, Core industries in Singapore, which industries are valuable for the Singapore government to activate GDP growth targets; Existence of a Halal agenda by the Singapore government, and Singapore's role in the international world.

The first aspect of the framework, Cluster Identification, can be seen in the figure below.

![Cluster Identification Diagram]

**2.2.2 Sustainability of the Halal Cluster**

DeVol (2011) proposes it is worthwhile to consider what makes some clusters stick, while others fall apart. The factors that allowed them to form may not be as important in sustaining them, especially when many believe that randomness and historical accidents are integral components of how a [high-tech] cluster starts. Most published literature on clusters show that cluster sustainability has not been considered much of an issue, perhaps because sustainability is considered as an obvious side benefit simply of having a successful cluster. To the degree sustainability does receive explicit consideration, ideas seem to revolve more around ensuring ‘rent able’ of specific cluster incumbents (firms, institutions, offices) than about sustaining the underlying pressures that originally permitted incumbent success (Bergman, 2005). Bergman (2005) argues that sustainability of a cluster or region depends upon innovative sources of renewal and upon competitive pressures that stimulate or provoke firms to innovate valuable new products or processes.

Porter (1990) states that competitive advantage is sustained because its sources are widened and upgraded. Some determinants of the Diamond Model (Porter, 1990) provide a more sustainable advantage than others. Conditions that provide dynamic advantages (firm innovation, early mover advantages, presence for upgrading) are more important than those conferring static advantages (such as factor costs and a large home market), because they sustain competitive advantage in an industry. The most robust competitive advantage tends strongly to be associated with widespread and self-reinforcing advantage in many determinants, creating an environment which is difficult for foreign competitors to replicate, and national advantage arises when the system is unique (Porter, 1990). Therefore emphasis of the analysis will be on these dynamic advantages and are translated into presence of industry leaders; Knowledge cluster; Specialised skilled human resources; and Advanced Logistics.

Besides the dynamic advantages, the following aspects are incorporated in this part of the thesis.
Geographical concentration, because geographic proximity leads to special access, closer relationships, better information, powerful incentives, and other advantages in productivity and innovation that are difficult to tap from a distance (Porter, 1998). Geographical concentration is translated into Clustermap (geographic proximity). Speed and efficacy with which the clusters develop, to determine their phase of development (Jones, 2008), home-based companies, because the home base is where strategy is set, core product and process development takes place, and the essential and proprietary skills reside (Porter, 1998). Besides these aspects, Geographical concentration is also translated into C4 of the Halal cluster. C4 is a tool developed by the Alien Group, a strategic partner of MDS Logistics based in Thailand, to make sure work is done quickly, efficiently, accurately and can be considered as an internal quality standard. For the cluster analysis the C4 principle can be translated into the fact that there are four (C4) Correct, Consistent, Complete, Clear for Singapore Halal industry as with a Halal cluster model approach according to Porter (1998), the more competitive the Singapore Halal industry will be.

The last aspect, Vulnerabilities of a Halal cluster, is incorporated to identify possible weaknesses which can threaten the sustainability of the Halal cluster and is translated into internal and external vulnerabilities.

The second aspect of the framework, Cluster Sustainability, is graphically represented in Figure 2.3

![Figure 2.3: Overview Cluster Sustainability](image)

### 2.2.3 Customer Value Proposition of Singapore

The 9th Malaysian Plan states as one of its goals “enhancing higher contribution to growth from private sector and government-linked companies and attracting quality foreign direct investment”. Customer value proposition, based on the Customer Satisfaction Leadership Model of Abell (1995), determines the pull factor of Singapore as a source of investment. For foreign investors, Malaysia and Singapore can be both attractive to invest in. Therefore, it was necessary to point out the attractiveness of Singapore and Malaysia as a nation. Although this part of the research is not specifically applied on the Halal industry, it will play a key role when the Halal industry develops and attracts investment.
In the framework are included: Factor conditions, because a nation's endowment of factors (e.g., labour, capital, infrastructure) clearly play a role in the competitive advantage of a nation's firms (Porter, 1990); Existence of related and supporting industries, because the presence of internationally competitive supplier industries in a nation creates advantages in downstream industries and the presence in a nation of competitive industries that are related often leads to new competitive industries (Porter, 1990); Availability of incentives, because this will stimulate investments; Business environment, because the sophistication with which companies compete in a particular location is strongly influenced by the quality of the local business environment (Porter, 1998); and Living environment, because it has influence on the capacity building of firms acting in a cluster (Kochi, 2005).

In the figure below, the third aspect of the framework, Customer Value Proposition Singapore, can be seen.

![Diagram](image)

**Figure 2-4: Overview Customer Value Proposition Singapore**

Schwab (2004) developed a comprehensive model for global competitiveness based on the earlier Growth Competitiveness Index (Sachs and McKenzie, 2001) called the Global Competitiveness Index (GCI). The GCI provides a holistic overview of factors that are critical to driving productivity and competitiveness and groups them into nine pillars: Institutions; Infrastructure; Macroeconomy; Health and primary education; Higher education and training; Market efficiency; Technology readiness; Business sophistication; and Innovation.

*Institution*

By institutions, the system of rules that shapes incentives and defines the way economy agents interact in an economy is meant. The institutional framework has a central role in the way societies distribute the benefits and bear the costs of development strategies and policies, and it has a bearing on investment decisions and on the organization of production.
Informals

Significant research has shown that physical infrastructure fosters productivity growth and investment (Bovenberg, 1993 and Arthur, 1994). As the adverse effects of financial instability (asset price volatility, the creation of a business environment in which it is difficult to plan and invest) have come to be recognized, the notion that macroeconomic stability is an important precondition for sustained growth has been broadly accepted by the policymaking community (Aizenstat et al., 2003).

Health and primary education

Health and primary education are of key relevance for competitiveness, especially in developing countries. Cleared of unhealthy factors, primary education enhances competitiveness and improves human capital. The results of the World Health Organization’s (WHO) commission on macroeconomics and health, for example, that returns on investment of health are in the order of 500 percent (WHO, 2001).

Higher education and training

This pillar takes into account the quality of the educational system. This is crucial for economies wanting to move up the value chain beyond simple production processes and products (Kremer, 1995).

Market efficiency

For ensuring that goods, labour and finance are allocated in the most productive manner in economy, market efficiency is crucial. The pillars’ calculated by evaluation of openness of markets (import and export, level of distortions in government intervention in the market), and instruments should be designed to keep interactions of society and the size of the market accessible to actors in the economy. (Since the larger the market, the more intense the competition (Aleina et al., 2004).

Technological readiness

Technological differences have been shown to explain much of the variation of productivity between countries. For example, the strong productivity growth of the U.S. over the past decade has been linked to the high adoption of information technology, with productivity increases registered particularly in sectors using ICT extensively (Van Reenen & Sudhir, 2006).

Business sophistication

Performance and productivity are also greatly on the ability of business leaders to manage their companies efficiently. The business sophistication is particularly important for productivity at the top end of the global value chain. A recent study conducted at the London School of Economics has shown that differences in the quality of management among firms explain variations in their productivity (Bloom and Van Reenen, 2005).

Innovation

The last pillar is particularly important for countries that have reached high-tech frontier. It is the only self-sustaining driver of growth (Trefiernberg, 2005).

The index is constructed with available estimates from various national authorities, international agencies, and private sources (Lopez Claros, Porter et al., 2007) and is thus used to determine the competitiveness and attractiveness of Singapore as a country. In Appendix B, an overview of the different sub-indexes can be seen.

Stages of economic development

In the Global Competitiveness Index (Lopez Claros, Porter et al., 2007) the concept of stages of competitive development is introduced. Countries are separated into three stages, based on the idea that as countries move along the development path, wages tend to increase, and thus in order to sustain this higher income, labor productivity must improve. Lopez Claros and Porter (2007) distinguish the following stages: labor-driven stage, efficiency-driven stage, and innovation-driven stage (see Figure 2.3 & 2.6). In the 2006-2007 index, Singapore is rated in the innovation-driven stage.
In the innovation driven stage, the ability to produce innovative products and services at the global technology frontier using the most advanced methods becomes the dominant source of competitive advantage. The national business environment is characterised by strengths in all parts of the Diamond model (Porter, 1990), including advanced demand and deep supporting industries. Competitiveness does not occur across the board, but is rooted in an array of clusters where knowledge, supporting industries, and specialised inputs are present. Institutions and incentives that enable innovation are well developed. Companies compete with unique strategies that are often global in scope. An innovation driven economy is characterised by innovative products and a high share of services in the economy and is quite resilient to external shocks (Lopez-Claros, Porter et al., 2007).

![Figure 2.5: Stages of Competitive Development (Lopez-Claros & Porter, 2007)](image)

![Figure 2.6: Composition of Sub-indices (Lopez-Claros & Porter, 2007)](image)

Attractiveness is to a large extent qualitative described and where possible substantiated with the global competitiveness report and other internationally recognised indices and reviews. A qualitative analysis of the attractiveness is sufficient as the study is used as a guide of inquiry and not a narrow technical methodology in regional economic analysis (Feser and Luger, 2005).
2.3 Graphical Overview Cluster Study Framework for Singapore

To summarise, as the figure below an overview of the framework to assess the Halal cluster in Singapore can be seen. As mentioned earlier, the framework is based on Porter's Diamond model (1990). In the following chapter the framework will be qualitatively described.

![Cluster Study Framework Singapore](image)

Figure 2.7: Cluster Study Framework Singapore
III. Halal Cluster Identification Singapore

The identification of the Singapore Halal cluster is based on desk research, surveys done by other parties, and is complemented with interviews from Singapore Halal industry experts. The following section presents an overview of the Singapore Halal cluster characteristics and developments and consists of the Qualification of Halal Development – including Manufacturing, Trade, Logistics, Islamic Banking and Finance, Halal Certification and Auditing, Research and Development, and Universities – and Government policy – including General Policy and Directing Core Industries Singapore Halal Agenda by the Singapore Government. Singapore’s Role in the World. To conclude, at the end of the chapter a graphical overview can be seen with all the relevant clusters in Singapore.

3.1 Qualification of Halal Developments

3.1.1 Introduction

Singapore is certainly one of the few indisputable success stories of post-war economic development. Within less than four decades, the city-state has transformed itself from a cut-down economy and military base into a regional hub, becoming one of the most developed countries in the world in terms of per capita income and other important economic indicators.

Singapore’s economic success was a result of a combination of several environmental and country-specific factors and policy measures. A central factor was outward orientation and ability to plug into the global economy at a time when import-substituting industrialisation was still the dominant strategy for among developing countries.

Today, Singapore positions itself as having unique CORE advantages:

- **Core:** Extensive and sophisticated air, sea and IT links with the world and wide network of free trade agreements work together to provide a seamless and efficient flow of goods and services to global markets.
- **Openness:** Open and cosmopolitan, welcoming talents and companies from all over the world. Singapore is a bridge between the East and West and the place for global business. This diversity of talents with a discerning international business mindset makes Singapore an ideal hub for global operations, creative work and R&D.
- **Reliability:** Things work in Singapore – the country is stable, secure and a trusted hub. A proactive, transparent, and responsive government ensures that policies and practices are consistent and pro-business and physical and intellectual property is protected.
- **Innovation:** Companies constantly benefit from, and add to, the vibrancy of Singapore’s enterprise ecosystem – the lively interactions among companies large and small, local and foreign from diverse industries. And driving the ecosystem is our entreprenurial workforce, the best in the world.

At the industrial level, manufacturing and services will remain the twin engines of growth. Today, Singapore has built up world-class industry clusters in electronics, chemicals, pharmaceuticals, engineering, logistics, information communications and media, and regional headquarters operations. Moving forward, Singapore will enhance these strengths in these clusters by placing emphasis on R&D, innovation, value manufacturing, and supply chain management. The Economic Development Board of Singapore (for her referred to as EDB) – the organisation responsible for the continued economic success of Singapore and the empowerment of its citizens – is also actively developing emerging areas which can become important growth engines in the economy (Economic Development Board of Singapore, 2005). Although Halal is not part of the focus clusters it could be a critical component in biotechnology, logistics and pharmaceuticals.
3.1.2 Halal Manufacturing

Halal manufacturing refers to the manufacturing of Halal Food and Nutrition, Halal Cosmetics and Halal Pharmaceuticals. Although in Singapore companies are active in the manufacturing of Halal Food and Nutritional products, Halal Cosmetics and Halal Pharmaceuticals have not been an area of focus (yet). In addition, figures or estimates on the output of Halal production and, therefore, the impact of Singapore in Halal production do not exist (Islamic Religious Council of Singapore, 2007).

Singapore food manufacturing industry

There are nearly 300 food manufacturing establishments in Singapore, engaging in various aspects of food production, of which more than half are catering mainly for the export market. In 2006, the total trade generated by the industry was SGD15.2 billion, of which nearly 40.3 per cent was made up of exports to Singapore, 2007. Various government agencies work together in aligning the international certification standards of Singaporean food manufacturers with that of foreign food and customs regulatory bodies. A significant milestone was the recognition of the MUS Halal certificate by the United Arab Emirates Ministry of Trade and Industry, 2007.

With regards to Halal, two leading food manufacturers, Nestle and Unilever, have Halal-certified production facilities in Singapore. In addition, Singapore accommodates Halal-certified companies in food additives and flavourings (e.g., Carotech Pte Ltd, International Flavours & Fragrances, Sumate, Takasago) and food chemicals, i.e., Castrol Singapore Pte Ltd, Facc Asia Pacific Pte Ltd (Islamic Religious Council of Singapore, 2006).

Singapore cosmetic manufacturing industry

Singapore is the leading cosmetic hub in Asia. Singapore's Economic Development Board (EDB) is committed to developing the consumer care industry, including cosmetics and other personal care products. The EDB has set itself the goal of building a vibrant consumer care industry, grounded in science and integrated with Asian consumer insights and creativity. This development will not be from a zero-base. Singapore has been successful in developing knowledge and innovation-intensive industries such as chemicals and the biomedical sciences and intends to build further on this knowledge and innovation to expand into the consumer care industry.

Singapore has successfully attracted the regional headquarters of many leading consumer care companies such as Procter & Gamble and Unilever, and their specialty chemicals supplier, the Economic Development Board of Singapore (2007).

Currently, no Halal cosmetics are being produced in Singapore. Nevertheless, with the knowledge and innovation-driven cosmetics foundation in Singapore, translation into Halal cosmetics offers a big potential for companies active in the consumer care industry.

Singapore pharmaceutical manufacturing industry

Singapore is home to a strong biomedical (including pharmaceuticals) cluster. In addition, the sector is one of the core industries by the Singapore government (see also section 3.3.2 Core industries in Singapore). World-renowned companies in the biomedical sector, i.e., GlaxoSmithKline, Pfizer, Merck & Co, are represented in Singapore (Economic Development Board of Singapore, 2007). Although the presence of industry leaders and the knowledge and innovation-driven nature of the biomedical sector, the focus has not been on Halal pharmaceuticals (yet). As mentioned for the cosmetics sector as well, transformation to Halal pharmaceuticals offers a very big potential.

3.1.3 Trade

Three agri-food business clusters have been formed as public-private sector initiatives in Singapore, namely fish, vegetables and fruit, and meat. The business clusters concept was initiated by the Agri-Food and
Veterinary Authority of Singapore (further referred to as AVA) and are chaired by the private sector with AVA providing the secretariat support. The members are major players in the industry or key representatives from trade associations. They serve as a communication bridge between the industry and the government on issues concerning food sourcing and facilitation of the food trade (Agri-Food and Veterinary Authority of Singapore, 2007). The terms of reference of the clusters are as follows:

- To identify new sources of food for Singapore. In particular, identify the sources of food for the Singapore market;
- To devise strategies on how best to move towards a diversified food supply and look into investment opportunities for Singapore importers to invest in food production and processing at source;
- To communicate strategies on food sourcing between AVA and importers/traders;
- To identify the challenges and problems faced by the Singapore importers/traders; and
- To share information on trade statistics, food quality and safety practices, and developments in the agriculture and food industry.

The current focus of the agri-food business clusters addresses food quality and food safety. Although the agri-food business clusters currently are not engaged in Halal products, they play a key role by recognising the opportunities and benefits Halal offers and Halal developments in the near future.

3.1.4 Logistics

Singapore is a leading logistics hub in Asia and in the world (see also section 4.1.4 Advanced Logistics). Nevertheless, in the field of Halal logistics development has not emerged yet. In addition, Singapore lacks the facilities and processes for an unrelated Halal supply chain — i.e., avoiding the problem of cross-contamination — which is essentially required for Halal products (CWT Logistics, 2007).

At this moment, there are cold room facilities at Changi Airport, mostly used for storage. Besides these cold room facilities (Changi Airport is planning to develop a perishable centre which will be located within the Airport Logistics Park of Singapore (ALPS)). Although the actual construction has not started yet and the exact date of opening of the perishable centre is still not known, the current stage of the planned perishable centre is beyond the feasibility study (Yeoh, 2007).

Perishable products which are transferred currently at Changi Airport are the following:
- Flowers from China (Kunming);
- Seafood which is fresh and alive. For instance, tuna from Indonesia is transported via Singapore to Japan;
- Vegetables;
- Meat;
- Pork.
- Large perishable imports from Australia (agricultural products, meat) are transported via Singapore to Europe because of the high connectivity (Civil Aviation Authority of Singapore, 2007).

The development of the perishable centre can play a key role in Halal logistics, but the expectation is that the perishable centre will be used for more high-value products. At Changi Airport and Singapore in general land is scarce and therefore very costly. From this point of view it's reasonable to assume that Changi, with its perishable centre will focus on high-value products and high-value, low-volume, i.e., biomedical and pharmaceutical products. In addition, Halal logistics requires extensive segregation which will have a negative effect on the utilisation and will conflict with the existing plans. Handling and it is therefore important that this will not be too much to be worth investing in (CWT Logistics, 2007; Civil Aviation Authority of Singapore, 2007).
3.1.3 Islamic Banking and Finance

Throughout the years, Singapore's banking and financial cluster has grown from providing basic and standard services to sophisticated, technology-driven innovative offerings. As a result, the financial services sector developed simultaneously with the growth of the Asian Currency Unit (ACU), the Asian Dollar Bond (ADB) market and the Singapore Dollar Corporate Bond (SDCB) market leading to a highly significant financial centre nowadays (Ngiam Kel Teck, 2003). Currently, the Singapore financial cluster contributes 11.2% to Singapore's GDP in 2006 and grew 9.2% as compared in 2005 (Ministry of Trade and Industry, 2007).

Capitalizing on their current position as leading financial centre in South East Asia, Singapore is encouraging the growth of Islamic finance to widen the array of financial services and strengthen its status as an international financial centre. Due to the fact that Singapore currently has a very strong and powerful financial cluster they will further develop the huge opportunity Islamic banking offers.

Institutes to Promote Islamic Finance

Regulatory framework
Given that many of the supervisory processes and prudential measures are common to both conventional and Islamic banking activities, the Monetary Authority of Singapore (MAS) has opted to regulate Islamic banking under the existing framework. However, MAS recognizes that there are differences between Islamic and conventional finance and is prepared to define the regulations to accommodate and facilitate the development of Islamic finance. For example, in September 2005, the regulations were fine tuned to allow banks in Singapore to offer financing based on the Murabaha concept. MAS will continue with this approach in close consultation with the industry. Islamic banks in existence in establishing presence in Singapore will be assessed based on the existing admission framework.

Tax regime
Given that the nature and structure of Islamic financial products tend to attract more tax than their conventional counterparts, MAS is seeking to align the tax treatment of Islamic contracts with the treatment of similar conventional financing contracts. In line with this policy, the Ministry of Finance announced several changes in the area of stamp duties, income tax and goods and services tax, in the 2005 and 2006 Budgets.

Growth and Development of Islamic Products

Selected Islamic banking products and services are currently offered in a few conventional banks in Singapore via Islamic “windows.” Prior to 2005, the only Islamic banking product available in Singapore was Waqf deposit accounts. In 2005, a slew of new products were introduced into the market, including Murabaha financing facilities, and ‘Islamic’ compliant term products. Islamic insurance (Takaful) has also been successful in Singapore with over S$500 million Takaful insurance asset management. There are now about S$2 billion “Shari’ah-compliant real estate funds managed out of Singapore.

Islamic Equity Index

In recognition of the increasing interest of Middle East investors in diversifying and tapping the growth opportunities in Asia, the first “Shariah” compliant pan-Asian equity index was launched in Singapore in February 2006. This index serves as a benchmark for Shariah-compliant funds investing in Asian equities, and paves the way for the growth of Shariah-compliant funds seeking Asian exposures (Monetary Authority of Singapore, 2006).

3.1.6 Halal Certification and Auditing

The Singapore population consists of 14.9% Muslims. (see figure 3.1), Islamic Fights in Islamic Singapore (MUIS), also known as the Islamic Religious Council of Singapore, is the highest Islamic authority in charge of
Muslim affairs in Singapore. MUIS was established as a statutory board in 1968 when the Administration of Muslim Law Act (AMLA) came into effect. MUIS is accountable to the President of Singapore on all matters relating to Islam in Singapore. Among other things, MUIS provides Halal Certification services.

MUIS is vested with the powers to act as the sole authority to administer and regulate Halal certification in Singapore. This is clearly stipulated in AMLA:

- Section 88A(1). The Mayor may issue Halal certificates in relation to any product, service or activity, and regulate the holders of such certificates to ensure that the requirements of the Muslim Law are complied with in the production, processing, marketing or display of such product, the provision of such service or the carrying out of such activity.
- Section 88A(3). Any person who, without the approval of the Mayor, gives or adds a Halal certificate in relation to any product, service or activity, or uses any certified Halal certificate mark or any ascertainable indication thereof, shall be guilty of an offence and shall be liable on conviction to a fine not exceeding S$10,000 or in imprisonment for a term not exceeding 2 years or both.

The MUIS Halal services formally started in 1978. The move to set up its Halal Certification Unit was driven by the increasing demand for Halal-certified products and eating establishments, as well as the need to regulate the Halal industry.

Since then, MUIS has Halal-certified almost 900 premises—with an average of 10% annual growth—primarily and has played an important role as the custodian of Halal food assurance for Singapore's Muslim population (see Figure 3.2). Furthermore, the promising Halal food industry with the availability of many Halal-certified eating establishments has helped to foster social interaction between individuals from diverse racial, cultural and religious backgrounds. (Islamic Religious Council of Singapore, 2007)

![Religious Demographics of Singapore](image)

**Figure 3.1:** Religious Demographics of Singapore (Islamic Religious Council of Singapore, 2007)
In July 2007 MUIS will launch a worldwide Halal standard. This standard is developed in conjunction with HACCP and ISO certification. The standard will be a premium Halal certification, and a worldwide standard for Halal products. Currently, MUIS Halal certification is accepted by ASEAN countries under the Working Group on Halal Food Guidelines, under MAHMS, the unofficial Meeting of the Religious Ministers of Brunei, Indonesia, Malaysia and Singapore. The MUIS certification is mutually accepted by many other Halal certifying bodies worldwide such as those in South Africa, Australia, the US and China. MUIS, however, is not engaged in certifying products outside Singapore and does not promote the Singapore Halal brand in any country, but focuses on registering the Singapore Halal brand in foreign countries to facilitate the Singapore Halal certificate holders who are exporters as well. In addition, MUIS does not approach companies for certification; the companies themselves see the benefits of Halal certification and therefore apply at MUIS for Halal certification (Islamic Religious Council of Singapore, 2007).

A comment on the Singapore Halal certification is that the certification process itself is slow, due to bureaucracy. Another comment is the looseness of the certification process. As compared to Malaysia, Halal certification sometimes is granted without thorough inspection and auditing process (MUI, 2007).

In 2006, MUIS worked with IE Singapore and Singapore’s Ministry of Foreign Affairs to obtain the agreement of the United Arab Emirates’ General Secretariat of the Ministries to recognize MUIS Halal Certification System and Halal certificates issued by MUIS. This important development will further boost Singapore’s food exports to the UAE, which is the biggest Middle East market for Singapore’s food exports worth S$402 million in 2006. This marks a 31 percent year-on-year increase over 2005. Food exports to the Middle East similarly witnessed a 16 percent year-on-year increase over 2005 to S$252 million (IE Singapore, 2007).

3.1.7 Research & Development
In the last five years Singapore has become a hub for R&D in Asia, which places the city state in the top league of science and technology. Singapore is not only best, but it accommodates scientists and laboratories with cutting-edge equipment, even better than in world’s leading R&D countries (Agency for Science, Technology and Research, 2007).
Singapore intends to capitalise on its science and technology capabilities to strengthen private and public sector R&D initiatives. In 2005, expenditure on R&D totalled SGD1382 million, which was 2.36% of gross domestic product (GDP). Singapore aims to close the gap with developed countries by matching R&D expenditure to the industrialised nations' average of 2% or 3% of GDP (see Appendix A for R&D expenditure in 2005). The Agency for Science, Technology and Research, 2006. In addition, the Singaporean Government will be making significant investments in growing R&D in the next 5 years, earmarking SGD1355 billion in different agencies to promote R&D. Of this, SGD1 billion will be allocated to the NRF for longer-term strategic programmes, SGD5 billion to the Ministry of Trade and Industry for economic-oriented R&D and related investment promotion activities, and SGD105 billion to the Ministry of Education for academic research. The goal is to achieve a government expenditure on R&D of 3% of GDP by 2010.

Secondly, the focus will be on identifying and developing selected R&D areas of economic importance where Singapore can be internationally competitive. This is important as Singapore is a small country and must concentrate its limited resources to develop areas of excellence. In general, R&D funding will be directed to selected areas where there is most potential for scientific breakthroughs to yield economic benefit for Singapore, by generating faster growth and enterprise creation. Two new areas that have been identified as having rapid growth potential are the Environmental and Water Technologies sector and the Interactive and Digital Media sector. The National Research Foundation will continue to identify promising new economic sectors to promote.

3.1.8 Universities

Singapore has a well-developed education system, Singapore students are high and they achieve very good results, which is recognised globally. Singapore also has renowned universities, with capable leaders and scholars, and facilities that are amongst the best in the world (Lopes & Chang, 2005).

There are three leading local universities in Singapore:
- National University of Singapore (NUS);
- Nanyang Technological University (NTU);
- Singapore Management University (SMU).

With regards to Halal, currently, no Halal related curricula exist at the Singaporean Universities. However, in the 4th quarter (August/September) of 2007, MUIS will launch a Halal Curriculum designed for training the staff of Halal Certificate Holders. The purpose of this Halal Curriculum is that the Halal Certificate Holders and related personnel to be well trained in handling Halal matters, the facilitation of smooth Halal audits, and an increased internal supervision on a regular basis. The Halal Curriculum is currently being prepared and will be initiated at least two, smaller institutes (two universities which intend to incorporate the Halal programme, Islamic, Religious Council of Singapore, 2007).

Although no Halal related curricula exist at universities, curricula focused on biomedical sciences and, especially, logistics can still play a role. With regards to logistics, several local institutions provide a wide range of training and education programmes in logistics and supply chain management. More recently, the Logistics Institute, Asia Pacific, and INSEAD also undertake research in logistics and supply chain management related to the Asian and global markets from Singapore. Singapore's conducive live, work, and develop environment has given rise to a host of logistics and supply chain management education programmes to groom the next generation of supply chain management professionals in Asia.

3.1.9 Intellectual Property

Singapore has put in place a reliable and robust intellectual property (IP) framework that offers protection for created knowledge and provides an enabling framework in which this knowledge can be leveraged commercially. The framework constitutes a key infrastructure underpinning innovation and business growth.
in a knowledge-based economy. It will promote the growth of R&D activities and the commercialisation of their results.

The World Economic Forum echoed the favourable opinion of Singapore's IP climate in its Global Competitiveness Report 2006-2007 (Cooper-Chen et al., 2006), which put Singapore as number one in Asia (and ninth in the world) for IP protection. Singapore's excellent IP regime has helped it to attract significant new investment in the biomedical sciences sector, in particular in the pharmaceutical industry. The Singapore IP regime has a key potential to play a key role in the protection of Halal pharmaceuticals as well as Halal cosmetics and can form agnostic link to Malaysian companies in this field. Malaysian companies should therefore be aware of the possibilities of IP protection and recognise this need in an early stage to secure their Halal pharmaceuticals and cosmetics production.

3.2 Government Policy

3.2.1 General Policy and Direction/Focus

Singapore has an Integrated Strategy to achieve a high GDP growth. The key elements of this strategy are shown in the figure below. This comprehensive plan was developed to diversify the economy into greater value-added products and services. The Government continues to identify emerging industries that they can target for growth and areas where they can leverage their resources.

![Image](image.png)

**Figure 3.3: Integrated Strategy Singapore (WTTC, Future Vision, 1997)**

Singapore has focused the entire country’s organizational structure to support its growth. Every institution, from parliament to the finance and capital markets and from educational institutions to the transport authorities, shares common goals. They have created more open exchange control regulations that are business-friendly but regulated. They offer attractive tax incentives, promoted investment from overseas investors, in particular, from Japan, Korea, and China, and implemented a wide range of tax initiatives to support R&D and innovation. Incentive programs for skills training and R&D funding have been extended to many, and taxation has steadily been reduced over the last five years, with Singapore's tax rate being the lowest in the region.
To overcome the limitations of resources and small domestic market, Singapore's government has taken the following key strategic steps:

- Encourage multinationals to select Singapore as their Asian headquarters;
- Invest in nearby developing countries (China, India, Malaysia, Indonesia) to obtain market access;
- Promote foreign investment in leading edge and higher value added technology development.

As seen, labour is one of the key factors contributing to the GDP. Labour shortage is leading Singapore to cooperate more fully with its neighbours, transferring its non-invasive operations out of Singapore and upgrading its own level of technology and labour. The efforts Singapore government in this matter include:

- Preparing the workforce for the future through industrial and educational cooperation;
- To increase research efforts within universities for industrial research;
- The government has used incentives to attract multinationals and their technology and to increase the skills of the local workforce. In this case, industry provides the necessary support and establishes R&D facilities that help train students and workers while ensuring government's insurance in R&D for product and process developments.

Its small domestic economy and lack of natural resources make Singapore exceptionally vulnerable to the vagaries of the global and regional environment. The strategic challenge will always be adapting to prevailing trends in this environment. As such, it has been perceived as to stay agile and keep open alternatives, while keeping a full egg for difficult times. Singapore's ageing international reserves serve this purpose. The Singapore Economic Development Board (EDB) has $1.5 billion in a cluster development fund to support the growth of manufacturing GDP and achieve the country's development goals. These are investments that don't require a return-on-investment justification, but are assumed essential for future development. If a firm has a need for technology, the government will find funding to support it. The Singapore government currently runs a $1.5 billion budget surplus, so EDB has the funds for such investments. EDB is empowered to represent the main constituents of the Singapore government, thus reducing the confusion of dual identities. Singapore has a unique investment, EDB works closely with a variety of organisations, including Jurong Town Corporation, JTC (responsible for land and factories space), the Development Bank of Singapore, DBS (responsible for capital and financing), the National Science and Technology Board, NSMB (responsible for technology development and transfer), the Productivity Standards Board, PSSB (responsible for standards, measurements and testing), and the Trade Development Board, TDB (responsible for export trade). The EDB has therefore made large funds available to realise the GDP growth targets and obtaining sufficient EDB. In addition, top 20 industries can expect special treatments by the Singapore government when they establish themselves and expand in Singapore.

The structural transformation of Singapore's economy, at independence, Singapore's primary sector was small, it has now shrunk to almost nothing. The industrial sector also started out small, but grew quickly. However, in the past decade or so, the share of services seems to have risen on the increase, though an explicit policy goal is to preserve a strong base in manufacturing process. With changing competitive and competitive advantages, the manufacturing and service sectors need to be continuously reengineered towards more-skill intensive production.

Consequently a permanent concern is the perceived danger of companies moving out to locations with more favourable production costs. Singapore has so far been able to avoid the "falling off" of its manufacturing base through continuously upgrading its industrial structure, its encouragement of both MNCs and domestic firms to relocate more labour intensive production to neighbouring countries and creating a "second wave" for the economy.

In the service sector, logistics and trade, where Singapore has had a strong position as a regional hub since the beginning, the challenge is different. When neighbouring countries develop, Singapore's head start will be ended, and its neighbours, Malaysia in particular, will have an interest in developing their own service sector.
In the past few years, competition in post-service forces Singapore to rethink its service concept in this particular industry (MDS Logistics Sdn Bhd, 2007).

3.2.2 Core Industries in Singapore

With the increasing sophistication of the economy, the role of high-end services is increasing and it also fast-becoming a target for policy. Services such as first-class IT, financial services as well as exportable services including healthcare, education, engineering and management and consultancy services are becoming indispensable components of the republic's competitive advantage as neighboring countries' manufacturing capabilities develop. The government does not support a development like one it is taking place in Hong Kong, where the manufacturing sector has almost disappeared, but aims at a parallel development of the twin engines of growth manufacturing and services.

The recent restrictions on land availability and the high wage level will continue to put pressure on the manufacturing sector, however, and will force continuing structural transformation. Having noted that, it is still clear that Singapore remains an interesting location for manufacturing. This especially can be seen from the large amounts of FDI that continue to pour in (Bloomberg, 2005).

Currently, derived from information provided by the EDB and interviews with CWT Logistics (2007) and Roble & Lienenfeld (2007), the most important industrial clusters for Singapore today and coming years are:

- Biomedical Science;
- Chemicals (including oil refining and petrochemicals);
- Electronics;
- Transportation & Logistics.

Other industries will be more difficult to maintain a competitive advantage in Singapore as compared to other countries in Asia, especially China, India, Indonesia, Vietnam and Malaysia. Singapore focuses especially on high-end products and, therefore, Halal development is still at an infancy stage. Interview CWT Logistics, 2007.

3.2.3 Halal Policy/Halal Agenda by the Singapore Government

Although there is some Halal activity in Singapore—only on low scale in the food manufacturing sector there exist no Halal policy or Halal agenda on macroeconomic scale by the Singapore Government. However, it must be said that there can occur a sudden shift. Due to the recent crisis, Singaporeans are afraid to falling behind and Halal might be an interesting opportunity to invest in and be established as a new engine for further growth of the Singapore economy (Interview Roble & Lienenfeld, 2007).

3.2.4 Singapore’s Role in the International World

Singapore has the highest GDP/GNP ratio of the world. As one of the world largest trading nation, Singapore constantly seeks to enhance the trading environment by entering into economic arrangements and partnerships and champion global free trade (see Appendix B for more information about Singapore’s role in FTAs, WTO, ASEAN and APEC). Singapore imports raw materials and has turned to export to absorb capacity due to the small domestic market. This is why Singapore is committed to ensuring a free and open international trading environment (MDS Logistics, 2007).

3.3 Conclusion

A dedicated Halal industry cluster does not exist in Singapore. However, other clusters can play a key role when transformation into Halal takes place. These clusters include Financial, Logistics, Biomedical, Pharmaceuticals, Knowledge and Food (small and provide a robust foundation for Halal).
The relevant clustering with regards to Halal can be seen in the figure below:

- A small food cluster is located in the north of Jurong Port. This food cluster consists of two Halal certified leading food manufacturers, Nestle and Unilever. This can be extended with more Halal certified manufacturers and they can play a key role in the development of Halal food and nutrition.
- Two knowledge clusters exist consisting of universities and R&D centres. In addition, the intangible, robust IP regime of Singapore is integrated in these clusters. The knowledge cluster can play an important role in the research and development of new Halal products.
- The financial cluster, located around Marina Bay, consists of the world’s leading financial institutions and can play a key role in Islamic banking, finance and insurance.
- The pharmaceuticals and biomedical cluster consisting of major industry players can play a key role in the development of Halal pharmaceuticals and cosmetics.
- The logistics cluster is dispersed throughout Singapore and can play a key role in Halal logistics.

![Figure 3.4: Relevant Clusters with regards to Halal in Singapore (MDS Logistics, 2007)](image)

As can be seen in the figure above, Singapore lacks the existence of a dedicated Halal cluster. However, a robust foundation to consider into Halal’s present and this strong foundation will affect the sustainability of a Halal cluster in the next chapter this sustainability will be elaborated.
IV. Sustainability of the Singapore Halal Cluster

In this chapter, the sustainability of a Halal cluster in Singapore will be pointed out. The following aspects will be elaborated: Dynamic advantages, Geographical concentration, and Vulnerabilities of a Halal cluster in Singapore.

4.1 Dynamic Advantages

4.1.1 Presence of Industry Leaders

Bakery & Confectionery
The bakery and confectionery industry is a significant component of Singapore's economy. Today, financial services account for 11.2% of Singapore's GDP (Singapore Economic Review, 2020). It has the highest value-added in the sector's industry. Banks which have their regional hubs in Singapore include leading banks like Citibank, AXA Asia and Union Bank of Switzerland (UBS). Premier local financial institutions include the Development Bank of Singapore (DBS) and the United Overseas Bank (UOB). (Contact Singapore, 2007). Banks engaged in Islamic banking include GIC, Standard Chartered Bank, CIMB Banking Group, HSBC, AmBank and OCBC Bank Singapore.

Biomedical Industry
Singapore offers unmatched opportunities for Biomedical Sciences (BMS) companies. The goal is to develop the BMS cluster – comprising pharmaceuticals, medical technology, biotechnology, and health care services – into a key pillar of the Singapore Economy. Strong government support and a pro-business environment have attracted industry leaders such as AstraZeneca, Biogen, Bedrock-Thomison, Eli Lilly, GlaxoSmithKline, Johnson & Johnson, Novartis, Pfizer, Schering-Plough, Siemens and Wyeth operating in Singapore for manufacturing and R&D investment. (Contact Singapore, 2007). These leading biomedical companies might step into the emerging Halal market and can play a key role in the development of Halal pharmaceuticals.

Chemical Industry
Singapore is looking at building its traditional strength as a petrochemicals hub. Besides being among the world's top 5 oil refining centres and trading hub Singapore (Asia's Oil Product Pricing Centre), Singapore is also among the top 5 bulk liquids ports in the world. Asia's hub for bulk products, top in the world for marine services, Singapore is among the top 5 of the world's top 10 fertilisers and fragrance companies. With unsurpassed focus on relevant infrastructure, technology and a local solutions approach, Singapore will continue to innovate, manufacturing, regional distribution, marketing and other services. Singapore offers a cost-effective and strong institutional environment to some of the world's leading petroleum and petrochemicals and specialty chemicals giants, including ExxonMobil, Shell, Du Pont and Sumitomo Chemical (Contact Singapore, 2007). With regards to Halal, food chemicals will play an important role within the chemicals industry and due to the fact Singapore accommodates the world's leading flavour and fragrance companies, they might fulfill this role very well.

Logistics Industry
Singapore has in sight set on becoming the leading integrated logistics hub in Asia by the year 2010. The industry will develop the full range of logistics capabilities through third-party logistics providers, electronic commerce and chemical logistics companies. The logistics industry has evolved from providing transportation and warehousing, to offering total integrated logistics solutions.

Major players in the logistics services sector include: FedEx, TNT, DPDHL, CMA CGM, Star Shipping, ST Logistics, APL, MSAS Global Logistics and Port Global (Contact Singapore, 2007).
4.1.2 Knowledge Cluster
Singapore has a thriving knowledge cluster. Some research centres participate in a broad range of fields including medical technology, health care, electronics, chemicals, info communication, engineering, pharmaceuticals and biotechnology. Especially in the biomedical sector, Singapore ranks amongst the top research countries in the world. Secondly, Singapore has an educational system with three leading universities and several other leading international education institutions. Thirdly, Singapore has a robust and reliable IP regime which ensures companies are able to protect their knowledge creation and support the commercialisation leverage of this knowledge.

4.1.3 Specialised Skilled Human Resources
Singapore offers world-renowned higher education at universities and other learning institutes and this ensures a well-trained and educated workforce, especially in the fields of logistics, finance, engineering, electronics and the biomedical field. In addition, Singapore attracts talented professionals from abroad to strengthen the Singapore workforce (Contact Singapore, 2007).

4.1.4 Advanced Logistics

![Figure 4.1 Logistics infrastructure in Singapore and its Key Industrial Areas (Economic Development Board of Singapore, 2004)](image)

Singapore has world-class seaports (PSA Singapore Terminals, Jurong Port), a leading international airport (Changi), and a regional airport (Selangor). See Figure 4.1. The logistics facilities in Singapore are amongst the best in the world (Jones-Clay et al., 2006).

4.2 Geographical Concentration

4.2.1 Clustering
Singapore has a strong foundation offering the possibility to translate well into Halal. The foundation consists of a food cluster, knowledge cluster, pharmaceuticals cluster, biomedical cluster, finance cluster and a logistics cluster. The clusters are highly concentrated due to the limited size of the small country. See also section 3.3 for a graphic overview.
4.2.2 C4 of the Halal Cluster

The Alfa Group, a strategic partner of MDS Logistics based in Thailand, has developed a tool to make sure work is done consistently, single and dual, and can be considered as an email quality standard. For the cluster analysis, the C4 principle can be translated into the fact that the more C4 (Correct, Consistent, Complete and Clear), the Singapore Halal industry is with a Halal cluster model approach according to Porter (1990), the more competitive the Singapore Halal industry will be.

Correct

MUIS developed a new Halal certification standard congruent with HACCP and ISO certification. The standard will be a premium Halal certification and a worldwide standard for Halal products. The current standard is accepted by ASEAN countries under the Working Group on Halal Food Guidelines under MABRAS – the unofficial meeting of the Religious Ministers of Brunei, Indonesia, Malaysia and Singapore. Besides, the current standard is accepted by many other Halal certifying bodies worldwide such as those in South Africa, Australia, the UK, China and the United Arab Emirates.

A comment on the Singapore Halal certification is that the certification process itself is slow, due to bureaucracy. Another comment is the slowness of the certification process itself. As compared to Malaysia, Halal certification sometimes is granted without thorough inspection and auditing process (CWT Logistics, 2007).

Consistent

The Halal industry is currently not a focus area of the Singapore government. However, players mainly in the food manufacturing industry (e.g., from oils, additives and flavourings to meat and dairy products) see the benefits of Halal certification and are Halal certified by MUIS.

Complete

To comply with Sharia principles MUIS is able to enforce the Halal certification in Singapore by the Administration of Muslim Law Act (AMA), which enables MUIS to be the sole Halal certification authority in Singapore and the prosecution of any person or company who will misuse the Halal certification.

Clear

Although Singapore at the moment does not have a dedicated Halal industry cluster, supporting industries, i.e., finance, logistics, biomedical, pharmaceutical, are widely represented in the city state. Due to the fact that Singapore is limited in its size, actually all industries are geographically concentrated, which is seen as a critical ingredient in clustering (Porter, 1990). A disadvantage of the limited size of Singapore is the lack of supplying industries (raw materials, ingredients) and the availability of land (even when land is available, prices are high because of the scarcity), which might block the potential development of dedicated industrial Halal parks.

Clarity

In most industries, a nation succeeds because it combines some broadly applicable advantages with one specific to a particular industry (Porter, 1990). Although Singapore has established itself comparatively in finance, logistics, research and development, pharmaceuticals, cosmetics and biotechnological products it is not expected that the country will translate into Halal. Thus, Singapore will continue to grow economically further on high-end products, like in the industries mentioned above. Secondly, Singapore is a large island in part and this will not match with the extensive segregation required for the Halal industry and the expectations by Halal manufacturers and stakeholders.

4.2.3 Speed & Efficacy with which the Clusters Develop

Growth of industries

The Singapore economy grew by 7.9 per cent in 2006, up from 6.6 per cent in 2005. This economic growth was led by the financial services sector and the manufacturing sector. See Appendix C for a complete
overview including a sectoral breakdown of the Singapore economic growth in 2006 (Ministry of Trade and Industry, 2007).

![Graph of GDP at Market Prices and Change in GDP at Market Prices (Ministry of Trade and Industry, 2007)](image)

**Figure 4.2: GDP at Market Prices and Change in GDP at Market Prices (Ministry of Trade and Industry, 2007)**

**Rate of economy in value chain over time**
Singapore has made significant progress since its independence in 1965. Singapore started with labour-intensive industries. With good infrastructure, a stable investment climate, political stability, and a disciplined and hardworking workforce, companies were attracted to invest and operate in Singapore. At competition intensified from both developed and developing countries, Singapore moved up the technology chain to a more mature level. Efforts were made to attract high value industries such as electronics and chemicals, which required higher skilled workers. In 2000, Singapore moved up the value chain again with its initiative to develop the knowledge-intensive biomedical industries. Going forward, Singapore needs to continue the process of upskilling and renewal to ensure that it remains competitive in a global knowledge economy. Singapore must find and create its comparative advantage in the changing economic landscape (Ministry of Trade and Industry, 2006).

The ongoing Singaporean search for competitive advantage might be a motive for Singapore to translate into Hidal and the opportunities Hidal offer. However, as outlined above and as become clear from the interviews with the Civil Aviation Authority of Singapore (2007) and CWIT Logistics (2007), when Singapore steps into Hidal the expectation is that the focus will be on high-end products, i.e. Hidal Pharmaceuticals, due to its knowledge and innovation focused position in the value chain.

### 4.2.4 Home-based Companies

**Previous state versus future**
As part of its post independence industrialisation plan, the Singapore government assumed a proactive entrepreneurial role by establishing state enterprises, government-linked companies (GLCs) in key sectors such as manufacturing, finance, trading, transport, shipbuilding and services (Ratneshwar et al., 2003). Actually last room was left for private owned companies in a business environment dominated by GLCs. Nowadays however the trend is towards more privatization.

**Role of government enterprises**
Singapore has a large number of government-linked companies (GLCs), although the trend from the late 1980s has been towards more privatization. This has not kept the government from passing on collected selling privatization, however investing in new industries when deemed necessary while divesting 'old ones'. Originally, the main reason for the government to get involved was the high risk involved in the projects, which were sometimes substantial. Government ownership is exerted usually through three holding companies, Temasek, Folkeins, MND Holdings and Sheng Li Holding Company. The contribution to GDP...
by the Singapore GICs can be estimated at at least 38% in 2006 based on the revenues of the Temasek Holdings Group set to the total Singapore GDP (Temasek, 2007).

Critically, for the Singapore government it is pragmatic view of GICs. As long as they are operated in a business-like manner and do not receive any special privileges, they are not considered a problem. The performance of Temasek’s companies stand in contrast to the generally held view of GICs as unprofitable and inefficient state-controlled enterprises. This attests to the fact that GICs are operated strictly on a commercial basis and enjoy no favours or guarantees from the government. The authorities believe that competition has always been a key tenet of Singapore’s economic strategy, as it leads to greater productivity gains and more efficient resource allocation. To reinforce Singapore’s pro-enterprise and competition policies, the Competition Commission of Singapore was established in January 2001 following the enactment of the Competition Act (Biong-Quan, 2005).

4.3 Vulnerabilities of a Halal Cluster in Singapore

Internal vulnerabilities

- The main internal threat for a Halal cluster in Singapore is the attention deficit by the Singapore government. The Singapore government does not promote Halal on the national agenda and therefore, Halal is currently not a target industry.
- Singapore suffers from a limited home market, which makes any cluster by definition weak.
- In Singapore only a limited Muslim population exists to drive the Halal cluster.
- It is questionable whether supporting industries, i.e. Changi Airport, are willing to translate into Halal. Halal requires extensive segregation and these supporting industries, especially logistics service providers, prefer to focus on more high end products as dedicated Halal facilities might not be cost effective.
- Dedicated Halal supporting and supplying industries are not well developed yet.
- Singapore suffers from high labour costs with regards to manufacturing as compared to the neighbouring countries Malaysia and Indonesia.
- Singapore is limited in size, and is scarce and therefore land prices are high. This will lead to the block of potential development of dedicated Halal industrial parks.

External vulnerabilities

- External threat for a Halal cluster in Singapore are embodied in the neighbouring countries Malaysia and Indonesia. Both of these countries have a significantly larger Muslim population and therefore a larger base than Singapore. Besides, they have a larger amount of resources (raw materials, labour, etc.) required for establishing a Halal cluster.
- Singapore is highly dependent on ASEAN for exports.
- Malaysia is currently developing its cluster into a global Halal hub. When Singapore transitions into Halal it will entail unnecessary duplication.

4.4 Conclusion

Despite the fact Singapore lacks a dedicated Halal cluster, the country provides a setting for sustainable clusters. With the presence of highly concentrated industry leaders in sectors which might play a key role when Halal comes into play, a good foundation for a sustainable Halal cluster is created. However, Singapore also will face issues with regards to the sustainability of a dedicated Halal cluster and these issues are embedded in the vulnerabilities as mentioned above, and the big governmental influence practiced by GICs.
V. Customer value proposition of Singapore

FDI attraction is an important issue for the Malaysian government (Economic Planning Unit, 2005) and is a consequence of its relevance to attract investment for FDI in Singapore. These topics discussed are factor conditions supporting and regulations industries, incentives, business environment, and living environment. These topics count for Singapore in general and are not by definition cluster specific.

5.1 Factor Conditions

5.1.1 Human Resources

The quality of the Singapore labour force is high. The American Business Environment Risk Intelligence has several times judged it as the best in the world. As the Singapore economy becomes more advanced, a strong emphasis on education and training has become necessary to sustain rapid economic development. Singapore's education policy emphasizes, in particular, technical and professional manpower. Curricula were revised to increase emphasis on technical education and new courses were set up at the universities to train increasing numbers of students in engineering, accounting, and business administration (Blancoque, 2005).

Availability of cheap labour

Since Singapore were reluctant to fill low-skilled jobs that pay low wages, Singapore turns to foreign workers to fill such positions. But because the government believes too much permanent, low-skilled immigration is disruptive to society, its immigration policy since the 1970s, ensures that unskilled and low-skilled migrant workers remain a transient workforce, subject to repatriation during periods of economic downturn. These workers are managed through a series of measures, including the work-permit system, the dependency ceiling (which regulates the proportion of foreign to local workers), and the foreign-worker levy (AWEK, 2007).

Availability of skilled labour

A shortage of workers with post-secondary education and above is being expected over the next years up to 2009. There is a need to reduce the mismatch in educational qualifications and need for more responsive and efficient labour markets is needed (Bhaskaran, 2004). The Ministry of Manpower introduced a so-called S-pass for a new category of foreign workers, which has more privileges than work permit holders in order to address the medium-term shortfall of manpower with post-secondary qualifications and above. The Singapore Government has also been also increasing the criteria for granting permanent residence in Singapore, beyond formal educational qualifications and immediate economic contribution.

Singapore sees manufacturing and services at the twin engines of the economy, whilst there are still opportunities in the manufacturing sector, the services sector will continue to have a greater share of employment creation. Already key areas have been identified in the services sector, including tourism, hospitality, medical services and education. But it is acknowledged that the quality of services needs to be improved in general (MDS Logistics, 2007).

Labour costs

As can be seen in Table 5.1, unit labour costs have decreased since 2003. Besides, unit labour costs have a decreased share in unit business cost index of manufacturing, services cost and government salaries and fees however are increasing.
<table>
<thead>
<tr>
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<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
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<tbody>
<tr>
<td>Unit labour cost index of the overall economy</td>
<td>100.7</td>
<td>95.5</td>
<td>94.5</td>
<td>94</td>
</tr>
<tr>
<td>Unit business cost index of manufacturing</td>
<td>102.9</td>
<td>97.4</td>
<td>97.4</td>
<td>98</td>
</tr>
<tr>
<td>Unit Labour Cost</td>
<td>102.4</td>
<td>93.8</td>
<td>91.4</td>
<td>88.1</td>
</tr>
<tr>
<td>Services Cost</td>
<td>99.9</td>
<td>100.4</td>
<td>102.4</td>
<td>106.2</td>
</tr>
<tr>
<td>Government Rates &amp; Fees</td>
<td>86.5</td>
<td>95.1</td>
<td>96.2</td>
<td>97.9</td>
</tr>
</tbody>
</table>

Table 5.1 Indices of Unit Business Cost and Unit Labour Cost (2000 = 100; Ministry of Trade and Industry, 2007)

Labour productivity in Singapore in 2006 rose 1.4% in total (excluding the construction sector) compared to 2005. Labour productivity in the manufacturing sector increased 3.2% in the transport and storage sector and 1.0% in the financial services sector (Ministry of Trade and Industry, 2007).

5.1.2 Physical Resources

Availability of land

The country Singapore consists of the main island of Singapore and its 57 islands. The main island is 42 km long and 23 km at its widest point. The country's land area, including the offshore islands, is 246 square miles (637.5 sq km). This figure is increasing as land reclamation continues.

Availability of raw materials

Singapore's main natural resources are limited due to its small size as an island state in its land and surrounding water. This has impact on the availability of resources which is limited to marine products. However, Singapore has compensated this limitation by having minimal import duties for raw materials. The cost of the nation's land is high as the population of Singapore is high and the Island state also promotes an extensive industrial sector. Land reclamation is done, but again at a high cost. Water is mainly imported from Malaysia.

Location of Singapore in the world

Located at the heart of the ASEAN (Association of South East Asian Nations), Singapore is able to serve a combined market of over 500 million people. Its strategic location has already made the city state a leading financial hub, the regional trading center and one of the world's biggest transportation hubs. Contributing to its role as gateway for Asia.

5.1.3 Knowledge Resources

Availability of research institutes and focus

Singapore has ample R&D resources: 12 Research & Development centers or institutes, 11 technical institutes, and 9 National research centers or institutes (National University of Singapore affiliated). Its research institutes are working at the forefront of technology to deliver better value for industry. In 2004, the Swiss-based Institute for Management Development ranked Singapore 3rd in R&D in its Global Location Attractiveness Rankings. The Agency for Science, Technology and Research (A*STAR) ensures that Singapore's R&D efforts are world-class. It has identified 12 research centers that focus on a range of disciplines from bio communications technology and nanotechnology in manufacturing technology. It is building a diverse community of local and foreign researchers and has already attracted some of the best and brightest minds from the US, Europe, Australia and Asia. Concerted efforts are being made to strengthen R&D collaboration between research institutes, universities and industry. The strong links and fluid
exchange between industry and academia make Singapore attractive to international companies as a key location in their global R&D network (Economic Development Board of Singapore, 2007).

Government statistical agency
Singapore has established an independent government agency, the Singapore Department of Statistics (SDS), which is responsible for collecting and publishing statistical data on the economy and population. The data is regularly updated and made available to the public through the agency's website.

Universities and hubs
There are numerous universities in Singapore, with 10 local universities, 20 international universities, and 5 private institutions of higher learning. (For more information, see Section 3.1.3 Universities.)

Halal certification and auditing
In Singapore, the Halal Certification Board (HCBC) was established in 2001 to regulate the production, marketing, and distribution of halal products. The board issues halal certification to products that meet the relevant standards and guidelines.

5.1.4 Capital Resources

Islamic banking and finance
Singapore is home to a growing number of Islamic financial institutions, which offer a range of banking services tailored to the needs of Muslims. The Monetary Authority of Singapore (MAS) has been instrumental in the development of Islamic banking and finance in the country. (For more information, see Section 3.1.3 Islamic banking and finance.)

5.1.5 Infrastructure

Competitiveness index
The competitive index is a measure of a country's ability to compete in the global market. Singapore has consistently ranked highly in the competitiveness index, reflecting its strong economic performance and robust infrastructure.

Competitiveness index
In terms of infrastructure, Singapore has a well-developed transport system, with a modern public transport network and airport facilities. The city also has a highly skilled workforce and a strong legal framework to support business operations.
the world, Singapore is viewed as Asia’s premier hub for wireless solutions — it is ranked among the world’s highest cellular telephone and internet penetration rates (MDS Logistics, 2007)

5.2 Existence of Related and Supporting Industries

By attracting strong anchor players to key industries in Singapore and providing good standard factory facilities, as in the country (plug and play), Singapore was very successful in developing a solid supporting industry. Singapore's existing clusters such as Biomedical Science, Chemicals, Logistics and Transport Engineering are supported by other industries such as:

- Logistics/Supply Chain management
- Third Party Logistics Providers (3PL)
- Fourth Party Logistics Providers (4PL)
- Medical Technology - manufacturing and R&D.

With regards to the Halal industry, MUIS is the only entity in the certifying process of products with Halal certification. In the field of food, beverages, cosmetics and pharmaceuticals (besides universities offering training curricula, R&D, education and training, but this is not Halal related) (Islamic Religious Council of Singapore, 2007).

5.3 Incentives Availability

Tax Incentives

Singapore has been known to offer pro-enterprise tax structure, low tax rates and tax incentives for manufacturing or service activities. The incentives offered by the EDB include:

- The Pioneer Incentive which awards full corporate tax exemption on qualifying profits for a set period.
- The Development and Expansion Incentive that provides preferentially lower corporate tax rates for a set period on all qualifying profits above predetermined base.
- The Investment Allowance is an allowance on qualifying equipment costs incurred within a set period.
- The R&D and Intellectual Property Management Assistance Scheme encourage companies to channel more funds from foreign-sourced royalties and foreign-sourced interest into R&D activities.
- The Enhanced Tax Deduction for R&D Expenses enable companies to claim for tax deduction on expenses on R&D outsourced to any R&D organisation, local or overseas.

A Single Tax Deduction for corporate tax is extended to Singapore-based companies and businesses. This is to encourage more companies and businesses to patent their inventions and make Singapore an attractive base for IT management (Singapore Biomedical Sciences Initiative, 2007).

HDB Incentives

Incentives in order to stimulate the Halal industry in Singapore do not exist. MUIS offers Halal training, but these are basically supported by the companies themselves to upgrade their employees with the necessary Halal information (Islamic Religious Council of Singapore, 2007). See Appendix D for a comparison between Singapore and Malaysia incentives.

5.4 Business Environment

Singapore consistently scores high marks in global and regional rankings of the factors that matter to businesses. These range from political risk to workforce productivity, from the quality of life to the prospects for raising profits. In the figures below the most prominent factors for doing business in Singapore and international rankings according to the Global Competitiveness Report 2006 – 2007 (López-Claros et al., 2006) can be seen. See Appendix E for more information about the Singapore business environment according to the Global Competitiveness Report 2006 – 2007 (López-Claros et al., 2006).
5.5 Living Environment

Singapore was ranked as the 3rd best place to live in (Mercer Human Resource Consulting, 2005-2006).

*Note: Stability*

Singapore is one of the most stable societies in Asia. Its society is multi-racial, multi-religious and multi-lingual.

*Multicultural city*

In Singapore, "east meets west". The city fuses modernity and tradition, with both celebrated in equal parts. Singapore's multi-cultural society of over 4 million is reflected in its major ethnic groups: the Chinese (76%), Malays (13.7%), Indians (8.4%), and Eurasians and smaller minority groups (1.8%). Each of these communities celebrates its unique practices, religious and festivals. Buddhism, Taoism, Christianity, Islam and Hinduism are the major religions in the country.

*Comfortable city*

Living conditions in Singapore are among the best in Asia, with state-of-the-art facilities for education, shopping, sports and recreation.

5.6 Conclusion

Singapore is one of the most competitive countries in the world (Lopes-Claro et al., 2006), offering a professional business environment with well-developed factor conditions, presence of related and supporting industries, and the availability of different incentives programmes. Besides, Singapore is amongst the top places in the world to live. These aspects have attracted substantial FDI for years and the expectation is that it will be for the next several years as Singapore is striving for development and improvement continually.
Conclusion Singapore cluster analysis (chapter 3, 4 & 5)

Although currently no dedicated Halal industry cluster does exist in Singapore, a strong robust Halal foundation is present and therefore the barrier to transform into Halal and develop a Halal industry in Singapore is very low.

The clusters which can play a key role for the Halal industry consist of Food, Knowledge, Biomedical, Pharmaceutical, Finance & Logistics. These clusters are developed very well and are able to provide a strong foundation for a potential Halal industry cluster. Secondly, Singapore has a robust intellectual property regime, which can protect developments in research and technologies concerning Halal e.g. in Halal pharmaceuticals. Thirdly, Singapore inhabitants are well-known for their entrepreneurship as well as the fear of not surviving on falling behind. As a consequence, the Singapore business environment is characterized by entrepreneurship, strong dynamics and anticipation. These aspects might play a role in the Halal industry going through an exponential growth as they trigger the interest of Singapore entrepreneurs. Furthermore, the Singapore government has substantial funds available for GDP growth targets and development goals and might utilise these funds when the Singapore government decides to develop the Halal industry in Singapore.

However, a major shift to the Halal industry is not immediately expected. In the first place, Singapore will further continue to grow economically with the focus on high-end products in the following important industrial clusters: Biomedical Science, Chemical, Electronics and Transportation & Logistics. Secondly, related with the former issue, no Halal agents and Halal focus on macroeconomic scale by the Singapore government does exist as the government has pointed out different industrial clusters (see former point) as core industries of Singapore and areas of GDP growth reallocation. Thirdly, Singapore is a large trading port and is an existing Halal hub for Asia and this image will not match the branding of a dedicated Halal hub to be established in Singapore. It requires an explanation that both pork and gambling are not matching Islamic principles. Fourthly, the extensive segregation required for dedicated Halal facilities (e.g. colo room storage) requires space and low utilisation and might not be cost effective and therefore less attractive to investors.

In the figure below, the strengths and weaknesses of a Halal cluster in Singapore are summarised.

![SW-Analysis Halal Cluster Singapore](image)

**Figure 5.1: SW-Analysis of a Halal cluster in Singapore (MDS Logistics Sdn Bhd, 2017)**

In the following chapter the findings (strengths - weaknesses) of the cluster analysis of Singapore will be evaluated with the strengths and weaknesses of Malaysia’s Halal hub. With this confrontation it is possible to determine competitive and complementary issues between the two countries.
VI. Halal Hub Malaysia & Evaluation with Singapore

In this chapter, the foundation for the establishment of a Halal hub in Malaysia will be briefly elaborated. Besides, the Halal hub in Malaysia will be evaluated and confronted with the Halal hub foundation in Singapore. As stated earlier, due to a lack of time and data availability by Malaysian local governments, the assessment of the Halal hub foundation in Malaysia derived from interviews with Malaysian industry experts – Marco Tianen MDS Logistics and HDC. The outcome of the interview is summarised in a SWOT Analysis in section 6.1, focusing on the internal aspects: strengths and weaknesses, and the external aspects: opportunities and threats of the Halal hub foundation in Malaysia. In addition, the weaknesses of the Malaysian Halal cluster will be linked to Singapore in order to counteract on these weaknesses and capitalise upon complementarities and economies of scale.

6.1 Halal Hub Malaysia

Based on the interviews with industry experts, the foundation for Malaysia’s Halal cluster can be summarised in the following SWOT-Analysis.

**SWOT-Analysis Halal Cluster Malaysia**

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaysia’s role in the Muslim world (OIC), network and trade between Halal markets</td>
<td>Inability of chain-activity execution</td>
</tr>
<tr>
<td>Malaysia a top Halal producer</td>
<td>Labour costs</td>
</tr>
<tr>
<td>National and regional Halal agencies in the Malaysian government</td>
<td>Philippines’ Halal supply routes to Indonesia</td>
</tr>
<tr>
<td>Presence of top Halal producers</td>
<td>Non-access to Halal raw-materials</td>
</tr>
<tr>
<td>Strong infrastructure (road, air, sea) and trade gateway</td>
<td>Limited availability of Halal-related research and development</td>
</tr>
<tr>
<td>Malaysia’s wealth of Halal resources</td>
<td>Poor management of Halal tourism</td>
</tr>
<tr>
<td>Malaysia’s top Halal growing producers</td>
<td>High national-level standards</td>
</tr>
<tr>
<td>Malaysia’s Halal production and Halal meat products are &quot;premium-quality&quot;</td>
<td>Security and transportation</td>
</tr>
<tr>
<td>Malaysia’s comprehensive Halal character</td>
<td>Communication</td>
</tr>
<tr>
<td>Malaysia’s HalalHalal’s role in the Halal industry in Malaysia</td>
<td>Implementation of new initiatives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>High potential to serve on Halal products and represent the image of Halal industry, where a new-competitive advantage can be shared</td>
<td>Increase of strong Islamic cluster in Singapore</td>
</tr>
<tr>
<td>możliwości oleh penjanaan industri Halal, di mana potensi kompetitif baru dapat dibentuk</td>
<td>Increase of strong Halal industry cluster in Singapore</td>
</tr>
<tr>
<td>Fattah Mohd. Ali and Malaysia’s Halal cluster</td>
<td>Increase of strong Halal infrastructure in Singapore</td>
</tr>
<tr>
<td>Increase of Halal cluster in Singapore</td>
<td>Halal sector’s global competitiveness</td>
</tr>
<tr>
<td>Availability of trade facilitation and Halal development</td>
<td>Halal trade facilitation and Halal development</td>
</tr>
</tbody>
</table>

Figure 6.1: SWOT Analysis of Malaysia’s Halal cluster (MDS Logistics, 2017).

Page 46
6.2 Evaluation of Malaysia’s and Singapore’s Halal Hub

In this section Malaysia’s Halal hub will be evaluated and confronted with Singapore’s Halal hub foundation in order to determine competitive and complementary issues between the two countries. This determination will be executed by means of a comparison and analysis of the strengths and weaknesses of the Halal hub in Malaysia and the Halal hub foundation in Singapore. A strength for Singapore and a weakness for Malaysia means that Singapore complements Malaysia on that aspect, vice versa. A strength or weakness for both countries means that the countries compete on that specific issue. This can be graphically represented by the following matrix:

![Competitive – Complementary matrix Malaysia - Singapore](image)

Figure 6.2: Competitive – Complementary matrix Malaysia - Singapore.

In figure 6.3 the evaluation between Malaysia and Singapore is graphically represented.
Figure 6.3: Competitive Complementary issues analysis Malaysia - Singapore

From the figure, the following competitive and complementary issues are derived:

**Competitive Issues:**
- Presence of Halal supplying industries;
- Good infrastructure; gateway location in South-East Asia.

**Complementary Issues:**
- Presence of a strong financial, pharmaceutical/biomedical and logistics and trade cluster in Singapore;
- Presence of a strong Halal cluster in Malaysia;
- Malaysia's Halal certification and auditing system;
- Land availability and competitive land prices in Malaysia;
- Harmonious Muslim population and therefore market in Malaysia as compared to Singapore;
- Strong Halal agenda by the Malaysian government, Malaysia's innovative and pioneering role in the Halal industry;
- Malaysia's pioneering role in Halal pharmaceuticals;
- Land availability for the Halal industry.
As can be seen, Singapore and Malaysia are more complementary than competitive. As a consequence, the premise by HDC to appoint Singapore as a competitor in the development of Malaysia into a Halal hub can be disputed and is actually too premature. After the research and analysis, it becomes clear that Singapore can be seen as a complementary factor and can offer advantages and economies of scale in the issues as mentioned above for Malaysia in its ambition to develop into a Halal hub.

From a governmental point of view and with regards to the policy to develop Malaysia into a Halal hub, it is pointed out by HDC and MDS, that Malaysia’s Halal hub will cover the following building blocks:

1. Halal Production Cluster
   - Food & beverages
   - Pharmaceuticals
   - Cosmetics

2. Halal Trade and Logistics
   - Halal oil & fats
   - Halal ingredients
   - Halal products

3. Halal Super Highway (HIMAP project) ➔ Logistical efficiency

4. Halal integrity (e.g. Halal certification and auditing)

From this perspective, it becomes clear that Halal logistics will play a key role (as compared to the other derived complementarities) in the development of Malaysia as a global Halal hub. However, as can be seen in the SWOT Analyses, the Malaysian logistics and transportation sector (as compared to Singapore) is underdeveloped. Besides, the logistics and supply chain costs are a major concern. The Appendix I in this book gives a logistical assessment of Malaysia can be found. These issues are qualified as problems that can be overcome with the collaboration between Singapore and Malaysia. As can be concluded from the previous chapters, Singapore is renowned for its excellent logistical facilities and infrastructure and cooperation with this country provides Malaysia the opportunity to counteract its weaknesses with regards to its logistical facilities and infrastructure.

The question on how Malaysia (HDC) should capitalize upon the complementarities and economies of scale between the two countries, is reflected in the problem definition of this research:

How should HDC capitalize upon complementarities and economies of scale between Malaysia and Singapore in the development of Malaysia as a Halal Hub?

In the first place, Malaysia needs world-class logistical facilities and infrastructure in the development of Malaysia as a global Halal hub. Currently, Malaysia accommodates certain logistical facilities and infrastructure, but in order to strengthen its Halal cluster, Malaysia should make use of the excellent logistics sector and gateway function of Singapore in the distribution of Halal products in Asia and to the world. Obviously, in the development of Malaysia as a global Halal hub, long-term investments in the country’s logistical facilities and infrastructure are necessary and inevitable due to the fast Malaysia can co-operate with Singapore on this great ambition.

Besides the logistical aspect, Malaysia also can benefit from the other existing clusters in Singapore. Especially in the field of R&D in Halal matters, Halal pharmaceuticals and Halal intellectual property protection, Malaysia can benefit from the codification of these sectors (although not Halal related) and apply these codification on the Malaysian Halal industry.
Singapore as its turn can benefit from the skill-intensive nature of the workforce, the land availability, the relatively large Muslim market and the Halal certification and auditing system of Malaysia and Malaysia’s innovative and pioneering role in the Halal industry. Join or locate production to the (planned) Halal industry parks in the southern part of Malaysia, especially Johor. Singapore can participate in such parks like the Vietnam Singapore Industrial Park near Ho Chi Minh City, Vietnam and Batamindo Industrial Park and Latitude Industrial Park in Batam, Indonesia; and hereby participate in the opportunities the Halal industry has to offer (see Figure 6.4).

Figure 6.4: Graphical representation of Malaysia – Singapore in the development of Malaysia as global Halal hub

6.3 Roadmap

This section offers a rough guideline for the development of Malaysia into a global Halal and can be helpful in the strategic planning of collaboration options between Singapore and Malaysia.
As stated in the introduction of this thesis, Malaysia has set itself to be a developed country by 2020. The pursuit for competitiveness over the next 15 years is translated by the Malaysian Government in the Third Industrial Master Plan (MIP3) to drive industrialization to a higher level of global competitiveness. In the Master Plan it is stated that Malaysia has the edge in the development of the Halal industry and the objective to develop into a global Halal hub by the year 2020.

From the perspective it is recommended to HDC to start immediately with the collaboration process with Singapore in order to benefit from complementarities between the two countries and to achieve the set objectives. Obviously, this process will be ongoing for the following years. Malaysia should first focus on the well-developed logistics and transportation sector in Singapore, because logistics will be one of the fundamental building blocks of the Malaysian Halal hub. Simultaneously, Malaysia can start with learning from the existing strong clusters in Singapore by the means of inter-company cooperation and government-to-government collaboration. As Malaysia wants to develop itself into a Halal hub it can not rely on Singapore’s logistical facilities and industries forever. From that point of view it is necessary for Malaysia to develop its own logistical facilities and Halal industries as well which should start from now on.

A timeline can be seen in the following figure:

![Timeline Development of Malaysian Logistics facilities and Halal Industry](image)

*Figure 6.5: Time line development of Malaysia into a Halal hub*
VII. Conclusion, recommendations and reflections

7.1 Conclusion

Malaysia has set itself the goal to become a global Halal hub by the year 2020. Halal refers, in short terms, to "things or actions permitted by the Shari'ah Law." The development of Malaysia into a global Halal hub is related to Michael Porter's cluster theory (1990). Porter (1990) defines a cluster as a geographic concentration of inter-connected companies and institutions in a particular field. Based on Porter's definition of a cluster (1990), a global Halal hub is defined as a geographic concentration of inter-connected companies involved in Halal production, logistics, and trade. Halal service providers, Halal certification and auditing institutions, and institutions involved in R&D in Halal matters.

The Halal Industry Development Corporation (HDC), a government-initiated corporation with direct links to the Prime Minister's Department, has been given the responsibility to facilitate the development of Malaysia into a global Halal hub. Singapore has been identified by HDC as competitor for the development of Malaysia as a global Halal hub which means they might develop their own Halal industry as well. Management of this competition will be done by the Federal Ministry of Trade and Industry to maintain open complementarities and economies of scale between Malaysia and Singapore. This cluster study offers a helpful framework and evaluation of certain possible strategies for HDC to put the management of this competition in practice and benefit from complementarities and economies of scale between Malaysia and Singapore in Malaysia's ambition to develop into a global Halal hub.

Although no dedicated Halal industry cluster exists in Singapore, a strong Halal foundation is present and therefore the barrier to transform into a Halal hub is low. The present clusters in Singapore which play a key role in Halal consist of food, knowledge, biomedical, cosmetic, pharmaceutical, finance, and logistics. These clusters are developed very well and also become a strong foundation for a potential Halal industry cluster. Secondly, Singapore has a strong intellectual property regime, which can promote developments in research and technologies concerning Halal, e.g., in Halal pharmaceuticals. Thirdly, Singapore is well-known for their manufacturing - that is the fear of not surviving or falling behind - which might play a role in the Halal industry growth through an exponential growth. Fourthly, the Singapore government has substantial funds available for GDP growth targets and development goals and might apply these funds when the Singapore government decides to develop the Halal industry in Singapore.

However, a major shift to the Halal industry is not immediately expected. In the first place, Singapore will further continue to grow economically with the focus on high-end products. Secondly, related to the former issue, and Halal agenda an infra-structural scale by the Singapore government does not exist. Thirdly, Singapore is a large island in palm and is establishing a growing hub for Asia and this image will not match with the branding of a dedicated Halal hub to be established in Singapore. Fourthly, the extensive segregation required for dedicated Halal facilities requires space and low utilization and might not be cost-effective and therefore less attractive to investors.

Despite the fact that Singapore is labelled by HDC as competitor and has not developed its own Halal industry, the research has made clear that Singapore is more likely to see an opportunity than a threat in the development of Malaysia into a Halal hub and that the country can fulfill a complementary role, especially in the field of logistics and transportation.

7.2 Recommendations

In order to make recommendations about how Malaysia should cooperate with Singapore, in order to strengthen the development of a Malaysian Halal cluster, one must first understand that Malaysia and Singapore both play a different role in the value chain and can make use of these different roles to strengthen a Halal industry cluster in Malaysia. Strategies are derived from differential endowments and strengths. Singapore and Malaysia clearly do have significantly different competitive positions, which suggest that there...
an complementarities that can be exploited for mutual benefit if the two economies were to cooperate more (Bhaskaran, 2006).

Malaysia can strengthen its Halal cluster by taking use of the well-developed logistics sector and gateway function of Singapore in the distribution of Halal products in Asia and to the world. Besides the logistical aspect, Malaysia also can benefit from the other existing clusters in Singapore. Especially in the field of R&D on Halal matters, Halal pharmaceuticals and Halal intellectual property protection Malaysia can benefit from the sophistication of these sectors (although not Halal related yet), and apply these sophistications on the Malaysian Halal industry.

Singapore in its turn can benefit from the skill intensive nature of the workforce, the land availability, the relatively large Muslim market and the Halal certification and auditing system of Malaysia and Malaysia’s innovative and pioneering role in the Halal industry and join or locate production to the (planned) Halal industry parks in the southern part of Malaysia, especially Johor. Singapore can participate in such parks (like the Vietnam-Singapore Industrial Park near Ho Chi Minh City, Vietnam and Batamindo Industrial Park and Latitude Industrial Park in Batam, Indonesia) and hereby participate in the opportunities and benefits the Halal industry has to offer and avoiding the relatively higher domestic labour costs and shortage of labour in Singapore (see also Chapter VI).

Recommendations:

- As derived from the introduction above, Malaysia needs to make use of the logistical facilities and infrastructure in Singapore. Besides, Malaysia should analyse the current well developed existing clusters with regards to pharmaceuticals, biotechnical sciences, knowledge and intellectual property protection in order to apply this on and gain benefits for the Malaysian Halal industry. Due to the fact this research is executed on macro level, HDC is advised to conduct further research on micro level to gain knowledge on how these recommendations should be translated into practice whereby the main focus is on the logistics and transportation sector.

- Related with the first recommendation, HDC is advised to draw an international Halal agenda and not to focus solely on a national agenda. With an international agenda complementarities between Malaysia and Singapore (and perhaps even more countries) can be identified and capitalized easily in order to strengthen the Malaysian Halal trade.

- Furthermore, HDC is advised to offer Singapore companies the possibility to benefit from the Halal industry by allowing them to participate in Halal industrial parks in the southern part of Malaysia. Currently, MIHAP Holdings, a private initiative constructing an international Halal Park in Selangor (Malaysia), is working on the so called Halal Super Highway. Because of the infancy stage of the Halal industry it is recommended to HDC to get involved in the roll-out of this project in order to be able to advise Singapore companies, that want to join such Halal industrial park in the south, in a professional and knowledgeable way.

- The Halal industry is in its infancy stage and subject to strong growth. As a consequence developments in the Halal industry can emerge quickly. HDC should be aware of the fact this research is conducted in spring/summer 2007 and should therefore always verify the latest developments in the Halal industry. It is also recommended for HDC to gain key statistics of the Halal industry as currently limited data is available as a consequence of the infancy stage of the Halal industry. Data collection of this emerging industry will provide HDC better insights in the industry.

- Lastly, HDC is advised to see this research in perspective: this project is executed in fourteen months by just one researcher, although normally clusters are investigated over a longer period of time and at
7.3 Reflections

In this section I will reflect and give feedback on the realization of this international bachelor thesis. To enhance readability, the reflections will be elaborated point by point.

- **Aim and objectives of the research**
  Before I left the Netherlands to start with the research project in Malaysia, I had limited time available to prepare the research thoroughly. As a consequence, I jumped into the project without actually having clear in mind what the contribution is for a scientifically substantiated thesis. This resulted in a quite vague first term of reference, a bit incomprehensible for both me as well as my supervisor Stefan Marimuthu. Fortunately, Stephan obliged to me have a critical look at the research project and not only from the company point of view, but also from a scientific point of view and ensured me to be focused on how to conduct the research. I was very thankful for that, because with a good overview on how to execute the research, the red line of your work is right in front of you. Of course, in consultation with your supervisor, adjustments can be made in this blueprint, but make sure you have made clear for yourself what steps you will take to execute the research in a scientifically substantiated way.

- **Scope of the project**
  When I first arrived in Malaysia, the purpose of the research was an extensive cluster study of Singapore, Malaysia and, in less extent, Vietnam. Gradually, when I had already started the cluster analysis for Singapore, it became clear that this starting point (Singapore, Malaysia and Vietnam) was beyond the scope of my project period. Actually, to fully scientifically identify a cluster, it takes more time than four months and just one student. Compare the following examples:

  - Silicon Valley: comparative study of inter-firm relationships and labour force mobility at Silicon Valley and Route 128 was founded principally on 150 in-depth interviews with entrepreneurs, industry leaders, corporate executives, and leaders of local business organizations (Sahemian, 1999).

  - Porter (1990) and his researchers conducted hundreds of interviews with business executives, industry leaders, academics consultants, bankers, industry experts, and others to document the role of clusters in shaping national competitive advantage.

As a result, it was decided to fully execute a cluster research on Singapore, and compare this with Malaysia's Halal hub based on interviews within MDS and HDC. However, for a more reliable study, Malaysia's Halal industry also had to be researched in a more extensive way by means of a cluster analysis.

- **Limited data availability**
  The Halal industry is in its infancy stage. As a consequence, limited data is available on this industry. This research has from that point of view a more qualitative character than a quantitative one. For the reliability of this thesis, more quantitative data would have been a better foundation for the cluster description in Singapore.

- **Cultural differences**
  This research is part of a larger, coordinating study and therefore, narrow cooperation with colleagues was inevitable. During the research, I was responsible for three other – Malaysian – colleague cluster studies on Malaysia and Indonesia, but as a result of our different cultural backgrounds we had to cope with some friction, they experienced I was too direct in my communication, and overlooked the typical
Asian aspect of losing one's face. I solved this problem by explaining more about "our" way of cooperation and realising defined objectives and assured them I didn't have any problems with them on personal level. I also told them to come to me if they felt inconvenienced with my management style, so I could take that feedback into consideration for the further progress of the project. In the end I think we did a good job altogether and did my colleagues accept my style of management and leadership.

Reflection on personal goals

This international bachelor thesis has offered me the opportunity to work and live for several months in a complete new environment outside Europe. Because this project in Malaysia was the first project I executed abroad, I was a bit reserved at creating expectations for myself. Nevertheless, as far I was aware of it, expectations always rise, just before my departure to Malaysia, I had two main issues in my mind: getting acquainted with a totally new culture and improving my English communication skills.

When I now look back, I succeeded in realising these two issues, but there were even more issues I realised during the project period. These issues are:

- Improved knowledge on Halal production, distribution and supply chain;
- Improved knowledge on Islamic principles;
- Better understanding of the current situation in the Halal market in South-East Asia, especially Singapore, Indonesia, Thailand, and Malaysia;
- Improved skills as strategic consultant.

To conclude, I can state that this bachelor thesis, executed in Malaysia, has offered me a steep learning curve and has significantly contributed to my university education.
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Interview: Civil Aviation Authority of Singapore, Jeremy Yeo (Manager Air Cargo), Singapore, 12th of April 2007.

Interview: CWT Logistics, Mr. Foo Sia Chuang (General Manager Business Development), Singapore, 13th of April 2007.

Interview: Islamic Religious Council of Singapore, Mr. Musta Hadiw (Executive), Singapore, 13th of April 2007.

Interview: Roche & Eisenfeld, Mr. Christian Pali (Managing Director), Singapore, 13th of April 2007.
Internet, sources and databases


Appendix A: R&D Expenditure in Singapore in 2005

Distribution of R&D expenditure by field of S&T

Distribution of R&D expenditure in the private sector

Distribution of R&D expenditure in the manufacturing industries

Distribution of R&D expenditure in the services industries

Private sector R&D expenditure, 2001-2005

Patents applied and awarded, 2001-2005
Appendix B: Singapore's role in FTAs, WTO, ASEAN and APEC in 2006

**FTAs**

2006 saw the entry into force of several Free Trade Agreements (FTAs), beginning with the Korea-Singapore FTA on 2 March 2006. The KSAFTA is a milestone in Singapore's free trade effort as it is the first comprehensive economic pact between Korea and an Asian partner. In addition, the Panama-Singapore FTA, which entered into force on 24 July 2006, is Singapore's first bilateral FTA with a Latin American country, and will help to deepen the economic links between Singapore and the Latin American region as a whole. The third FTA was the multi-party Trans-Pacific Strategic Economic Partnership (consisting of New Zealand, Chile, Brunei and Singapore), which came into force on 28 May 2006 between New Zealand and Singapore, 12 July 2006 for Brunei, and 8 November 2006 for Chile.

The entry into force of these three FTAs brought the total number of FTAs currently in force to 11. The others are the ASEAN Free Trade Agreement and Singapore’s FTAs with New Zealand, Japan, the European Free Trade Association, Australia, the United States, India, and Jordan. In addition, negotiations for the China-Singapore FTA began in October 2006.

As part of the ASEAN regional grouping, Singapore has been deeply involved in FTA negotiations throughout. In 2006, with China, Japan, India, Korea, Australia and New Zealand. These have also seen progress; the Goods package for the ASEAN Korea FTA was signed last year. In the wake of the Trade in Goods Agreement which came into force in 2005, the Services package for the ASEAN-China FTA was concluded in 2006, marking another milestone in ASEAN-China engagement. The ASCEFTA Services Agreement will come into force in July 2007.

**WTO**

On the multilateral front, the Doha Development Agenda (DDA) negotiations stalled in the first half of 2006 over a failure among WTO member countries to bridge their differences in agriculture. Since then, member countries have been working to find convergence on agriculture, as well as other key issues such as industrial tariffs and services. Singapore continues to play an active role in the DDA negotiations.

**ASEAN**

ASEAN Member Countries are working towards realising an ASEAN Economic Community (AEC) by 2015, and have embarked on developing an ASEAN Charter, which will include an economic pillar. At the recent 12th ASEAN Summit in Cebu, ASEAN Leaders acknowledged the need for ASEAN to hasten its progress to become a region with free movement of goods, services, investment, skilled labour and free flow of capital. Leaders also acknowledged the importance of ASEAN in developing strong institutions and responsive policies for regional community building. With the Leaders' signing of the Cebu Declaration on the Blueprint of the ASEAN Charter and the Cebu Declaration on the Establishment of the ASEAN Community, in 2003, ASEAN Member Countries have signalled commitment in the pursuit of a highly competitive single market and production base, operating as a fully integrated region in the global economy.

**APEC**

The Asia Pacific Economic Cooperation (APEC), under the Chairmanship of Vietnam in 2006, continued its work in reducing tariffs and other barriers to trade and investment across the Asia Pacific region. At the 16th APEC Ministerial Meeting in Hanoi in November 2006, Ministers endorsed the Hanoi Action Plan to implement the APEC Business Travel card to accelerate progress towards the Bogor Goals of free and open trade and investment liberalisation in the region. The Hanoi Action Plan comprises a list of concrete actions that APEC economies should take by specific timelines. Ministers also endorsed six sets of model measures for RTAs/FTAs chapters, noting that these model measures would serve as a reference for APEC member economies to help them achieve high-quality free trade agreements. Further work would be carried out by APEC economies so that model measures for APEC/RTAs chapters as possible can be developed by 2006. On trade facilitation, a review report of the Trade Facilitation Action Plan concluded that APEC met the target of a 50 per cent reduction in trade transaction costs by 2006. Ministers agreed that APEC should work towards achieving another 50 per cent reduction by 2010.
External Trade
At the 11th APEC Economic Leaders' Meeting in November 2005, APEC Leaders reaffirmed their commitment to the multilateral process through a standalone statement calling for an ambitious and balanced outcome in WTO DDA negotiations. They also committed to strengthen efforts towards greater economic integration in the region. They noted that it would be timely for APEC to consider more effective avenues towards regional economic integration, and instructed officials to undertake a study on the ways and means to do so. One possible long-term prospect would be a Free Trade Area of the Asia-Pacific.

All the information mentioned above is acquired via the Ministry of Trade and Industry (2007).
## Appendix C: Growth Singapore Industries

### GROSS DOMESTIC PRODUCT AT 2000 PRICES

#### TABLE 2.11

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2006</th>
<th></th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4th Qtr</td>
<td>Annual</td>
<td>1st Qtr</td>
<td>2nd Qtr</td>
</tr>
<tr>
<td><strong>Percentage Change Over Same Period Of Previous Year</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>8.3</td>
<td>6.6</td>
<td>10.1</td>
<td>8.6</td>
</tr>
<tr>
<td><strong>Goods Producing Industries</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturing</td>
<td>14.5</td>
<td>9.5</td>
<td>18.6</td>
<td>11.9</td>
</tr>
<tr>
<td>Construction</td>
<td>4.9</td>
<td>0.7</td>
<td>-0.7</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Services Producing Industries</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wholesale &amp; Retail Trade</td>
<td>8.6</td>
<td>9.4</td>
<td>8.2</td>
<td>0.8</td>
</tr>
<tr>
<td>Transport &amp; Storage</td>
<td>4.6</td>
<td>4.7</td>
<td>5.3</td>
<td>4.0</td>
</tr>
<tr>
<td>Hotels &amp; Restaurants</td>
<td>5.0</td>
<td>4.3</td>
<td>6.2</td>
<td>3.8</td>
</tr>
<tr>
<td>Information &amp; Communications</td>
<td>5.6</td>
<td>5.5</td>
<td>5.1</td>
<td>3.7</td>
</tr>
<tr>
<td>Financial Services</td>
<td>7.6</td>
<td>7.6</td>
<td>8.7</td>
<td>9.6</td>
</tr>
<tr>
<td><strong>Business Services</strong></td>
<td>8.5</td>
<td>5.9</td>
<td>6.1</td>
<td>6.6</td>
</tr>
</tbody>
</table>

**Annualised Percentage Change Over Preceding Quarter**

|                      | 9.3    | 6.6   | 9.1    | 5.4    | 3.9    | 7.9    | 7.9    |
| **Goods Producing Industries** |       |       |       |       |       |       |       |
| Manufacturing        | 19.8   | 8.0   | 3.4    | 1.0    | 11.9   | 11.1   | 10.2   |
| Construction         | 20.9   | 9.5   | 3.1    | 2.3    | 12.3   | 11.5   | 11.5   |
| **Services Producing Industries** |       |       |       |       |       |       |       |
| Wholesale & Retail Trade | 18.6   | 0.7   | 2.0    | 6.9    | 12.5   | 12.2   | 2.7    |
| Transport & Storage  | 6.0    | 5.4   | 9.5    | 8.6    | 0.8    | 7.9    | 7.0    |
| Hotels & Restaurants | 5.0    | 9.6   | 26.2   | 6.8    | 8.2    | -3.5   | 10.3   |
| Information & Communications | 6.4    | 4.2   | 4.9    | 2.9    | 2.9    | 6.1    | 5.2    |
| Financial Services   | 3.2    | 4.3   | 8.0    | 5.7    | 1.5    | 9.7    | 5.1    |
| **Business Services** | 2.2    | 5.5   | -2.0   | 7.4    | 6.8    | 11.6   | 4.6    |
| **TOTAL**            | 11.7   | 7.6   | 15.6   | 25.1   | -16.2  | 28.2   | 9.2    |
| **Business Services** | 6.6    | 5.9   | 0.1    | 9.0    | 4.0    | 7.9    | 5.8    |

**PERCENTAGE CONTRIBUTION TO GROWTH IN REAL GDP**

#### TABLE 2.2

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2006</th>
<th></th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4th Qtr</td>
<td>Annual</td>
<td>1st Qtr</td>
<td>2nd Qtr</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>8.3</td>
<td>6.0</td>
<td>10.1</td>
<td>8.0</td>
</tr>
<tr>
<td><strong>Goods Producing Industries</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturing</td>
<td>4.0</td>
<td>2.5</td>
<td>4.5</td>
<td>3.1</td>
</tr>
<tr>
<td>Construction</td>
<td>3.8</td>
<td>2.6</td>
<td>4.5</td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Services Producing Industries</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wholesale &amp; Retail Trade</td>
<td>0.2</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Transport &amp; Storage</td>
<td>4.1</td>
<td>4.0</td>
<td>5.2</td>
<td>4.4</td>
</tr>
<tr>
<td>Hotels &amp; Restaurants</td>
<td>1.2</td>
<td>1.5</td>
<td>2.3</td>
<td>1.5</td>
</tr>
<tr>
<td>Information &amp; Communications</td>
<td>0.4</td>
<td>0.4</td>
<td>0.5</td>
<td>0.4</td>
</tr>
<tr>
<td>Financial Services</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td><strong>Business Services</strong></td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>0.8</td>
<td>0.8</td>
<td>1.0</td>
<td>1.1</td>
</tr>
<tr>
<td><strong>Business Services</strong></td>
<td>0.9</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
</tr>
</tbody>
</table>

**Source**: Singapore Department of Statistics
Changes in real GDP by industry (Ministry of Trade and Industry, 2007)

- **Manufacturing**
- **Construction**
- **Wholesale & Retail Trade**
- **Transport & Storage**
- **Hotels & Restaurants**
- **Information & Communications**
- **Financial Services**
- **Business Services**

Graphs showing the percentage change in GDP by industry from 2003 to 2006.
Appendix D: Comparison of Incentives (MDS Logistics, 2007)

Comparison of incentives in four key industries between Malaysia and Singapore

**Biotechnology**

<table>
<thead>
<tr>
<th>Malaysia</th>
<th>Singapore</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Venture Capital Fund Incentives</strong></td>
<td><strong>Venture Capital Fund Incentives</strong></td>
</tr>
<tr>
<td>• For Start-Up</td>
<td>• Partial or full corporate tax exemption on income from investment in shares, foreign dividends and foreign interest income.</td>
</tr>
<tr>
<td>- Form of funding: Initial capital must be up to a maximum of RM 300,000.</td>
<td>• Losses incurred from the sale of shares, up to 100% of equity invested, can be set off against the investor's other taxable income.</td>
</tr>
<tr>
<td>• Start-Up</td>
<td></td>
</tr>
<tr>
<td>- Form of funding: 20% of investment costs to undertake the proposed project, up to RM 1,000,000, whichever lower</td>
<td></td>
</tr>
<tr>
<td>• Growth</td>
<td><strong>Startup Enterprise Development Scheme (SPRDS)</strong></td>
</tr>
<tr>
<td>- Form of funding: 15% of investment up to maximum RM 3,000,000 or 30% equity based on company’s appropriate valuation, whichever lower</td>
<td>• The start-up and its 3rd party investor(s) jointly apply to EDB for co-funding.</td>
</tr>
<tr>
<td>• Pioneer Status</td>
<td>• Approved application, EDB will match the 3rd party investor’s investment and take an equity interest in the start-up.</td>
</tr>
<tr>
<td>• Tax exemption of 100% of statutory income for 5 years OR</td>
<td>• EDB will match 1 dollar for every 3rd party private sector cash injection, up to a maximum sum of SD300,000.</td>
</tr>
<tr>
<td>• Investment Tax Allowance (ITA)</td>
<td>• The minimum investment by the 3rd party investor(s) shall be SD75,000.</td>
</tr>
<tr>
<td>• Entrepreneur Investment Incentive Scheme (EITI)</td>
<td><strong>Integrated Industrial Capital Allowance (ICCA)</strong></td>
</tr>
<tr>
<td>• 60% on qualifying capital expenditure for five</td>
<td>• Allow companies to claim capital allowances for approved expenditure used in an overseas subsidiary.</td>
</tr>
<tr>
<td></td>
<td><strong>Technopreneur Investment Incentive Scheme (TIIS)</strong></td>
</tr>
<tr>
<td></td>
<td>• This scheme allows an investor in an approved technopreneur company to deduct losses incurred from the sale of shares in an approved technopreneur company against its own taxable income.</td>
</tr>
<tr>
<td></td>
<td>• The start-up can then issue certificates to its investors up to a maximum.</td>
</tr>
<tr>
<td>Pro-Packages Incentives</td>
<td>Domestic Sector Productivity Fund</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Customized packages that cover both tax and non-tax incentives</td>
<td>Provides assistance through grants to cover up to 50% of the qualifying cost of the project. The major allowable cost items include:</td>
</tr>
<tr>
<td></td>
<td>- Manpower-related costs</td>
</tr>
<tr>
<td></td>
<td>- Equipment &amp; materials</td>
</tr>
<tr>
<td></td>
<td>- Professional services (e.g., consultancy &amp; subcontracting)</td>
</tr>
<tr>
<td></td>
<td>- Intellectual Property Rights (e.g., licensing, royalties &amp; technology acquisition)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Incentives for Strategic Projects</th>
<th>International Consultancy Fund</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pioneer Status</strong></td>
<td>50% of incremental eligible consultancy revenue is exempt</td>
</tr>
<tr>
<td>- Tax exemption of 100% of statutory income for 10 years</td>
<td></td>
</tr>
<tr>
<td>- Investment Tax Allowance (ITA)</td>
<td></td>
</tr>
<tr>
<td>- ITA of 100% on qualifying capital expenditure for five years which can be offset against 100% of the statutory income</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Incentives on R&amp;D</th>
<th>Approved Royalties, Technical Assistance Fees and contributions to Research and Development costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry Research &amp; Development Grant Scheme (IGS)</td>
<td>Paid to non-residents may be exempted from withholding tax.</td>
</tr>
<tr>
<td>- Duration: 3 years</td>
<td>Such exemption is typically granted in conjunction with other tax incentives such as the Pioneer incentives.</td>
</tr>
<tr>
<td>- Amount approved subject to a ceiling of SGD 1 million or 70% of the approved project cost, whichever is lower</td>
<td></td>
</tr>
<tr>
<td>- Double deduction for qualifying</td>
<td></td>
</tr>
<tr>
<td>Expenditure on R&amp;D</td>
<td>Expenditure on Research and Development (R&amp;D)</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td><strong>General Incentives</strong></td>
<td></td>
</tr>
<tr>
<td>- Industrial Building Allowances</td>
<td>- Undertaken directly by companies or in relation to payments made to R&amp;D organisations for undertaking R&amp;D on their behalf are tax deductible.</td>
</tr>
<tr>
<td>- Initial allowance of 10% and annual allowance of 2%. The expenditure can be written off in 30 days.</td>
<td></td>
</tr>
<tr>
<td>- Full Import duty exemptions for raw materials/consumables and equipment and machinery</td>
<td></td>
</tr>
<tr>
<td><strong>Incentives on Software Development</strong></td>
<td></td>
</tr>
<tr>
<td>- Pioneer Status with tax exemption of 70% of their statutory income for a period of five (5) years</td>
<td></td>
</tr>
<tr>
<td><strong>Double Deduction for Employing Foreign Talent</strong></td>
<td></td>
</tr>
<tr>
<td>- A company may seek approval for the claim of a deduction for twice the amount of approved expenses incurred in relocating or recruiting foreign talent (e.g., foreign scientists and researchers) from outside Singapore to be employed in Singapore.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expenditure on R&amp;D</th>
<th>Expenditure on Research and Development (R&amp;D)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patenting Costs</strong></td>
<td></td>
</tr>
<tr>
<td>- A single deduction may be claimed for the costs of patenting an invention so long as the company in Singapore will have the legal and economic ownership of the resulting intellectual property.</td>
<td></td>
</tr>
<tr>
<td><strong>Patenting Application Fund Plus (TAF Plus)</strong></td>
<td></td>
</tr>
<tr>
<td>- Helps defray costs of patent application</td>
<td></td>
</tr>
<tr>
<td>- Encourages innovation and commercialisation of inventions</td>
<td></td>
</tr>
<tr>
<td><strong>Research Incentives Scheme for Companies (RISC)</strong></td>
<td></td>
</tr>
<tr>
<td>- Partial or full offset costs resulting from R&amp;D projects, which include manpower training, equipment investment, intellectual property management, and professional services.</td>
<td></td>
</tr>
<tr>
<td><strong>Investment Allowance</strong></td>
<td></td>
</tr>
<tr>
<td>- Exemption of taxable income</td>
<td></td>
</tr>
</tbody>
</table>
of an amount equal to a specified proportion (up to 50%, 100% for approved projects for reducing consumption of water) of new fixed investment.

### Incentives in New Technology (INTECH)
- Awards grants to offset the costs of developing/introducing new capabilities.
- These include skills development in the application of new technologies, industrial R&D and professional know-how.

### Industrial Building Allowance (IBA)
- Provides capital allowance for expenditure on approved industrial buildings such as warehouse and logistics centres.
- Minimum loan amount of SGD200,000.

### Writing Down Allowance for Acquisition of Intellectual Property Rights
- Writing down allowances over a five year period are granted automatically for capital expenditure incurred to acquire intellectual property rights for use in the trade or business if the legal and economic ownership of such property lies with the Singapore.

### Writing Down Allowance for Acquisition of Know-how (SHI)
- Tax incentives allow companies to write down intellectual property (IP) acquisition costs over five years.

### Writing Down allowance for Cost Sharing Agreement (SHC)
- Allows companies to write down cost-sharing payments for R&D activities, which are otherwise not deductible, over...
<table>
<thead>
<tr>
<th>Malaysia</th>
<th>Singapore</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Venture Capital Funding</strong></td>
<td><strong>Venture Capital Fund Incentives</strong></td>
</tr>
<tr>
<td>- <strong>Pre-Start Up</strong></td>
<td>- Partial or full corporate tax exemption on income from investment of shares, foreign dividends and foreign interest income.</td>
</tr>
<tr>
<td>- Form of funding: Initial capital up to maximum of RM1,000,000</td>
<td></td>
</tr>
<tr>
<td>- <strong>Start Up</strong></td>
<td>- Losses incurred from the sale of shares, up to 100% of equity invested, can be set off against the investor's other taxable income.</td>
</tr>
<tr>
<td>- Form of funding: Fund up to maximum of RM1,000,000 or 30% of investment costs to undertake the proposed project, whichever lower</td>
<td></td>
</tr>
<tr>
<td>- <strong>Growth</strong></td>
<td>- Start-Up Enterprise Development Scheme (SPRDS):</td>
</tr>
<tr>
<td>- Form of funding: Fund up to maximum of RM1,000,000 or 30% of investment costs, whichever lower</td>
<td>- The start-up and its 3rd party investor(s) jointly apply to EDB for co-funding;</td>
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<tr>
<td></td>
<td>- Approved application, EDB will match the 3rd party investor’s investment and take an equity interest in the start-up;</td>
</tr>
<tr>
<td></td>
<td>- EDB will match a dollar for every 3rd party private sector cash injection, up to a maximum sum of S$300,000;</td>
</tr>
<tr>
<td></td>
<td>- The minimum investment by the 3rd party investor(s) shall be S$75,000.</td>
</tr>
<tr>
<td><strong>100% Tax Exemption for 10 years</strong></td>
<td><strong>Investment allowance - Tax Incentives</strong></td>
</tr>
<tr>
<td></td>
<td>- Further capital allowance on qualifying equipment costs incurred within a set period</td>
</tr>
<tr>
<td><strong>Input duty exemption on raw materials</strong></td>
<td><strong>Approved Royalties, Technical Assistance Fees</strong></td>
</tr>
<tr>
<td><strong>Machinery and spare parts</strong></td>
<td>and contributions to Research and Development costs</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>● Paid to non-residents may be exempted from withholding tax.</td>
</tr>
<tr>
<td></td>
<td>● Such exemption is typically granted in conjunction with other tax incentives such as the Pioneer incentives.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Investment Tax Allowance</strong></th>
<th>Expenditure on Research and Development (R&amp;D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>● ITA of 10% on qualifying capital expenditure for five years which can be offset against 100% of the statutory income</td>
<td>● Undertaken directly by companies in relation to payments made to R&amp;D organisation for undertaking R&amp;D on their behalf are tax deductible.</td>
</tr>
<tr>
<td></td>
<td>● For certain approved R&amp;D projects in Singapore, a deduction for twice the amount of the relevant expenditure incurred may be claimed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Reinvestment Allowance</strong></th>
<th>Regionalization Finance Scheme — fixed cost financing program to assist Singapore-based enterprises to set up operations overseas.</th>
</tr>
</thead>
<tbody>
<tr>
<td>● RA is in the form of an allowance of 60% of the qualifying capital expenditure incurred within a period of 15 years</td>
<td>● Must have net worth per group not exceed S$10 billion.</td>
</tr>
<tr>
<td>● The allowance can be offset against 70% of the statutory income</td>
<td>● Used for one or more of the following purposes associated with overseas investment: purchase of fixed assets, and construction of factories or buildings.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Tax-deductible expenses for “Total quality” and safety certifications</strong></th>
<th><strong>Double Tax Deduction for Market Development</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>● Deduct against approved companies' taxable income twice the eligible expenses incurred for approved projects.</td>
</tr>
<tr>
<td></td>
<td>● Scope of assistance:</td>
</tr>
<tr>
<td></td>
<td>- market preparation</td>
</tr>
<tr>
<td></td>
<td>- market introduction</td>
</tr>
<tr>
<td></td>
<td>- marketing &amp; promotion</td>
</tr>
<tr>
<td></td>
<td>- market presence</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Intensification of Research in priority Areas (IRPA)</strong></th>
<th><strong>Double Deduction for Overseas Investment Development Expenditure</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Experimental Applied Research (EAR)</strong></td>
<td><strong>Approved companies taxable income twice the eligible expenses incurred for approved projects.</strong></td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>- Duration of maximum 3 years</td>
<td>- Scope of assistance</td>
</tr>
<tr>
<td>- Amount approved determined</td>
<td>- Market preparation</td>
</tr>
<tr>
<td>based on the merits of each</td>
<td>- Market introduction</td>
</tr>
<tr>
<td>application</td>
<td>- Marketing &amp; promotion</td>
</tr>
<tr>
<td></td>
<td>- Market presence</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Incentives for Training</strong></th>
<th><strong>Approved International Trade (AIT)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Investment Tax Allowance of 10% for</td>
<td>- 10% tax on income from international oil trading activities and oil futures contracts</td>
</tr>
<tr>
<td>10 years. The allowance can be offset</td>
<td></td>
</tr>
<tr>
<td>against 70% of the statutory income.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Operational Headquarters</strong></th>
<th><strong>Development &amp; Expansion Incentives</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Income arising from the provision in</td>
<td>- Corporate tax rate of not less than 10% for up to 10 years with provision for extension.</td>
</tr>
<tr>
<td>Singapore of approved services will be</td>
<td></td>
</tr>
<tr>
<td>taxed at 10%.</td>
<td></td>
</tr>
<tr>
<td>- Tax exemption on dividend income</td>
<td></td>
</tr>
<tr>
<td>from approved overseas subsidiaries and</td>
<td></td>
</tr>
<tr>
<td>associated companies</td>
<td></td>
</tr>
<tr>
<td>- Incentive will be up to ten years</td>
<td></td>
</tr>
<tr>
<td>with provision for extension</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Domestic Sector Productivity Fund</strong></th>
<th><strong>Domestic Sector Productivity Fund</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Provides assistance through grants</td>
<td>- Provides assistance through grants to cover up to 50% of the qualifying cost of the project.</td>
</tr>
<tr>
<td>to cover up to 50% of the qualifying</td>
<td>- Manpower-related costs</td>
</tr>
<tr>
<td>cost of the project. The major</td>
<td>- Equipment &amp; materials</td>
</tr>
<tr>
<td>allowable cost items include:</td>
<td>- Professional services (e.g. consultancy &amp; outsourcing)</td>
</tr>
<tr>
<td></td>
<td>- Intellectual Property Rights (e.g. licensing, royalties)</td>
</tr>
</tbody>
</table>
### Logistics

<table>
<thead>
<tr>
<th>Malaysia</th>
<th>Singapore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venture Capital funding</td>
<td>Venture Capital Fund Incentives</td>
</tr>
<tr>
<td>- Pre-Start-Up</td>
<td>- Partial or full corporate tax exemption on income from investment of shares, foreign dividends and foreign interest income.</td>
</tr>
<tr>
<td>- Start-Up</td>
<td>- Losses incurred from the sale of shares, up to 100% of equity invested, can be set off against the investor’s other taxable income.</td>
</tr>
</tbody>
</table>
| - Form of funding funded up to a maximum of RM300,000 or 30% of investment costs to undertake the proposed project on RM1,000,000 whichever lower | -  
|                                               | Startup Enterprise Development Scheme (SEPEDS)  |
|                                               | - The startup and its 3rd party investor(s) jointly apply to EDB for co-funding. |
|                                               | - Approved application, EDB will match the 3rd party investor’s investment and take an equity interest in the start-up. |
|                                               | - EDB will match a dollar for every 3rd party private sector cash injection, up to a maximum sum of SD500,000. |
|                                               | - The minimum investment by the 3rd party investor(s) shall be SD75,000. |
|                                               | Integrated Industrial Capital Allowance (IICA)  |
|                                               | - Allow companies to claim capital allowances for approved expenditure used in an overseas subsidiary. |
|                                               | Approved International Trade (AIT)             |
|                                               | - 10% tax on income from trading in approved commodities. |
| Integrated Logistics Services                 |                                               |
| - Eligibility: At least 60% of its equity is held by Malaysian |                                               |
|                                               |                                               |
|                                               |                                               |
|                                               |                                               |

*Page 72*
<table>
<thead>
<tr>
<th>Cold Chain Facilities</th>
<th>Warehousing Retail Scheme (WRS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Eligibility: The policy on foreign equity participation in the service sector by allowing foreign equity participation of up to 70%. The remaining 30% must be allocated to Baripourers, unless specific exemptions apply.</td>
<td></td>
</tr>
<tr>
<td>- Pioneer status: 70% tax exemption for five years or 100% tax exemption for five years of the statutory income.</td>
<td></td>
</tr>
<tr>
<td>- Investment tax allowances: FTA of 60% on the additional qualifying capital expenditure within five years.</td>
<td></td>
</tr>
<tr>
<td>- Allowance can be offered against 75% of the statutory income.</td>
<td></td>
</tr>
<tr>
<td>- Exemption from import duty/sales tax on machinery and equipment.</td>
<td>- Allow businesses operating on a regional scale to enjoy significant savings and productivity gains from the co-location of various operations, such as headquarters, logistics, and retail functions in one centralized location.</td>
</tr>
</tbody>
</table>

**Tax exemption for Marine Hull & Liability Insurance Business**

- Available to all general direct insurance and reinsurance companies including P&I clubs, in Singapore.
- Approved marine hull & liability insurers (AMIs) which have made additional commitment to writing offshore marine hull and liability insurance business from Singapore can enjoy tax benefits.
### Machinery & Equipment

<table>
<thead>
<tr>
<th>Malaysia</th>
<th>Singapore</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Venture Capital Funding</strong></td>
<td><strong>Venture Capital Fund Incentives</strong></td>
</tr>
<tr>
<td>- Pre-Start Up</td>
<td>- Partial or full corporate tax exemption on income from divestment of shares, foreign dividends and foreign interest income.</td>
</tr>
<tr>
<td></td>
<td>- Losses incurred from the sale of shares, up to 100% of equity invested, can be set off against the investor's other taxable income.</td>
</tr>
<tr>
<td></td>
<td>- Start Up</td>
</tr>
<tr>
<td></td>
<td>- Form of funding: Initial capital up to minimum of RM 1,000,000.</td>
</tr>
<tr>
<td></td>
<td>- Form of funding: Fund of 30% of investment costs to undertake the proposed project or RM 1,000,000 whichever lower.</td>
</tr>
<tr>
<td></td>
<td>- Growth</td>
</tr>
<tr>
<td></td>
<td>- Form of funding: Fund up to maximum RM 3,000,000 or 30% equity based on company's appropriate valuation, whichever lower.</td>
</tr>
<tr>
<td><strong>Integrated Industrial Capital Allowance (IICA)</strong></td>
<td>- <strong>Start-up Enterprise Development Scheme (SEDS)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>- Allow companies to claim capital allowances for approved expenditure used in an overseas subsidiary.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- The start-up and its 3rd party investor(s) jointly apply to EDB for co-funding.</td>
</tr>
<tr>
<td></td>
<td>- Approved application, EDB will match the 3rd party investor's investment and take an equity interest in the start-up.</td>
</tr>
<tr>
<td></td>
<td>- EDB will match a dollar for every 3rd party private sector cash injection, up to a maximum sum of SD75,000.</td>
</tr>
<tr>
<td></td>
<td>- The minimum investment by the 3rd party investor(s) shall be SD75,000.</td>
</tr>
<tr>
<td>Incentives for the Production of Specialized Machines and Equipment</td>
<td>Regionalization Finance Scheme (fixed cost financing program to assist Singapore-based enterprises to set up operations overseas)</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>- 100% tax exemption of statutory income for 10 years. OR - Investment Tax Allowance of 100% of the qualifying capital expenditure incurred within 5 years.</td>
<td>- Maximum loan per group not exceed S$10 billion. - Used for one or more of the following purposes associated with overseas investment: purchase of fixed assets, and purchase or construction of factories or buildings.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Additional Incentives for the Production of Heavy Machinery</th>
<th>Double Tax Deduction for Market Development (deduct against approved companies taxable income) where the eligible expenses incurred for approved projects.</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 70% tax exemption of statutory income arising from the reinvestment for a period of 5 years. OR - Investment Tax Allowance of 60% TCA or 60% on the additional qualifying capital expenditure within five years. Allowance can be offset against 70% of the statutory income.</td>
<td>- Scope of assistance - market preparation - market introduction - marketing &amp; promotion - market presence</td>
</tr>
</tbody>
</table>

<p>| Double Deduction for Overseas Investment Development Expenditures (deduct against approved companies taxable income) where eligible expenses incurred for approved projects. |
|---|---|
| - Scope of assistance - market preparation - market introduction - marketing &amp; promotion - market presence |</p>
<table>
<thead>
<tr>
<th>Special Grant amounting RM10 million for development and promotion of Halal products.</th>
<th>Approved Foreign Loan Incentives (AFL)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a. grants full or partial exemption on withholding tax on interest payments to non-residents</td>
</tr>
<tr>
<td>Double Tax Deduction on expenditure of obtaining Halal certification and accreditation</td>
<td>Resource Productivity Scheme (RPS)</td>
</tr>
<tr>
<td></td>
<td>a. provides fixed rate grants to partially finance the cost of investments which enhance the use of scarce resources like water, land and labour</td>
</tr>
<tr>
<td>Development &amp; Expansion Incentives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Corporate tax rate of not less than 10% for up to 10 years with provision for extension</td>
</tr>
<tr>
<td>International Consultancy Fund</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. 50% of incremental eligible consultancy revenue is exempt</td>
</tr>
<tr>
<td>Domestic Sector Productivity Fund</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Provides assistance through grants to cover up to 50% of the qualifying cost of the project. The major allowable cost items include:</td>
</tr>
<tr>
<td></td>
<td>- Manpower related costs</td>
</tr>
<tr>
<td></td>
<td>- Equipment &amp; materials</td>
</tr>
<tr>
<td></td>
<td>- Professional services (e.g. consultancy &amp; subcontracting)</td>
</tr>
<tr>
<td></td>
<td>- Intellectual Property Rights (e.g. licensing, royalties &amp; technology acquisition)</td>
</tr>
</tbody>
</table>

The Most Problematic Factors for Doing Business in Singapore

Note: from a list of 14 factors, respondents were asked to select the five most problematic for doing business in their country/economy and to rank them between 1 (most problematic) and 5. The bars in the figure show the responses weighted according to their ranks.

Figure 3.1: Problematic Factors for doing Business in Singapore (GCR 2006 – 2007)

<table>
<thead>
<tr>
<th>Global Competitiveness Index</th>
<th>Rank</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006 – 2007</td>
<td>5</td>
<td>5.6</td>
</tr>
<tr>
<td>2005 – 2006 (out of 117 countries)</td>
<td>5</td>
<td>5.7</td>
</tr>
<tr>
<td><strong>Basic Requirements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st pillar: Institutions</td>
<td>2</td>
<td>6.1</td>
</tr>
<tr>
<td>2nd pillar: Infrastructure</td>
<td>4</td>
<td>5.9</td>
</tr>
<tr>
<td>3rd pillar: Macroeconomy</td>
<td>6</td>
<td>6.2</td>
</tr>
<tr>
<td>4th pillar: Health and primary education</td>
<td>8</td>
<td>5.7</td>
</tr>
<tr>
<td><strong>Efficiency Enhancers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5th pillar: Higher education and training</td>
<td>3</td>
<td>5.6</td>
</tr>
<tr>
<td>6th pillar: Market efficiency</td>
<td>10</td>
<td>5.6</td>
</tr>
<tr>
<td>7th pillar: Technological readiness</td>
<td>2</td>
<td>5.7</td>
</tr>
<tr>
<td><strong>Innovation Factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8th pillar: Business sophistication</td>
<td>23</td>
<td>5.1</td>
</tr>
<tr>
<td>9th pillar: Innovation</td>
<td>9</td>
<td>5.2</td>
</tr>
</tbody>
</table>

* Rank out of 125 countries/economies

**Score out of 7

Table 5.2: Global Competitiveness Index (GCR 2006 – 2007)
<table>
<thead>
<tr>
<th>Business Competitiveness Index</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sophistication of company operations and strategy</td>
<td>21</td>
</tr>
<tr>
<td>Quality of the national business environment</td>
<td>11</td>
</tr>
</tbody>
</table>

* Rank out of 123 countries/economies

Table 5.4 Business Competitiveness Index (GER 2006 – 2007)

<table>
<thead>
<tr>
<th>Notable Competitive Advantages</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutions</td>
<td>1</td>
</tr>
<tr>
<td>Public trust of politicians</td>
<td>1</td>
</tr>
<tr>
<td>Waste of government spending</td>
<td>2</td>
</tr>
<tr>
<td>Burden of government compliance</td>
<td>3</td>
</tr>
<tr>
<td>Reliability of police services</td>
<td>4</td>
</tr>
<tr>
<td>Business costs of crime and violence</td>
<td>4</td>
</tr>
<tr>
<td>Organized crime</td>
<td>5</td>
</tr>
<tr>
<td>Laundering of illicit proceeds of government officials</td>
<td>6</td>
</tr>
<tr>
<td>Diversion of public funds</td>
<td>6</td>
</tr>
<tr>
<td>Ethical behaviour of firms</td>
<td>7</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>7</td>
</tr>
<tr>
<td>Quality of postal infrastructure</td>
<td>7</td>
</tr>
<tr>
<td>Quality of air transport infrastructure</td>
<td>1</td>
</tr>
<tr>
<td>Overall infrastructure quality</td>
<td>2</td>
</tr>
<tr>
<td>Macroeconomy</td>
<td>3</td>
</tr>
<tr>
<td>National savings rate</td>
<td>5</td>
</tr>
<tr>
<td>Government surplus/deficit</td>
<td>10</td>
</tr>
<tr>
<td>Higher education and training</td>
<td>11</td>
</tr>
<tr>
<td>Quality of math and science education</td>
<td>1</td>
</tr>
<tr>
<td>Quality of the educational system</td>
<td>2</td>
</tr>
<tr>
<td>Quality of management schools</td>
<td>8</td>
</tr>
<tr>
<td>Market efficiency</td>
<td>2</td>
</tr>
<tr>
<td>Hiring and firing practices</td>
<td>2</td>
</tr>
<tr>
<td>Cooperation in labour-employer relations</td>
<td>2</td>
</tr>
<tr>
<td>Prevalence of trade barriers</td>
<td>3</td>
</tr>
<tr>
<td>Foreign ownership restrictions</td>
<td>3</td>
</tr>
<tr>
<td>Agro-cluster policy costs</td>
<td>6</td>
</tr>
<tr>
<td>Time required to start a business</td>
<td>6</td>
</tr>
<tr>
<td>Pay and productivity</td>
<td>6</td>
</tr>
<tr>
<td>Extent of effect of taxation</td>
<td>7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Notable Competitive Disadvantages</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutions</td>
<td>11</td>
</tr>
<tr>
<td>Business costs of terrorism</td>
<td>7</td>
</tr>
<tr>
<td>Judicial independence</td>
<td>20</td>
</tr>
<tr>
<td>Protection of minority shareholders' interest</td>
<td>22</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>9</td>
</tr>
<tr>
<td>Telephone lines</td>
<td>29</td>
</tr>
<tr>
<td>Monetary policy</td>
<td>39</td>
</tr>
<tr>
<td>Government debt</td>
<td>97</td>
</tr>
<tr>
<td>Interest rate spread</td>
<td>54</td>
</tr>
<tr>
<td>Real effective exchange rate</td>
<td>26</td>
</tr>
<tr>
<td>Higher education</td>
<td>38</td>
</tr>
<tr>
<td>Tertiary enrolment</td>
<td>38</td>
</tr>
<tr>
<td>Market efficiency</td>
<td>32</td>
</tr>
<tr>
<td>Effectiveness of antitrust policy</td>
<td>32</td>
</tr>
<tr>
<td>Intensity of local competition</td>
<td>26</td>
</tr>
<tr>
<td>Soundness of banks</td>
<td>21</td>
</tr>
<tr>
<td>Business sophistication</td>
<td>47</td>
</tr>
<tr>
<td>Control of international distribution</td>
<td>47</td>
</tr>
<tr>
<td>Local supply capacity</td>
<td>43</td>
</tr>
<tr>
<td>Local supplier quality</td>
<td>25</td>
</tr>
<tr>
<td>Extent of marketing</td>
<td>22</td>
</tr>
<tr>
<td>Innovation</td>
<td>24</td>
</tr>
<tr>
<td>Capacity for innovation</td>
<td>24</td>
</tr>
</tbody>
</table>

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Table 5.4: National Competitiveness Balance Sheet of Singapore (GCI, 2006 - 2007)

Innovation

1. Import / Export

Imports of goods and services as a percentage of GDP, 2005 or most recent year available

(Graph: Global Competitiveness Report 2006-2007)
Exports of goods and services as a percentage of GDP, 2005 or most recent year available

1. Singapore
2. Hong Kong SAR
3. Luxembourg
4. Cayman Islands
5. Malaysia
6. United Arab Emirates
7. Bahrain
8. Belgium
9. Estonia
10. Angola

Global Competitiveness Report 2006-2007

In your country, tariff and non-tariff barriers significantly reduce the ability of imported goods to compete in the domestic market (1 - strongly agree, 7 - strongly disagree, Mean 4.5)

Prevalence of Trade Barriers

1. New Zealand
2. Finland
3. Singapore
4. Hong Kong SAR
5. Sweden
6. Ireland
7. Luxembourg
8. Slovak Republic
9. Qatar
10. Austria

Global Competitiveness Report 2006-2007
2. Foreign ownership
Foreign ownership of companies in your country is (1) rare, limited to minority stakes, and often prohibited in key sectors, 7 prevalent and encouraged, Mean 5.0)

![Foreign Ownership Restrictions](Global Competitiveness Report 2006-2007)

3. Permits
Complying with administrative requirements (permits, regulations, reporting) issued by the government in your country (1 = burdensome, 7 = not burdensome, Mean 3.1)

![Burden of Government Regulation](Global Competitiveness Report 2006-2007)
4. Transportation and Logistics

General infrastructure in your country is (1 – underdeveloped, 7 – as extensive and efficient as the world's best, Mean: 3.8)

![Overall Infrastructure Quality](image)

(Global Competitiveness Report 2006-2007)

Railroads in your country are (1 – underdeveloped, 7 – as extensive and efficient as the world's best, Mean: 2.9)

![Railroad Infrastructure Development](image)

(Global Competitiveness Report 2006-2007)
Port facilities and inland waterways in your country are (1 = underdeveloped, 7 = as extensive and efficient as the world's best, Mean: 3.7)

![Quality of Port Infrastructure](image)

(Global Competitiveness Report 2006-2007)

Passenger air transport in your country is (1 = infrequent, limited, and inefficient, 7 = as frequent, extensive, and efficient as the world's best, Mean: 4.5)

![Quality of Air Transport Infrastructure](image)

(Global Competitiveness Report 2006-2007)
5. Corruption

Do other firm's illegal payments to influence government policies, laws, or regulations impose costs or otherwise negatively affect your firm? (1 = yes, they have a significant impact, 7 = no, they have no impact). Mean: 4.5

![Business Costs of Corruption Chart]

(C) Global Competitiveness Report 2006-2007)
Appendix F: Logistical Assessment of Malaysia

The logistical assessment of Malaysia is reflected in supply chain lead times, logistic costs, quality and flexibility (Van Vliet, 1998) and derived from interviews with industry experts.

Supply Chain Lead Times
- Distance to market and supplier access: The largest part of the Muslim population is located in Asia. Malaysia is very well located to serve these markets. In addition, Malaysia is located in the middle to serve the Islamic market in the Middle-East.
- Existence of gateways in Malaysia: Malaysia is home to several important airports such as KLIA and Penang Airport. Besides, Malaysia accommodates several large seaports on the peninsula such as Port Klang and PTP and in East-Malaysia Sumbu Port that have an extensive network.
- Distance in km/million: KLIA is already an important cargo hub, with sufficient capacity. In Singapore is another cargo super hub located next door Changi Airport, which Malaysia should use to channel Halal products. In terms of sea, Malaysia has an important transshipment and hub function with its seaports. Singapore accommodates several transshipment container ports like PSA and Jurong Port.

Logistics Costs
- Transportation costs: Air transportation costs are competitive, however freight capacity to and from Malaysia is low. In terms of port charges (export & import) Malaysia has significant higher costs compared to Thailand, Singapore, and Indonesia. In terms of local handling charges Malaysia equals the cost level as compared to Thailand, but faces higher costs as compared to Singapore and Indonesia. Landage (FC & HC) is expensive, but conventional cargo is competitive on regional level. Security of road transport in Malaysia is a major concern leading to higher transportation costs. Rail costs are competitive, but not capacity is limited.
- Storage costs: In terms of local warehousing charges Malaysia faces higher costs compared to Singapore and Indonesia, but lower costs as compared to Thailand.
- Handling costs: In terms of port handling costs in Malaysia are higher as compared to Thailand, but lower as compared to Singapore and Indonesia. Airports handling costs are competitive.

Quality
- Food quality and food safety: A current trend is the increase in importance of these aspects, due to pressure from manufacturers, retailers, consumer organisations and legislation.
- Halal integrity: An integer Halal supply chain from farm to fork is non-existent.

Flexibility
- Costs of transportation mode: Malaysia offers multimodal transport (sea, air, road and rail), however the rail network is not competitive. Besides, security of road cargo is a major concern.
- Connectivity of ports/gateways: Connectivity of Malaysia by sea is limited, by sea is excellent and the connectivity by rail is poor due to the limited rail network.