Halal Industry Development Corporation

"Developing Malaysia into a Global Halal Hub"

Bachelor Thesis

Jasper Dijkerman
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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"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

Bachelor Thesis to finish the Bachelor's Degree in Industrial Engineering and Management at the University of Twente.

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Executive Summary

The Halal Industry Development Corporation (HDC), incorporated in September 2006, is wholly owned by the government of Malaysia through the Ministry of Finance and is placed under the National Industry Task Force (NITF), which is chaired by the Prime Minister of Malaysia, Dato' Abdullah Badawi. HDC has the overall goal to develop Malaysia into a global Halal hub by 2008. As the corporation is in its very initial phase, HDC copes with indistinctness 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 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 this 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 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 consist of food, knowledge, biomedical, cosmetics, pharmaceuticals, finance and logistics. These clusters are developed very well and are able to become a strong foundation for a potential Halal industry cluster. Secondly, Singapore has a robust intellectual property right regime, which can protect developments in research and technologies concerning Halal, e.g. in Halal pharmaceuticals. Thirdly, Singaporeans are well known for their *kiasi*-spirit – that is the fear of not surviving or falling behind. As a consequence, the Singapore business environment is characterized by entrepreneurship, strong dynamics and anticipation. These aspects might play a role as the Halal industry goes through an exponential growth and might trigger the interest of Singapore enterprises. 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.

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

SW-Analysis Halal Cluster Singapore

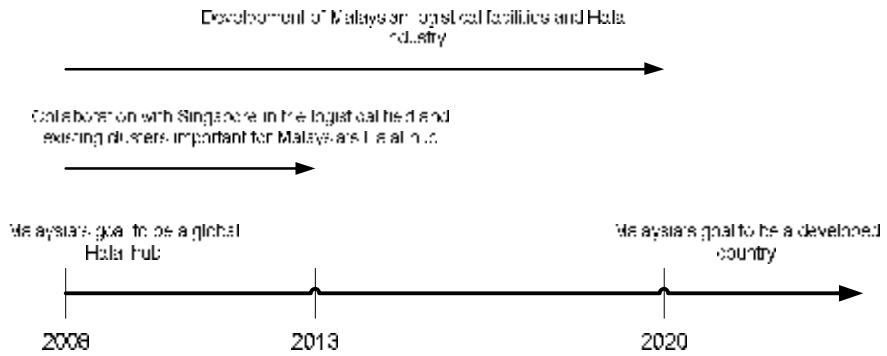
Strengths	Weaknesses
• Presence of a strong financial cluster • Presence of a strong pharmaceutical/biomedical cluster • Presence of a strong logistics and trade foundation • Presence of a strong IP regime • 'Kiasi' spirit (fear of falling behind) of Singaporeans • Availability of funds by the Singapore government for realising GDP growth and development goals	• No Halal agenda by the Singapore government • Limited Muslim population → limited home market • Underdevelopment of Halal supporting and supplying industries • High labour costs as compared to Malaysia and Singapore • High land prices → to-be development dedicated Halal parks

SW-Analysis Halal Cluster Malaysia

Strengths	Weaknesses
• Malaysia's role in the Muslim world (OIC), western world and bridge between those worlds (WHH) • Malaysia accommodates an affluent Muslim population • Robust and clear (high priority) Halal agenda by the Malaysian government • Presence of supporting industries in Halal • Strong infrastructure (world class seaports) at gateway location in South East Asia • Malaysia's position as major producer of oil and gas • Malaysia is the world's leading producer of palm oil • Malaysia's Halal certification and auditing system and its international recognition • Malaysia's pioneering role in Halal pharmaceuticals • Malaysia's innovative and pioneering role in the Halal industry (MIHAS, HDC) • Malaysia has a trainable workforce	• Availability of cheap and skilled labour • Labour productivity • Presence of supplying industries in Halal (raw materials, ingredients etc.) • Limited availability of funds for (Halal related) research and development • International rankings of Malaysian universities • Low IP registration and granting of IP • International competitiveness of domestic industries • Transportation and logistics sector underdeveloped • Logistics and supply chain costs • Security of food transportation • ICT infrastructure • Implementation time of new initiatives

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 with the former issue, no Halal agenda on macroeconomic scale by the Singapore government does exist. Thirdly, Singapore is a large trader in pork and is establishing a gambling hub for Asia and this image will not match the branding of a dedicated Halal hub in Singapore. Fourthly, the extensive segregation of goods required for dedicated Halal facilities, requires space and low utilisation 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 its turn can benefit from the skill-intensive nature of the Malaysian workforce, the land availability and the Halal integrity (e.g. Halal certification and auditing) of Malaysia 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 Lamade Industrial Park in Batam, Indonesia) and hereby 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:



To conclude we can state that despite the fact that Singapore is labelled by HDC as 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 fulfil 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, part of the MDS Consultancy Group, located in Petaling Jaya, Malaysia. The bachelor assignment is the final stage 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 getting experienced in the complexity of formulating research goals, questions and problems, and solving these problems on scientific substantiated bases. 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 the 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, taken 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 capitalising upon complementarities and economies of scale between Malaysia and Singapore. Main part of the execution of this assignment consisted of a cluster analysis of the Singapore Halal industry. The assignment has been carried out as part of a larger coordinating cluster 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. Marco Tieman, 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 Stephan Manthuis MSc. for his professional supervision and convenient contact moments before, during and after the assignment period in Malaysia. I enjoyed our cooperation and discussions and appreciated your visit to Malaysia in May 2007. In addition, I would like to thank Dr. Perer Schuur 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 Sindy! 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. I really enjoyed our travel and I am sure much more will follow!

Enschede, Petaling Jaya
November 2007

Jasper Dijkerman

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I. 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 larger 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 narrowly cooperation with a fellow student of the University of Twente, namely Bastiaan Janse, 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 objectives
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 (9MP). 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:

I. To move the economy up the value chain;
II. To raise the capacity for knowledge and innovation and nurture 'first class mentality';
III. To address persistent socio-economic inequalities constructively and productively;
IV. To improve the standard and sustainability of quality of life.
V. 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 Hadhari – 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, 2006a):

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

The pursuit for competitiveness over the next 15 years is translated by the Malaysian Government in the Third Industrial Master Plan (IMP3) to drive industrialization 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 the 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 2010, the global Muslim population will be approximately 2 billion;
- Halal products and services are gaining increasingly acceptability among non-Muslims.
- The global market value for trade in Halal food and non-food products is estimated at USD2.1 trillion 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 developments on Halal certification are 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 markets among the more 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: as the competition for Halal products and services intensifies, the challenge for Malaysia is to ensure it remains competitive and is 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, facilitating greater collaboration among countries in the region and capitalising upon complementarities and economies of scale (Economic Planning Unit, 2006b).

Halal Industry Development Corporation
The Halal Industry Development Corporation Sdn Bhd (further referred to as HDC), 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 Industry Task Force (NITF) which is chaired by the Prime Minister of Malaysia, Dato' Abdullah Badawi. HDC 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 by HDC to develop Malaysia into a global Halal hub is translated in one of the strategic thrusts of IMP3 to manage increasing regional competition as mentioned above. Discussions with HDC and economic facts show that Malaysia's neighbouring country, Singapore, is renowned for its fast development and gateway function for Asia, and therefore, the city-state is pointed out by HDC 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 HDC, 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;

- Determination of the sustainability of the Halal cluster in Singapore;
- Determination of the customer value proposition of Singapore as a country.
- Proposition of collaboration options with Singapore in the development of Malaysia as Halal hub;
- The issuing of starting points of discussion on complementarities between Malaysia and Singapore in the development of Malaysia as Halal hub.

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 come to a well defined problem definition:

I. Aim of the Malaysian government in the development of the country as global Halal hub is to facilitate greater competition and to capitalise upon complementarities and economies of scale;
II. 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 thrust 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 answer 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?"

Research structure

First, the term 'global Halal hub' will be defined. After that this phenomenon has been cleared, the framework to assess the Halal hub foundation in Singapore will be explained and substantiated with theory. From this framework the characteristics and developments 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 HDC 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.

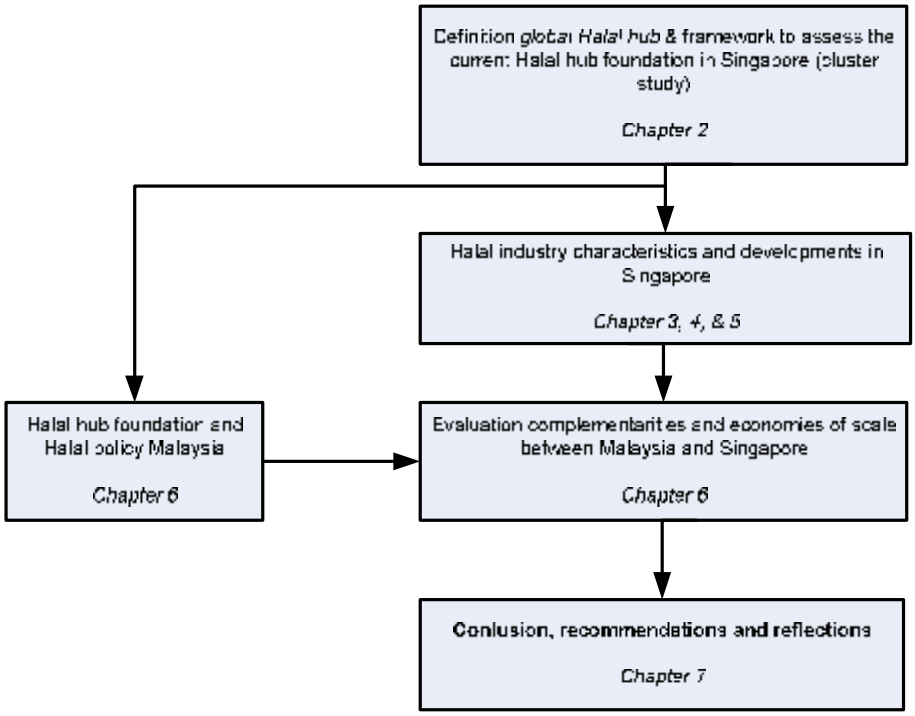

Figure 1.1: Research Structure

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 regional economy (Corrigan, 2006). The current characteristics and developments 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 Halal hub foundation in Singapore.

2.1 Global Halal Hub

To come to 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 doer (MS 1500:2004).
- *Shariah* : The Shariah law means the laws of the Islam in the Mazhad of Shafie or the laws of Islam in any of the other Mazhads of Maliki, Hambali and Hanafi 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 fatwa 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 such food few areas 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 of animals which are not slaughtered according the Shariah law;
- The food does not contain any ingredients that are Najs (e.g. things that are themselves not permissible such as pig and all its derivatives, blood and carrion) according the Shariah law.
- The food that is not prepared, processed or manufactured using equipment that is contaminated with things that are Najs according the Shariah law.

Under IMP3 (Economic Planning Unit, 2006b) 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 explained definitions, 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) and the definitions as mentioned above, a global Halal hub can be 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.

2.2 Framework Cluster Analysis

The concept underlying industry 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 industry 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.

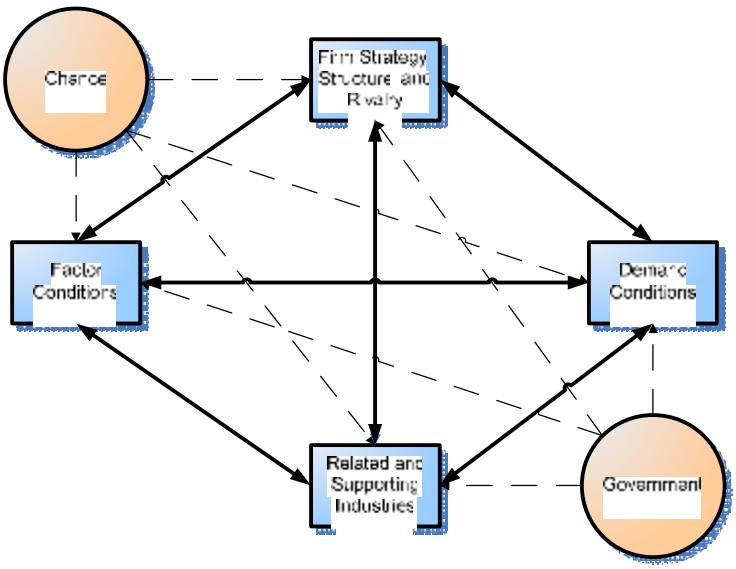

Figure 2.1: Diamond Model (Porter, 1990)

Role of cluster analysis
The role of cluster analysis can be interpreted as an organising principle for economic development, a useful framework for building an understanding of a regional economy and an undertaken 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 a region might do to influence its economic future (Cortright, 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 (Drabenstott, 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 necessary 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 routinely used. Regarding the wide scope of IMP3 using the cluster concept to visualise the structure of a regional economy represents a major advance. However, the flexibility of the concept means that it occasionally is used inappropriate.

Clusters as a framework for policy
Since the study is performed in order of HDC, 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, methodologies, units of analysis, and so forth depends on the policy concerns 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 fore. When the link between the methodology as technique and the policy context is explicitly recognized, applied cluster analysis has much to offer (Feser and Luger, 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 analyses, which generally rely on quantitative data to deduce the industrial 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 (Cortright, 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 specified statistics on Singapore and the political sensitive analysis by a neighbouring 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. Slough (1997) states that such experts are the agents who know the region's 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 Luger (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 Stimson, 1998). Feser and Luger (2003) issue, however, that some risks are related to this method:

- Many such studies implicitly invoke 'know it when you see it' logic: because nothing is being measured in quantitative terms, it is easy to avoid clarifying concepts at the outset;

- Experts, like anyone else, are prone to response bias;
- The administration of surveys and interviews to convenience samples, the standard practice, very rarely generates data that are representative of the population of experts in a region. The university and government sectors are usually much better represented than is industry;
- Because gathering information from experts is time intensive, comparatively few are consulted.

2.2.1 Identification of the Halal Cluster

Clusters are the key organisational 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 Pavlovich and Akoorie (2005) (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 specialised and complementary firms. They form the critical core of the cluster group, and display distinctive characteristics that are unique to the local region. Specialisation by these firms creates interdependence 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 its external linkages. The physical infrastructure is essential if inputs and outputs are to get to and from markets, both national 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 Trade; 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 Diamond Model (1990) consists also of a governmental variable. Although many see it as a vital determinant of competitive advantage, its real role in national competitive advantage is in influencing (positively or negatively) the four determinants. This influence can be executed with, for instance, subsidies for factor 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 realise 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.

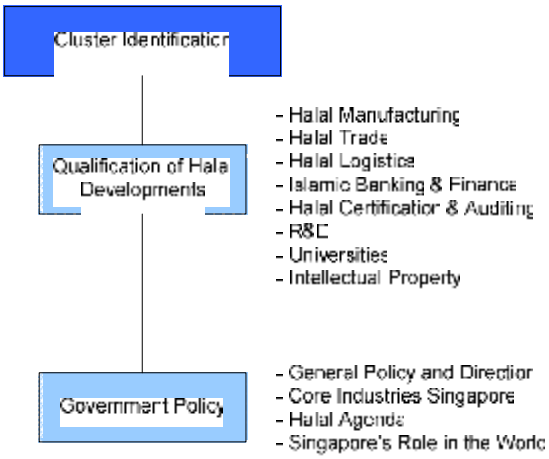

Figure 2.2: Overview Cluster Identification

2.2.2 Sustainability of the Halal Cluster

DeVol (2001) 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 hasn't 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 'retain ability' of specific cluster incumbents (firms, institutions, officials) than about sustaining the underlying premises 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 (faster innovation, early mover advantages, pressures for upgrading) are more important than those conferring static advantages (such as factor costs and a large home market), because this sustains 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 lie 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 Clustering (geographic proximity). Speed and efficacy with which the clusters develop, to determine their phase of development (Keteis, 2003), 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, 1990). Besides these aspects, Geographical concentration is also translated into C4 of the Halal cluster. C4 is a tool developed by the Align Group, a strategic partner of MDS Logistics based in Thailand, to make sure work is done *correct, consistent, complete* and *clear* and, can be considered as an internal quality standard. For the cluster analysis the C4 principle can be translated into the fact tha, the more C4 (Correct – Consistent – Complete – Clear) the Singapore Halal industry is with a Halal cluster model approach according to Porter (1990) ,he more competitive the Singapore Halal industry will be.

The last aspect, Vulnerabili ies of the Halal cluster, is incorporated to identify possible weaknesses which can threaten he 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.**

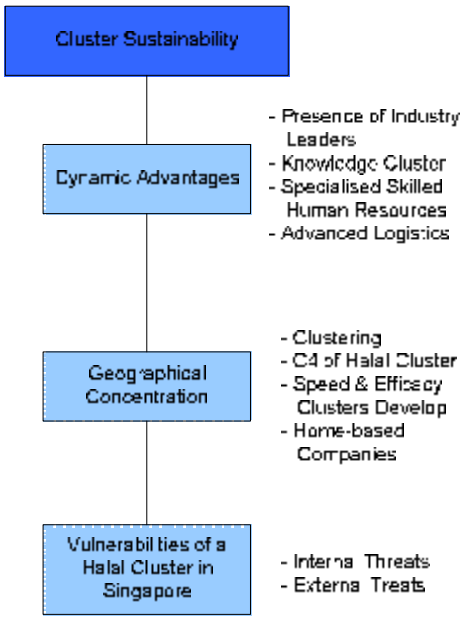

Figure 2.3: Overview Cluster Sustainability

2.2.3 Customer Value Proposition of Singapore

The 9th Malaysian Plan states as one of the goals "enhancing higher contribution to growth from private sector and government linked companies and attracting quality foreign direct investment". Customer value proposition, based on he Customer Satisfaction Iceberg Model of Abell (1993), determines the pulling factor of Singapore as a source of investment. For foreign investors Malaysia and Singapore can be both attractive to invest in. Therefore i. 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 inves ment.

In the framework are included: Factor conditions, because a nation's endowment on factors (e.g. labour, capital, infrastructure) clearly plays 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 (Kuchiki, 2005).

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

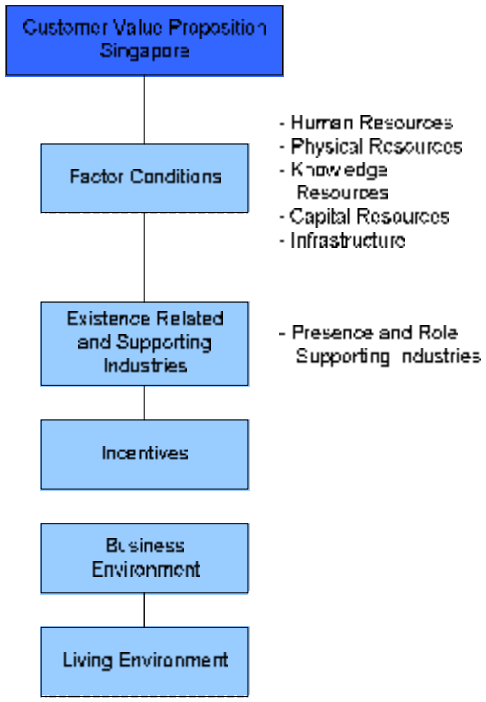

Figure 2.4: Overview Customer Value Proposition Singapore.

Sala-i-martin (2004) developed a comprehensive model for global competitiveness based on the earlier Growth Competitiveness Index (Sachs and McArthur, 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; Macro economy; Health and primary education; Higher education and training; Market efficiency; Technological readiness; Business sophistication; and Innovation.

Institutions
By institutions the systems 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 ways societies distribute the benefits and bear the costs if development strategies and policies, and it has a bearing on investment decisions and on the organization of production.

Infrastructure
Significant research has shown that physical infrastructure fosters productivity growth also investment (Borensztein, 1998 and Aschauer, 1989). 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 macro economic stability is an important precondition for sustained growth has been broadly accepted by the policymaking community (Acemoglu et al., 2003).

Health and primary education
Health and primary education are of key relevance for competitiveness especially in developing countries. Clearly, an unhealthy workforce hampers competitiveness and imposes heavy costs on all parts of society. The report of the WHO commission of macroeconomics and health, estimates for example that returns of 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 process and products (Kremer, 1993).

Market efficiency
For ensuring that goods, labour and finance are allocated in the most productive manner in economy market efficiency is crucial. The pillar is calculated by evaluation of openness of markets (limitations on entry and exit barriers), level of distorting government intervention in the market (regulatory instruments should be designed to keep such side effects to a minimum) and the size of the market available to actors in the economy (since the larger the market, the more intense the competition (Alesina, 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 adaptation of information technologies, with productivity increases registered particularly in sectors using ICT extensively (Van Reenen & Sadun, 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, 2006).

Innovation
The last pillar is particularly important for countries that have reached high-tech frontier, as it is the only self sustaining driver of growth (Trajtenberg, 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 used to determine the competitiveness and attractiveness of Singapore as a country. In **Appendix F** an overview of the different sub-indices can be seen.

Stage 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 that in order to sustain this higher income, labour productivity must improve. Lopez Claros and Porter (2007) distinguish the following stages: factor-driven stage, efficiency driven stage and innovation driven stage (see **figure 2.5** & **2.6**). In the 2006-2007 index, Singapore is scaled 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 distinctive producers and a high share of services in the economy and is quite resilient to external shocks (Lopez Claros, Porter et al., 2007).

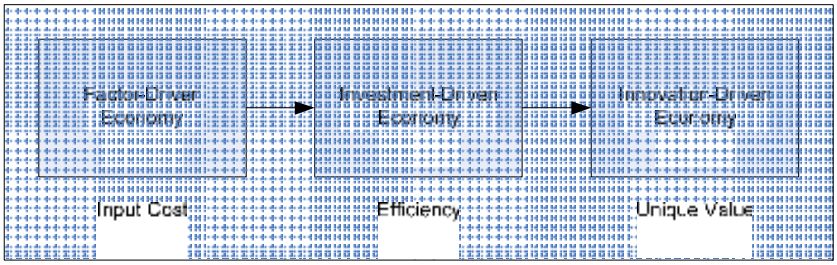

Figure 2.5: Stages of Competitive Development (Lopez-Claros & Porter, 2007)

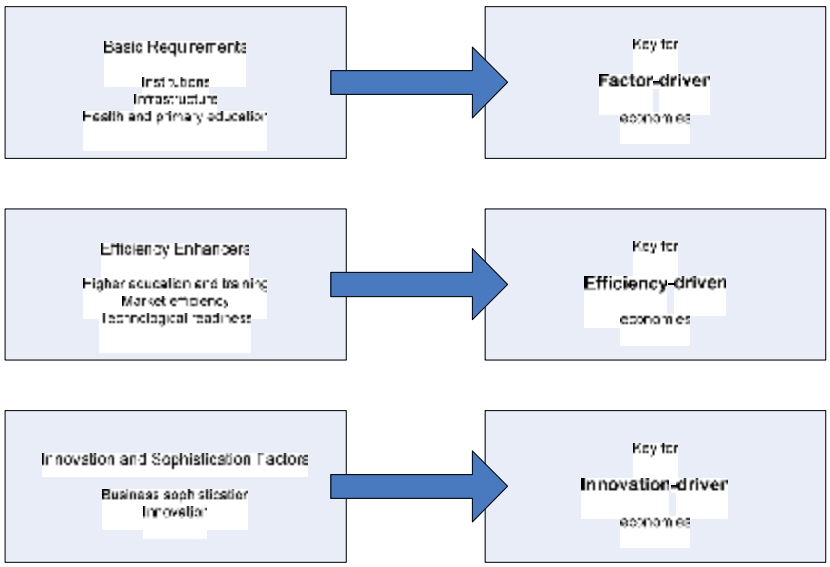

Figure 2.6: Composition of Sub-indices (Lopez-Claros & Porter, 2007)

Attractiveness is for a large extent qualitative described and where possible substantiated with the global competitiveness report and other internationally recognised indices and ratios. A qualitative analysis of the attractiveness is sufficient as the study is used as a mode of inquiry and not a narrow technical methodology in regional economic analysis (Fesser and Luger, 2003).

2.3 Graphical Overview Cluster Study Framework for Singapore

To summarise, in 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.

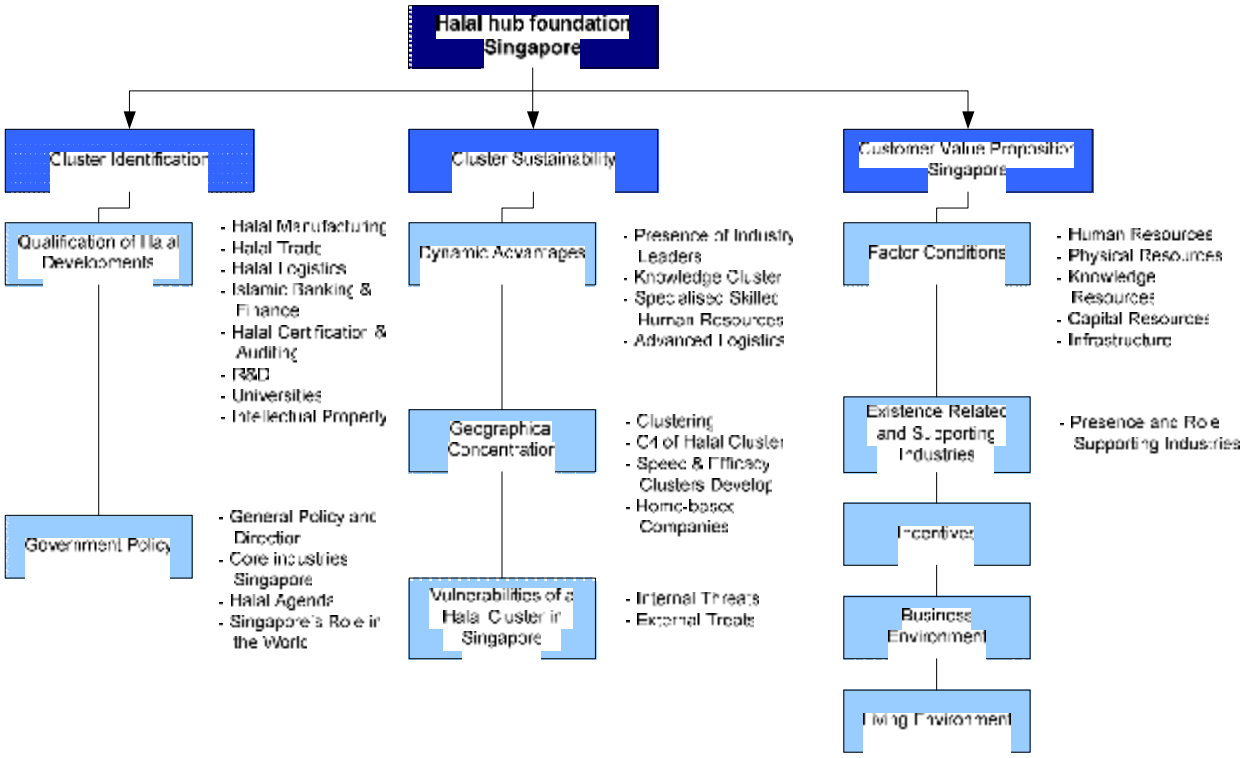

Figure 2.7: Cluster Study Framework Singapore

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 cluster characteristics and developments and consists of the Qualification of Halal developments – including Manufacturing; Trade; Logistics; Islamic Banking and Finance. Halal Certification and Auditing; Research and Development ; and Universities – and Government policy – including General Policy and Direction; 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 run-down entrepôt 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 features and policy measures. A central factor was its outward orientation and ability to plug into the global economy at a time when import-substituting industrialisation was still the dominating strategy by far among developing countries.

Today, Singapore positions itself as having unique *CORE* advantages:

- *Connectivity* - 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.
- *Enterprise* - Companies constantly benefit from, and add to, the vibrancy of Singapore's enterprise ecosystem – the lively interactions among companies big and small, local and foreign from diverse industries. And driving the ecosystem is our enterprising workforce, listed 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 communication and media, and regional headquarters operations. Moving forward, Singapore will enhance their strengths in these clusters by pushing up the value chain into R&D, innovation, value manufacturing, and supply chain management. The Economic Development Board of Singapore (further referred to as EDB) – the organisation responsible for the continuous economic success of Singapore and the companies on its shores – is also actively developing emerging areas which can become future growth engines in the economy (Economic Development Board of Singapore, 2007). 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 strength of Singapore in Halal production do not exist (Islamic Religious Council of Singapore, 2007).

Singapore food manufacturing industry
There are nearly 700 food manufacturing establishments in Singapore, engaging in various aspects of food production, out of which more than half are catering mainly for the export market. In 2006, the total trade generated by the industry was SD15.2 billion, of which nearly 40.5 percent was made up of exports (IE 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 MUIS Halal certificate by the United Arab Emirates (Ministry of Trade and Industry, 2007).

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

Singapore cosmetics manufacturing industry
Singapore is the leading cosmetics hub in Asia. Singapore's Economic Development Board (EDB) is committed to develop 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 suppliers (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's 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 initiative 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 can 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 developments have not emerged (yet). In addition, Singapore lacks the facilities and processes for an integer 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 handled 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 end 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-end products (high value, low volumes) 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 extensive pure handling and it is therefore expected that this will cost too much to be worth investing in (CWT Logistics, 2007)(Civil Aviation Authority of Singapore, 2007).

3.1.5 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 Kee Jin, 2003). Currently, the Singapore financial cluster contributes for 11.2% to Singapore's GDP in 2006 and grew 9.2% as compared to 2005 (Ministry of Trade and Industry, 2007).

Capitalising 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.

Initiatives to Promote Islamic Finance

Regulatory treatment

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 recognises that there are differences between Islamic and conventional finance and is prepared to refine 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 interested in establishing a presence in Singapore will be assessed based on the existing admission framework.

Tax treatment

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 areas 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 *Wadiah* deposit accounts. In 2005, a slew of new products were introduced into the market including *Murabaha* financing facilities and *Shari'ah* compliant term products. Islamic insurance or *Takaful*, has also been successful in Singapore with over SD500 million *Takaful* funds under management. There are now about SD2 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 *Shari'ah* compliant pan Asian equity index was launched in Singapore in February 2006. This index serves as a benchmark for *Shari'ah* compliant funds investing in Asian equities, and paves the way for the growth of *Shari'ah*-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**). Majlis Ugama Islam Singapura (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 to advise 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 Majlis 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 that product, the provision of that service or the carrying out of that activity.*
- Section 88A(5): *Any person who, without the approval of the Majlis a) issues a Halal certificate in relation to any product, service or activity; or b) uses any specified Halal certification mark or any colourable imitation thereof, shall be guilty of an offence and shall be liable on conviction to a fine not exceeding $$10,000 or to imprisonment for a term not exceeding 12 months 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 1900 premises – with an average of 10% annual growth – premises 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).

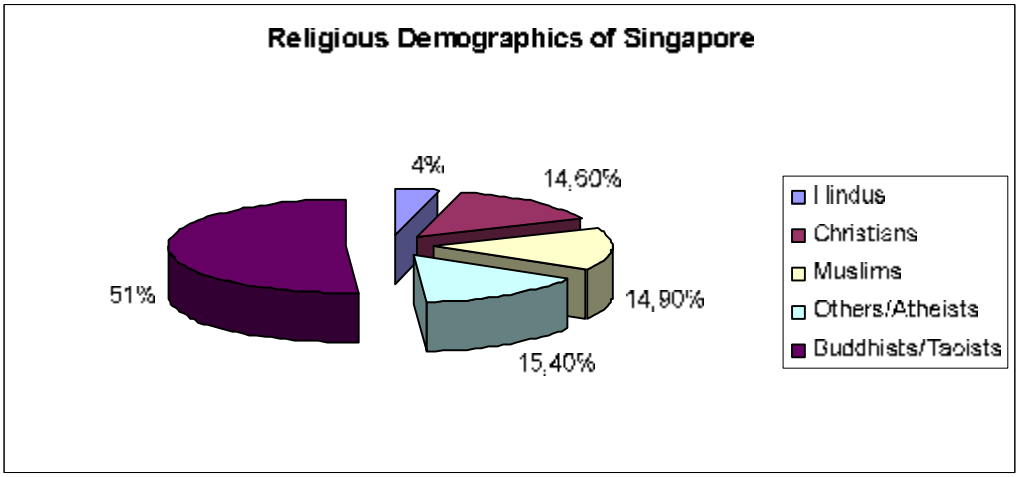

Figure 3.1: Religions Demographics of Singapore (Islamic Religious Council of Singapore, 2007)

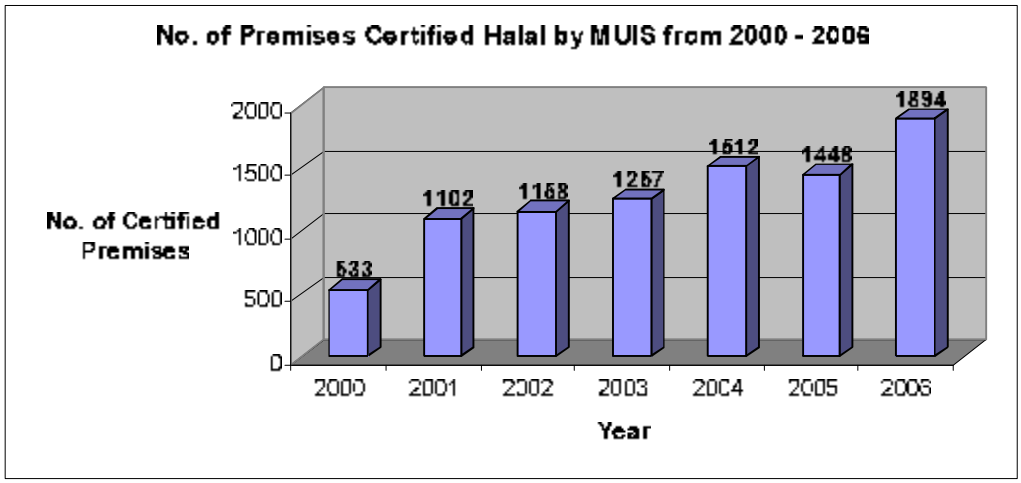

Figure 3.2: Number of Premises Certified Halal by MUIS from 2000 – 2006 (Islamic Religious Council of Singapore, 2007)

In July 2007 MUIS will launch a worldwide Halal standard. This standard is developed in congruency 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 MABIMS – 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 a thorough inspection and auditing process (CWT Logistics, 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 Municipalities to recognise 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 largest Middle East market for Singapore's food exports worth SD102 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 SD252 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 yet the best, but it accommodates scientist 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 S$1.582 million, which was 2.36% of gross domestic product (GDP). Singapore aims to close the gap with developed countries by raising its R&D expenditure to the industrialised nations' average of 2% - 3% of GDP (see **Appendix A** for R&D expenditure in 2005) (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 S$13.55 billion to different agencies to promote R&D. Of this, S$5 billion will be allocated to the NRF for longer term strategic programmes, S$7.5 billion to the Ministry of Trade and Industry for economic-oriented R&D and related investment promotion activities, and S$1.05 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 peaks 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 industry 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 aim high and they achieve very good results, which is recognized globally. Singapore also has good universities, with capable leaders and scholars, and facilities that are amongst the best in the world (Lopez Claros et al., 2006).

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 quarrile (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 enabling the staff of Halal Certified premises 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 instituted at, at least two, smaller institutes (no universities) which intend to incorporate this 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 fulfil a key role when Halal comes into play. 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 conductive '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 equitable 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 (Lopez-Claros 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 (Ministry of Trade and Industry). The Singapore IP regime has a big potential to play a key role in the protection of Halal pharmaceuticals as well as Halal cosmetics and can form a great risk 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 establish 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.

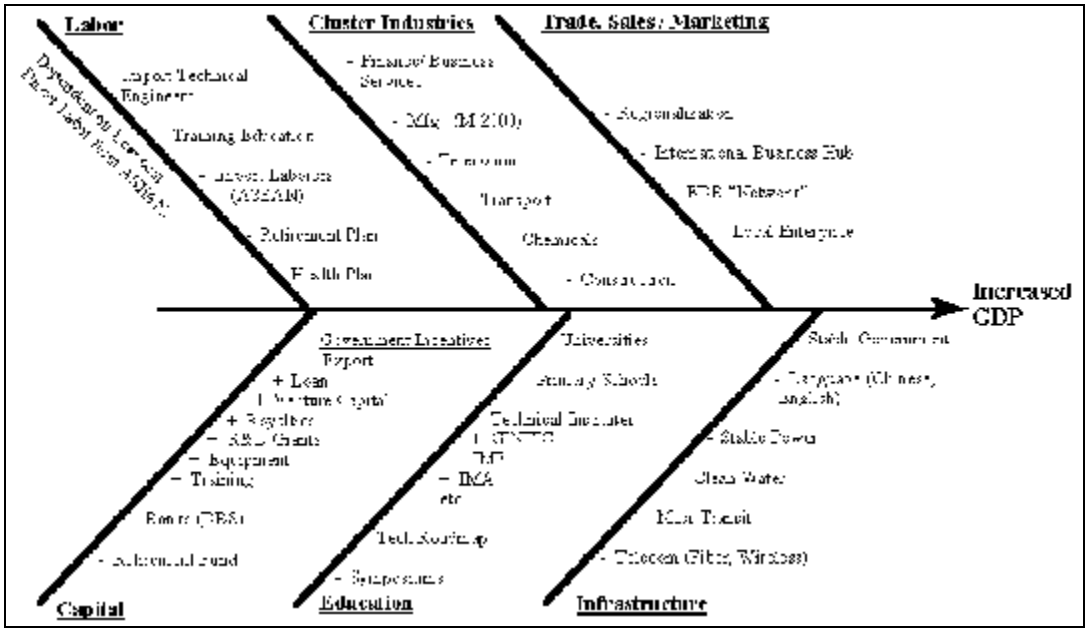

Figure 3.3: Integrated Strategy Singapore (WTEC Hyper Librarian, 1997)

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 authority, shares common goals. They have created money exchange control regulations that are business-friendly but regulated. They offer attractive tax incentives for promoted investments ranging from pioneer status (partial exemption from income tax payments) to investment tax allowances. Rebates, deductions, R&D training, and incentive programs for skills training are 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 labour-intensive 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 monetary support and establishes R&D facilities that help train students and workers while receiving government's assistance 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. The key, as it has been perceived, is to stay agile and be open to alternatives, while keeping a nest egg for difficult times. Singapore's large international reserves serve this purpose. The Singapore Economic Development Board (EDB) has SD1 billion in a cluster development fund to support the growth of manufacturing GDP and achievement of 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 SD20 billion budget surplus, so EDB has the funds for such investments. EDB is empowered to represent the many constituents of the Singapore government, thus reducing the confusion of *doing business* in Singapore. To facilitate investment, EDB works closely with a variety of organizations, including Jurong Town Corporation, JTC (responsible for land and factory space); the Development Bank of Singapore, DBS (responsible for capital and financing); the National Science and Technology Board, NSTB (responsible for technology development and transfer), the Productivity Standards Board, PSB (responsible for standards, measurements, and testing); and the Trade Development Board, TDB (responsible for export trade). The EDB has therefore large funds available to realise the GDP growth targets and obtaining sufficient FDI. 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 been on the increase, though an explicit policy goal is to preserve a strong status as manufacturing centre. With changing comparative and competitive advantages, the manufacturing sector needs to be continuously restructured 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 'hollowing-out' 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 wing' 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 eroded, and its neighbours, Malaysia in particular, will have an interest in developing their own service sector.

In the past few years, competition in port services 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 is also fast-becoming a target for policy. Services such as first-class IT, financial services as well as exportable services including health care, education, engineering and management and consultancy services are becoming indispensable components of the republic's competitive advantage as neighbouring countries' manufacturing capabilities develop. The government does not support a development like one 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 severe 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 continues to pour in (Blomqvist, 2005).

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

- Biomedical Science;
- Chemicals (including oil refinery 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 developments are 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 exists 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 *kiasi* spirit 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 Rohde & Liesenfeld, 2007).

3.2.4 Singapore's Role in the International World

Singapore has the highest GDP-Trade ratio of the world. As one of the world largest trading nations, Singapore constantly seeks to enhance the trading environment by entering in 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, Nestlé 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.

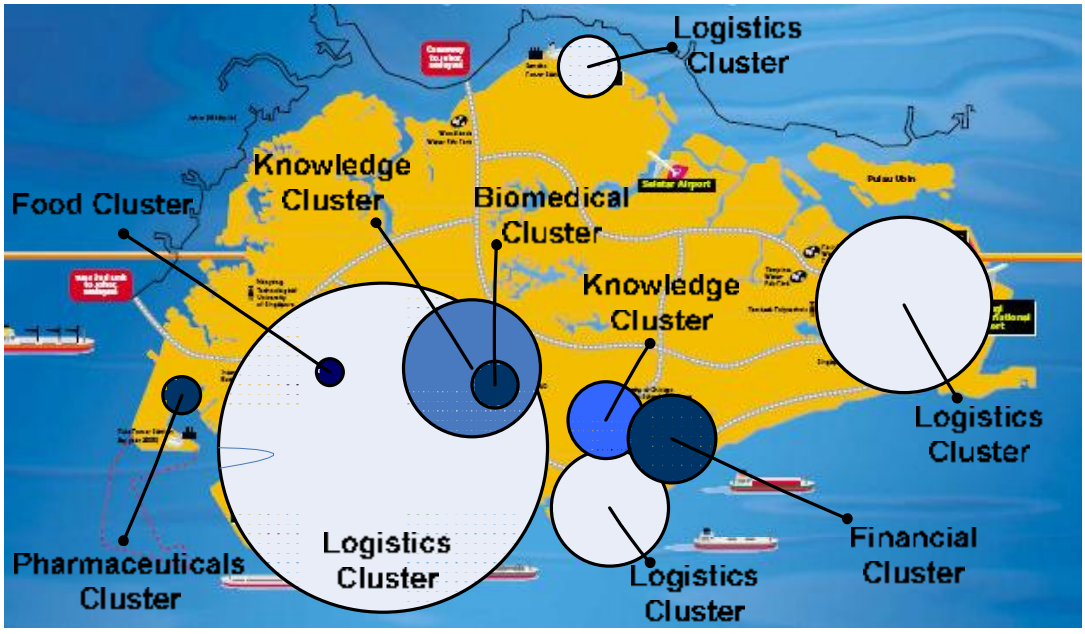

Figure 3.4: Relevant Clusters with regards to Halal in Singapore (MDS Logistics, 2007)

As can be seen in the figure above, Singapore lacks the existence of a dedicated Halal cluster. However, a robust foundation to reinstate into Halal is 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

Banking & finance
The financial services industry is a significant component of Singapore's economy. Today, financial services account for 11.2% of Singapore's GDP (Economic Survey of Singapore, 2006). It has the highest value-add in the services industry. Banks which have their regional bases in Singapore include leading banks like Citibank, ABN Amro 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 Citigroup, Standard Chartered Bank, CIMB Banking Group, HSBC Amanah and OCBC Bank Singapore.

Biomedical sciences
Singapore offers unlimited opportunities for Biomedical Sciences (BMS) companies. The goal is to develop the BMS cluster – comprising pharmaceuticals, medical technology, biotechnology, and healthcare services – into a key pillar of the Singapore Economy. Strong government support and a pro-business environment have attracted industry leaders such as Aventis, Baxter, Beckton-Dickinson, Eli Lilly, Glaxo Smith Kline, Johns Hopkins, Merck & Co, Novartis, Pfizer, Schering-Plough, Siemens and Wyeth coming to 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.

Chemicals
Singapore is looking at building on its traditional strength as a petrochemicals hub. Besides being among the world's top 3 oil refining centre and trading hub (Singapore is Asia's Oil Product Pricing Centre), Singapore is also among the top 5 bulk liquids ports in the world, Asia's hub for lubes additives, top in the world for marine coatings for ship repair and maintenance and home to 8 of the world's top 9 flavours and fragrances companies. With unwavering focus on relevant infrastructure, technology and a total solutions approach integrating innovation, manufacturing, regional distribution, marketing and other services – Singapore offers a cost-competitive and synergistic environment for 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 only 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 fulfil this role very well.

Logistics
Singapore has its sights 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, electronics distributors and chemicals logistics companies. The logistics industry has shifted from providing transportation and warehousing, to offering total integrated logistics solutions.

Major players in the logistics services sector include: FedEx, TNT, UPS, DHL, CWT Logistics, SembCorp Logistics, ST Logistics, Avnet Asia, MSAS Global Logistics and Bax Global (Contact Singapore, 2007).

4.1.2 Knowledge Cluster

Singapore has a strong knowledge cluster. Ample 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 supports the commercialisation leverage of this knowledge.

4.1.3 Specialised Skilled Human Resources

Singapore offers world renowned higher education via universities and other learning institutes and this ensures a well trained and educated workforce, especially in the field 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 Area (Economic Development Board of Singapore, 2004)

Singapore has world-class seaports (PSA Singapore Terminals, Jurong Port), a leading international airport (Changi), and a regional airport (Seletar)(see **figure 4.1**). The logistics facilities in Singapore are amongst the best in the world (Lopez-Claros et al., 2006).

4.2 Geographical Concentration

4.2.1 Clustering

Singapore has a strong foundation offering the possibility to translate easily 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 Aliyn Group, a strategic partner of MDS Logistics based in Thailand, has developed a tool to make sure work is done *correct, consistent, complete* and *clear* and can be considered as an internal quality standard. For the cluster analysis the C4 principle can be translated into the fact that the more C4 (Correct – Consistent Complete – 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.

Correctness
MUIS developed a new Halal certification standard in congruency 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 MABIMS – the unofficial meeting of the Religious Ministers of Brunei, Indonesia, Malaysia and Singapore. Besides, the current standard is accepted by by many other Halal certifying bodies worldwide such as those in South-Africa, Australia, the US, 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 looseness of the certification process itself. As compared to Malaysia, Halal certification sometimes is granted without a thorough inspection and auditing process (CWT Logistics, 2007).

Consistency
The Halal industry is currently no focus area of the Singapore government. However, players mainly in the food manufacturing industry (ranging from oils, additives and flavourings to meat and dairy products) see the benefits of Halal certification and are Halal certified by MUIS.

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

Completeness
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 competitively in finance, logistics, research and development, pharmaceuticals, cosmetics and biomedical products it is not expected that the country will translate into Halal. First, Singapore will continue to grow economically further on high-end products, like in the industries mentioned above. Secondly, Singapore is a large trader in pork 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).

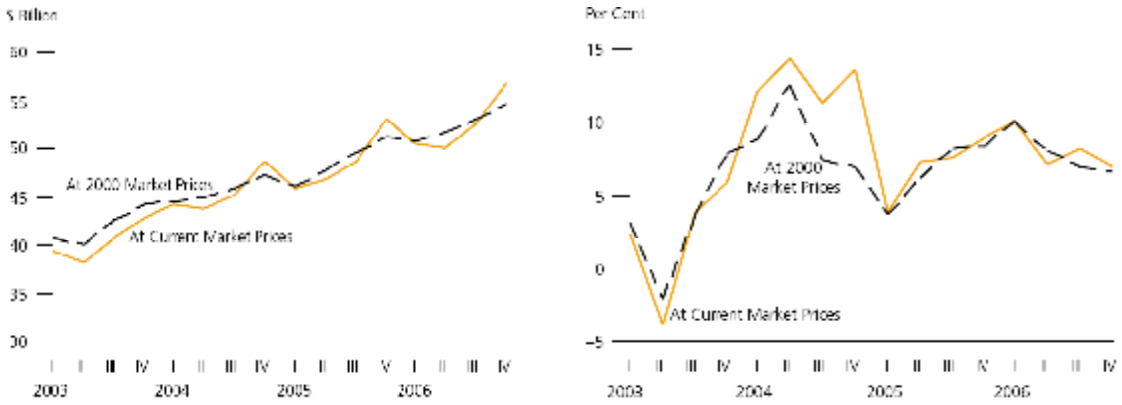

Figure 4.2: GDP at Market Prices and Change in GDP at Market Prices (Ministry of Trade and Industry, 2007)

Role of country 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. As competition intensified from both developed and developing countries, Singapore moved up the technology chain so as to stay ahead. 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 upgrading 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 Halal and the opportunities Halal offers. However, as outlined above and as became clear from the interviews with the Civil Aviation Authority of Singapore (2007) and CWT Logistics (2007), when Singapore steps into Halal the expectation is that the focus will be on high-end products, i.e. Halal pharmaceuticals, due to its knowledge and innovation focused position in the value chain.

4.2.4 Home-based Companies

Private sector structure

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, transportation, shipbuilding, and services (Ramirez et al., 2003). Actually less room was left for private owned companies in a business environment dominated by GLCs. Nowadays however the trend is towards more privatisation.

Role of government-linked companies

Singapore has a large number of government linked companies (GLCs), although the trend from the late 1980s has been towards more privatisation. This has not kept the government from pursuing so called rolling privatisation, 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 mainly through three holding companies, Temasek Holdings, MND Holdings and Sheng-Li Holding Company. The contribution to GDP

by the Singapore GLCs 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).

Characteristically for the Singapore government is its pragmatic view of GLCs: 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 stood in contrast to the generally held view of GLCs as unprofitable and inefficient state-controlled enterprises. This attests to the fact that GLCs are operated strictly on a commercial basis and enjoy no favours or guarantees from the government. The authorities reiterate 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 2004 following the enactment of the Competition Act (Blomqvist, 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 weaker.
- 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, land 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 threats for a Halal cluster in Singapore are embodied in the neighbouring countries Malaysia and Indonesia. Both of these countries have a significant bigger Muslim population and, therefore a larger home 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 country into a global Halal hub. When Singapore translates into Halal it will elicit 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 practised by GLCs.

V. Customer value proposition of Singapore

FDI attraction is an important issue for the Malaysian government (Economic Planning Unit, 2006) and as a consequence it is relevant to evaluate the attractiveness for FDI in Singapore. The topics discussed are Factor conditions and Supporting and relating 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 emphasises, 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 (Blomqvist, 2005).

Availability of cheap labour
Since Singaporeans are 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 migration is disruptive to society, its immigration policy since the 1970s ensures that unskilled and low-skilled migrants 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 (Yeoh, 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 a more responsive and efficient labour market 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 broadening the criteria for granting permanent residence in Singapore, beyond formal educational qualifications and immediate economic contribution.

Singapore sees manufacturing and services as the twin engine 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 rates and fees however are increasing.

	2003	2004	2005	2006
Unit labour cost index of the overall economy	100.7	95.5	94.5	94
Unit business cost index of manufacturing	100.9	97.4	97.4	98
Unit Labour Cost	102.4	93.8	91.4	88.1
Services Cost	99.9	100.4	102.4	106.2
Government Rates & Fees	86.5	95.1	96.2	97.9

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 3.6%, 0.8% 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 islets. 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 limited size as island state to its land and surrounding water. This has impact on the availability of resources which is limited to marine products. However, Singapore has counteracted 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 against 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 centre 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: 42 Research & Development centres or institutes, 11 technical institutes, and 9 National research centres or institutes (National University of Singapore affiliated). Its research institutes are working at the forefront of technology to deliver better value for industry. In 2001, 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 under its wing 12 research centres that focus on a range of disciplines from info-communications technology and nanotechnology to 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

exchanges 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).

Governmental statistical agencies
Singapore has translated at transparent governance by the publication of statistical data on the internet. Next to that, several reports of different Ministries covering a broad range of topics can be downloaded. As a consequence, the information provision regarding macroeconomic data in Singapore is highly transparent. The main provider of statistical data is the Singapore Department of Statistics (Singapore Department of Statistics, 2007).

Universities and fairs
There are numerous universities in Singapore. 3 local universities, 9 International Universities and 6 Institutes of higher learning. (See also section **3.1.8 Universities**.)

Halal associations
In Singapore, the Majlis Ugama Islam Singapura (MUIS) was established as a statutory board in 1968 during the enactment of the Administration of Muslim Law Act (AMLA). According to AMLA, MUIS is responsible for advising the President of Singapore on all matters relating to Islam. One of the concerns of MUIS is administering and regulating Halal certification and auditing (Islamic Religious Council of Singapore, 2007). (See also section **3.1.6 Halal certification and auditing**.)

5.1.4 Capital Resources

Availability, and cost of capital
Singapore is home to a strong financial cluster including more than 500 of the world's largest and most reputable financial institutions. These financial institutions have chosen to serve the Asian region and beyond from their base in Singapore. (See also section **3.1.5 Islamic banking and finance**.)

Islamic banking, finance, and insurance
To strengthen Singapore's status as an international financial centre through its ability to offer a wide and complete range of financial services, the Monetary Authority of Singapore (MAS) stepped up its efforts on the development of Islamic financial services. MAS has also stepped up involvement in the standard setting work of the Islamic Financial Services Board as part of the commitment to contribute to the development of Islamic finance (Monetary Authority of Singapore, 2006). (See also section **3.1.5 Islamic banking and Finance**.)

5.1.5 Infrastructure

Competitiveness logistics
The Strategic location, efficient 24/7 operations, reliable physical and IT infrastructure, and excellent connectivity have made Singapore a compelling global logistics hub and supply chain management (SCM) nerve centre. Already more than 3,000 international and local logistics companies are based in Singapore. Logistics and SCM account for 8-9% of Singapore's GDP. Asia's SCM industry is projected to grow by over 25% per annum. Building on its traditional strengths in its seaports and airport, Singapore implemented two specialised logistics infrastructure projects – the Airport Logistics Park of Singapore (ALPS) and Banyang LogisPark on Jurong Island. Singapore's emphasis on logistics/SCM training and education provides the industry with a dynamic talent pool, well equipped to meet the challenges of the ever-changing supply chain needs (Economic Development Board of Singapore, 2007).

Competitiveness ICT
In terms of internet connectivity, there is now 27.6 terabits per second of bandwidth linking 99% of the Singaporean population to the world. As the world's 2nd most wired nation and Asia's most wired, Singapore is a 'plug and play' nation. A country where online banking, e-commerce and a mobile lifestyle have become

the norm; Singapore is viewed as Asia's premier lab 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 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), Forth Party Logistics Providers (4PL), and transportation;
- Medical Technology – manufacturing and R&D.

With regards to the Halal industry, MUIS is the only entity in the certifying process of premises with Halal certification. In the field of food & nutrition, cosmetics and pharmaceuticals (biotech) universities offer relating curricula, R&D, education and training, but this is not Halal related (yet)(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 a predetermined base.
- The Investment Allowance is an allowance on qualifying equipment costs incurred within a set period.
- The R&D and Intellectual Property Management Hub Scheme encourage companies to channel more funds (that is, via 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 organization, local or overseas

A Single Tax Deduction for patenting costs 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 IP management (Singapore Biomedical Sciences Initiative, 2007).

Halal incentives
Incentives in order to stimulate the Halal industry in Singapore do not exist. MUIS offers Halal trainings, 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 Malaysian 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 making profits. In the figures below the most problematic factors for doing business in Singapore and international rankings according to the Global Competitiveness Report 2006 – 2007 (Lopez-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 (Lopez-Claros et al., 2006).

5.5 Living Environment

Singapore was ranked as the 34th best places to live in (Mercer Human Resource Consulting, 2005-2006).

Stable society

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, religions 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 (Lopez-Claros 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 and 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 *kiasi*-spirit - that is, the fear of not surviving or falling behind. As a consequence, the Singapore business environment is characterized by entrepreneurship, strong dynamics and anticipation. These aspects might play a role as the Halal industry goes through an exponential growth and might trigger the interest of Singapore enterprises. 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, Chemicals, Electronics and Transportation & Logistics. Secondly, related with the former issue, no Halal agenda 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 realisation. Thirdly, Singapore is a large trader in pork and is establishing a gambling hub for Asia and this image will not match the branding of a dedicated Halal hub to be established in Singapore. It requires no explanation that both pork and gambling are not matching Islamic principles. Fourthly, the extensive segregation required for dedicated Halal facilities (e.g. cold room storage) requires space and low utilisation and might not be cost effective and therefore less attractive to invest in.

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

SW-Analysis Halal Cluster Singapore

Strengths	Weaknesses
• Presence of a strong financial cluster • Presence of a strong pharmaceutical/biomedical cluster • Presence of a strong logistics and trade foundation • Presence of a strong IP regime • 'Kiasi' spirit (fear of falling behind) of Singaporeans • Availability of funds by the Singapore government for realising GDP growth and development goals	• No Halal agenda by the Singapore government • Limited Muslim population → Limited home market • Underdevelopment of Halal supporting and supplying industries • High labour costs as compared to Malaysia and Singapore • High land prices → block development dedicated Halal parks

Figure 5.1: SW-Analysis of a Halal cluster in Singapore (MDS Logistics Sdn Bhd, 2007)

In the following chapter the findings (strengths – weaknesses) of the cluster analysis of Singapore will be evaluated with the strengths and weakness 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 is derived from interviews with Malaysian industry experts – Marco Tieman (MDS Logistics) and HDC. The outcome of the interviews is summarised in a SWOT Analysis in section 6.1, focussing 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.

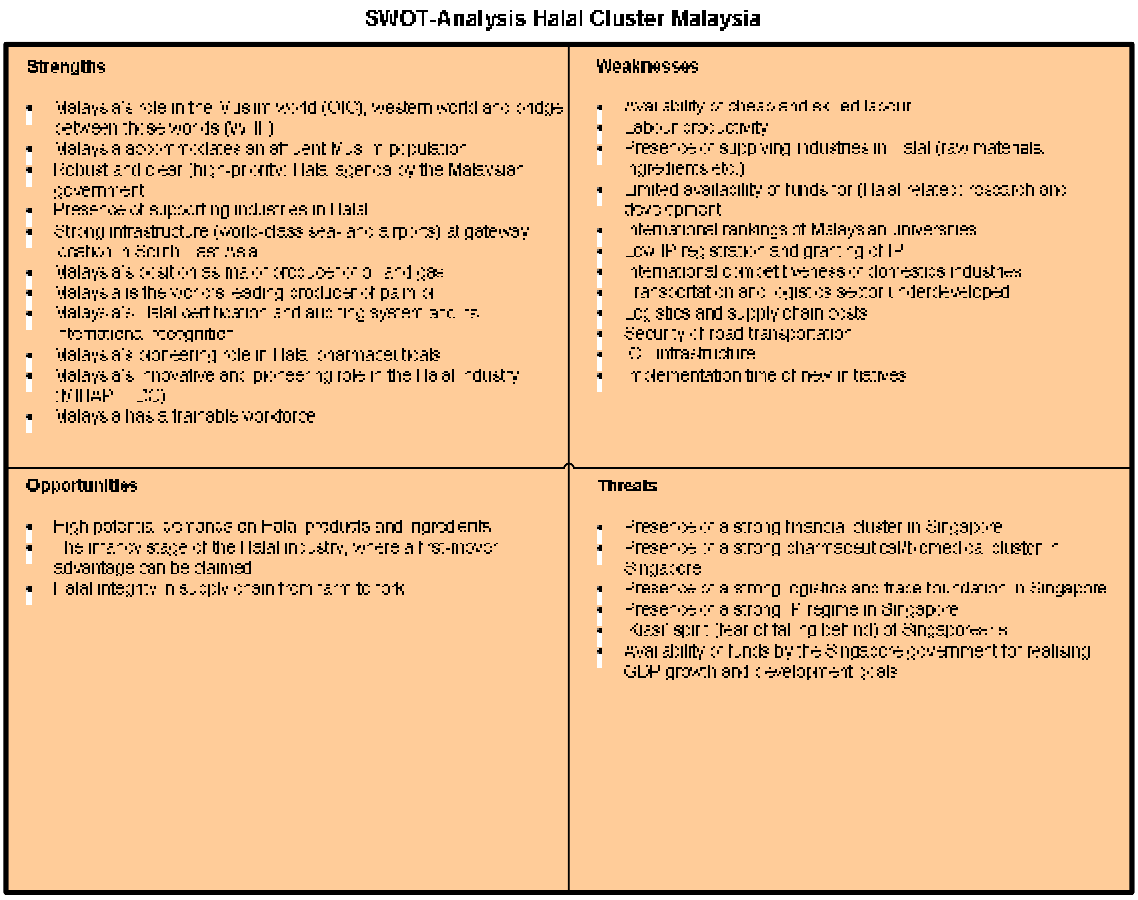

Figure 6.1: SWOT-Analysis of Malaysia's Halal cluster (MDS Logistics Sdn Bhd, 2007)

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 and 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:

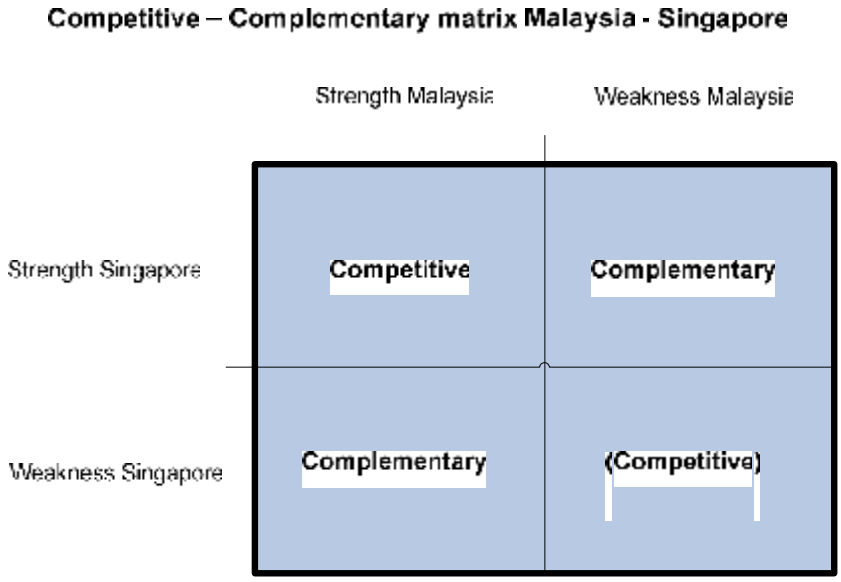

Figure 6.2: Competitive – Complementary matrix Malaysia – Singapore

In **figure 6.3** the evaluation between Malaysia and Singapore is graphically represented.

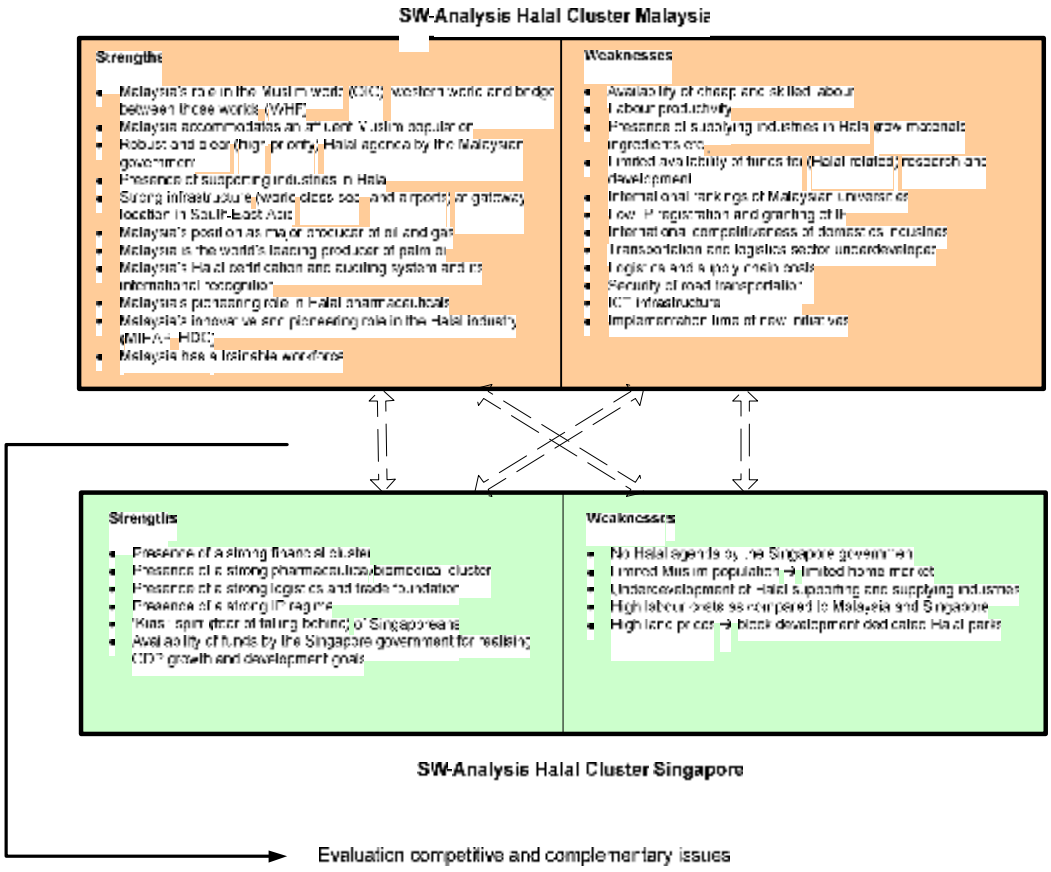

Figure 6.3: Competitive – Complementary issues analysis Malaysia – Singapore

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 IP regime in Singapore;
- Presence of a strong knowledge cluster in Singapore;
- Presence of supporting industries in Halal in Malaysia;
- Malaysia's Halal certification and auditing system;
- Land availability and competitive land prices in Malaysia;
- Extensive 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;
- Fund 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 analyses it now 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 & nutrition
    - Pharmaceuticals
    - Cosmetics

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

3. Halal Super Highway (MIHAP project) → Logistical efficiency

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

From this perspective it becomes clear that (Halal) logistics will play the 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-Analysis, the Malaysian logistics and transportation sector (as compared to Singapore) is underdeveloped. Besides, the logistics and supply chain costs are a main concern. (In **Appendix F** a brief 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 capitalise upon the complementarities and economies of scale between the two countries, is reflected in the problem definition of this research:

How should HDC capitalise upon complementarities and economies of scale between Malaysia and Singapore in the development of Malaysia as 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 into a global Halal hub, long term investments in the country's logistical facilities and infrastructure are necessary and inevitable due to the fact Malaysia cannot solely rely on the logistical facilities in Singapore with 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 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 sophistication 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 Latrade 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 overview of action 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 Hub 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 (IMP3) 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 2008.

From this 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 time line can be seen in the following figure:

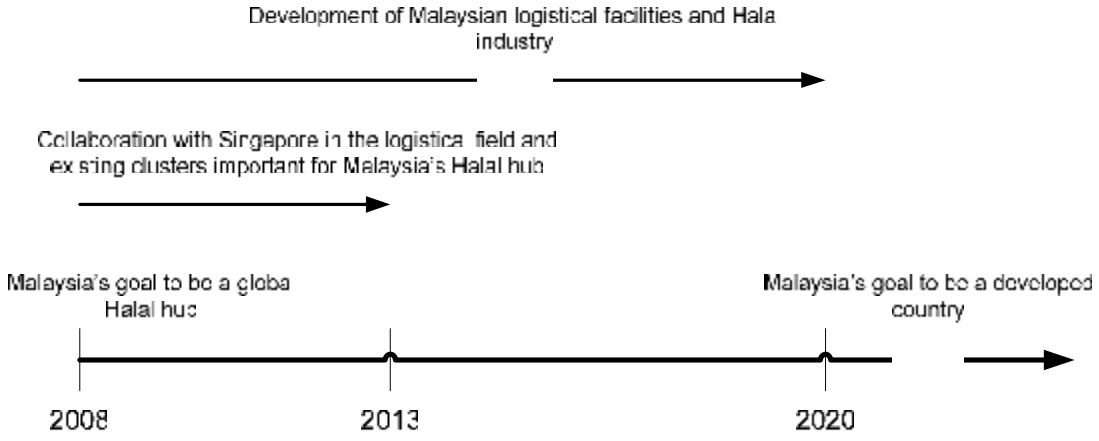

Figure 6.5: Time line development of Malaysia into a Halal hub

VII. Conclusion, recommendations and reflections

7.1 Conclusion

Malaysia has set itself the goal to become a global Halal hub by the year 2008. Halal refers, in short terms, to 'things or actions permitted by the *Shariah* law'. 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.*

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 facilitation of greater collaboration and capitalising upon complementarities and economies of scale between Malaysia and Singapore. This cluster study offers a helpful framework and evaluation 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 consist of food, knowledge, biomedical, cosmetics, pharmaceuticals, finance and logistics. These clusters are developed very well and are able become 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, Singaporeans are well-known for their *kiasi*-spirit - that is the fear of not surviving or falling behind – which might play a role as the Halal industry goes 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 with the former issue, no Halal agenda on macro-economic scale by the Singapore government does exist. Thirdly, Singapore is a large trader in pork and is establishing a gambling 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 utilisation and might not be cost effective and therefore less attractive to invest in.

Despite the fact that Singapore is labelled by HDC as 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 fulfil 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. Synergies are derived from differential endowments and strengths. Singapore and Malaysia clearly do have significantly different competitive positions, which suggest that there

are 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 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. 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 sophistication 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 Latrade 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, biomedical 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 this recommendation 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 capitalised easily in order to strengthen the Malaysian Halal hub.

- 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 future 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 four months by just one researcher, although normally clusters are investigated over a longer period of time and at

least by a team consisting of several researchers. Compare: 'Porter (1990) and his researchers conducted hundreds of interviews with business executives, labour leaders, academics consultants, bankers, industry experts, and others to document the role of clusters in shaping national competitive advantage.'

7.3 Reflections

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

- *Methodology 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 stepped into the project without actually having clear in mind what the construction is for a scientifically substantiated thesis. This resulted in a quite vague first terms of reference, a bit incomprehensible for both me as well as my supervisor Stephan Matthuis. Fortunately, Stephan obliged to me have a critical look at the research – and not only from the company point of view, but also from a scientifically point of view – and ensured me to be focussed on how I should conduct this research. I'm still very thankful for that, because with a good overview on how to execute a research, the red line of your work is right in front of you. Of course, in consultation with your supervisor, adaptations 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 academically 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 in Silicon Valley and Route 128 was founded principally on 160 in-depth interviews with entrepreneurs, industry leaders, corporate executives, and leaders of local business organizations (Saxenian, 1994);

- Porter (1990) and his researchers conducted hundreds of interviews with business executives, labour 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 foundation 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, narrowly cooperation with colleagues was inevitable. During the research I was responsible for three other – Malaysian – colleagues (cluster studies on Malaysia and Indonesia), but as a result of our different cultural backgrounds we had to cope with some frictions – they experienced I was too direct in my communication, and overlooked the typical

Asian aspect of losing one's face. I solved this problem to explain 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 inconvenient 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 in 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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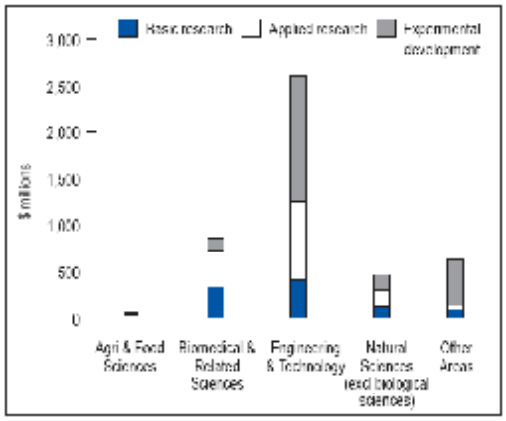
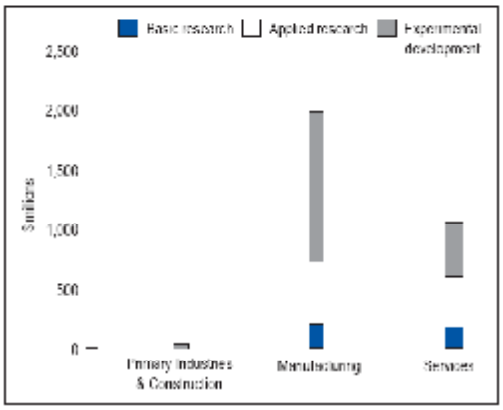
Appendix A: R&D Expenditure in Singapore in 2005

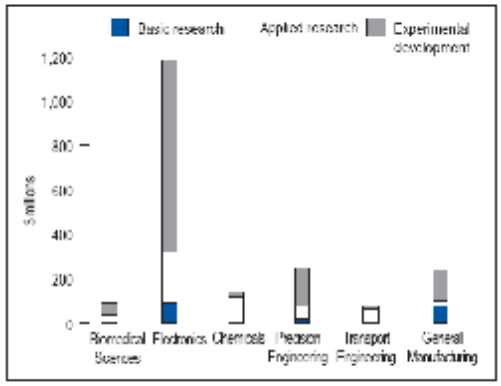
Distribution of R&D expenditure by field of S&T



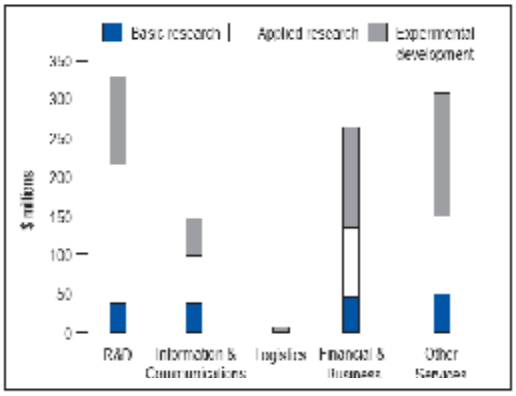
Distribution of R&D expenditure in the private sector



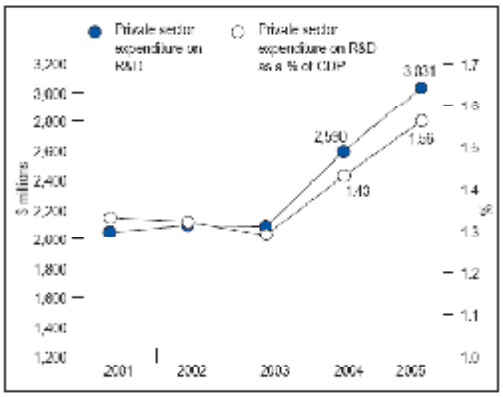
Distribution of R&D expenditure in the manufacturing industries



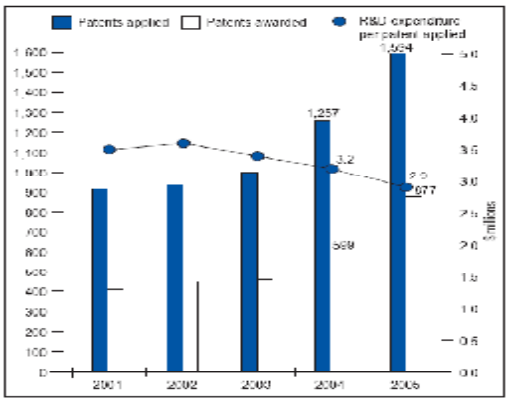
Distribution of R&D expenditure in the services industries



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 KSFTA is a milestone in Singapore's free trade efforts 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 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 ACFTA 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 freer flow of capital. Leaders also acknowledged the importance of ASEAN 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 by 2015*, 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 18th APEC Ministerial Meeting in Hanoi in November 2006, Ministers endorsed the Ha Noi Action Plan to implement the APEC Busan Roadmap to accelerate progress towards the Bogor Goals of free and open trade and investment liberalisation in the region. The Ha Noi 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 as many commonly accepted RTAs/FTAs chapters as possible can be developed by 2008. On trade facilitation, a review report of the Trade Facilitation Action Plan concluded that APEC met the target of a 5.0 per cent reduction in trade transaction costs by 2006. Ministers agreed that APEC should work towards achieving another 5.0 per cent reduction by 2010.

External Trade

At the 14th APEC Economic Leaders' Meeting in November 2006, 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 2.1]

	2005		2006				2006
	4th Qtr	Annual	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Annual
	Percentage Change Over Same Period Of Previous Year						
TOTAL	8.3	6.6	10.1	8.0	7.0	6.6	7.9
Goods Producing Industries	12.7	8.0	15.1	10.3	8.9	7.2	10.2
Manufacturing	14.5	9.5	18.6	11.9	9.5	7.7	11.5
Construction	4.9	0.7	-0.7	0.9	5.8	4.7	2.7
Services Producing Industries	6.6	6.4	8.2	6.9	6.3	6.6	7.0
Wholesale & Retail Trade	7.5	9.6	14.8	9.5	10.4	6.9	10.3
Transport & Storage	4.6	4.2	5.3	4.0	4.0	4.0	4.3
Hotels & Restaurants	5.0	4.3	6.2	3.8	4.4	6.1	5.1
Information & Communications	5.6	5.5	5.1	3.7	3.6	6.0	4.6
Financial Services	7.6	7.6	8.7	9.6	7.4	11.1	9.2
Business Services	8.5	5.9	6.1	6.6	5.1	5.4	5.8
	Annualised Percentage Change Over Preceding Quarter						
TOTAL	9.3	6.6	9.1	5.4	3.9	7.9	7.9
Goods Producing Industries	19.8	8.0	3.4	1.5	11.9	11.1	10.2
Manufacturing	20.9	9.5	3.4	2.3	12.3	11.5	11.5
Construction	18.0	0.7	2.0	-6.9	12.5	12.2	2.7
Services Producing Industries	6.0	6.4	9.6	8.6	0.8	7.9	7.0
Wholesale & Retail Trade	5.9	9.6	26.2	0.8	8.2	-3.5	10.3
Transport & Storage	6.5	4.2	3.9	2.9	2.9	6.1	4.3
Hotels & Restaurants	3.2	4.3	8.0	5.7	1.5	9.7	5.1
Information & Communications	2.2	5.5	-2.0	7.4	6.8	11.6	4.6
Financial Services	11.7	7.6	13.6	25.1	-16.2	28.2	9.2
Business Services	6.6	5.9	0.1	9.9	4.0	7.9	5.8

Source: Singapore Department of Statistics

PERCENTAGE CONTRIBUTION TO GROWTH IN REAL GDP

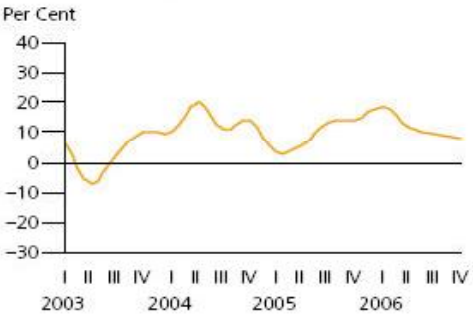
[TABLE 2.2]

	2005		2006				2006
	4th Qtr	Annual	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Annual
TOTAL	8.3	6.6	10.1	8.0	7.0	6.6	7.9
Goods Producing Industries	4.0	2.5	4.5	3.1	2.8	2.4	3.2
Manufacturing	3.8	2.4	4.5	3.0	2.5	2.1	3.0
Construction	0.2	0.0	0.0	0.0	0.2	0.2	0.1
Services Producing Industries	4.1	4.0	5.2	4.4	4.0	4.0	4.4
Wholesale & Retail Trade	1.2	1.5	2.3	1.5	1.7	1.1	1.6
Transport & Storage	0.4	0.4	0.5	0.4	0.4	0.4	0.4
Hotels & Restaurants	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Information & Communications	0.2	0.2	0.2	0.2	0.1	0.2	0.2
Financial Services	0.8	0.8	1.0	1.1	0.8	1.2	1.0
Business Services	0.9	0.7	0.7	0.7	0.6	0.6	0.6

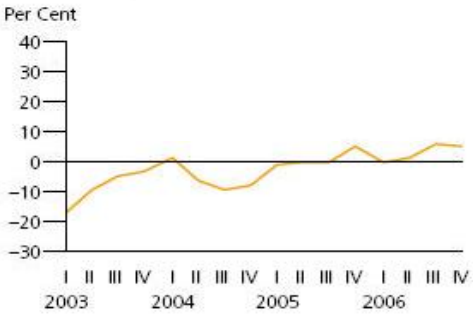
Source: Singapore Department of Statistics

Changes in real GDP by industry (Ministry of Trade and Industry, 2007)

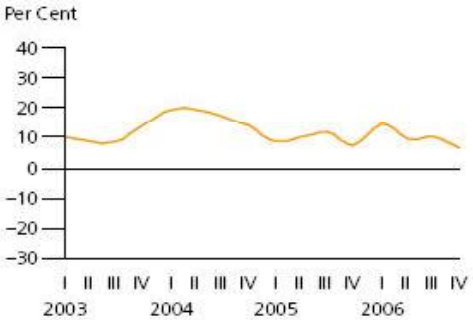
MANUFACTURING



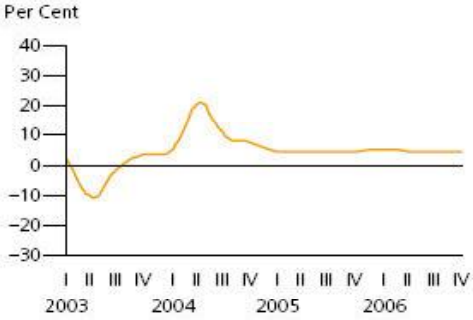
CONSTRUCTION



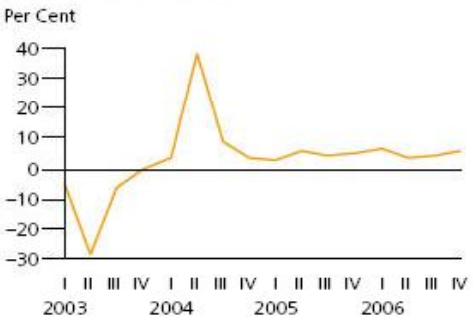
WHOLESALE & RETAIL TRADE



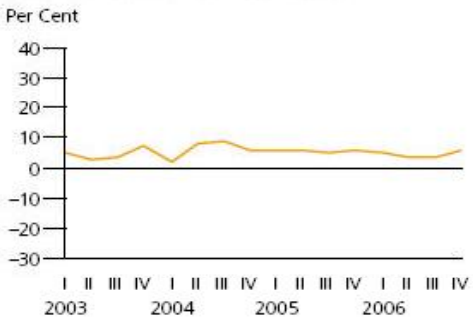
TRANSPORT & STORAGE



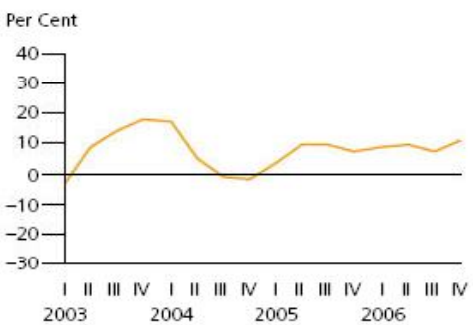
HOTELS & RESTAURANTS



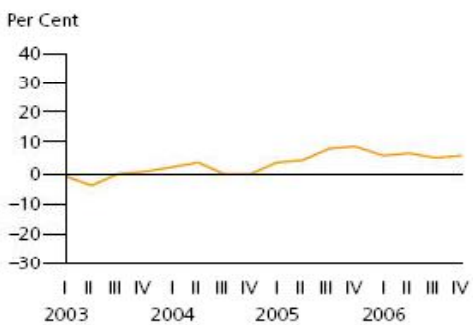
INFORMATION & COMMUNICATIONS



FINANCIAL SERVICES



BUSINESS SERVICES



Appendix D: Comparison of Incentives (MDS Logistics, 2007)

Comparison of incentives in four key industries between Malaysia and Singapore

Biotechnology

Malaysia	Singapore
Venture Capital funding; ○ Pre Start Up - Form of funding: Initial capital fund up to maximum of RM300,000 ○ Start-Up - Form of funding: Fund of 30% of investment costs to undertake the proposed project or RM 1,000,000 whichever lower ○ Growth - Form of funding: Fund up to maximum RM 3,000,000 or 30% equity based on company's appropriate valuation, whichever lower	Venture Capital Fund Incentives ○ Partial or full corporate tax exemption on income from divestment of shares, foreign dividends and foreign interest income. ○ Losses incurred from the sale of shares, up to 100% of equity invested, can be set off against the investor's other taxable income
	Start-up Enterprise Development Scheme (SEEDS): ○ The start-up 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 SD300,000. ○ 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
Pioneer Status ○ Tax exemption of 100% of statutory income for 5 years OR ○ Investment Tax Allowance (ITA) - ITA of 60% on qualifying capital expenditure for five	Technopreneur Investment Incentive Scheme (TII) ○ 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. ○ The start-up can then issue certificates to its investors up to a maximum

years which can be offset against 100% of the statutory income	investment of SD3million. Investors with valid certificates are entitled to deduct their loss amount against their taxable income.
Pre-Packaged Incentives ○ Customised packages that cover both tax and non-tax incentives	Domestic Sector Productivity Fund ○ Provides assistance through grants to cover up to 50% of the qualifying cost of the project. The major allowable cost items include: - Manpower-related costs - Equipment & materials - Professional services (e.g. consultancy & subcontracting) - Intellectual Property Rights (e.g. licensing, royalties & technology acquisition)
Incentives for Strategic Projects Pioneer Status ○ Tax exemption of 100% of statutory income for 10 years OR ○ Investment Tax Allowance (ITA) - ITA of 100% on qualifying capital expenditure for five years which can be offset against 100% of the statutory income	International Consultancy Fund ○ 50% of incremental eligible consultancy revenue is exempt
Incentives on R&D ○ Industries Research & Development Grant Scheme (GS - Duration: 3 years - Amount approved subject to a ceiling of RM 1 million or 70% of the approved project cost, whichever is lower ○ Double deduction for qualifying	Approved Royalties, Technical Assistance Fees and contributions to Research and Development costs ○ Paid to non-residents may be exempted from withholding tax. ○ Such exemption is typically granted in conjunction with other tax incentives such as the Pioneer incentives.

expenditure on R&D	
General incentives ○ Industrial Building Allowances ○ Initial allowance of 10% and annual allowance of 3%. The expenditure can be written off in 30 days. ○ Full Import duty exemptions for raw material/components and equipment and machinery	Expenditure on Research and Development [R&D] ○ Undertaken directly by companies or in relation to payments made to R&D organization for undertaking R&D on their behalf are tax deductible. ○ For certain approved R&D projects in Singapore, a deduction for twice the amount of the relevant expenditure incurred may be claimed.
Incentives on Software Development ○ Pioneer Status with tax exemption of 70% of their statutory income for a period of five (5) years	Double deduction for employing foreign talent ○ 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.
	Patenting costs ○ 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. Patenting Application Fund Plus (PAF Plus) ○ Helps defray costs of patent application ○ Encourages innovation and commercialisation of inventions
	Research Incentives Scheme for Companies (RISC) ○ Partial grants to offset costs resulting from R&D projects, which include manpower training, equipment investment, intellectual property management, and professional services.
	Investment Allowance ○ Exemption of taxable income

	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 SD200,000.
	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 (S19B) ○ Tax incentives: allows companies to write down its intellectual property (IP) acquisition costs over five years. Writing Down allowance for Cost Sharing Agreement (S19C) ○ Allows companies to write down cost-sharing payments for R&D activities, which are otherwise not deductible, over

	one to five years.
	Incentives New Technology Companies ○ Losses and capital allowances may be surrendered to an eligible holding company for the latter to claim as deduction.

Food Industries

Malaysia	**Singapore**
Venture Capital funding: ○ Pre-Start Up - Form of funding: Initial capital fund up to maximum of RM300,000 ○ Start Up - Form of funding: Fund of 30% of investment costs to undertake the proposed project or RM 1,000,000 whichever lower ○ Growth - Form of funding: Fund up to maximum RM 5,000,000 or 30% equity based on company's appropriate valuation, whichever lower	Venture Capital Fund Incentives ○ Partial or full corporate tax exemption on income from divestment of shares, foreign dividends and foreign interest income. ○ Losses incurred from the sale of shares, up to 100% of equity invested, can be set off against the investor's other taxable income
	Start up Enterprise Development Scheme (SEEDS): ○ The start-up 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 SD300,000. ○ 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
100% Tax Exemption for 10 years	Investment allowance – Tax Incentives ○ Further capital allowance on qualifying equipment costs incurred within a set period
Import duty exemption on raw materials,	Approved Royalties, Technical Assistance Fees

machinery and spare parts	and contributions to Research and Development costs ○ Paid to non-residents may be exempted from withholding tax. ○ Such exemption is typically granted in conjunction with other tax incentives such as the Pioneer incentives.
Investment Tax Allowance ○ ITA of 100% on qualifying capital expenditure for five years which can be offset against 100% of the statutory income	Expenditure on Research and Development (R&D) ○ Undertaken directly by companies or in relation to payments made to R&D organization for undertaking R&D on their behalf are tax deductible. ○ For certain approved R&D projects in Singapore, a deduction for twice the amount of the relevant expenditure incurred may be claimed.
Reinvestment Allowance ○ RA is in the form of an allowance 60% of the qualifying capital expenditure incurred within a period of 15 years. ○ The allowance can be offset against 70% of the statutory income	Regionalization Finance Scheme – fixed cost financing program to assist Singapore-based enterprises to set up operations overseas. ○ Maximum loan per group not exceed SD10 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.
Tax deductible expenses for "Halal/quality" and safety certifications	Double Tax Deduction for Market Development - Deduct against approved companies' taxable income twice the eligible expenses incurred for approved projects. ○ Scope of assistance - market preparation - market introduction - marketing & promotion - market presence
Intensification of Research in priority Areas (TRPA)	Double Deduction for Overseas Investment Development Expenditure - Deduct against

○ Experimental Applied Research (EAR) - curation of maximum 3 years - amount approved determined based on the merits of each application	approved companies taxable income twice the eligible expenses incurred for approved projects. ○ Scope of assistance - market preparation - market introduction - marketing & promotion - market presence
Incentives for Training ○ Investment Tax Allowance of 100% for 10 years. The allowance can be offset against 70% of the statutory income.	Approved International Trade (AIT) ○ 10% tax on income from international oil trading activities and oil futures contracts
	Operational Headquarter ○ Income arising from the provision in Singapore of approved services will be taxed at 10%. ○ Tax exemption on dividend income from approved overseas subsidiaries and associated companies. ○ Incentive will be up to ten years with provision for extension.
	Development & Expansion Incentives ○ Corporate tax rate of not less than 10% for up to 10 years with provision for extension.
	Domestic Sector Productivity Fund ○ Provides assistance through grants to cover up to 50% of the qualifying cost of the project. The major allowable cost items include: - Manpower-related costs - Equipment & materials - Professional services (e.g. consultancy & subcontracting) - Intellectual Property Rights (e.g. licensing, royalties)

Logistics

Malaysia	Singapore
Venture Capital funding ○ Pre-Start Up - Form of funding: Initial capital fund up to maximum of RM300,000 ○ Start-Up - Form of Funding: Fund of 30% of investment costs to undertake the proposed project or RM 1,000,000 whichever lower ○ Growth. - Form of Funding: Fund up to maximum RM 3,000,000 or 30% equity based on company's appropriate valuation, whichever lower	Venture Capital Fund Incentives ○ Partial or full corporate tax exemption on income from divestment of shares, foreign dividends and foreign interest income. ○ Losses incurred from the sale of shares, up to 100% of equity invested, can be set off against the investor's other taxable income Start up Enterprise Development Scheme (SPEEDS) ○ The start up 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 SD300,000. ○ 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.
Integrated Logistics Services ○ Eligibility: At least 60% of its equity is held by Malaysians ○ Pioneer status - 70% tax exemption for five years or 100% tax exemption for five years of the statutory income ○ Investment tax allowances - ITA of 60% on the additional qualifying capital expenditure	Approved International Trade (AIT) ○ 10% tax on income from trading in approved commodities

within five years - Allowance can be offset against 70% of the statutory income. o Exemption from import duty/sales tax on machinery and equipment	
Cold Chain Facilities o Eligibility: The policy on foreign equity participation in the services sector by allowing foreign equity participation of up to 70%. The remaining 30% must be allocated to Bumiputeras, unless specific exemptions apply o Pioneer status - 70% tax exemption for five years or 100% tax exemption for five years of the statutory income o Investment tax allowances - ITA of 60% on the additional qualifying capital expenditure within five years - Allowance can be offset against 70% of the statutory income - Exemption from import duty/sales tax on machinery and equipment	Warehouse Retail Scheme (WRS) o Allow businesses operating on a regional scale to reap significant savings and productivity gains from the co-location of various operations, such as headquarters, logistics and retail functions in one centralised location.
	Tax exemption for Marine Hull & Liability Insurance Business o Available to all general direct insurance and reinsurance companies (including P&I clubs) in Singapore. o Approved marine hull & liability insurers (AMI) which have made additional commitment to writing offshore marine hull and liability insurance business from Singapore can enjoy tax

	exemption
	Industrial Building Allowance (IBA) ○ Provides capital allowance for expenditure on approved industrial buildings such as warehouse and Logistics centres ○ Minimum loan amount of SD200,000.

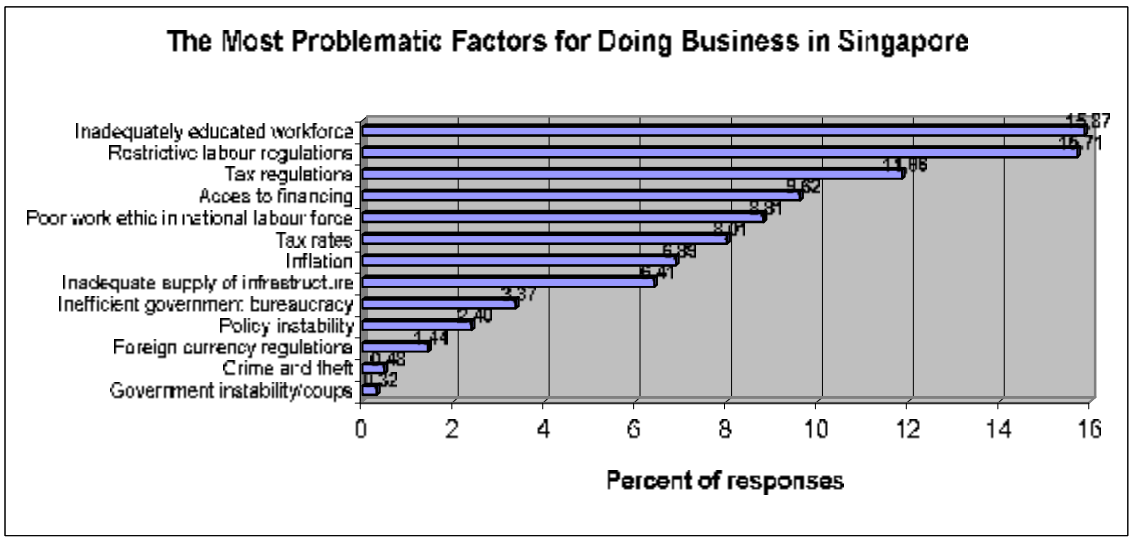
Machinery & Equipment

Malaysia	**Singapore**
Venture Capital funding ○ Pre-Start Up - Form of funding. Initial capital fund. up to maximum of RM300,000 ○ Start Up - Form of funding. Fund of 30% of investment costs to undertake the proposed project or RM 1,000,000 whichever lower ○ Growth - Form of funding. Fund up to maximum RM 5,000,000 or 30% equity based on company's appropriate valuation, whichever lower	Venture Capital Fund Incentives ○ Partial or full corporate tax exemption on income from divestment of shares, foreign dividends and foreign interest income. ○ Losses incurred from the sale of shares, up to 100% of equity invested, can be set off against the investor's other taxable income
	Start-up Enterprise Development Scheme (SEEDS) ○ The start-up 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 SD300,000. ○ 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

Incentives for the Production of Specialized Machinery and Equipment ○ Pioneer status with tax exemption of 100% of the statutory income for 10 years. OR ○ Investment Tax Allowance of 100% of the qualifying capital expenditure incurred within 5 years	Regionalization Finance Scheme – fixed cost financing program to assist Singapore based enterprises to set up operations overseas ○ 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.
	Regional Financing Scheme (Indonesia) (RFS-I) ○ Provide fixed rate loans for investment in Indonesia Manufacturing operations. ○ Assist local companies to set up and/or expand their operations in Indonesia.
Additional Incentives for the Production of Heavy Machinery ○ Pioneer status with tax exemption of 70% on the increased statutory income arising from the reinvestment for a period of 5 years OR ○ Investment Tax Allowance of 60% ITA of 60% on the additional qualifying capital expenditure within five years. Allowance can be offset against 70% of the statutory income	Double Tax Deduction for Market Development -> deduct against approved companies taxable income twice the eligible expenses incurred for approved projects. ○ Scope of assistance - market preparation - market introduction - marketing & promotion - market presence
	Double Deduction for Overseas Investment Development Expenditure -> deduct against approved companies' taxable income twice the eligible expenses incurred for approved projects. ○ Scope of assistance - market preparation - market introduction - marketing & promotion - market presence

Special Grant amounting RM10 million for development and promotion of Halal products.	Approved Foreign Loan Incentives (AFL) o grants full or partial exemption on withholding tax on interest payments to non-residents
Double Tax Deduction on expenditure of obtaining Halal certification and accreditation	Resource Productivity Scheme (RPS) o provides fixed rate loans to partially finance the cost of investments which enhance the use of scarce resources like water, land and labour
	Development & Expansion Incentives o Corporate tax rate of not less than 10% for up to 10 years with provision for extension.
	International Consultancy Fund o 50% of incremental eligible consultancy revenue is exempt
	Domestic Sector Productivity Fund o Provides assistance through grants to cover up to 50% of the qualifying cost of the project. The major allowable cost items include: - Manpower related costs - Equipment & materials - Professional services (e.g. consultancy & subcontracting) - Intellectual Property Rights (e.g. licensing, royalties & technology acquisition)

Appendix E: Business Environment Singapore According to The Global Competitiveness Report 2006 – 2007 (Lopez-Claros et al., 2006)



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

Global Competitiveness Index			
		*Rank**	*Score***
2006 - 2007		**5**	**5.6**
2005 - 2006 (out of 117 countries)		5	5.7
Basic Requirements		**2**	**6.1**
1st pillar:	Institutions	4	5.9
2nd pillar:	Infrastructure	6	6.2
3rd pillar:	Macro-economy	8	5.7
4th pillar:	Health and primary education	20	6.8
Efficiency Enhancers		**3**	**5.6**
5th pillar:	Higher education and training	10	5.6
6th pillar:	Market efficiency	4	5.6
7th pillar:	Technological readiness	2	5.7
Innovation Factors		**15**	**5.1**
8th pillar:	Business sophistication	23	5.2
9th pillar:	Innovation	9	5

* Rank out of 125 countries/economies

** Score out of 7

Table 5.2: Global Competitiveness Index (GCR 2006 – 2007)

	Rank*
Business Competitiveness Index	**11**
Sophistication of company operations and strategy	21
Quality of the national business environment	11

* Rank out of 125 countries/economies

Table 5.3 Business Competitiveness Index (GCR 2006 – 2007)

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

Notable Competitive Disadvantages	Rank*
Institutions	
Business costs of terrorism	77
Judicial independence	29
Protection of minority shareholders' interest	22
Infrastructure	
Telephone lines	29
Macroeconomy	
Government debt	97
Interest rate spread	54
Real effective exchange rate	26
Higher education	
Tertiary enrolment	38
Market efficiency	
Effectiveness of antitrust policy	32
Intensity of local competition	26
Soundness of banks	21
Business sophistication	
Control of international distribution	47
Local supplier quantity	43
Local supplier quality	25
Extent of marketing	22
Innovation	
Capacity for innovation	24

Technological readiness	
FDI and technology transfer	1
laws relating to ICT	2
Firm level technology absorption	7
Personal computers	9
Innovation	
Government procurement of technology products	1
University/industry research collaboration	8
Intellectual property protection	9
Quality of scientific research institutions	10

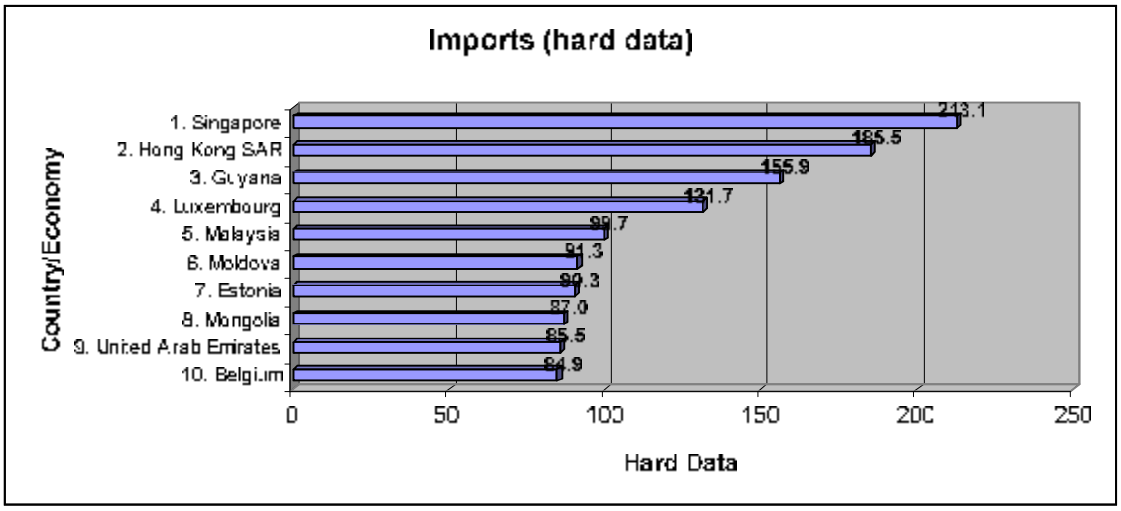
* Rank out of 125 countries/economies

Table 5.4: National Competitiveness Balance Sheet of Singapore (GCR 2006 – 2007)

International ratings among 125 countries

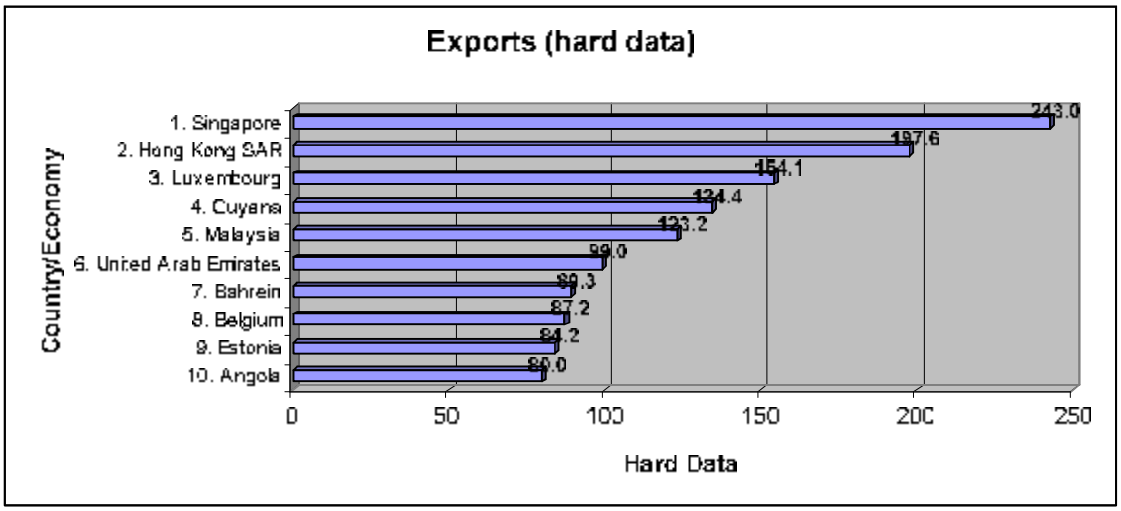
1. Import / Export

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



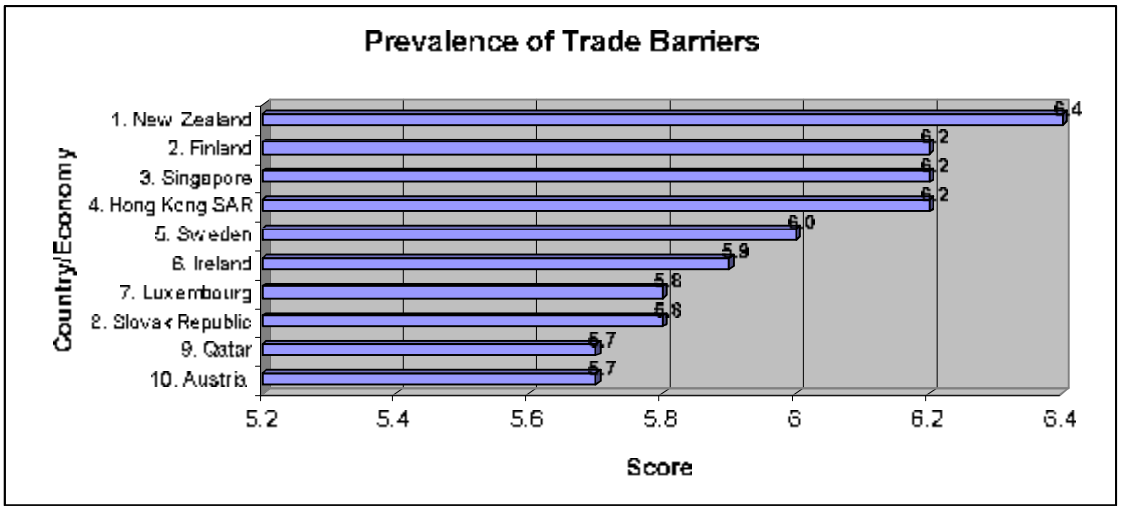
(Global Competitiveness Report 2006-2007)

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



(Global Competitiveness Report 2006-2007)

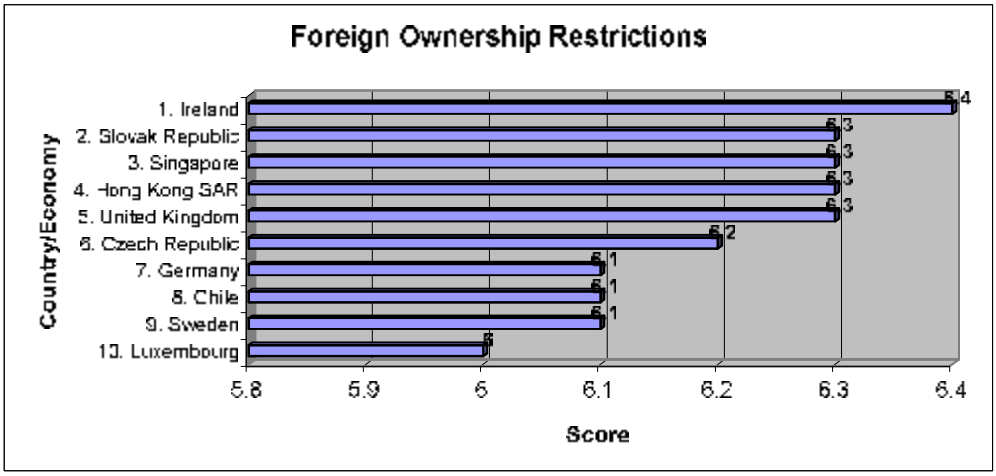
In your country, tariff and non-tariff barriers significantly reduce the ability of imported goods to compete in the domestic market (1 = strongly agree, 7 = strongly disagree, Mean: 4.5)



(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)



(Global Competitiveness Report 2006-2007)

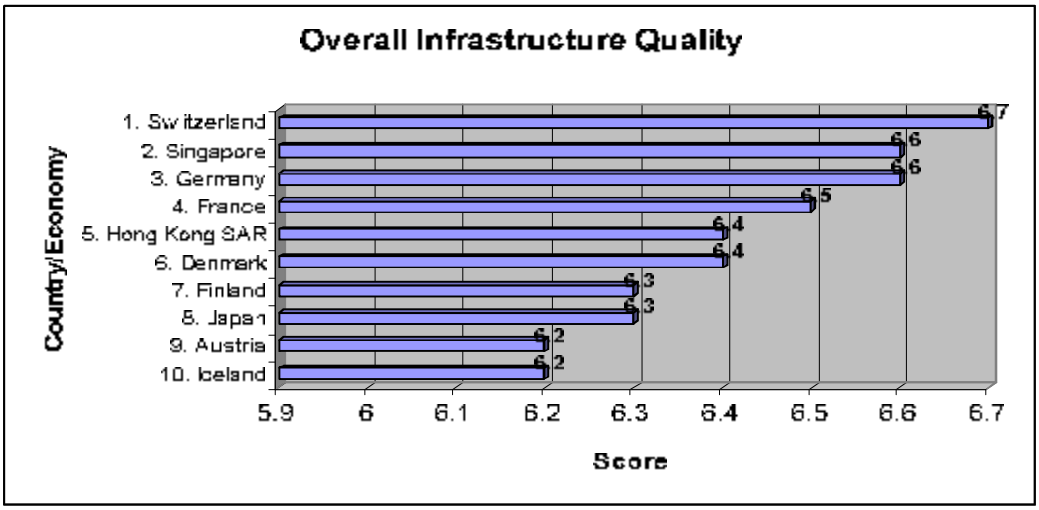
3. Permits

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

(Global Competitiveness Report 2006-2007)

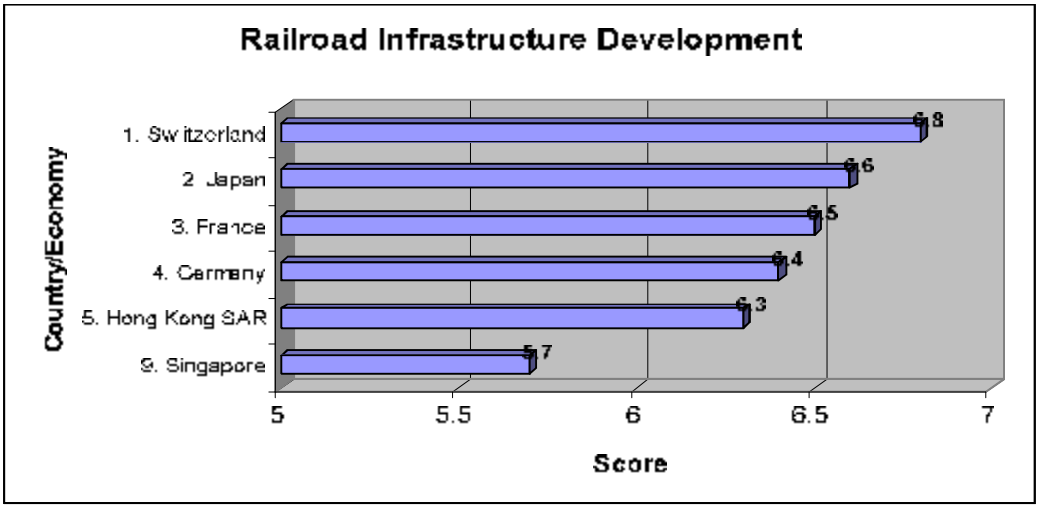
4. Transportation and Logistics

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



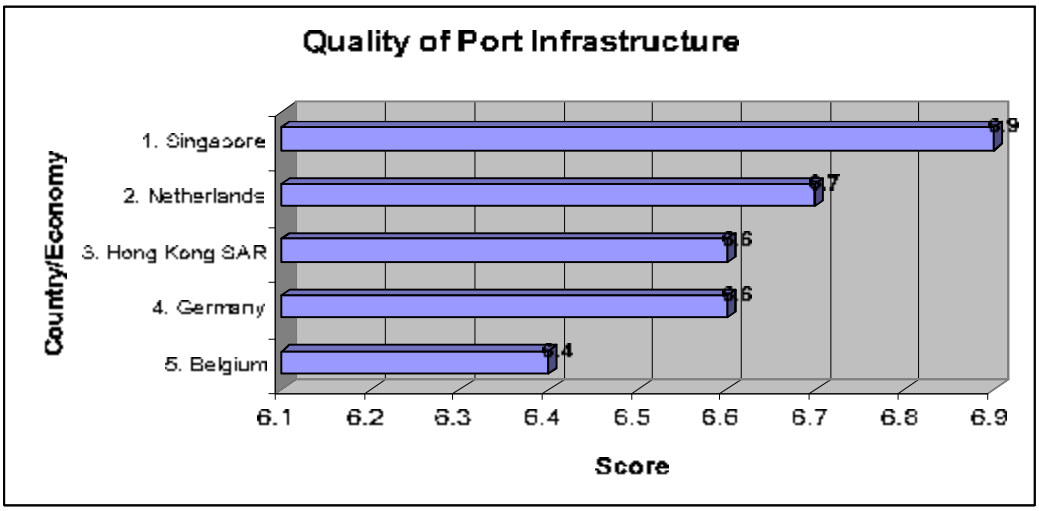
(Global Competitiveness Report 2006-2007)

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



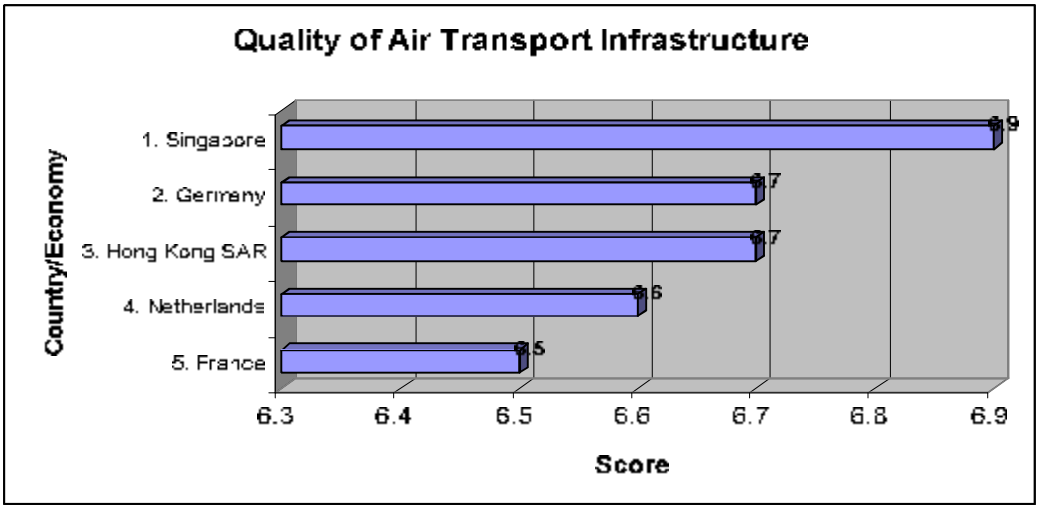
(Global Competitiveness Report 2006-2007)

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



(Global Competitiveness Report 2006-2007)

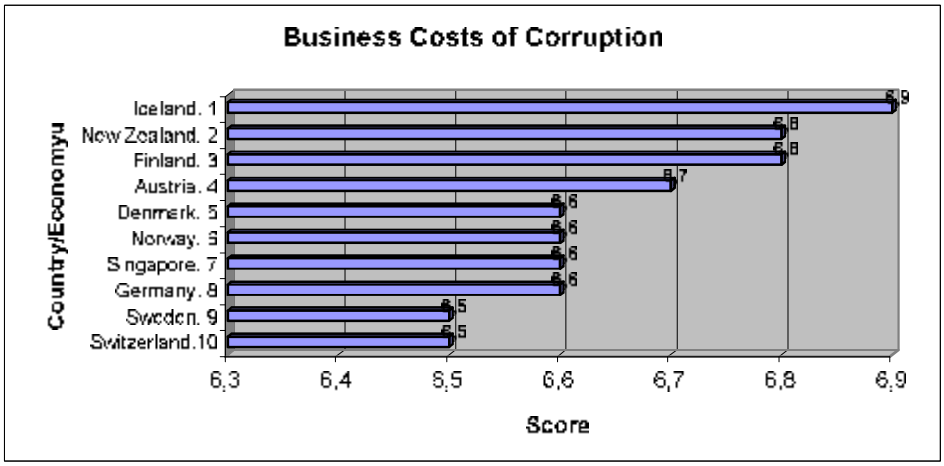
Passenger air transport in your country is (1 = infrequent, limited, and inefficient, 7 = as frequent, extensive, and efficient as the world's best, Mean: 4.5)



(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



(Global Competitiveness Report 2006-2007)

Appendix F: Logistical Assessment of Malaysia

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

Supply Chain Lead Times.

- *Distance to consumer and supplier markets.* 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 favourably 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 Bintulu Port that have an extensive network.
- *Distance to gateways.* 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 transhipment and hub function with its seaports. Singapore accommodates super transhipment 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 total costs compared to Thailand, Singapore and Indonesia. In terms of local trucking charges Malaysia equals the cost level as compared to Thailand, but faces higher costs as compared to Singapore and Indonesia. Haulage (FCL/LCL) 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 rail 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. Airport 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 nonexistent.

Flexibility.

- *Choice 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 port/gateways.* Connectivity of Malaysia by air is limited, by sea is excellent and the connectivity by rail is poor due to the limited rail network.