**Title**

The creation of a cluster

A case study of Malaysia’s Multimedia Super Corridor

**Abstract**

Market forces have created the majority of the clusters in the world. Still, governments frequently aim at creating clusters in order to promote regional development and growth. This is the case with the Multimedia Super Corridor (MSC) in Malaysia that was launched in 1996.

This thesis’ purpose is to examine if the creation and running of the MSC has had economical benefits for Malaysia and to examine the MSC’s potential to become profitable and productive.

The MSC is a new technological area that is still under construction. The return on investment seems to be negative and the area is dependent on the Malaysian government for its development. The infrastructure, political and economical factors seem to be sufficient for creating the MSC. However, the low level of human resource is a problem for the cluster. Furthermore, Malaysia’s comparative advantage does not seem to be in high-technology production but rather in high-quality manufacturing. Even though the MSC is unlikely to develop into a world leading high-technology cluster, it can help to transfer Malaysia into a new phase of development.

**Keyword**

Malaysia, Cluster, Multimedia, MSC, Infrastructure, Education, Advantages, Investments
ABSTRACT

Background: Multinational companies (MNCs) often choose to locate near other MNCs in order to gain advantages from each other. This is one ingredient in creating a cluster, an area composed of companies, institutions and/or organisations, sharing a similar technology or knowledge base with mutual benefits for the cluster participants. Market forces have created the majority of the clusters in the world. That is, the participants have co-located in order to gain specific advantages in the area. Still, governments frequently aim at creating clusters in order to promote regional development and growth. This is the case with the Multimedia Super Corridor (MSC) in Malaysia that was launched in 1996.

Purpose: To examine if the creation and running of the MSC has had economical benefits for Malaysia and to examine the MSC’s long-run potential to become profitable and productive.

Mode of procedure: To fulfil the above-mentioned purpose, different methods of research were carried through. The analysis of the MSC is based on economical theories, statistics and interviews with important participants of the MSC.

Results: The MSC is a new technological area and it is still under construction. The return on investment seems to be negative and the area is dependent on the Malaysian government for its development. The MSC has been growing continuously since its start and it is now home for 745 companies, both domestic and foreign owned. The infrastructure, political and economical factors seem, according to my analysis, to be sufficient for creating the MSC. However, the low level of human resource is a problem for the cluster. Furthermore, Malaysia’s comparative advantage does not seem to be in high-technology production but rather in high-quality manufacturing.

Even though the MSC is unlikely to develop into a world leading high-technology cluster, it can help to transfer Malaysia into a new phase of development. The MSC has the ability to become beneficial for Malaysia but from today’s situation it is a long way to go and the area is facing many threats that it must overcome. It must improve in many ways and be able to show the world that the area is competitive. Otherwise this project will be a very costly failure.

I recommend Malaysia to concentrate on her manufacturing sector and try to keep it competitive and, at the same time, have a long term strategy of increasing the human resources and create possibilities for a high-technological area. The MSC seems to be a too big and costly project, but as it already exists, further efforts are needed to make it competitive and efficient.
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Malaysia – Country Profile

Capital: Kuala Lumpur
Area: 29 733 sq km
Population: 23.3 million
Currency: Ringgit (RM)
Exchange rate: US$1:RM3.80
GDP per Capita: US$ 3 832

Abbreviations:

AFTA        ASEAN Free Trade Area
ASEAN       Association of Southeast Asian Nations
FDI          Foreign Direct Investment
ICT          Information and Communication Technology
KLCC        Kuala Lumpur City Centre
KLMIA   Kuala Lumpur International Airport
KLSE        Kuala Lumpur Stock Exchange
MDC           Multimedia Development Corporation
MIDA        Malaysia Industrial Development Authority
MMU         Multimedia University
MNC           Multinational Companies
MSC           Multimedia Super Corridor
NDP          National Development Policy
NEP          New Economic Policy
NPL          Non Performing Loans
PAS         Parti Islam Se-Malaysia
SME           Small and Medium Enterprises
UMNO         United Malays National Organisation
USM           Universiti Sains Malaysia
Map over the Multimedia Super Corridor area

1 Introduction and Background

1.1 Introduction

The world is continuously changing with new markets and new actors. Multinational companies (MNCs) are spread almost everywhere and their existence is very important for particularly the developing countries. MNCs often choose to locate near other MNCs in order to gain advantages from each other. This is one important ingredient in the creation of a cluster; an area where companies, institutions or organisations have gathered and may spread positive effects to each other\(^1\).

Market forces have created the majority of the clusters in the world\(^2\). That is, the participants have co-located in order to gain strategic advantages in the area. Still, governments frequently announce plans to create clusters in order to promote regional development and growth. One interesting example of this is the creation of the Multimedia Super Corridor (MSC) in Malaysia. In 1990 the Prime Minister of Malaysia, Dato’ Seri Dr Mahathir Mohamad, stated a 30-year vision to turn Malaysia into a developed nation by the year 2020. In order to help fulfil this vision, Dr Mahathir launched a project in 1996 to create an area where a world leading multimedia cluster could exist. This was the start of the MSC.

1.1.1 Purpose and questions

The purpose of this paper is to examine if the creation and running of the MSC has had economic benefits for Malaysia and to examine the MSC’s long-run potential to become profitable and productive.

I will focus on the following questions:

- Does the necessary factors to develop a world class cluster exist in the MSC?
- What are the comparative advantages for the MSC compared to similar areas in the region?
- How dependent is the MSC on support from the Malaysian Government?
- How has the MSC succeeded in attracting foreign investments and knowledge intensive production?

1.1.2 Method

The analysis of these issues takes as its departure point theories related to economic geography, with emphasis on the forces associated with locating clusters. The estimation of the future potential of the MSC is evaluated based on interviews and formal statistics. These interviews are conducted with representatives from one domestic company, one foreign company, universities, and from the leading function MDC. In order to examine how the

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\(^1\) With “cluster” I define an area where production is well defined spatially and in the product room. There are many definitions for clusters such as Science Park or Industrial Park. The definition I use in this paper is a broad term, which includes most other definitions.

\(^2\) Ferguson R., 1998, *Science Parks and the Location of NTBFs*
MSC will succeed with regards to the competition, a broad comparison with other clusters in the region is also undertaken.

Altogether six interviews, based on questions of a semi-structured model, have been undertaken. They are used in this paper as a qualitative complement to the more quantitative analysis. The structure of the questions is presented in enclosures I and II. The interviewees from the institutions all received the same questions (enclosure I) and the ones representing companies shared another structure of questions (enclosure II). Notes have been taken during the interviews and they were summarised immediately after the interview was conducted. The selection of my interviewees is based on their relevancy for this paper and also on the possibility of conducting interviews with them. A critical view of all the sources used in this paper is necessary. Many of the interviewees have personal interest in the MSC that may affect their opinions. Furthermore, it is important to bear in mind that the Malaysian Government has control over all the Malaysian newspapers and can ban publications.

The rest of this paper is organised in the following way. After a brief background of the Malaysian political and economic history, and the creation of the MSC, chapter two presents a theoretical framework for this study. In the third chapter I examine the building blocks of the MSC and the fourth chapter is an investigation of all the participants in the cluster and a discussion about their importance. The discussion continues with a chapter that examines the MSC from a broader perspective where focus is at the MSC’s ability to grow and become an efficient and competitive cluster. Finally, chapter six contains my analysis and also some concluding remarks.

The analysis does not consider all participants in the MSC, for instance single companies or persons. Many minor effects from the creation of the MSC, such as minor environmental effects or a possible withdraw of capital or workforce from other areas, are not taken under consideration. Furthermore, I do not consider the effects from the MSC outside the country, as this does not directly affect Malaysia.

1.2 Background

I will here give a short presentation of the political and economic history and current situation in Malaysia, and also about the creation of the MSC. This is meant as a background in order to get a deeper understanding of the coming analysis.

1.2.1 The political climate in Malaysia

Since Malaysia declared independence in 1957 she has been struggling in order to develop the country. Except for some turbulence during the initial years and race riots in 1969, Malaysia has been rather peaceful which has provided a suitable environment for economic growth. The fact that a coalition of many parties representing all the major ethnic groups, called the “National Front”\(^3\), has been ruling all these years has also led to stability and continuity in the politics. The largest party in this coalition has always been UMNO (United Malay’s National

\(^3\) The party is called “Barisan Nasional” in the language “bahasa Malaysia” and is therefore often referred to as BN even in English
Organisation) and Dato´ Seri Dr Mahathir Mohamad has been the Prime Minister for the last twenty-one years. He is also the finance minister since 2000.

Malaysia has three major ethnic groups consisting of about fifty percent Malays, thirty percent Chinese and ten percent Indians. Aside from that there is a mix of different small ethnic groups that are mainly from the Malaysian part of Borneo. These ethnic groups have different religions but the state religion is Islam. The fact that all ethnic groups had different ways of living when the country became independent and that the government has treated the various ethnic groups in different ways has lead to a low degree of integration between these groups today. The government, though, has always tried to keep Malaysia a multiethnic and multi-religious country.

In 1970, following the race riots, the government introduced the New Economic Policy (NEP) in order to decrease the economic differences between the ethnic groups and create long term goals for the development of the country. This policy was renewed every fifth year and new goals were established. The NEP was planned to go on for twenty years and therefore it ended in 1990. At that time Dr Mahathir introduced the National Development Policy (NDP), which continued the work that NEP was doing with five-year economical plans. At the same time Dr Mahathir also launched “Vision 2020” which is a long-term plan with the goal to make Malaysia a developed nation by the year 2020.

1.2.2 Basic Characteristics of the Malaysian Economy

Malaysia has many natural resources such as minerals and fossil fuels. The export has traditionally been mainly tin, rubber, raw-oil and palm oil, but after 1970, focus has been on industry. Malaysia has been successful with this and is now having various exports with a base of industrial goods. The US is the biggest export market for Malaysia, especially for the electrical and electronic goods that account for around 60 percent of the export.4

From 1970 to 1997 Malaysia had an excellent track record of economic performance and social progress. But the financial crisis in 1997 struck Malaysia hard with a negative GDP growth of –7.4 percent in 19985. It caused the Malaysian currency, the Ringgit, to depreciate by 48 percent to the USD. The stock market decreased by 62 percent and the real property market almost collapsed. The causes of the crisis are generally assumed as a combination of both internal and external factors although external ones triggered the crisis. Among the external factors were; actions by speculators, withdrawal of portfolio investments by foreign fund managers, and contagion effects from the crisis elsewhere in East Asia. Among the internal factors were; persistent high levels of current loans, sharp increase in money supply and in credit availability, over-investments in non-profitable projects, increasing inflation, and a decrease in liquidity.

The crisis led Malaysia to undertake several changes, which included a restructuring of the banking system in order to decrease the amount of non-performing loans (NPL). As Dr Mahathir saw the currency trading as the main problem, this was the most important part to consider. Therefore Malaysia chose selective currency control the 1st of September 1998. This included restrictions in capital trading which made it impossible to trade, and speculate, with

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4 Nationalencyklopedin, 1994, Trettonde bandet
5 The Worldbank, World Development Indicators, 2000
the Ringgit. It also meant that Malaysia chose a fixed exchange rate, which she pegged at RM3.80: USD1. This peg is rather low and has helped the Malaysian export since then, which is one reason why the economy is growing fast again. Because the export is higher than the import, Malaysia gets enough foreign currency to pay for the import. Dr Mahathir has no plans to change this peg as long as competitive countries will not devalue their currency. The inflation has always been rather low which has strengthened the economy.

1.2.3 The creation of the Multimedia Super Corridor

In August 1996 the Prime Minister Dr Mahathir launched a so-called “mega-project”; the creation of the Multimedia Super Corridor (MSC). It would help Malaysia to achieve “Vision 2020”, to be a fully developed nation by the year 2020 including turning Malaysia into a knowledge-based society. To be able to succeed, the government has committed a massive investment of RM 72 billion (equal to USD 20 billion) for the creation of the MSC.

The MSC is an area that is about 50 kilometres long and 15 kilometres wide and it starts from Kuala Lumpur City Centre (KLCC) with the building “Petronas Twin Tower” and goes to the new airport Kuala Lumpur International Airport (KLIA). In this area two new cities are being built, Putrajaya and Cyberjaya. Putrajaya will be the residence for most of the Malaysian Government including the office of the Prime Minister, and Cyberjaya will be the first major MSC-designated “cybercity” and will support 240,000 people. The new Multimedia University (MMU) is also located in Cyberjaya and it was founded in May 1999.

The MSC started as a governmental project with the vision of creating an area that will be economically beneficial and also spread positive effects to help develop Malaysia. MSC should “…help companies of the world test the limits of technology and prepare themselves for the future”, and the goal is that “the MSC will create an environment where all the necessary elements will be concentrated in order to create the perfect global multimedia climate”. In order to attract foreign companies and direct investment to the MSC the government gives special advantages to companies that fulfil the criteria of getting MSC-status. Companies that receive this status benefit up to ten years of zero tax and their workers will easily get a working permit. The government will also provide a good infrastructure, residential areas, and high safety. All of these benefits are summarised as the governments “Bill of Commitment”. This will attract companies to the area, but in the long run the plan is that the companies will find this area attractive in itself. The government is especially interested in so called knowledge workers and at least fifteen percent of the labour in the MSC-status-companies must fulfil this criterion.

At the same time as the MSC was launched, a government-backed corporation was established to lead the development and management of the MSC. This corporation is called the Multimedia Development Corporation Sdn Bhd (MDC) and is run by the government with

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6 Mahathir in the Star, 2/6 – 2002
7 “Mega Projects” is the general term for the huge projects that the Malaysian Government is undertaking.
8 This figure is approximate as it is unclear what factors should be included and how long the project will continue.
9 Multimedia Development Corporation, 2002, Multimedia Super Corridor
10 Ariff & Chuan, 1998
11 The definition of a knowledge worker is that he or she has; at least five years professional experience from a field that is a heavy user of Multimedia, a university degree or a graduate diploma from a technical college, and a master degree or higher in any discipline.
Tan Sri Dr Othman Yeop Abdullah as the executive chairman. The mission of the MDC is to create possibilities for the MSC to reach its goals rapidly and efficiently. The MDC has four main objectives: (1) to shape a world-leading environment in information technology; (2) to attract and nurture leading-edge and world class companies; (3) to facilitate knowledge transfer and wealth creation; and (4), to build a well-mandated, value-based, highly-effective institution.\textsuperscript{12}

Before the creation of the MSC the government examined other successful clusters and picked its key success factors in order to create the perfect environment for the industry in Malaysia. These success factors were divided in seven areas and became the seven flagship applications of the MSC. They were launched in order to kick-start the MSC and to create certain target development areas. The seven flagship applications consist of an electronic government, a multipurpose card, smart schools, telehealth, R&D clusters, and E-business, which incorporate worldwide manufacturing web, and borderless marketing.\textsuperscript{13}

In the creation of the MSC there will be three phases. In phase one, the MDC will establish the MSC, attract 50 world-class companies, launch seven flagship applications and build the new cities Cyberjaya and Putrajaya. At the end of 2002 it is planned that Malaysia will have completed phase one and go on with the next. In the second phase, the MDC will link the MSC to other “cybercities” in Malaysia and in the world. The MSC will have become a web of corridors in Malaysia and will establish a second cluster of world-class companies. During the third and the final phase it is expected that Malaysia will be transformed into a knowledge-based society. It will have a cluster of intelligent cities linked to the global information super highway, and become the platform for the international Cybercourt of justice.\textsuperscript{14}

\textsuperscript{12} Ariff & Chuan, 1998
\textsuperscript{13} Multimedia Development Corporation, 2002, \textit{Flagship Applications}
\textsuperscript{14} Ariff & Chuan, 1998
2 Theoretical framework

In this chapter I present the theoretical framework for my study. I focus on theories in economical geography, which explains the localisation of firms and the formation of clusters. In addition to these theories I also use well-known neo-classical economic theories such as comparative advantages.

2.1 Cluster environments

Cluster formations have been a high priority issue for developed economies for some time. Because firms’ productivity in a cluster usually is higher than firms’ productivity outside the cluster, cluster theory can be seen as a theory of external economies of scale.\(^{15}\) Studies have shown that some companies never would have been created if the cluster did not exist.\(^{16}\) It is however important to realise that every cluster is unique and must be seen in its full context. Low trade/transportation costs and economies of scale at the plant level, have a tendency to generate clusters of firms.\(^{17}\) Furthermore, the presence of a cluster by itself gives a region a comparative advantage in that activity, so most future clusters are likely to originate in existing ones. The mainly positive impacts from cluster in developed countries have increased the interest of cluster in developing countries. It is therefore common that developing countries adopt cluster-strategies in their development process.

A cluster will create externalities that can be both positive and negative. The positive externalities can furthermore be divided into pecuniary and non-pecuniary effects. The pecuniary effects from a cluster are supply and demand linkages, such as the benefits of being located close to retailers and customers that will lower trade costs. The non-pecuniary effects are the spill-overs in knowledge and R&D. Romer (1990) sees these non-pecuniary effects as one of the most important factors for the growth of an economy.\(^{18}\) In his growth theory technical development grows faster as the level of knowledge increase. This is because, according to Romer, cost of innovation is lowered when human knowledge increases as new inventions often are based on earlier inventions. Therefore, the increase in income will be faster in countries with a relatively large highly educated population, and in economies that encourage accumulations of knowledge.

Dynamic and growing clusters should include companies, universities, research- and education centres, a leading function of the cluster, and access to venture capital. Universities and research- and education centres are necessary for several reasons: They generate educated labour, search knowledge abroad, diffuse knowledge within the country and provide new knowledge for new companies.\(^{19}\) Most successful clusters in the world have some kind of connection to one or several universities.

\(^{15}\) Braunerhjelm P. et al., 2000, Integration and the Regions of Europe: how the right policies can prevent polarisation

\(^{16}\) Ferguson R., 1995, Panacea or Let-down, Science parks in the literature

\(^{17}\) Krugman, in Braunerhjelm P. & Svensson R., 1995, Host Country Characteristics and Agglomeration in Foreign Direct Investment


\(^{19}\) Reitberger G., 1991, Svenska forskningsparker och teknikbyar. Ger 80-talets erfarenheter recept för 90-talets strategiska utmaningar?
The leading function is also very important in a cluster but it can behave rather different between different clusters. According to Monck (1990), there are four main issues for the leading function: (1) to make it easier to create companies through contacts and knowledge about risk-capital; (2) to create contacts to high-quality advice for fast-growing companies; (3) to give practical advice about export, development, joint-ventures etc; and finally (4), to be a link between the research in the university and the industry which actively makes the transformation of technology easier.

In most clusters, firms are specialised in a similar and complementary production. Some clusters may mix different kinds of production, and in that case, it is mainly the highly populated area that is the reason for the cluster. The structure and size distribution of companies can also be different from one cluster to another. Ferguson (1995) has stated three main-groups of companies in the cluster: new-started companies, inward focused companies and outward focused companies. These companies act differently from each other and affect the analysis. The outward-focused companies are more attracted by a cluster than inward-focused as they gain more positive effects from the cluster due to a need of connections and interactions with other participants. New-started companies are also attracted by cluster, and they are often the result of the cluster. A company can belong to several main-groups at the same time. One problem for many high-technological companies is that they have a high technological skill but lack knowledge in other important areas. The cluster can be a tool to solve those problems by creating contacts and building networks between companies.

Large companies are of high importance in a cluster as they spend much on R&D, and their contacts with smaller companies, universities and suppliers are important. If a large company decides to establish itself in a cluster this will be a sign for other potential investors. Furthermore, large companies’ business will many times lead to subdivisions, spin-offs, outsourcing and other positive effects for the cluster.

### 2.2 Foreign direct investment and localisation factors

For a cluster to become large and competitive, high inward FDI is needed, especially if the cluster cannot mobilise enough capital on its own. MNCs have become more mobile in order to adjust to a fast-changing environment. FDI, mainly undertaken by large companies, has become an important factor for growth and is created either when a company establishes a new plant in a foreign country, or by acquiring or merging with a company. The major part, 83 percent, of all FDI belongs to the second category. FDI can also be divided into horizontal or vertical investments. The first one is FDI in the same production-level while the latter refers to FDI in order to control producers or retailers. Horizontal investments count for the majority of all FDI.

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20 Monck et al., 1990, *Science Parks and The Growth of High Technology Firms*
23 Braunerhjelm P., 2001, *Storföretagen och den ekonomiska geografin*
24 Foreign direct investment (FDI) is achieved when a company owns at least 10 percent of a company and therefore can affect the company.
25 UN, 2000 in Braunerhjelm et al., 2000
There are many important factors to consider when a MNC decides to locate in a certain area, but ultimately the decision is based on expectancies of future profits.\textsuperscript{26} For a country, the decision of a MNC to locate themselves there can lead to large amounts of FDI and positive economic effects. One way to structure the forces that govern FDI is to classify them into three main groups: Diffusion, cluster- and concentration, and economic-political factors.\textsuperscript{27}

2.2.1 Diffusion

Diffusion factors are effects such as differences in relative prices due to the creation of a cluster. They are important to consider as they affect the availability of labour and capital. If the resources are evenly scattered over an entire region, the relative mobility between factors of production affects the localisation decision. If the working force is immobile, direct investment leads to higher wages and less profitability in the long run, but in areas where the working force is mobile, relative wages will stay lower due to the inflow of labour. According to Lewis (1979), developing countries tend to have more mobile and unlimited labour that leads to low wages, but when the country develops labour becomes more and more limited with higher wages as a result\textsuperscript{26}.

Similar effects occur from the existence of capital. Relatively immobile physical capital that is equally spread leads to higher prices of capital in a cluster, which tend to have a preventive effect on the concentration. A country or area that has a relative advantage in terms of the amount of capital or workers may lead to a concentration of direct investments there.\textsuperscript{29}

2.2.2 Cluster and concentration factors

A cluster can enhance the advantages of an area and generate positive effects that will create a concentration of similar companies. Clusters whose speciality is R&D are attractive for other R&D-companies as they can gain positive effects from each other. The invention of ideas in the past or in other nearby companies raises the productivity of researchers in the present, which also is called the “standing on the shoulders”-factor\textsuperscript{30}. Another reason why clusters affect a company’s localisation is the size of the market: A large market gives the company a potential of higher sales, and it also makes it easier for large companies to make use of economies of scale. Braunerhjelm’s study from 2001 shows that between 1974 to 1994, clusters and a concentration of economic activity attracted Swedish MNC’s investments\textsuperscript{31}.

2.2.3 Economic and political factors

\textsuperscript{26} One theory that explain why firms become multinational and why FDI occurs is Dunning’s (1979) OLI theory and argues that in order to attract FDI the recipient country must offer some specific advantages. The three letters OLI stands for “Ownership advantages”, “Location”, and “Internalisation” and represent the three main factors in the model. In Dunning J. H., 1979, in Dunning J. H., 1995, \textit{Multinational Enterprises and the Global Economy}.
\textsuperscript{27} Braunerhjelm, 2001
\textsuperscript{28} Lewis W.A., 1979, \textit{The Dual Economy Revisited}
\textsuperscript{29} Braunerhjelm, 2001
\textsuperscript{30} Jones C. I., 1997, \textit{Introduction to Economic Growth}
\textsuperscript{31} Braunerhjelm, 2001
Even though several factors affect a company’s location in a certain area the decision can be changed by economic or political factors alone. A country being economically and politically stable is of high importance for a MNC. A government can try to attract foreign manufacturing companies by grant subsidies such as preferential tax treatment or free factory buildings to MNCs. More commonly, direct investment may be a way of circumventing import tariff barriers. One important factor for the MNC’s decision is whether the country is seen as open for trade or not. Sachs and Warner (1995) have shown that economic growth in a country and the country’s level of openness for trade are highly correlated and they claim that it is very important for an economy to be open for trade in order to attain long-term growth. Institutional factors such as the infrastructure and the possibility of getting high-educated workers are also of high importance.

The company tax is probably the most direct influence for a company’s localisation decision but also other economic factors such as the relative price level and the location cost are important. Studies suggest that a country’s economic policy can affect the inflow of FDI to a high extent. The level of governmental expenditures in a country also seems to affect the localisation-decision for MNCs. Countries with a low level of governmental expenditures and a high-quality education system tend to attract direct investments. It is also shown that uncertainty about political and institutional factors tend to decrease MNCs’ willingness to invest in a specific region.

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34 Braunerhjelm, 2001
3 Building blocks of the Multimedia Super Corridor

For the MSC to become successful, necessary factors in the surrounding environment must be fulfilled. These factors are of external character and the MSC can have only limited effect on them. In this chapter I will examine five of these factors: Political, economic, infrastructure, education and legal aspects, and comparative advantage factors.

3.1 Political factors

The MSC is the largest project undertaken by the Malaysian government and it is to a high extent dependent on the government. The Prime Minister Dato’ Seri Dr Mahathir Mohamad, who is also the finance minister, has given the MSC high priority since its start. Whether a new government or a new Prime Minister would continue with the massive investments in the MSC or not is an important question for the region. The political history in Malaysia has been stable with the same government since its independence, which has created a trust for Malaysian politics. But a change of the government in favour for the opposition parties will probably lead to changes that will affect the MSC and its participants. The largest internal political threat to the MSC is probably the long-time growing orthodox Islamic party PAS (Parti Islam Se-Malaysia). However, since 11th September 2001 this party seems to be decreasing in importance and the internal political threat does not seem as serious as before.35 Furthermore, the conflict between some “Western” countries and some Islamic countries, may generate a less friendly atmosphere from Malaysians towards “Westerners”, which gives an unfavourable environment for “Western” companies in Malaysia. These political threats may lower development for the MSC even if they never occur. This is because companies make decisions base on expectations and the threat of a less favourable area in the future might affect many companies’ localisation decision today.

“Western” countries often criticise the political system and laws in Malaysia, claiming that it is not fully democratic. Governmental control over all newspapers and an often-used law that can detain anyone who threatens national security are two examples of criticisms by “Western” countries.36 The criticism was especially high when the deputy Prime Minister, Datuk Seri Anwar Ibrahim, was sentenced to prison for corruption and sodomy in 2000.37 The Prime Minister concluded these critics in his statement “I have long ago ceased to care about what the western media says about our country”.38 This clash can lower confidence for Malaysia as a potential market among companies from “western” countries.

Corruption is another threat that decreases the potential development of the MSC. Even though the Malaysian government tries to decrease corruption it is still widely spread, both in the governmental sector and in private companies. Corruption causes a less efficient system that will decrease the speed of development. Studies show that there is less corruption in Malaysia than in Indonesia but much more than in Singapore.39

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35 Chua Soo Yean, Chairman Economics Programme at Universiti Sains Malaysia, interview, 12/6 – 2002
36 This law is called the Internal Security Act (ISA).
37 This trial was heavily discussed and criticised as many meant that Anwar was a victim in a conspiracy by the government in order to get rid of him. Dr Mahathir, though, claims that the trial was fair and without affection by the government.
38 Mahathir M., 2002, Reflections on Asia
39 Dagens Nyheter, 11/3 – 2002
Dr Mahathir has been a powerful and strong leader during these 21 years, which has been one reason to the relatively peaceful situation in Malaysia during this time. Even if his position and politics have been questioned and criticised by many, the big threat will come the day he resigns or UMNO loses its majority, maybe in favour of PAS. Dr Mahathir has planned to resign as Prime Minister in October 2003.

3.2 Economic factors

In the NDP from 1990, Malaysia focused on the importance of the private sector. According to the NDP, Malaysia should be open for trade and investments and focus should lie on Japan and ASEAN\textsuperscript{40}. Dr Mahathir stated two policies around this time; “Look East” and “Buy British Last”, with the intention that Malaysia should become less dependent on western societies and instead follow Japan. The “Look East”-policy has especially affected Malaysia during the last ten years and the government newly claimed it as a success\textsuperscript{41}. Dr Mahathir agrees that it now seems as if Japan is unable to overcome its economic problems but according to him “…it is due to Japan’s strong commitment to the western system including the floating exchange rates…”\textsuperscript{42}. Even though focus is on the eastern countries, western countries, especially the US, play an important role on the Malaysian economy.

Between 1991 and 1998 the inflow of FDI to Malaysia was over RM 100 billion and this has to a great extent contributed to employment creation in the economy\textsuperscript{43}. Most of the FDI has come from five countries, namely Japan, United States, Taiwan, Singapore and Korea. But traditional forms of FDI are not coming in such high numbers as before. This is because Malaysia no longer has a comparative advantage in low cost of labour in comparison with countries such as China and Thailand\textsuperscript{44}. But Malaysia’s strategic position in the middle of Southeast Asia, a short distance from Singapore, where the cost of production is much higher, nevertheless gives Malaysia important advantages. Because of the industrial and infrastructure developments, the cost of production is on the rise. Malaysia is trying to find new advantages and the MSC is the biggest project for achieving this.

The Prime Minister Dr Mahathir recently said in a speech that “the opening of Malaysia’s borders to foreign capital and know-how has benefited Malaysia tremendously”\textsuperscript{45}. Even though Dr Mahathir has this point of view, he is very aware of the risks with open borders. That is the reason why Malaysia today has selective currency control. It is still too early to know whether these controls affect the economy in a positive or in a negative way, but thus far the economic recovery since the crisis has been successful. It is important to remark though, that all MSC-status companies are given exemption from the exchange control requirements through the MDC\textsuperscript{46}.

\textsuperscript{40} ASEAN stands for Association of Southeast Asian Nations and contains all the countries in the region; Indonesia, Malaysia, the Philippines, Singapore, Thailand, Brunei, Vietnam, Laos, Burma/Myanmar and Cambodia. The first five countries are the original members and are seen as the ASEAN-5. ASEAN started as a political organisation but became economically important with the introduction of AFTA (ASEAN Free Trade Area) in 1993.

\textsuperscript{41} The star, 28/5 – 2002

\textsuperscript{42} Mahathir, 2002

\textsuperscript{43} Okoposin et al., 1999, The Changing Phases of Malaysian Economy

\textsuperscript{44} Pahlawan Volunteers, 2001, The Malaysian Economy: A Perspective on Competitiveness

\textsuperscript{45} Mahathir, 1999, in Makaruddin H., 2000, Globalisation, Smart Partnership and Government

\textsuperscript{46} Lowe V. & Alina N., 1999, Malaysia: On the Road to the Information Age
Even though it seems like the Malaysian economy is growing fast again some economists argue that Malaysia has not yet recovered from the crisis. The government’s action to overtake companies’ non-performing loans (NPL) can be shown to be critical in the long run as unprofitable companies take resources from more profitable ones. They also claim that the banking system is still in need of further restructuring and that many of the internal problems that partly caused the crisis still are in the same condition. Standard and Poor’s rating for the Malaysian banks is today on average BB. Another risk is if a serious crisis of confidence in US corporations would occur, that could lead to capital flight and a sharp fall in the value of the dollar, which affects the whole world\textsuperscript{47}.

There are also other signs that the economy has yet not recovered as the investment of the private sector last year was 39 percent lower than the level of 1997. Applications for capital investment to establish electronics projects in Malaysia fell to RM 7.3 billion in 2001 from RM 18.6 billion in 2000.\textsuperscript{48} Dr Mahathir said that since the financial crisis, the country’s economic growth had been largely driven by the public sector through the introduction of various fiscal stimulant packages. Therefore he urges the private sector to take a larger role by increasing their investments.\textsuperscript{49} But as long as they do not find it profitable to do so, Mahathir’s plea will probably not be realised. The private sector is very reluctant to spend on R&D activities, and Malaysia’s R&D expenditure, as a percentage of GNP is only 0.4 percent. Foreign-owned firms in Malaysia do not like to spend much for the local R&D as they prefer to do it in their company headquarters abroad.\textsuperscript{50} But in the last four years the foreign R&D in Malaysia has been increasing steadily, even though it is from a low level. More companies are moving the production of high-end products into Malaysia while the more low-tech and labour intensive production is being consolidated in countries like China. However, local R&D do not show this increasing trend.\textsuperscript{51} To increase the incitements for local R&D in the MSC, 20 percent of the national R&D budget is distributed to MSC-status companies that are at least 51 percent Malaysian owned. This is called the MGS-program (MSC R&D Grant Scheme) and has so far approved almost 50 million Ringgit to a total of 24 MSC-status companies.\textsuperscript{52}

Malaysia has one of the highest rates of income inequality in Southeast Asia and since 1980 it is increasing. In order to have a peaceful and sustainable growth more efforts have to be done to decrease this.\textsuperscript{53} The economic difference between the poorest state Sabah on the Northeast of Borneo and the capital Kuala Lumpur is enormous. Kuznets (1955) has showed that increasing income inequality is natural during the first stages of development, as it is the capitalist class that is re-investing their profits\textsuperscript{54}. But in Malaysia this seems to have an almost opposite effect. While the income inequality decreased a little after 1970 it soon changed and has increased since then, even though Malaysia has reached a higher level of development\textsuperscript{55}. The reason for this effect could be that Malaysia is still in the earlier stages of her development but it is probably partly due to the economic policy in Malaysia after 1970.

\textsuperscript{47} Asian Development Bank, in the Star, 10/7 – 2002
\textsuperscript{48} The star, 20/6 – 2002
\textsuperscript{49} Mahathir M., in the Star, 31/5 – 2002
\textsuperscript{50} Ghosh B. N., 2000, \textit{The Three-Dimensional Man}
\textsuperscript{51} Malaysia-American Electronics Industry, 2002, \textit{Annual Survey 2002}
\textsuperscript{52} Multimedia Development Corporation, \textit{Investing in Malaysia’s MSC, Policies, Incentives and Facilities, 2002}
\textsuperscript{53} Ghatak S., 1995, \textit{Introduction to Development Economics}
\textsuperscript{54} Kuznets S., 1955, \textit{Towards a Theory of Economic Growth}
\textsuperscript{55} Tan. G., 2000, \textit{ASEAN Economic Development and Cooperation, second edition}
The company tax in Malaysia is 28 percent, which is seen as relatively low. The governmental expenses are also rather low which has a positive affect on receiving FDI. As the cost of creating the MSC is very high, it will heavily affect the country’s economy. It will take many years before this investment will yield benefits and it is not certain whether it ever will. For a small open economy like Malaysia, long-term investments of the size of the MSC may be too heavy for the economy to bear. It will make the country more vulnerable to external effects and can help trigger a new crisis.

3.3 Infrastructure and legal framework

The infrastructure in the western part of Peninsula Malaysia has developed over a long period of time and is now considered one of the most well developed infrastructures among the newly industrialising countries of Asia. Highways connect the big cities and two railways go from the south to the north. The MSC has a strategic position between Kuala Lumpur and the Kuala Lumpur International Airport (KLIA). From this area, highways go towards all cities in the Peninsula Malaysia and one highway leads to the nearby seaport Port Klang. However, Pang Seng Chong, Manager at Fujitsu Telecommunications Asia Sdn Bhd thinks that transportation in Malaysia still lags far behind other competitive countries and that this must improve in order to make the MSC competitive.

The infrastructure inside the MSC-area is also high in quality due to the government’s high investments in it, but many parts are still missing. Shuttle buses run between the different areas and in the future, a commuter rail will be made available within the MSC. There is also a digital telecommunications infrastructure that will support the area. This includes a fibre-optic backbone that covers all parts of the MSC with a capacity of 2.5 – 10 gigabits per second. There are digital links to international centres that will ensure that information can flow between the MSC and all foreign areas of importance. At the end of 2002, licenses of third generation (3G) will be given which will further enhance the quality of service levels. However, the area still lacks in infrastructure such as stores, restaurants and natural meeting places.

An important part of the infrastructure is the legal system. Malaysia’s legal and accounting practices are derived from the British system, which makes it similar to most western countries. They have a dual legal system where the Malay race, that is following Islam, has special laws that are not applicable to the rest of the population. If a conflict occurs between the two legal systems, the Malaysian law are superior over the Muslim law. With the creation of the MSC, new special laws are needed in order to create a world-leading cluster. Technology often moves much faster than ethics, and the lag poses some serious perils for all of us. Therefore, the government has developed a legal framework of various special laws to protect computer-based businesses and other operations in this new environment. These laws are called “Cyber-Laws” and cover; Communication and Multimedia, Computer crimes, Amendment to the Copyright, Telemedicine, and Digital Signature. These “cyberlaws” will enable the government to maintain control over cyberspace to ensure that public interest

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56 Multimedia Development Corporation, 2002, Multimedia Super Corridor
57 Pang Seng Chong, Manager, Fujitsu Telecommunications Asia Sdn Bhd, interview, 17/7 – 2002
58 Othman, in the Star, 26/6 – 2002
59 This system sometimes causes problem and right now there is a discussion whether the government can stop the use of an implemented Sharia-court in the state Terrenganu or not.
60 Spinello R. A., 1995, Ethical aspects of information technology
objectives are met and “cybercrimes” curtailed\textsuperscript{61}. These laws will also develop alongside with the MSC, as new laws will be needed for new technology. An institute and a court have been created for ASEAN to develop a global cyberlaw-framework in cooperation with all the countries in Southeast Asia\textsuperscript{62}.

### 3.4 Education and research

Malaysia has 11 years of schooling. The literacy rate is 87.5 percent but this rate varies much between different states. The country has a young population with 70 percent below 35 years old. Only around 10 percent of the population has higher education such as university degrees, but this is increasing as 40 percent of the students today continue to university, both in Malaysia and to universities in other countries. The rate of return of education is high in comparison to many other countries. The main reason for this is that Malaysia has a small group of well-educated people, which makes it easy for them to get well-paid jobs. Education is given high priority in the development plan and about 20 percent of the national budget is allocated to education. But because of racial problems they are not doing so well. By using a quota-system for the student intakes at universities where the Malay race has advantages, Malaysia loses some of her best students. For example Singapore spends less on education but does better\textsuperscript{63}. Since the 80’s, the private sector has been allowed to set up educational institutions and also foreign universities have set up schools in Malaysia. These private higher education institutions have been increasing over the last few years and are now exceeding the governmental ones in number. This creates a divide between the people as a majority of the Malay race studies at the government universities and a majority of the Chinese race at the private ones.

There are 23 institutions of higher learning (IHL) with MSC-status but most of them are outside the MSC area. Almost all of them are private as governmental institutions find it less profitable to receive MSC-status. For example the tax holiday does not affect the governmental institutions. The MDC is now thinking of setting up a limit of IHL that can receive MSC-status, as the quality must remain high\textsuperscript{64}.

The level of human resource in Malaysia is thus far low and the MSC is dependent on knowledge from other countries. Malaysia has few high-educated workers, especially in broad IT and media based teachings. Another problem is that a majority of the students lack high skills in the English language, which is needed to develop areas such as the MSC\textsuperscript{65}. This is a sensitive political issue but the government has recently decided that a few topics in school will be taught in English.

One major project to increase the average human resource in Malaysia is through the “smart schools” project, which is also one of the flagship applications in the MSC. This project will cover the whole of Malaysia and according to the former Minister of Education Datuk Sri Mohd Tun Haji Abdul Razak it is “…not only to meet the requirements of the Multimedia

\textsuperscript{61}Tan A. A. L., 1997, \textit{MSC: A Quantum Leap}
\textsuperscript{62} Ariff & Chuan, 1998
\textsuperscript{63} Ghosh B.N., 2000, \textit{The Three-Dimensional Man}
\textsuperscript{64} Chea Allan Wei Ming, \textit{Executive at Multimedia Development Corporation}, interview, 2/7 – 2002
\textsuperscript{65} Chua, interview, 12/6 – 2002
Super Corridor, but also to create a new generation of Malaysians...\textsuperscript{66} From the start it was planned that all Malaysian schools would have been converted into smart schools by 2010, but this project is delayed due to the economic crisis and it is initially concentrated on a pilot project that will be finished in 2002. This covers 90 schools and costs RM 300 million. Another part of this project is to enable Malaysians to own computers. Letting citizens withdraw money from their retirement fund does this. However, this project thus far has not turned out very well, as many are withdrawing the money for other purposes.

In order to produce high-educated workers for the MSC, the Multimedia University (MMU) was established in 1999. The MMU works as a knowledge base in the MSC for education, research and contacts. It will be a long time before this project can function as it is planned but it is running according to the plan.

Malaysia is affected by brain drain as many educated Malaysians leave the country for jobs in other countries. Nearly 40 000 professionals from Malaysia are currently working overseas. Part of this is due to the politics that discriminates the Chinese race, which lead them looking for better opportunities outside the country. There are also many more that leave Malaysia to be citizens in a new country and this is often high-educated people. Furthermore there are about 150 000 Malaysian workers that work abroad, but these cannot be seen as brain drain as they are not professionals.\textsuperscript{67} Some of the problems with brain drain are internal, for example the lack of government doctors, as most doctors prefer to work for the private sector. The MSC in itself is affected by brain drain as knowledge workers in Malaysia often get higher paid occupations in other countries. At the same time, many highly skilled Indian workers come to the MSC and work with lower wages.\textsuperscript{68}

3.5 Comparative advantages

It is important to distinguish between absolute advantages and comparative advantages. Even if a country does not have any absolute advantages, it will still have comparative advantages, which it should concentrate on in order to optimise the economy. It is also important to distinguish between comparative advantages for Malaysia and for the MSC in itself. When the former Deputy Prime Minister, Datuk Seri Anwar Ibrahim explains the Malaysian advantages, he concentrates on the absolute advantages. “…There are other factors combined to give us an unparalleled advantage in the region: Our political stability and political will, sustained economic growth, multi-culturalism and English-language skills, our young and dynamic population, pragmatic and visionary leadership and the absence of entrenched interests.”\textsuperscript{69} Most of these advantages turn into disadvantages in comparison with Singapore. Therefore it is more important to examine Malaysia’s comparative advantages.

To start with, Malaysia must find her advantages in comparison to her closest neighbours in ASEAN-5; Singapore, Thailand, Indonesia and the Philippines. ASEAN-5 is a large market with a total population of 374 million. As the region is developing, an enormous potential exists in the area and Malaysia could make use of this by being a link between the area to other countries.

\textsuperscript{67} Ghosh, 2000
\textsuperscript{68} Ho Chiung Ching, \textit{Lecturer, Faculty of Information Technology}, Multimedia University, interview, 2/7 – 2002
Table 1. ASEAN-5 in comparison

<table>
<thead>
<tr>
<th></th>
<th>Malaysia</th>
<th>Singapore</th>
<th>Thailand</th>
<th>Indonesia</th>
<th>Philippines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (million)</td>
<td>23.3</td>
<td>4.3</td>
<td>60.7</td>
<td>210.4</td>
<td>75.6</td>
</tr>
<tr>
<td>GDP (US$ billion)</td>
<td>89.3</td>
<td>83.7</td>
<td>121.9</td>
<td>153.3</td>
<td>75.2</td>
</tr>
<tr>
<td>GDP/Capita (US$)</td>
<td>3,832</td>
<td>19,465</td>
<td>2,008</td>
<td>729</td>
<td>995</td>
</tr>
<tr>
<td>GDI/GDP (investments)</td>
<td>38.7%*</td>
<td>39.7%*</td>
<td>36.2%*</td>
<td>35.6%*</td>
<td>23.5%*</td>
</tr>
<tr>
<td>FDI/GDP (foreign inv.)</td>
<td>16.8%*</td>
<td>30.0%*</td>
<td>2.9%*</td>
<td>5.8%*</td>
<td>8.9%*</td>
</tr>
<tr>
<td>GDS/GDP (saving rate)</td>
<td>36.7%*</td>
<td>45.1%*</td>
<td>36.2%*</td>
<td>35.6%*</td>
<td>16.0%*</td>
</tr>
<tr>
<td>Inflation (2001)</td>
<td>4.7%</td>
<td>6.0%</td>
<td>1.8%</td>
<td>11.0%</td>
<td>6.7%</td>
</tr>
<tr>
<td>Literacy rate</td>
<td>87.5</td>
<td>-</td>
<td>95.5</td>
<td>86.9</td>
<td>93.5</td>
</tr>
</tbody>
</table>

Sources:  World Bank, World Development Indicators, 2000
* World Bank, World Development Indicators, 1997

This table shows that Malaysia is the second most developed country in terms of GDP per capita and that Singapore is the first. Malaysia has a relatively low population in comparison to Indonesia, Philippines and Thailand, but much higher than in Singapore. Rate of investments is similar in all the countries, but Singapore has much higher rate of FDI than the other countries with Malaysia on a second highest level. Furthermore, Malaysia’s saving rate is lower than in Singapore, equal to Thailand’s and Indonesia’s, and much higher than in the Philippines. All of this gives Malaysia a niche where she combines a relatively high level of development with a population much higher than in Singapore. The fact that Malaysia share the same language, and to a high extent the same culture, with Indonesia gives a potential market with a population of more than 200 millions.

Table 2. GDP Growth rate in ASEAN-5 (%)

<table>
<thead>
<tr>
<th></th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaysia</td>
<td>6.1</td>
<td>8.3</td>
<td>0.4</td>
<td>4.2</td>
<td>5.8</td>
</tr>
<tr>
<td>Singapore</td>
<td>6.9</td>
<td>10.3</td>
<td>-2.0</td>
<td>3.7</td>
<td>6.5</td>
</tr>
<tr>
<td>Thailand</td>
<td>4.4</td>
<td>4.6</td>
<td>1.8</td>
<td>2.5</td>
<td>3.0</td>
</tr>
<tr>
<td>Indonesia</td>
<td>0.9</td>
<td>4.8</td>
<td>3.3</td>
<td>3.0</td>
<td>3.6</td>
</tr>
<tr>
<td>Philippines</td>
<td>3.4</td>
<td>4.0</td>
<td>3.4</td>
<td>4.0</td>
<td>4.5</td>
</tr>
</tbody>
</table>


All countries in ASEAN-5 have had a high GDP growth rate the last 20 years and are still growing even though the growth rate has decreased. All countries are sensitive for global effects and more or less dependent on the American market. Therefore the growth rates in 2001 was very low in general, and even negative in the case of Singapore. The economies are expected to grow faster in the coming years.
Malaysia’s comparative advantages depend on which countries or regions she is compared with. While Malaysia has comparative advantages over Singapore in some areas, she has disadvantages in comparison to Thailand and China and vice versa. Cost of labour is the most typical advantage of the first example. In infrastructure and human capital, Malaysia has comparative advantages over Thailand and China but comparative disadvantages over Singapore. Malaysia’s political situation is a strong advantage compared to Indonesia and the Philippines but a disadvantage compared to Singapore. For the MSC to be successful it is not enough to be competitive among ASEAN-5, but also to other high-technological areas in the region. As the MSC focuses on knowledge and information technology, a comparison with the developed neighbour Singapore, Hsinchu Science-based Technological Park in Taiwan and Bangalore in India are relevant. Brief introductions to these areas are presented in the enclosures.

The most important comparative advantage is the low cost of labour in Malaysia, but also the MSC in itself may become a comparative advantage and generate positive externalities for the companies. As the cost of labour is something that probably will rise when Malaysia develops, this advantage becomes smaller in time. Another reason why costs of labour increases is that Malaysia has a low level of high-educated labour which will lead to increasing costs for this kind of labour. Malaysia has developed an advantage in semi-manufacturing industries, where they are combining low costs of labour with a broad knowledge base, but they are losing this advantage as labour in other countries, such as Thailand and China, are cheaper. The development in China and the opening of its borders worries Malaysia. Tan Sri Dr Koh Tsu Koon, economist writing in the Star, says that “Malaysia cannot compete in the labour-intensive operations anymore”. The manufacturing of electronic goods makes up nearly 75 percent of Malaysia’s total manufacturing export and this fact makes Malaysia economy very sensitive. Therefore Dr Koh concludes, “We must move into niche areas with emphasis on R&D and design. There is really no turning back”\(^70\). The MSC is the largest project in doing this and finding new comparative advantages. An alternative to the MSC could be to continue and improve the manufacturing-industry where Malaysia’s comparative advantage is larger. That could be done by focusing on more technically advanced products and manufacturing with higher quality\(^71\).

As a process in the development of Malaysia, the government tries to create future comparative advantages in an area that will help Malaysia become a knowledge-based society. As Malaysia does not have comparative advantages in high technology today in comparison with Singapore, Hsinchu or Bangalore, the Malaysian government has to implement other advantages in order to attract companies. Special offerings for companies that locate themselves in the MSC, such as the tax reduction and a suitable environment for the companies do this. All of this gives the MSC a comparative advantage in comparison to other areas. The government has also committed a bill of guarantees for their operations in the MSC to prove their long-term plans. Another advantage with the MSC is its strong vision and political will\(^72\).

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\(^70\) Koh T. K., in the Star, 20/6 – 2002

\(^71\) Chua, interview, 12/6 – 2002

\(^72\) Reevany Bustami, *Lecturer of Social Science at Universiti Sains Malaysia*, interview, 24/6 – 2002
4 The participants of the Multimedia Super Corridor

The MSC is, of course, heavily dependent on its participants. MSC’s success depends on its participant’s success. Therefore, this chapter will be an examination of all the important participants in the MSC in order to analyse the development. I will make a distinction between institutional participants and companies.

4.1 The institutions

Among the institutions in the MSC are the government, the leading function MDC, financial institutions, and the Multimedia University (MMU). These are all concrete institutions. Even though abstract institutions also are important, I will not consider them in this examination. This can for example be the culture or unwritten laws that are of importance in the area73.

4.1.1 The government

The Malaysian government is very important to the MSC due to its power to affect it. It is indirectly the government that runs the MSC because it controls the MDC. It is the government that sets the targets for the MSC and provides the MDC with the necessary tools to be able to fulfil it. The government has also made huge investments in the MSC and it will go on until at least year 2020. Almost all of the investments in the MSC come from the government but companies that receive special rights in the area are responsible for parts of them74. One of the most recent investments has been to create Cyberjaya’s City Command Centre (CCC) which serves as a service for all municipalities and community services in Cyberjaya.

There are two crucial points with the government’s role in the MSC. First, will it continue its massive investment and give the MSC highest priority or will this project get less and less attention? Secondly, will it be the same government after the next election? The election should be held in 2004 but it is possible that the government by political reason will call for election earlier. If the government decreases the investments due to political or economic reasons the development of the MSC will be slower. Thus, the Malaysian government has signed a bill of commitments, which they cannot withdraw from without putting the whole MSC in danger.

It seems like the government is strong and stable with a ruling coalition from the major parties that represents all the major ethnic groups in Malaysia. This coalition has been in power since independence in 1957 and that proves its strength. The fact that Dr Mahathir has been a very powerful Prime Minister for twenty-one years causes worries for his resignation, which is said to be in October 2003. The politics of Malaysia is very closely linked to him, which will cause uncertainty when he is not around. His successor will probably be Datuk Seri Abdullah Ahmad Badawi who is already preparing to take over as the Prime Minister of Malaysia.

73 North & Thomas, 1973, The Rise of the Western World: A New Economic History
74 Chea, interview, 2/7 – 2002
4.1.2 The Multimedia Development Corporation

The Multimedia Development Corporation Sdn Bhd (MDC) is responsible for the creation and running of the MSC and is therefore a key factor for the development of the area. The MDC is fully controlled by the government and is therefore dependent on it. A political change in the government would therefore also lead to a change in the MDC. The executive chairman of the MDC since its start has been Tan Sri Dr Othman Yeop Abdullah.

Bustami Reevany, lecturer in globalisation at Universiti Sains Malaysia (USM), is impressed with the work of the MDC and that it is run by many of the highest educated people in Malaysia. The MDC follows its original set-up goals and has more or less accomplished them by this time. It has created the MSC and Putrajaya and most of the infrastructure in the area. It has attracted companies to the area, both domestic and foreign, and 53 of them are seen as “world class”. It has been able to support these companies, facilitate knowledge to them and finally, create an institution that works to accomplish its mission. It also works as an agency for companies to set up their operations in the MSC. It assists in expediting permit and license approvals and can provide information and advice. But all these set-up goals are broad and difficult to evaluate. Only in a very long time period will it be possible to evaluate how well it has performed its tasks. Even though the MDC has done well this far, it must improve in order for the MSC to continue to develop.

The MDC tries to generate e-communities and it has had some success with that, but mostly in urban areas. One rural project has been to turn two village schools into “smart schools”. This has also been successful but to a high cost. From the beginning it was planned that the MDC would be able to finance itself after a few years, but this has been difficult to fulfil, as the MDC does not have high profits from its projects.

4.1.3 Financial institutions and companies

For the MSC to be able to run smoothly, many different kinds of financial institutions or financial companies must exist. This includes commercial banks, insurance companies, and a well working stock market etc.

Malaysia has developed her financial and banking sector and the country is often used as an export base in Asia. She has both domestic and foreign commercial banks. There are also representative offices of several foreign banks that wish to establish their presence in the region. Financial companies cannot receive the MSC-status but they can still exist in the MSC-area. Besides the commercial banks, merchant banks, finance companies and industrial finance institutions are major sources of credit to the industrial sector in Malaysia.

As the MSC was launched just before the Asian crisis, financial companies and banks faced severe problems in the beginning. If the government had not acted to save them, many would not have survived. The private financial companies still face hard times and their investments are low. Many private developers have recently built industrial areas around Malaysia that

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75 Reevany, interview, 24/6 – 2002
76 E-communities is a vague expression of communities where all the inhabitants, (at home, in schools and at work) are connected by Internet and having high skills in using the technology.
77 Chea, interview, 2/7 – 2002
now are non-occupied, as there is no market for these new projects right now in Malaysia. Dr Mahathir has urged the private sector to be more involved in the recovery of the economy as it has been too much driven by the government alone. But return on investments has thus far been negative in the MSC and the project has not attracted to financial companies. The government has done most of the investments in the MSC and this cannot go on for a very long time. Most clusters in the world grow mainly by capital from the private sector, but this is not the case in the MSC-project.

Confidence in the economy weakened after the crisis and Kuala Lumpur Stock Exchange (KLSE) lost 62 percent of its value. During the recovery, KLSE increased again but the confidence is still lower than it was before the crisis. Foreign owners are more careful and withdraw their money if worries occur. However, Seow Choong Liang, head of research at Kenanga Bhd, expects a very big increase in the rating of the KLSE over the next 12 months, and the finance sector seems to be the strongest one.\textsuperscript{79}

International Trade and Industry Minister, Datuk seri Rafidah Aziz, urges Malaysian venture capital-companies to be more flexible when evaluating potential investments. She adds that there are many complaints from technology entrepreneurs who believed that they had good ideas, but found it hard to get funding. The Malaysian Government incorporated MAVCAP (Malaysia Venture Capital Management Sdn Bhd) in April 2001, and allocated funds totalling RM 500 mil for the purpose of providing funding and nurturing the growth of the local technology sector and the venture capital industry.\textsuperscript{80}

4.1.4 The Multimedia University

The new university in the MSC, the Multimedia University (MMU), has now been running for four years. It was formerly known as Universiti Telekom and located in Melaka, but it is now having one campus in Melaka and one in Cyberjaya. The MMU is giving courses at the undergraduate and postgraduate levels through seven faculties and there are about 9000 students studying there. The MMU strives “…to become the Centre of Excellence in R&D within the Asia Pacific region, and eventually achieve global recognition.”\textsuperscript{81}

The university tries to connect companies with the research centres and will in the future be the knowledge base in the MSC. It should be the hub between companies and the research at the university. The MMU is still too new to be able to fulfil its tasks and therefore it cannot satisfy the important goal it has. The level of research is low, as most resources have been put into starting up the education. The interaction with the companies is also rather low and can therefore not fulfil its role as a hub. Thus, all of this is improving and according to Ho Chiung Ching at the MMU, it will probably fulfil its targets in some years.\textsuperscript{82}

The market is responding very well with the MMU as it is now one of the most popular universities in Malaysia.\textsuperscript{83} It does not apply the quota system as they try to get the best students of Malaysia.

\textsuperscript{79} Seow C. L., in the Star, 10/7 – 2002
\textsuperscript{80} Sharif, in the Star, 16/7 – 2002
\textsuperscript{81} Multimedia University, from www.mmu.edu.my, 6/7 – 2002
\textsuperscript{82} Ho, 2/7 – 2002
\textsuperscript{83} Reevany, interview, 24/6 – 2002
4.2 The companies

MSC-status (see 1.2.3) is given to companies that are developers or heavy users of multimedia or information technology products and services. In August 2002, the MSC had 745 companies with MSC-status. 495 of these are Malaysian-owned (both private and state-owned) and foreigners own 232 of them. 18 of them are joint ventures with equal shares between Malaysian owners and foreign owners. 53 of the companies are seen as “world-class” companies, which means that they are large multinational companies. Among these world class companies are Microsoft, Shell, Ericsson and Fujitsu. Malaysia accounts for about 65 percent of the shareholdings in the companies in the MSC. Europe is the second largest region with 11 percent while North America and Singapore account 5 percent each84.

Figure 1 shows that the growth of the MSC has been continuously and that the growth rate even has increased after 2000. The growth in 2002 seems to follow the increasing trend from 2001 as the graph does not cover the last four months. The growth of world-class companies however has only increased slowly as the majority of them already existed in 1998. The Malaysian-owned companies account for the major part of the growth with almost 100 new companies every year.

Of the companies, around 30 percent are working with software development and around 22 percent with Internet based business. Other important sectors in the MSC are content development, system integration, education and training, and hardware. A full sector specification is presented in figure 2.

4.2.1 Domestic companies

The domestic companies contribute for about 65 percent of the companies in the MSC and therefore they are the dominating participants. Most of these companies existed in Malaysia before the creation of the MSC, and entered the MSC because of the favourable environment there. They are therefore not a product from the MSC, but their gathering is still successful. Many of them are getting support to develop their R&D and also to improve in areas where they are not very skilled. The MDC tries to increase the number of small and medium enterprises (SME) and they have recently collaborated with Australia’s leading sales coach Noble May & Associates, to train SMEs in the MSC in the art of selling.85

Some economists in Malaysia argues that the domestic SMEs will be the great driving force that will take Malaysia to the new economy. However, they claim, that many of these companies’ largest problems are in their own mind, as they do not think they can compete on a world market. Another problem with domestic SMEs is that many of them are not convinced about the importance of development in human resources and continuous training.86 To change these matters is one of the most important issues for Malaysia in order to develop.

Mhad Fudzi Bin Ahmad, general manager at Telekom Malaysia Bhd, says that the MSC is an attractive area mainly due to the government’s bill of guarantees and especially due to the efforts to provide a world-class infrastructure and services. But he also thinks that the MSC

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85 The Star, 4/7 – 2002
86 Phung, in the Star, 16/7 – 2002
has a big potential to become a very attractive cluster, even without these special benefits for the companies. To start up the area, the government promised Telekom Bhd monopoly in the area to compensate for its huge investment costs and infrastructure creation but this monopoly is now about to be taken away. Telekom has long term plans to stay in the MSC and develop it but Mhad thinks it is possible that some of the smaller companies just make use of the tax-free holiday and then might leave.\(^{87}\)

4.2.2 Foreign companies

Today, in the middle of 2002, there are 232 foreign companies in the MSC and 53 of them are described as “world class”. This is following the plan that was stated from the beginning. Among the foreign companies in the MSC, more than 30 percent are coming from Europe, dominating from the UK, while almost 15 percent are from the US respectively Singapore. Other major countries are India, Japan and Australia. Just like among the domestic companies, many of the foreign companies existed in Malaysia before the creation of MSC.

The main reason why these companies chose to locate in the MSC is that they see Malaysia and the region as attractive and the MSC as an area that fulfils their needs. The combination of financial incentives with a good infrastructure and a good position is the strategic reason that foreign companies appreciate. Mabal Tan, Director at Shell Information Technology International Sdn Bhd said, “although we had a choice of a few locations, we finally decided on Cyberjaya and now, six months later, I can say that we made the right choice.”\(^{88}\)

Pang Seng Chong, manager at Fujitsu telecommunications Asia Sdn Bhd, says that the MSC is still too new to be beneficial by itself and it is only the governmental incentives that are attractive with the area. He also says that Cyberjaya is located too far outside Kuala Lumpur to be really attractive. Thus, the area will improve as the MSC develops and Cyberjaya will be fully completed. Fujitsu would not have come to the MSC without the special rights it is achieving there. Especially important for Fujitsu is the free import of knowledge workers, which guarantees that it can get enough efficient skilled labour. Pang thinks the MSC can be competitive in the future but more companies has to come to the area.\(^{89}\)

Fujitsu is not gaining from being in the MSC other than from the special rights it is achieving there. The company does not co-operate much with other firms and are not deeply involved at the university. Pang cannot see any dangerous threats against the MSC and he thinks the MSC will be competitive in the future, partly because the use of the English language is higher in Malaysia than in China and Taiwan. He says that the telecommunication technology and the MSC will not depend on the development of Malaysia, as it is a technology without borders. Fujitsu has long-term plans to stay in the MSC and they have already existed a very long time in Malaysia. One problem with the MSC this far is according to Pang the transportation facilities, which still is a disadvantage for the MSC in comparison to most other technology areas in the region. Fujitsu is not very attracted by the MSC but it needs representative companies in Malaysia. It does not have a high level of R&D in Malaysia but it is doing some software development. Fujitsu may shift some of its expensive R&D in developed countries to Malaysia in the future.

\(^{87}\) Mhad Fudzi Bin Ahmad, General Manager, Telekom Malaysia Bhd, Interview, 17/7 – 2002
\(^{88}\) Multimedia Development Corporation, Corporate Video, Mabel Tan, 2002
\(^{89}\) Pang, Interview, 17/7 – 2002
An important question to ask is how much Malaysia will benefit from these companies? If the tax-holiday is the main reason they are coming to the MSC, they may move to another tax-free area later. As they can employ foreign workers, not many Malaysians will be employed. To make an effective and competitive cluster, the MSC is in need of foreign companies, but they should not be seen as classical FDI, as the benefits will be of another kind. The MSC must make sure that it will be able to gain from these foreign companies by an exchange of knowledge and technology.
5 The Malaysian Multimedia Super Corridor

The attention in this chapter will be on the whole cluster and not, like in the last chapter, on single participants. This chapter is an investigation of the development of the MSC and also contains a comparison of the MSC with other clusters. One of the most important factors for a cluster to develop is the ability to attract FDI and this can be seen as the final test for the cluster.

5.1 The development of the Multimedia Super Corridor

The development of the MSC is this far following the plan, which was stated by the time the MSC was launched. As phase one in creating the MSC will be ending this year, this is the first time it is possible to do an obvious examination. The flagships have been launched and are now running. The two cities, Putrajaya and Cyberjaya, are constructed (but not completed) and 53 world-class companies have been attracted to the area. According to Allan Chea at the MDC; “the development goes very fast and new buildings are coming up all the time”90. Even though the first years of the MSC were affected by the Asian crisis, the Malaysian government continued its huge investments in this project, except from some parts that got a bit delayed.

A problem that the MSC faced during the introduction-years was the crisis in the ICT-sector. For a cluster where focus is just information technology this could have been the end of it. Many companies faced hard times and their value decreased on the stock market. But several market-research and analyst firms claim that E-commerce will continue to play an increasing role in driving economic growth, especially in ASEAN.91 This means that as long as the MSC can be competitive, attract an inflow of firms and make existing firms grow, there should be possibilities for continuous growth.

MSC-status-companies will need to establish their principal operations within MSC-designated cybecities, which include Cyberjaya, Technology Park, UPM_MTDC Technology Incubation Centre, Petronas Twin Towers and the E-Village. This far, Cyberjaya has not been the main area for companies as only 78 of the MSC-companies exist there and 57 non-MSC-status companies. This is partly due to that Cyberjaya is very new and still lacks certain parts. But it is also due to that it is difficult to create a new area and get people to move there. Since 2000, the amount of companies in Cyberjaya has not been increasing. The total population in Cyberjaya is just above 10 000, while the target is that 240 000 should live and work there.

The MSC is very important for Malaysia in order to increase the amount of knowledge workers. It is expected that 180 400 ICT and engineering graduates will enter the ICT labour market from 2000 to 2005. To be able to keep the human resource that Malaysia has or will create in the country, they must have somewhere to work. Even though the MSC alone cannot do this, it can contribute with a part. The MSC has also created much interest for ICT among the population, which might result in a higher general human resource.92

90 Chea, interview, 2/7 – 2002
91 For instance IDC, in the Star, 6/6 – 2002
92 Reevany, interview, 24/6 – 2002
The whole idea and creation of the MSC is linked to the Prime Minister Dr Mahathir Mohamad, and it would probably have looked different, if it even would have existed, if another Prime Minister had been in power. Furthermore, it is not for certain that a new Prime Minister would go on with the heavy investments in this project. But as the MSC already has been implemented with huge investments it is not a threat that it would be taken away. Thus it is necessary that the MSC will be more independent from the government and the private sector must slowly take over.\(^93\)

### 5.2 The Multimedia Super Corridor’s ability to attract FDI

A main engine of Malaysia’s growth has been the inflow of FDI to the country. It was especially after 1970, when the New Economic Plan (NEP) was introduced, as Malaysia partly opened up her economy in order to gain manufacturing industries, that FDI entered the country. Since the early 1990s, FDI flow has been directed to the high-tech industries in support of the establishment of the MSC and the realisation of Vision 2020. MSC is today seen as the centre of attractions for FDI in Malaysia and is mainly concentrating around electronic commerce.

FDI does not only contain capital but also new techniques and knowledge. This is something that can spread in the country and generate a higher productivity. Malaysia hopes that foreign knowledge will have this effect and it seems like the fact that the MSC exist has a positive effect on the Malaysian interest on ICT.\(^94\) The consistent flow of FDI in Malaysia has helped to change the country’s comparative as well as competitive advantages: from an agriculture-based to manufacturing, labour-intensive to capital-intensive, import-substitution to export-led and finally, according to Dr Mahathir’s plan, traditional industry to the information age.

But everything does not look that good. For the first four months in 2002, FDI has only been 16 percent of the same period last year. Even though this mainly is due to a weak world market, FDI in Malaysia has been decreasing regularly since 1995. The domestic investment follows the same pattern.\(^95\) There are many factors causing this such as the economic crisis and the turbulence in the world. But the main reason is that Malaysia loses her attractiveness in comparison to other countries. Her position as one of Asia’s leading electronics hubs has come under increasing threat as manufacturers move into lower-cost sites like China. The FDI Confidence Index in 2001 showed that China would be the second most attractive country in the world for investors, while Malaysia remain relatively unattractive.\(^96\) Cheap labour, a huge market and a growing talent pool have sent foreign investors flocking to China in recent years. Another potential problem for the inflow of FDI to Malaysia is the government’s capital control. Even though the companies in the MSC are excluded, it may spread negative effects on the FDI in Malaysia. Speculation is also one kind of FDI, even though it is often more shortly invested, and it can participate in creating wealth for Malaysia.

Because of these threats the MSC must be able to attract other kinds of FDI than during the last 30 years. That should be FDI that is based on ICT but also FDI in the shape of knowledge. Companies in the MSC that are using knowledge workers therefore get special rights and advantages. The amount of knowledge workers increased every year except in 2002

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\(^{93}\) Reevany, interview, 24/6 – 2002  
\(^{94}\) Ibid.  
\(^{95}\) Malaysia International Development Authority, from http://www.mida.gov.my 17/6 – 02  
\(^{96}\) Lim C. C., 2002, *Challenges that China holds for Malaysia*, in New Strait Times, 22/6 – 02
when the amount decreased\textsuperscript{97}. There are today around 30 000 knowledge workers in the MSC who count for around 20 percent of the workforce.

The MSC has so far been successful in attracting FDI but it is not enough as the FDI in Malaysia is decreasing. As FDI is attracted by low cost of labour, cluster-environments, low taxes, good education and research, and an open economy with a competitive market, this is what the MSC tries to achieve. Today, the MSC has 232 companies that are mainly owned by foreigners and this amount increases every month. All of them generate FDI to Malaysia, but many of them are not a result of the MSC. By including Kuala Lumpur City Centre in the MSC-area, it gains many companies into the MSC that would have been there anyway. Cyberjaya, the new-built city and the main area for the companies, has not been able to attract a large part of the MSC as only 78 companies with MSC-status exist there, compared to more than 650 in other parts of the MSC.

5.3 The Multimedia Super Corridor in comparison with other areas

As the MSC is struggling to attract FDI and to become a world-leading cluster for information technologies they must be open for competition. Therefore it is necessary to compare the MSC with some competitive areas in the region. I compare its strengths and weaknesses with: (1) Bangalore in India, a technological area with a high level of human resource and low cost of labour, (2) Hsinchu Science-based Industrial park in Taiwan, one of the most successful clusters in the world, and (3) Singapore, the developed neighbour of Malaysia. Short information about these areas is presented in the enclosures.

The MSC has historical disadvantages to all these areas, as they have been running and developing for a long time now. Their interaction between companies and institutions, especially with the universities, is much higher than in the MSC. The research at the university is also much higher in those areas. Another disadvantage for the MSC, due to its new start, is that companies that settle down there cannot be sure that the cluster will continue to develop and be competitive in the future. But the MSC also has some advantages of being new. It can plan the area from the beginning and build a modern infrastructure, which will last for a long time. According to the MDC, the MSC is the world’s most comprehensive ICT development project. It is up to them to prove it in the competition.

In comparison to Bangalore in India, the MSC has many disadvantages such as the cost of labour and the level of education including the use of the English language. It will be hard for the MSC to compete with labour intensive activities such as software development. Instead, the MSC could concentrate on more capital-intensive technology such as hardware manufacturing. But the MSC also has many advantages such as its position in the middle of Southeast Asia and its well-developed infrastructure. As Bangalore faces heavy environmental problems due to its size and fast growing, this is also a big advantage for the MSC. Furthermore, the political and economical circumstances can be seen as advantages for the MSC.

At the same time, the MSC must compete with Hsinchu Science-based Industrial Park in Taiwan, which was seen as the world’s most successful science park in the middle of the 90s. In comparison with this area the MSC has their major disadvantages in human resource and

\textsuperscript{97} MSC.Comm, 2002, Magazine for the MSC, April edition
the level of R&D. Every US$ 100 million spent on R&D yields 16 patents in Malaysia, compared to 357 in Taiwan. Hsinchu has been growing around several universities and some big companies during a long time and is now closer linked to each other than the participants in the MSC. The MSC’s advantage is mainly its lower cost of labour and partly also the location. As Hsinchu is rather crowded by now, the MSC has a huge area. Even though Taiwan has political problem with China, it is nothing that seems to threat Hsinchu. One important difference is also that 86 percent of the capital in Hsinchu comes from the private sector while in the MSC almost everything comes from the government.

Also in comparison with Singapore that is having almost the same location as the MSC, the main advantage for the MSC is the low cost of labour. But Singapore has many advantages as it has a more developed economy, much higher human resource, and a more stable political situation. The MSC is lagging far behind in R&D and the knowledge level there is much lower. Instead of trying to compete with Singapore, they could try to co-operate more. In that way both Singapore and Malaysia could gain advantages.

The summary illustrates that the competition is fierce and it will be very difficult for the MSC to exist in a world competitive environment. Therefore it is necessary that the MSC finds a special niche where it can concentrate. As the MSC is a long-term project, the cost of labour in Malaysia will increase as Malaysia is developing. By that time it is necessary that the MSC has find its own way, or the competitiveness will not be sufficient.
6 Analysis and Conclusions

This chapter is an analysis of the MSC, based on earlier chapters. The analysis is structured in order to answer the main questions that were stated in chapter one, all in order to fulfil the purpose with the paper. Finally some conclusions are presented that summarise this paper.

6.1 Building blocks

Political: The political situation in Malaysia has been stable for a long time, especially in comparison to many other countries in the region. But this stability is to a high extent due to a strong government and a continuously high economic growth and is no proof for stability in the future. If the economy would downturn again with a long period without economic growth, it is possible that the Malaysian harmony between the different ethnic groups will decrease. Even though Malaysia always has been ruled by the coalition National Front, this could change with a far more uncertain political situation than today. One of the largest threats is the orthodox Islamic party PAS, which has been growing for a long time among the Malay race. This is connected to the problem of inequality. Although the Malay race have had special rights for more than 30 years, the majority of the poor people in Malaysia belong to this group. This is, more than different religions, creating a division between the races, which may end up in more riots. This gap gives opportunities for extreme political parties, which can put the political stability in danger. Also the political situation in the world causes threats for a Muslim country like Malaysia. What Dr Mahathir wrote in his famous book, the Malay dilemma, in 1970 still seems to be true; “…the actual situation beneath this seeming tranquillity and harmony is fraught with danger”.

Despite all of this, the political situation in Malaysia seems to be stable enough in order to create the MSC. But these threats and uncertainties are negative for the development. One critical phase will be when Prime Minister Dr Mahathir resigns. Some foreign analysts have increased the political risk premium for Malaysia because of this. It is of uttermost importance for the country and the MSC that his successor, probably Datuk Seri Abdullah Ahmad Badawi, can keep the same stability.

Economical: Malaysia has created a beneficial environment for companies with trade export zones, relatively low taxes and good facilities. Furthermore the relative price level has been low and the cost of locating competitive. The creation of the MSC has improved this further and the result has been that more than 5 000 foreign companies now exist in Malaysia. The economy has been continuously growing for a long time, but the money has not always been invested in beneficial projects. This makes the economy sensitive for external factors and it was one of the factors that caused the economic crisis in 1997. Due to several factors, the growth rate for the Malaysian economy is not expected to be as high as before and therefore Malaysia cannot afford to invest in projects with low rates of return. The largest investment the government is undertaking is the MSC, which is seen as the most necessary project for Malaysia to keep FDI flowing to the country and also to help Malaysia develop towards a knowledge-based country. Only time will tell what the outcome will be, but it is necessary to analyse what this investment could have generated in other projects. Instead of creating a high-technological area outside Kuala Lumpur, it could have been used to increase the poor population’s share in the economy, or to increase the general standard of schools.

The economic necessary factors seem to be satisfied in order to create the MSC but the future is uncertain and it causes some worries. Of importance is also that Malaysia is considered as an open country and this fact will help to boost the MSC. Even though the government still protects some of Malaysia’s industries this will decrease with the further implementation of AFTA. A relatively low level of governmental expenditures also attracts MNCs to the country. Malaysia is dependent on the US-market and anything that destabilises the US will affect Malaysia. The worst scenario is if Malaysia’s developing process would stop or even be negative, and in that situation the MSC would probably not be able to develop.

**Infrastructure:** The infrastructure in the MSC is well developed. The physical infrastructure is modern and covers all necessary needs, such as roads, trains, airports and ports. The electronic infrastructure is also of high quality with a fibre optic network combining the whole area and also linking it together with other areas. Furthermore, necessary institutions exist and legal rights are taken care of. But to build a whole new city takes time and few people would find Cyberjaya as a pleasant living with its lack of daily life infrastructure. The summary though gives that the necessary infrastructure factor is fulfilled for the MSC, which is due to the government efforts of creating a favourable infrastructure. Even though Kuala Lumpur, like most big cities in the region, has problems with traffic congestion, this does not affect the MSC to a high extent. However, it is important to realise that it is not the infrastructure that will ensure a success for the MSC, it is how it is used. One problem with the MSC is that the area is so large that many of the advantages with a cluster disappear. Therefore the natural interaction between many of the companies will not exist and several sub clusters among the different parts will probably occur.

**Education:** Malaysia’s former Minister of Education, Dato’ Seri Mohd Najib Tun Abdul Razak, has made it clear by saying “education will be the key determinant of our (Malaysia’s) success and further progress” This is also the most critical area, which might be the factor that will hinder Malaysia’s development. Today, human resource in Malaysia is far too low to turn Malaysia into a knowledge-based country and also to create an area such as the MSC. Even though the government spends huge amounts of GDP on education, Malaysia lags far behind competing countries in education. While Malaysia is struggling to enter the ICT-sector and high-tech production processes she is in a very critical stage of skill-intensive industrialisation. In this stage, nothing is so crucial as critical skill. According to professor Ghosh, “…unless skill development attains a critical minimum level, the induction of high-tech process including the MSC would be like building up a superstructure without a base.”

“Smart schools” is one of the projects that is implemented to increase the human resource in Malaysia but it seems like this project is overestimated. Schools does not become much better by using expensive equipment that will become old much faster than it is possible to upgrade it. For a country like Malaysia, these kinds of investments will never give a high return. Instead the government should concentrate on increasing the standard of the schools and the teachers. “Smart schools” was one of the first projects that had to suffer from the financial crisis in 1997 and this project will probably not reach its goal of turning all schools in Malaysia to “smart schools” by 2010.

99 Phang, in the Star, 16/7 - 2002
101 Ghosh, 2000
102 Ibid.
**Comparative advantages:** Basically, the theory of comparative advantages does not support the creation of the MSC. Even though Malaysia is losing her advantages in manufacturing, due to increasing costs of productions factors compared to other markets, this does not mean that she is automatically gaining them in high-technological industries. Malaysia’s comparative advantage is still in manufacturing but this fact cannot be enough to say that the MSC is a non-profitable project. Malaysia is in a critical phase where she has to move on to make sure she is competitive in the future. The important question is whether the MSC can help Malaysia to find new advantages and new markets? If Malaysia would concentrate on her comparative advantages she would put more efforts in manufacturing and develop this industry to produce more qualitative products. By doing so, the country could find a niche between low cost manufacturing and high technological industry. By the time Malaysia develops, the level of human resource will increase and later she could automatically transfer to a more high technological industry. As it is now, the MSC might never be beneficial in itself, and return on investment in this project might never be positive. That could generate an even more difficult situation in the future if important resources are bound in a non-profitable project. But still, fact remains that Malaysia has chosen a cluster strategy in order to keep the economy growing and if this strategy shall have a chance to be successful, it must receive steadily full support.

The conclusion of these building blocks is that not every necessary factor to create an effective cluster is fulfilled in the MSC today. Though the political, economic and infrastructure factors seem to be more or less sufficient, the big problem is the level of human resource. This is also the reason why Malaysia’s comparative advantage cannot be seemed to be in the production of high technological industry.

### 6.2 The running of the Multimedia Super Corridor

The MSC seems to fulfil all the necessary theoretical parts of a cluster as it has a university, a leading centre, companies, and provides venture capital. But an examination of these parts reveals many problems. The university is new and cannot fulfil its tasks in the way it is meant. The MDC is doing well but cannot make the business profitable. While MDC has failed in creating risk capital and private investments are very low, the source of capital is today mainly from the government. This is something that must improve or the MSC will never be near reaching its vision.

For a cluster to be successful, it should be located in an area and adjusted to participants that already have, or at least have the potential, to reach world class in their fields. This fact generates worries for the MSC. It does not fulfil the first criteria and it is uncertain whether it has the potential to achieve world class in its area. But even if the MSC cannot achieve world class, there are possibilities for the area. Malaysia is one of the most developed countries in ASEAN and the MSC can probably be competitive on a regional level and link ASEAN with other regions. Southeast-Asian countries are a growing potential market and one of the advantages with the MSC can be as an entry for foreign companies to this region.

One important success with the MSC is that it has attracted many world-class companies. This can work as a sign for other companies to come to the area. Large companies are also normally more integrated with institutions and R&D. But it seems like foreign companies in the MSC are attracted there by other factors than good R&D opportunities. They see the area
as attractive in combination with the special rights they are achieving there. It is though questionable if the area in itself, without the special rights, could have attracted many foreign companies. One of the advantages is the government’s bill of commitment. This commitment is binding and Malaysia cannot withdraw from it without putting the development of the MSC in danger. The Malaysian government proved that it stayed with this commitment already in the start of the MSC as the investments continued even though the country faced a crisis.

By creating a cluster the main idea is that the cluster will generate special advantages for both participants in the cluster and for the society. But it is not sure whether companies in the MSC are benefiting from the cluster more than from these special rights they achieve from the government or not. Many of the companies are far from each other and most of the foreign companies keep their main R&D in other countries. From this point of view, it is questionable if the MSC should be seen as a cluster. It can rather be seen as a project just to attract companies to Malaysia. Without a large core of R&D the MSC will not benefit from the “standing on shoulder”-effect and it will decrease the potential growth rate. The low amount of high-educated people in Malaysia will enlarge this problem.

The leading function, the MDC, has a very important role in this matter. One of MDC’s tasks is to be a link between companies and the institutions, and MDC works hard to fulfil this. To be able to help small and medium enterprises (SME) to improve their selling skills and R&D, the MDC has contacted a sales coach and started the MGS-programme (MSC R&D Grant Scheme) where SMEs can receive financial help to start up research. This is important as the MSC and Malaysia must be less dependent on foreign companies in order to be less sensitive for external shocks. A country that is very dependent on FDI is more vulnerable as foreign companies can withdraw their investments.

The MSC is affected by diffusion-factors that will probably lead to higher wages in the region for two reasons. First, the amount of high-educated people is low, which in the long run will tend to increase their salaries. Secondly, few sees Cyberjaya as an attractive area to work and live in due to its lack of social and daily meeting places. Except from that, the diffusion factors do not seem to work in a negative way. As the MSC focus on knowledge and moveable capital, most of this is naturally concentrated around Kuala Lumpur. By dividing the companies according to Ferguson’s definition (see 2.1) it is clear that a majority of the companies in the MSC belong to the category “new-started companies”. This group can gain much from being in a cluster but they are not heavy users of R&D. For a cluster, this category is important but it must be combined with some large outward focused companies if the whole cluster should be effective. An analysis of the external effects in the MSC indicates that they are small, but with a potential for more positive effects. Although the pecuniary effects are limited, non-pecuniary effects will hopefully lead to an increase in knowledge in the area as knowledge and R&D can “spill over” in the area. Other positive external effects are the facts that Malaysia becomes more well-known because of the MSC and that Malaysia in general, and Kuala Lumpur in particular, gain advantages from a better infrastructure. One important external effect is that it seems like ICT is getting more interest all over Malaysia because of the existence of the MSC. External effects of a negative character are environmental costs caused by the MSC and a temporarily weaker national budget. Normally a cluster leads to negative external effects because of traffic congestion, but this is not yet the case in the MSC.
6.3 The Multimedia Super Corridor’s affect on Malaysia

Ultimately, the MSC exists to help Malaysia develop and to turn Malaysia into a knowledge-based society. Malaysia has a top-down approach on development and the government hopes that a core of high-technology industry will transmit all over the country, leading to changes that will help Malaysia develop. Many studies have showed that this kind of approach very seldom is successful and that a bottom-up approach is better. Because of this problem, Malaysia also has projects in combination with the MSC that should prepare Malaysia for this development. Reevany, lecturer at USM, thinks that “smart schools” have a great potential but it has to focus on creative thinking and in knowledge creation. He means that it is not the ICT that will help Malaysia develop; the future lies in knowledge creation. The Malaysian people should not only be consumers of the new technology but they should also be contributors of it.103

It is difficult to evaluate MSC’s role in Malaysia and there are different opinions about it. Professor Chua means that the MSC basically is good for Malaysia but that it is impossible to forecast its role in the future. Professor Ghosh on the other hand writes that the MSC will be helpful only for the people living near Kuala Lumpur, while the rest of the population will be excluded from these new technologies. He means that ICT is helpful only for the rich class that can afford the technology and that this will further increase the income inequality in the country. A clear effect though is that the MSC gives Malaysia lots of interest from the world and the country is now often seen as the leading Muslim country in the world. Since 1996, the growth and the development of the MSC have had impact on the Malaysian ICT-sector. It seems like the public interest of ICT has increased more than it would have done without the creation of the MSC. Still, only when the MSC is running by itself, guided by the market forces, will it be able to generate benefits for Malaysia.

6.4 The Multimedia Super Corridor in the future

“Beyond Malaysia, the MSC becomes a global bridge when its web is interlinked with those of other regions around the world. This bridge, I hope, will connect with the digital entertainment community in Hollywood and the high-tech companies in the Silicon Valley”104. This quotation is from a speech by Dr Mahathir by the launch of the MSC in 1996. This is probably a realistic and beneficial vision for the MSC even though it is a long way to go. As the MSC probably will not realise its main vision, to become a world leading ICT-cluster, it can probably become competitive on a regional level. Then it is important that Malaysia can link the cluster to the global world in order to act internationally. International companies are thinking in terms of standardisation globally and most companies take help from one or a number of IT-partners to conduct the standardisation.

The MSC seems to continue its development with full support from the government and it will probably go on for a long time as it is the main project in reaching “Vision 2020”, but worries exist. A common opinion among economists in Malaysia is that "Vision 2020" is so closely identified with the personality and leadership style of the man that it is unlikely to survive his stewardship of Malaysian politics.105 I do not fully agree with his view, because

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103 Reevany, interview, 24/6 – 2002
104 Mahathir M., 1998, Excerpts from the speeches of Mahathir Mohamad on the Multimedia Super Corridor
105 For instance Mehmet O., 1999, Malaysia after Mahathir: the End of Vision 2020?
there is too much to lose by not continue on the prescribed way as the area already exists. Furthermore, the next Prime Minister will probably be Datuk Seri Abdullah Ahmad Badawi, who has been working with Dr Mahathir for a long time and is fully involved in “Vision 2020” and the MSC. But the truth is that the whole MSC is linked to Dr Mahathir and that his resignation as Prime Minister most probably will lead to changes in the area.

If the MSC will continue its development in the future it is necessary that some factors will improve. Private companies must be an important source of capital, and their activities in the area must increase. The Multimedia University (MMU) has an important role in developing the MSC. It must improve its research and be able to interact more with companies in the area. Also the MDC, which is running good today, must improve to fully act as the leader of the MSC that it is. It must work as the link between the research in the university and the industry. It should also be part of the creation of risk-capital finances. Furthermore, it is important that the MSC will find a special niche where it can concentrate at, even though this may increase the risk in a fast changing global market. The competition is hard and labour cost in the MSC will probably increase in the future. It is also necessary that Malaysia use the MSC as a way to develop its own resources. Therefore the MSC should try to use FDI to increase its own capabilities and beware of becoming too dependent on FDI. Mohamad Rafee Yusoff, an economist who writes in the star, recommends Malaysia to follow Taiwan’s R&D model to move forward. Taiwan has gone beyond adopting existing foreign technology and now invests in developing its own technology, while Malaysia has been slow, he said.106 Dr Mahathir has for many years tried to connect ASEAN together with the East Asian economies of Japan, Korea, Taiwan and China, and during the last year this plan seems to get much interest from many sides.

One of the largest threats for the future, the growing Chinese market, can also be seen as an opportunity if Malaysia and Malaysian companies are able to make use of them. It will be a potential market for investors, and a development partner for East Asian economies. One way to gain from this is for Malaysia to seek more co-operations with China, as trade between Malaysia and China has been growing 22.3 percent annually between 1990 and 2000.107 This seems to increase even faster right now as the bilateral trade for the first six months of 2002 was more than 50 percent higher compared with the previous period. If the trade with China will continue to increase, this can compensate a loss in inflow of FDI to Malaysia.

A similar project as the MSC was created in Hong Kong a few years ago and was named Cyberport. This project seems to fail as companies does not come to the new area. Many critics say that the project illustrates that it is not possible to create creative growth in a synthetic way.108 The future will tell whether MSC can prove those critics wrong or not, but one thing is for sure. Nobody has probably tried harder than Malaysia to create a cluster and that might be the difference that will lead to success. Even though the MSC is the largest project that Malaysia is undertaking, the reaching of “Vision 2020” does not fully depend on it. Even if the MSC will not be successful, Malaysia has good chances to accomplish “Vision 2020”. Reevany guesses that the general opinion among the Malaysians is that Malaysia will be able to achieve its “Vision 2020” but with a “realistic” perspective he thinks it will be hard. The country has a long way to go and the economic crisis pulled Malaysia several years

106 Yusoff M. R., in the Star, 20/6 – 2002
107 Lim, in New Strait Times, 22/6 – 2002, Challenges that China holds for Malaysia
108 Dagens Nyheter, 1/7 – 2002
back. But with eighteen years to go until 2020, many things can happen. South Korea, Taiwan, and Japan have shown that it is possible and Malaysia tries hard to go the same way.

One important question to ask is what Malaysia could have done instead of this huge investment in the MSC? The investment could have been used on other projects that more safely could increase the wealth of all Malaysians. It is possible that the future will evaluate this project such as one man’s failing dream and that the MSC died together with Dr Mahathir. But it might also be an important step in developing Malaysia.

6.5 Conclusions and summary

The MSC has existed six years and during its lifetime it has been growing continuously. This project has got high priority by the Malaysian Government and it has put all available efforts together to make the MSC the best cluster in the world. However, it seems that governmental efforts are the main reason that the MSC still lives and grows. This does not mean that the project is running badly, but it is a very long way to go before the MSC will fulfil its vision.

According to my analysis, the political situation seems to be relatively stable, and so is also the Malaysian economy. The infrastructure is well developed and does not cause any problem in creating the MSC. But the low level of human resource is a severe problem as the MSC is expected to concentrate in world-leading high technologies. Maybe worse is the fact that Malaysia does not seem to have comparative advantages in high technology. Malaysia’s comparative advantage seems instead to lie in high qualitative manufacturing. Therefore the MSC is heavily dependent on the government and will most probably continue to be so for a long time. I recommend Malaysia to concentrate on her manufacturing sector and try to keep it competitive and, at the same time, keep a long term strategy of increasing the human resources and create possibilities for a high-technological area.

The MSC has been successful in receiving foreign companies to the area who generate FDI with both capital and knowledge. It is too early to tell whether these companies will generate positive effects for the MSC and Malaysia in the long run, but the majority of them are not doing their major research in the MSC.

I argue that the MSC has the ability to become beneficial for Malaysia in the long run but from today’s situation it is a long way to go. It must improve in many ways and be able to show the world that the area is competitive. The fact that Dr Mahathir is about to resign as Prime Minister of Malaysia may cause turbulence around the MSC in the beginning but could lead to that the area is gaining more support as it will be less connected to only one man. Rather than being a world leading high technological area, I suggest that the MSC could be a regional technological cluster that link Malaysia to other countries and regions.

Malaysia could have done many other projects instead of creating the MSC, such as improving the standard of schools or develop those areas of the country that are lagging far behind. However, fact remains that Malaysia must do something in order to keep the economy growing. While concentrating on her comparative advantage, she must also adhere to a long term strategy and this can be the role of the MSC. Still, my opinion is that the MSC seems to

109 Reevany, interview, 24/6 – 2002
be a too large and costly project for a country like Malaysia and it should not have been created in this size. But as it already exists, further efforts are needed to make it competitive and efficient.

Many other clusters, or potential clusters, can learn much from this project and it would be beneficial for other clusters to take advantage from the lessons that the creation of the MSC has given. This could be especially interesting for developing countries that are in a similar situation as Malaysia.

The MSC is a very interesting project and I recommend further studies about this cluster. A deeper examination of the different parts would probably reveal many more aspects. Furthermore, it is interesting to follow up this study to see how the MSC develops, especially after Dr Mahathir has resigned as the Prime Minister. A deeper examination of the competitive clusters can give a more detailed analysis on MSC’s strengths and weaknesses.
References

Books:


Lewis W.A., (1979), *The Dual Economy Revisited*, Manchester School

Lowe V. & Alina N., (1999), *Malaysia: On the Road to the Information Age*, in Goonasekera A. & Hwa A. P., (1999), *Information Highways in ASEAN, Policy and Regulations*, ASEAN Media Information and Communication Centre (AMIC) and School of Communication Studies (SCS), Nanyang Technological University, Singapore


*Nationalencyklopedin*, (1994), Trettonde bandet, Bokförlaget Bra Böcker AB, Höganäs


**Journals and Articles:**


Braunerhjelm P. et al., (2000), *Integration and the Regions of Europe: how the right policies can prevent polarisation*, Monitoring European Integration no. 10


Lim C. C., (2002), *Challenges that China holds for Malaysia*, Malaysian Institute of Economic Research, in New Strait Times, 22/6 –02


Multimedia Development Corporation, (1996), *Investing in Malaysia’s MSC; Policies, Incentives and Facilities*

Multimedia Development Corporation, (2002), *Multimedia Super Corridor*

Multimedia Development Corporation, (2002), *The Flagship Applications*

Multimedia Development Corporation, (2002), *Corporate Video*, on CD-ROM


Pahlawan Volunteers, (2001), *The Malaysian Economy: A Perspective on Competitiveness*, Pahlawan Public Service Project


**Internet sources:**

Malaysia Industrial Development Authority

Multimedia Development Corporation

Multimedia University
http://www.mmu.edu.my, 6/7 – 2002
Interviews:

Chea Allan Wei Ming, Executive at Multimedia Development Corporation, 2/7 – 2002

Chua Soo Yean, Chairman Economics Programme at Universiti Sains Malaysia, 12/6 – 2002

Ho Chiung Ching, Lecturer, Faculty of Information Technology, Multimedia University, 2/7 – 2002

Mhad Fudzi Bin Ahmad, General Manager, Telekom Malaysia Bhd, 17/7 – 2002

Pang Seng Chong, Manager, Fujitsu Telecommunications Asia Sdn Bhd, 17/7 – 2002

Reevany Bustami, Lecturer of Social Science at Universiti Sains Malaysia, 24/6 – 2002
Enclosure I

Interview about the Malaysian economy and the building of the Multimedia Super Corridor

Name:

1. What is your general view on the Malaysian economy today?

2. Has the economy recovered since the crisis?

3. Could the crisis happen again? Is the macro fundament stronger today than before the crisis?

4. How dependent is the Malaysian economy on the world economy, especially on the US?

5. What is the largest threat towards the Malaysian economy today?

6. How does the relatively high income-inequality affect the economy?

7. Do you think Malaysia will stay politically stable?

8. How does the political turbulence in the world affect Malaysia and the MSC?

9. How is corruption affecting the Malaysian economy?

10. What is your general view on the education system in Malaysia?

11. What do you think about the “Smart Schools”-project?

12. How does “brain-drain” or “brain-overflow” affect Malaysia?

13. What is your general view on the project “MSC”?

14. What are the advantages for the MSC? Both comparative and absolute?

15. What are the opportunities and what are the threats for the MSC?

16. What do you think of MSC’s ability to attract FDI?

17. Do you think Malaysia has all necessary factors to create a world-leading cluster in information technology?

18. If not creating the MSC, what should Malaysia do instead?

19. Do you think that Malaysia will be a fully developed knowledge-based society by the year 2020?
Enclosure II

Interviews with companies about the Multimedia Super Corridor

Name:

1. What is your company’s general opinion about the MSC?
2. What is the main reason your company chose to settle down in the MSC?
3. Did you have any alternatives?
4. How can your company benefit from the MSC?
5. What are the opportunities with the MSC and what are the threats?
6. How do you think the MSC will develop in the long run?
7. Has your company a long-term plan for staying in the MSC?
8. Is your company doing the majority of its R&D in the MSC-area?
9. What are the greatest advantages of being in Malaysia?
10. Do you have any long-term investment plans in the MSC?
Enclosure III

Bangalore

Bangalore is the capital of the State of Karnataka in India and is the home to over 6 million people. Bangalore is today considered the IT capital of India due to its important business centre with focus on information technology. Bangalore’s speciality is software technology related activity where they use a high skilled and comparative cheap labour.

Bangalore’s development as a high-tech city started in the early 1980s when the technology giant Texas Instruments discovered the beneficial environment there. This has led to that the city now is home to more than 500 high-tech companies. There is a combination of factors causing this growth and the most important ones seem to be the pleasant climate, the talent pool of highly trained professional, the training infrastructure and progressive government policies that have led to this IT explosion in the city. In 2000 there was 82 multinational companies that were based in Bangalore with a concentration of computer software operations. The connections to Silicon Valley has been important in such a way that Indians working there have urged their companies to locate their R&D or manufacturing operations in Bangalore.

Bangalore has several technology parks, including the International Tech Park and the Electronics City, both located a dozen miles outside the city limits. It is unclear at present whether a high rate of high-tech spin-off is occurring in Bangalore. Such start-ups are fundamental to creating self-sustaining growth in a technological area.

The amount of knowledge workers in India is very high as a large amount of the population continues their studies to high levels. This helps to keep the costs down and when Texas Instruments came there in the 80’s, the cost of skilled brainpower was about 10 percent as high as in the US.

Bangalore’s growth is also causing negative external effects. The city’s population doubled from three million to six million since 1980, bringing with it social problems and higher costs. Bangalore’s air is now worse than Bangkok and Mexico City, cities that are notorious for their pollution.

Sources:


Homepage of Bangalore; www.bangalore.com, 28/6 – 2002
Enclosure IV

Hsinchu Science-based Industrial Park

Hsinchu Science-based Industrial Park (HSIP) was established in 1980 with the aim of creating a centre for development of high-tech industries in Taiwan, providing a high quality environment for both working and living. From 1980 to 1998 the government invested US$620.5 million in software and hardware facilities for the park.

The HSIP is situated between municipal Hsinchu and Hsinchu County, fifteen minutes by car or bus from the heart of the city. National Tsing Hua University and National Chiau Tung University, two prestigious schools with a long history, are located close to the HSIP. There are about 15 300 students and 1 300 professors at the universities.

Near the HSIP is the Industrial Technology Research Institute (ITRI) located and it includes 12 research facilities. This has been important for the cluster and it has developed important technologies that have contributed to the success of the HSIP either through technology transfer or establishment of new companies within the park. R&D is one of the main features of the HSIP. The companies in the park spent about 6.2 percent of their sales revenue on R&D in 1997.

The number of high-tech companies in the HSIP grew to 272 in 1998. Of the companies in the park, 222 were domestically owned and 50 were foreign-owned. The sources of the capital are from 86 percent from the local private sector while foreign investors contribute for 10 percent and the government for 4 percent. By the end of 1998, about 72 623 people were working in the HSIP. The proportion of employees with at least a junior or technical college education was 61 percent.

Sources:


Hsinchu homepage; www.hsinchu.com, 28/6 – 2002
Enclosure V

Singapore

Singapore was once part of Malaysia but left after only two years in 1965. Singapore’s economy is based on trade, shipping, banking and tourism, with a growing programme of light industrialisation. For over 20 years it has recorded phenomenal growth rates averaging at around 9 percent, except in 1998 when the Asian crisis also affected Singapore.

Singapore’s economy caters to more than 3,000 multinational corporations (MNCs), with strong financial and business service sectors. Their manufacturing sector mainly includes electronics and chemicals. Furthermore, a stable government and modern infrastructure have contributed to make Singapore attractive for MNCs. MNCs account for almost 70 percent of manufacturing output, 45 percent of which are electronics. Manufacturing and financial / business services made up 22 percent and 29 percent, respectively, of Singapore’s GDP in 1998.

Singapore is one of the world’s freest trade economies, and is currently pursuing free trade agreements with Japan, Mexico, New Zealand and Canada. Singapore is a small, open economy and is therefore very vulnerable to external shake-ups. As a result of that, Singapore was heavily affected by the Asian Crisis, which pulled GDP growth to 1.5 percent after enjoying eight percent growth in 1997. However, strong fundamentals including large foreign reserves and a strong banking system allowed Singapore to weather the effect of the Asian Crisis.

Singapore continues to build up the capabilities of SMEs and to invest selectively in priority areas, such as ICT infrastructure, and research on biotechnology and life sciences.

Sources:

CountryWatch Homepage - Singapore
www.countrywatch.com, 23/8 – 2002