

# **Transition towards a Knowledge Society: Malaysia and Indonesia Compared**

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## **Summary**

Malaysia and Indonesia see themselves as being on the way to develop into knowledge societies. The characteristics of this new stage of development are only vaguely circumscribed by Indonesia's political leadership. Malaysia's political elite has, however, developed a vision when and how to reach the stage of a fully developed industrialised nation with a knowledge-based economy. This paper will outline the basic features of a knowledge society and it will analyse some of the social and cultural preconditions as well as consequences in reaching the stage of a knowledge society. It will finally attempt to answer the question, how far Malaysia and Indonesia have advanced towards the stage of a knowledge society.

# Transition towards a Knowledge Society: Malaysia and Indonesia Compared

## 1. Vision and Transition

### 1.1. *Visions of a Knowledge Society*

In our fast moving world concepts and policies spring to life at an amazing speed. The epistemology of development reflects the diversity of a world that only a few years ago was seen as moving towards an integrated world society, but is now understood as increasingly differentiated and complex. Some mega-trends have, however, been diagnosed. Globalisation as an expansion of a world market is thought to be such a mega-trend, the move towards a knowledge society another.

In this paper we attempt to provide an overview over the current discussion on the role of knowledge in creating a knowledge society and highlight some characteristics knowledge societies are thought to have. We shall also provide some evidence on how far Malaysia and Indonesia have moved on its way towards a knowledge-based society.

Malaysia's Prime Minister, in 1991, proposed in a much publicised speech that Malaysia should become a fully industrialised country by the year 2020 (Mahathir 1991, Evers and Gerke 1997). Meanwhile the transition from a newly industrialising to a fully industrialised country has become less attractive. The "Wawasan 2020 (Vision 2020)", as the Prime Minister's speech is known, had to be up-dated and Malaysia, or at least it's government, has made the move towards a knowledge-based society and economy its primary target<sup>1</sup>. In the words of Dr. Mahathir: "In our pursuit towards developing the K-economy, knowledge has to replace labour and capital as the key factors of production in our economy. The challenge for Malaysia is to develop this knowledge amongst our citizens so that our success will be due to the contributions of Malaysian talents and knowledge workers" (Dr. Mahathir bin Mohamad, Putrajaya 8 March 2001 – advertisement in the New Straits Times 13-04-

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<sup>1</sup> "The chief architect of this vision is Malaysia's Prime Minister of 18 years, Dato' Seri Dr Mahathir Mohamad. Malaysians have responded robustly to his challenge to become a fully-developed, matured and knowledge-rich society by year 2020" (<http://www.mdc.com.my/msc/index.html>).

2001). Datuk Law, the Minister of Science, Technology and the Environment sounds somewhat less enthusiastic, when he declares “There is no harm in building a knowledge-based society... a nation cannot live entirely on knowledge”<sup>2</sup>. Knowledge for him (and, I suspect, many others) is science and technology. A knowledge economy is therefore narrowly defined as one in which information and communication technology (IT or ICT), other high-tech activities and e-commerce play a leading role.

Indonesia has followed suit where it has also become fashionable to pronounce “visions and missions” as a first step in the national and local planning process. “Terwujudnya Masyarakat Telematika Nusantara Berbasis Pengetahuan di Tahun 2020” (“Creating a Nusantara Telematic Society by the Year 2020”) is the vision statement of the KTIN (Kerangka Teknologi Informasi Nasional), the National Framework for Information Technology. The document is broad-based, extending from support for e-business to good governance and e-democracy<sup>3</sup>. This vision and the appended action plan is, however, directed at information technology (TI) and not at knowledge per se, on which information technology has to be based. Little has been done so far, to put this plan into action.

### **1.2. A Hypothesis on Transition and Productivity**

The current situation and trends in Malaysian and Indonesian social and economic development should not be seen in isolation. We have to pinpoint Indonesia’s and Malaysia’s present position in both an historical and a comparative perspective. For this purpose I should like to introduce a hypothesis, taken from transition theory. It says: The transition from one period of history or type of economy and society to another takes place, whenever a new innovative productivity factor is introduced<sup>4</sup>. Those entrepreneurs or those countries, that make use of this new productivity factor

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<sup>2</sup> Interview as reported on the Ministry’s website ([www.i-think.commy/think/news.html](http://www.i-think.commy/think/news.html) July 2001)

<sup>3</sup> “Teknologi Informasi (TI) merupakan faktor pendukung bagi pembangunan di Indonesia yang mencakup aspek politik, aspek ekonomi, aspek sosial budaya dan aspek hukum”.

<sup>4</sup> This hypothesis is to be seen in the context of general theories dealing with the transition from one type of society to another, from Karl Marx to Max Weber, Karl Polanyi and Schumpeter.

can collect an innovation rent that allows them to prosper and progress at a rapid speed, outpacing their competitors<sup>5</sup>.

The following table gives a very rough overview over mega-trends in the region. It intends to illustrate the hypothesis put forward above rather than provide an accurate picture of the rather complicated flow of history.

**Table 1**  
**Transition Hypothesis of Social and Economic Development**

	<b>PRODUCTIVITY FACTOR</b>	<b>TRANSITION FROM TO</b>		<b>MALAYSIA/ INDONESIA</b>
<b>I</b>	early long-distance trading networks	Subsistence agriculture	trading empire	Melakka/Makassar
<b>II</b>	labour intensive estate agriculture and industrial mining	Peasant society	colonial raw material producing economy and society	Federated Malay States/Netherlands Indies 19 <sup>th</sup> century
<b>III</b>	Industrial production and organisation	colonial raw material producing economy and society	light industrial and commercial agricultural society	Malaysia after independence/ Indonesia after 1980
<b>IV</b>	knowledge	light industrial and commercial agricultural society	knowledge economy and society	Malaysia/Indonesia after 2020 ?

(Evers 2001)

The establishment and intensification of long-distance trading networks enabled the glory of Melakka, Malaysia's golden past, followed by the profitable entrepot trade of the Straits Settlements. The introduction of modern technology into the tin mining sector and the new and economically efficient organisation of rubber plantations led to the boom years of the early 20<sup>th</sup> century in Peninsular Malaya. Finally specialised industrial manufacturing with low R&D but high value added production led to the "Asian Miracle" of independent Malaysia. In Indonesia the emerging historical trends are more diverse and differ from region to region. The independent trading empires of

<sup>5</sup> I do not wish to go into details here, but it is obvious that this hypothesis is derived from a combination of Schumpeter's definition of entrepreneurs and the more contemporary comparative advantage paradigm.

Pasai, Banten, Demak and Makassar declined with the ascent of Dutch power and were displaced by the Dutch controlled trade centres of Batavia, Surabaya and a number of smaller ports. Indonesia also participated in the boom of estate agriculture, first sugar and coffee, then rubber in Sumatra. Industrialisation started much later in Indonesia, but industrial output and employment rose fast during the late 1980s and throughout the 1990s, at least on Java.

But as we know all too well the boom years induced by the introduction of new factors of productivity are invariably followed by years of crisis and doom. Without going too much into detail we should like to propose the hypothesis that these boom periods were phases of social and economic development, during which a “transition rent” was collected in a phase of socio-economic and at times also political restructuring. Once this “rent” was spent and a new platform had been reached, the “normal” mechanisms of supply and demand, of efficiency and waste, of the ups and downs of business cycles, of political imperfections and market failure came into being again. Some countries could manage this transition well and maintain self-sustainable growth, others with less luck (i.e. under less fortunate global conditions) and less political foresight (i.e. authoritarian rather than democratic systems) retarded into economic coma.

If we follow this line of argument, a big issue comes up. If “knowledge” is the new factor of social and economic productivity, the long-lasting boom of the US American economy may be explained in terms of our productivity-rent hypothesis. In fact, many economic gurus (Drucker and others) follow this line of argument. This, however, raises further questions: If the application of knowledge was the driving factor of the economic development of the OECD countries, has the innovative power of this productivity factor been spent? Have these countries concluded their transitions and reached a new platform of high productivity of a knowledge economy, with little hope for further extraordinary productivity gains?<sup>6</sup> Will Malaysia in particular enter a new phase of transition towards a knowledge society or will access to this status be barred by those countries, that have already achieved the august stage of a knowledge economy? Will Indonesia’s initial attempts to introduce knowledge into its industrialisation process be stopped at an early stage? Probably nobody is able to

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<sup>6</sup> The losses of ICT and dot.com companies and the rapid decline of the NASDAQ point into this direction.

answer these questions in full, but we can, at least, try to clarify some features and stumbling blocks on the path towards a knowledge-based society.

If knowledge is a primary factor of production, if information and communication technology is a platform upon which a knowledge economy is built and if the existence of a knowledgeable workforce is both a precondition and an indicator for the existence of a knowledge society, then we may well ask the question, how far Malaysia and Indonesia have advanced on the path towards becoming a knowledge society.

## 2. What is a Knowledge Society?

### 2.1. *The Productivity of Old and New Knowledge*

Some experts, the shamans, *dukuns* or *bomos* of modern society, allege that knowledge has replaced industrial organisation and production as the major source of productivity<sup>7</sup>. In fact the largest share of value added in modern intelligent production does not rest on the value of the material used or the input of labour and capital, but on the knowledge embedded in the final product. In the current phase of the economic transformation, knowledge has taken its place as the most important factor of production passing capital and labour. "The central wealth-creating activities will be neither the allocation of capital to productive uses, nor 'labor'...Value is now created by 'productivity' and 'innovation', both applications of knowledge to work" (Drucker 1994). Malaysia's Prime Minister has taken up this theme as well in his well known statement "Vision 2020": "There was a time when land was the most fundamental basis of prosperity and wealth. Then came the second wave, the age of industrialisation. Smokestacks rose where the fields were once cultivated. Now, increasingly, knowledge will not only be the basis of power but also prosperity..... No effort must be spared in the creation of an information rich Malaysian society."<sup>8</sup>

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<sup>7</sup> This was also pronounced by Malaysia's prime minister in his famous speech on his vision Wawasan 2020. "There was a time when land was the most fundamental basis of prosperity and wealth. Then came the second wave, the age of industrialisation. Smokestacks rose where the fields were once cultivated. Now, increasingly, knowledge will not only be the basis of power but also prosperity..... No effort must be spared in the creation of an information rich Malaysian society" (Mahathir 1991).

<sup>8</sup> Malaysia: The Way Forward presented by His Excellency YAB Dato' Seri Dr Mahathir Mohamad at the Malaysian Business Council, 28 February 1991

During the transformation from industrial to knowledge societies, knowledge has assumed the prime position as a factor of production. There are, however, considerable differences between knowledge and the other factors of production like labour and capital. To mention just two aspects:

1. Knowledge is more difficult to measure than the other factors. "Knowledge is like light. Weightless and tangible, it can easily travel the world, enlightening the lives of people everywhere" (World-Bank 1999). Once it has been produced it can easily be reproduced or copied and transaction costs are low. This explains, why leading industrial nations have put great emphasis on the enforcement of intellectual property rights and patents, safeguarding the internet and controlling access to data banks and other sources of knowledge. 'Hackers' breaking the monopoly of knowledge and distributing secret information for free have become the Robin Hoods of modern knowledge society. Software pirating, knowledge poaching and industrial espionage are as much part of the emerging knowledge society as internet conferences and electronic publishing.
2. Whereas other goods are succumbed to the law of diminishing returns, knowledge actually experiences rising marginal utility. The more an expert, a group of consultants or an organisation know, the more valuable become individual pieces of knowledge; or to put it differently: Knowledge is needed to utilise knowledge effectively. A critical mass of knowledge workers is therefore necessary in any one locality to achieve a productive knowledge economy. The Silicon valley in California, the Munich electronic belt in Germany, the Hsinchu region of Taiwan or possibly, in the near future, the MSC in Malaysia are examples to illustrate this point.
3. The concepts of 'knowledge society' or 'knowledge-based economy' have a tendency to be divorced from reality. A knowledge society becomes a vision (a *wawasan*), which is constructed as a virtual world. But also a vision, if believed in by many, is a social fact which may impact on societal and economic reality.

Though it appears to be an established fact by now, that knowledge is a major factor of production, it is extremely difficult to estimate the contribution of knowledge to economic growth. Most estimates consist of residuals, i.e. what is left after all other

known contributions to economic growth have been factored in. One historical study estimates that between 1929 and 1948 knowledge contributed only 26 per cent to the economic growth of the US, but about 54 per cent between 1948 and 1973 (Stehr 2001). The World Bank estimated that a large proportion of the economic growth of Korea was due to an increasing input of knowledge throughout the 1970s and 1980s (World-Bank 1999). Often the investment in formal education or in R&D (research and development) is used as an indicator of the input of knowledge into the society. Scientists, technicians and engineers rather than priests, *ulama* or artists are counted as productive knowledge workers. Informal education and training, experience, wisdom and accumulated local knowledge is widely neglected. The pursuit of knowledge as such is increasingly subjugated to the demands of the global capitalist market economy, both in reality and in the virtual reality of economic modelling and rational choice theory.

## **2.2. Characteristics of a Knowledge Society**

A knowledge society is believed to have the following characteristics<sup>9</sup>:

- Its members have attained a higher average standard of education in comparison to other societies and a growing proportion of its labour force are employed as knowledge workers
- Its industry produces products with integrated artificial intelligence
- Its organisations -private, government and civil society- are transformed into intelligent organisations
- There is increased organised knowledge in the form of digitalised expertise, stored in data banks, expert systems, organisational plans and other media
- There are multiple centres of expertise and a poly-centric production of knowledge
- There is a distinct epistemic culture of knowledge production and knowledge utilisation (Evers 2000).

Some of the above mentioned points and concepts warrant further explanation.

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<sup>9</sup> This section draws on work of the Research Group on Knowledge Society, see Alatas et al 2000.

Often the concept of a knowledge society is confused with the concept of an information society, and the importance and prevalence of ICT (information and communication technology) is emphasised. This is definitely misleading and represents a way of thinking still coloured by the epistemic culture of an industrial society. It is not the hardware, but the software, that is the keystone of a knowledge society. In a knowledge society, systems are not technology driven but determined by contents, meaning and knowledge<sup>10</sup>.

A distinction has to be made between knowledge-based work and knowledge work proper. An industrial society has to rely on the knowledge-based work of skilled workers and professionals, like doctors, lawyers, engineers or social scientists. Knowledge work, however, characteristic of a knowledge society, goes beyond the work done traditionally by skilled workers and university or college educated professionals. The new type of knowledge is not seen as definite, it is not regarded as the final truth but it has to be constantly revised. New knowledge is complex, it produces ignorance and therefore entails risk when it is applied<sup>11</sup>. It needs to be systematically organised and institutionalised to be productive and it requires information technology to be developed further.

Universities seem to have lost their near monopoly of basic knowledge production. The so-called triple helix of science-industry-university indicates that knowledge production has become poly-centric and the knowledge networks connect the respective organisations (Baber 1999). The imbalance of enumeration of knowledge workers in the three components of the 'triple helix' can be partly at least explained by the shift of relevant research from the university to the corporate sector. Strangely enough universities are no longer seen as 'intelligent' or 'learning organisations' in contrast to business or industrial companies in the corporate sector. Critics (in Germany for instance) have called universities 'stupid organisations with many intelligent people'. Of course as academics we might retort, that many business corporations are 'intelligent organisations' and can therefore afford to employ many dumb managers at horrendously high wages.

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<sup>10</sup> This point is also stressed in the contemporary knowledge management literature (e.g. Dietlein und Studer 2000:275).

<sup>11</sup> The growth of ignorance in knowledge society is further explored in Evers 2000a, b. For an interesting early discussion see Hobart 1993.

The sociology of the emerging knowledge society has been explored for some time and a fair number of publications have appeared on the subject (among others Long and Long 1992, Gibbons, Michael et al 1994, Nonaka 1994, Stehr 1994, Willke 1998, Evers 2000a, b). Enthusiasts have even founded a Global Knowledge Society, “devoted to the creation, diffusion, and usage of knowledge in relationship to knowledge economies at the Macro, Meso, and Micro levels”<sup>12</sup>. But next to the euphoria of the advocates of knowledge-based economies there appears to have crept up some doubt, whether neo-classical economic theory can provide the right questions let alone the answers to explain a knowledge driven economy<sup>13</sup>. The social structure, the institutional arrangements and the cultures of globalised knowledge societies appear to be even less well researched, if one assumes that radically new forms of a social organisation of knowledge are emerging. Let me therefore concentrate on two aspects of the sociology of emerging knowledge societies: strategic group formation and on the culture of knowledge.

### **3. On the Way towards a Knowledge Society?**

#### ***3.1. Malaysia and Indonesia in Comparative Perspective***

Some societies are well on their way to become knowledge-based. A new “great transformation” (to use Polanyi’s term) is taking place. How far have Malaysia and Indonesia approached the status of a Knowledge Society? Though we are not sure at all whether all societies will follow the same path towards a knowledge-based economy, we shall nevertheless compare Malaysia and Indonesia with other nations on some relevant indicators. We have selected Korea, a country that was often mentioned together with Malaysia as one of the Asian tiger economies and the Netherlands and Germany for comparison. The Netherlands is comparable to Malaysia in terms of its population and shares a common history with Indonesia, Germany can be compared to Malaysia in terms of its land size and is the largest economy in the European Union, as is Indonesia in ASEAN. Both Germany and the Netherlands are part of the world’s largest economy, the European Union.

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<sup>12</sup> Advertised on its homepage <http://www.gksociety.org>

<sup>13</sup> The new institutional economy may, at least, provide some answers. The literature on knowledge management is also providing interesting, empirically based insights.

### 3.2. Knowledge Society Indicators

There are many indicators that may be used to describe a knowledge society. We shall look at a few of them and then try to locate Malaysia's and Indonesia's position.

**Table 2**  
**Knowledge Society Indicators, 1995/1998**

Indicators	Malaysia	Indonesia	Korea	Netherlands	Germany
Population	21	220	46	16	82
Land area, ths sq km	329	1919	99	34	349
GNP billion US\$	98.2	221.9	485.2	402.7	2319.5
GNP at PPP per capita	10920	3450	13500	21340	21300
Mobile phones per 1000 people	74	3	70	52	71
PCs per 1000 people	42.8	4.8	131.7	232.0	233.2
Internet hosts per 10,000 people	19.3	0.54	28.77	219.01	106.68
Scientists and engineers in R&D per million people	87	181 <sup>14</sup>	2636	2656	3016
High technology exports, % of manufacturing exports	67	18	39	42	25
Nr. of patents filed, residents	141	n.i.	59249	4460	51948
Nr. of patents filed, non-residents	3911	n.i.	37308	59279	84667

Source: Statistical Appendix, World Development Report 1998/99, Tables 1 and 19

The Malaysian Economic Planning Unit has calculated a Knowledge Development Index to monitor Malaysia's position in relation to other countries. The ranking list is topped by the USA and Japan. Looking at the five countries under consideration in this paper, Malaysia and Indonesia take the 17<sup>th</sup> and the 21<sup>st</sup> place out of 22 countries in the year 2000.

<sup>14</sup> Estimate for 1988 (UNESCO 2001). The figure is probably inflated.

**Table 3**  
**Knowledge Development Index, 2000**  
**Indonesia, Malaysia, South Korea, Germany, Netherlands Compared**

Country	Knowledge Index Score	Knowledge Index	Computer Infra-structure	Info-structure	Education and Training	R&D and Technology
Indonesia	1,518	21	21	20	21	21
Malaysia	2,645	17	17	17	17	16
South Korea	4,053	15	16	11	16	13
Germany	4,615	12	12	13	12	7
Netherlands	4,777	10	10	9	13	8

Source: Third Outline Perspective Plan, Malaysia 2001, Chapter 5, pp.131-130. For a calculation of the index see p.129 of the plan

As our disaggregated data in table 2 show, Malaysia is doing well on some indicators, like mobile phones per 1000 people<sup>15</sup>. There are (or were around 1998) more mobile phones per inhabitant in Malaysia than in Germany<sup>16</sup>. On two other indicators, namely R&D researchers per million inhabitants or patents filed, Malaysia still trails far behind Korea, Germany, the Netherlands and other OECD countries. The more important question would be, however, whether Malaysia is catching up. Looking at time series data, this does not seem to be the case at present. The gap, in fact, is widening.

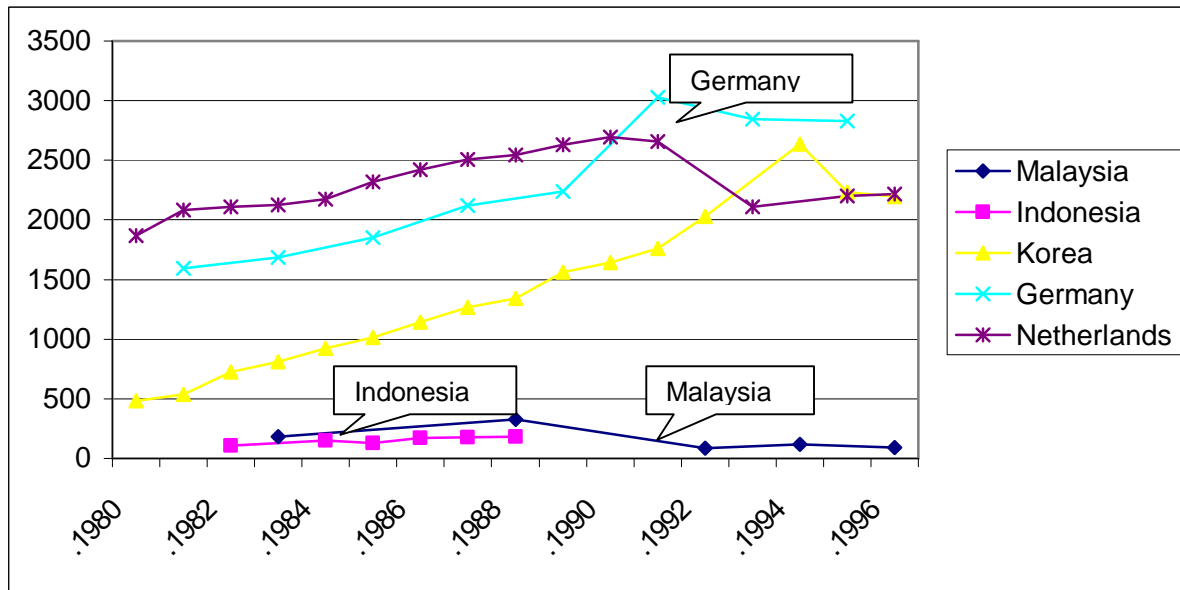
<sup>15</sup> See also Ng and Jin 2000 on the importance of teleworking in Malaysia.

<sup>16</sup> In March 2001 there were 254 mobile phone subscribers/1000 population in Malaysia (Malaysian Communications and Multimedia Commission),

## Diagram 1

### Researchers per Million Inhabitants, 1980-1996

#### Malaysia, Indonesia, Korea, Germany, Netherlands

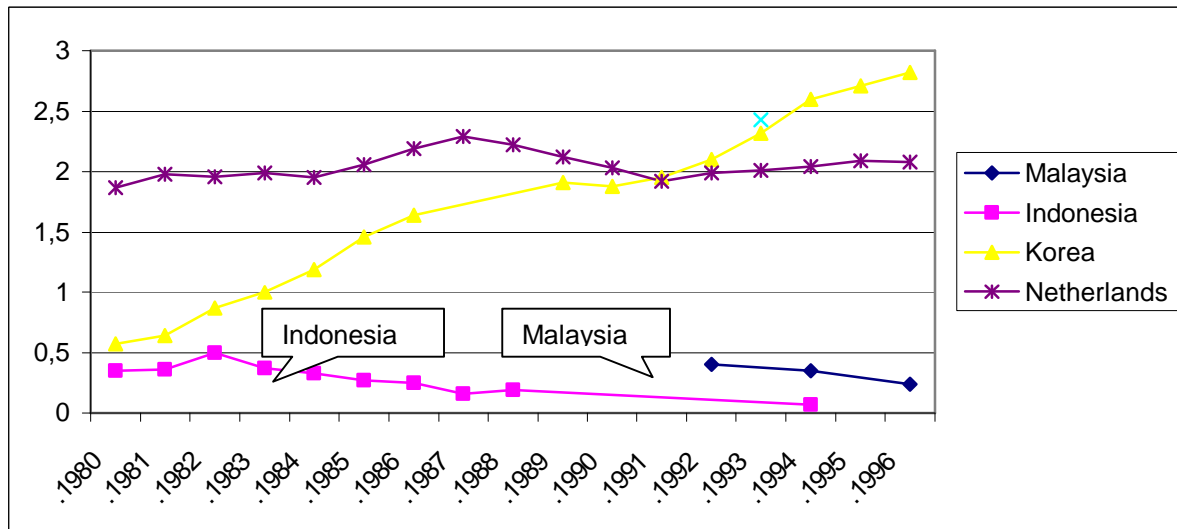


Source: UNESCO 2001

The picture does not change, when we use other indicators, like the expenditures for R&D. Korea is still increasing its investment in applied knowledge production, the Netherlands remain stable, Germany has settled on an even keel at a high level, but Malaysia is on a downward trend during the 1990s, long before the Asian financial crisis broke. For Indonesia we have not been able to obtain later data, but it is very unlikely that the number of research personell has increased in recent years (Gerke and Evers 2001).

## Diagram 2

### Expenditure on R&D as Percentage of GDP, 1990-1997

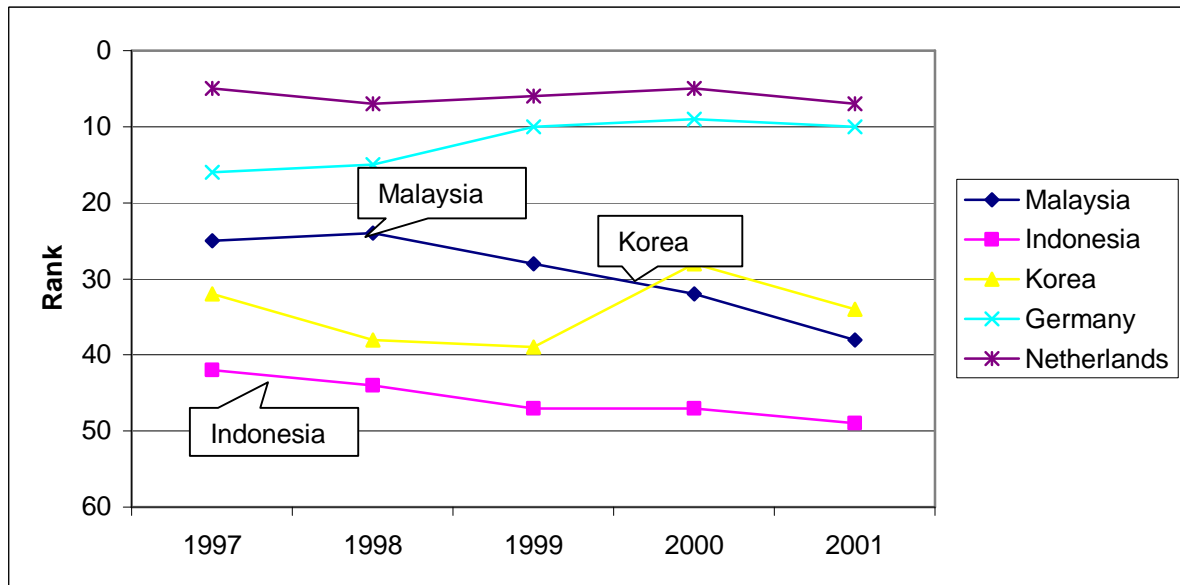


Source: UNESCO 2001

The declining rate of relative R&D expenditure and the number of researchers have, among other factors, reduced Malaysia's competitiveness in relation to other countries. If we follow the rather complex (and admittedly somewhat biased) World Competitive Indicator, Malaysia is sliding back from a knowledge economy, rather than catching up. Malaysia has, despite its efforts to develop ICT especially in the Multi Media Super Corridor, receded from place 25 (in 1997) on a relative competitiveness scale of infrastructure development to place 38 (out of 49 countries in 2001). It has thus lost its competitive advantage over Korea and the gap to the two European countries in our chart (Netherlands and Germany) has in fact increased. The same holds true for Indonesia, that now occupies the last place on the World Competitiveness Index.

Diagram 3

## World Competitiveness Index – Infrastructure (including ICT), 1997-2001

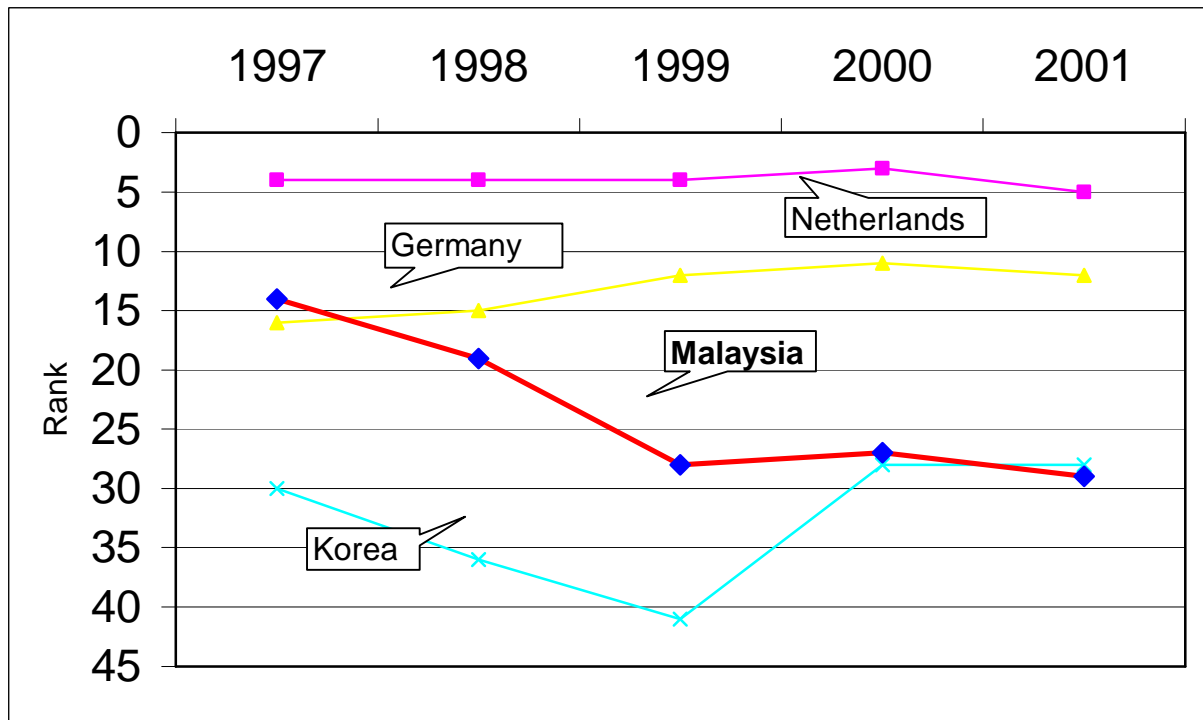


Source: <http://www.imd.ch/documents/wcy>

If other aspects, like business and government effectiveness are factored in, the situation looks somewhat brighter for Malaysia (see diagram 4). Sadly enough the slow development of the technology infrastructure, i.e. the knowledge base of the Malaysian economy, accounts for the fact that Malaysia has fallen back in the very competitive race towards a knowledge society.

Diagram 4

## World Competitiveness Index – Global Score



What may be the reasons for this pace of knowledge development in Malaysia? Government policy has been very supportive. The building of the MSC, the founding of new research institutes and universities and various programmes assisting innovation in industries have been important steps towards building a knowledge economy (NITC 1999). Malaysia has a large highly skilled workforce and a good system of public and private higher education. There are, however, many other problems encountered on the path towards a knowledge-based society that have to be taken into account.

## 4. Strategic Groups in a Knowledge Society

### 4.1. Changing occupational cultures

The introduction of ICT into industrial production and even into the service sector is changing the occupational structure and culture of the emerging knowledge society. Let us consider the supermarkets that have been built in the wake of industrialisation.

They have replaced many of the small stores, shop-houses and wet markets where people used to shop in Malaysia and Indonesia. A few employees work the check-out points, but even these are on the verge of being replaced by automated stations into which the customer inserts his or her chip card, if he has not ordered his items beforehand through the internet. Turning a shopping centre into an intelligent organisation has many consequences. The unskilled workers are replaced by skilled technicians servicing the computer driven equipment, new industries have sprung up to supply the machinery for the high-tech mega-stores, and software houses apply knowledge to produce the software to drive the organisations. There are also other, less tangible effects. Social contacts in markets vanish; the senses are no longer stimulated by the foul smell of markets, the feel of freshly slaughtered chicken, the movements and colours of the hustle and bustle of the early morning market. All this richness of feeling, sound and smell is replaced by the virtual world of the internet, the coldness of the plastic packaging, the computer generated voice and the 'animation' of dead images. Up to now we are only at the beginning of a cultural process with an uncertain outcome.

#### **4.2. *Who gains and who loses in a knowledge society?***

Gold has been considered one of the great and shining resources of the pre-industrial and early industrial resources. When gold was discovered in California, the great gold rush of the 19<sup>th</sup> century took place. When rubber became an essential item for the production of motor cars, the plantation boom in Malaya and elsewhere enticed the imagination of investors, claiming as much land as they could lay their hands on. As knowledge is the major resource for the New Economy, a new gold rush is taking place. The man hunt for intellectual talents is on, ICT specialists and bio-informatics scholars are recruited and induced to cross national borders to accept new and better paid positions. Recruitment companies for highly skilled labour have sprung up in Kuala Lumpur, Jakarta and Singapore where-ever knowledge is produced (Menkhoff and Evers 2001). Local companies and national governments have to compete for knowledge workers in a transnational labour market beyond the borders of ASEAN.

Though it is extremely difficult to come up with any predictions on who is going to gain and who is going to loose in an emerging knowledge society, at least a likely scenario can be developed.

### 4.3. *Strategic Groups of Knowledge Workers*

In a knowledge society new occupational groups emerge, that are essential for the production, dissemination and application of knowledge. It can be expected that they eventually realise their common interest in gaining a share of the new wealth, prestige and power, created by the utilisation of knowledge as a productive force. In other words a new strategic group will emerge and either join hands with other strategic groups like the state bureaucracy and big business or will compete with them in structuring society in such a way as to maximise their chance for appropriating wealth and power during the implementation of a knowledge society.

**Table 4**  
**Strategic Groups of Knowledge Workers**

<i>Institutions</i>	<b>production</b>	<b>dissemination &amp; utilisation</b>
<i>Higher Learning and research</i>	researchers research staff	teachers lecturers
<i>Business and industry</i>	R&D scientists technicians	experts, consultants managers
<i>Media</i>	journalists artists	publishers editors

There are overlaps and omissions in the above chart, that is designed to reduce the complexity of a knowledge society to manageable proportion and aid the design of research projects or the construction of indicators. The most obvious strategic group are, of course researchers and their supporting staff. They partly overlap with lecturers and other university staff who are also doing research, and also publish their results. But also creative artists are important knowledge producers. They set artistic standards, they may interpret history and everyday life in their novels and create values that influence the flow of social change.

The strategic groups of a knowledge society are bound together by networks of communication. They form “communities of practice” with vague boundaries. Their networks extend beyond national boundaries of Malaysia and Indonesia, even if they are firmly embedded in the local political and social processes of their own society. In a way they are pirates on the sea of knowledge, acquiring (or at times pirating) knowledge wherever they can. Because of their critical minds they are looked upon with suspicion or admiration, as the case may be, by politicians or other strategic groups. While the Malaysian Prime Minister pushes his country towards a knowledge society, he still is highly suspicious of his countries intellectuals. As intellectuals or academics they are often sought as allies, but at times are picked as enemies and put under detention. Their position will be even more precarious, when a full-fledged knowledge society emerges.

## **5. Conclusion: The Knowledge Gap and the Digital Divide**

The World Development Report 1998/99 proclaims that knowledge: “...can easily travel the world”. Can it really?

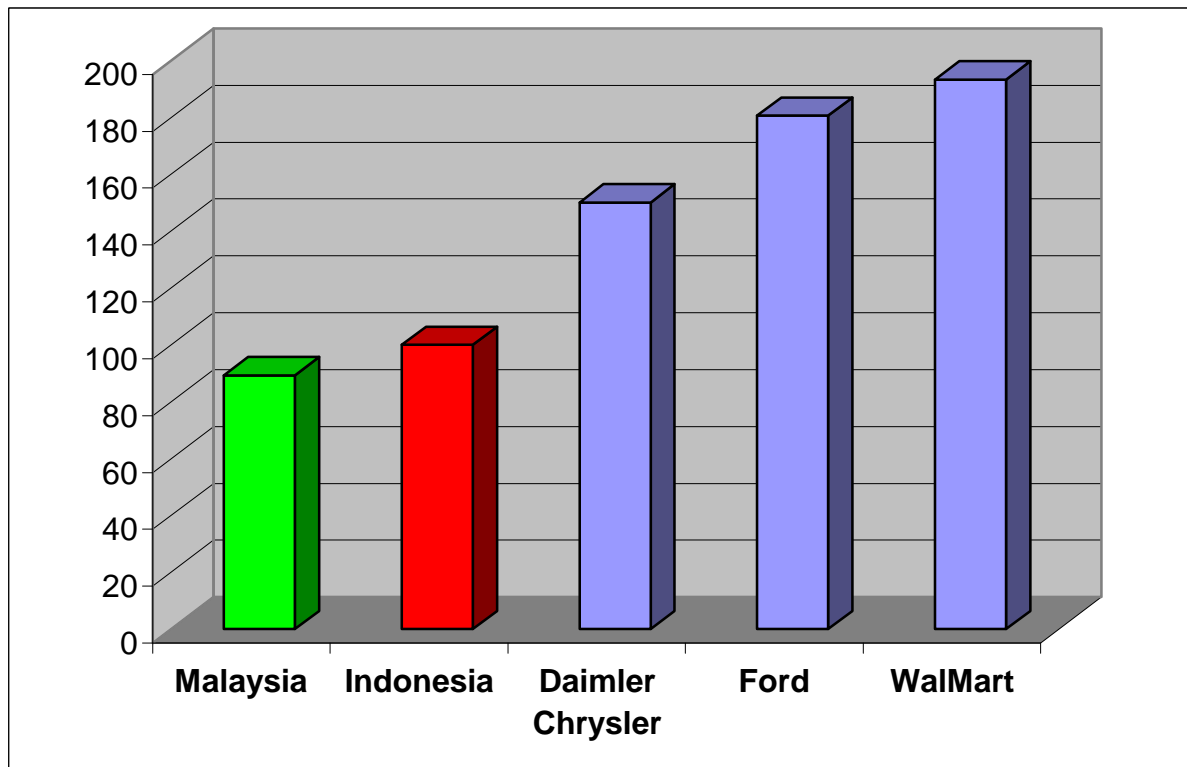
According to an OECD report “the relationship between technological progress, innovation and growth appears to have changed in the 1990s” (OECD 2000:9). Networking, co-operation between firms and the fluid flow of knowledge have activated the knowledge market and innovations are spread more rapidly through the economy of the industrialised countries. On the other hand the knowledge gap between the major knowledge producing nations and the rest of the world is widening (Persaud 2001) and the treasure throve of knowledge is jealously safeguarded by the powerful industrial nations. Our comparative data show divergent paths towards a knowledge society, with no guarantee, whether those catching up will look in 2020 like the more advanced knowledge societies do as of now. Today mega-companies are created by merger and alliances that are made possible only by the advancement of information technology, the reduction of transaction costs and the infusion of new knowledge into the production process. These companies control budgets, exceeding those of many governments. Among the biggest one hundred economic units (in the year 2000) are 49 countries and 51 corporations (Der Spiegel 23-07-2001). They

increasingly determine, what knowledge is created and who will have access to it. Government ministries, let alone universities and research institutes are dwarfed by the R&D divisions of these large conglomerates.

### Diagram 5

#### GDP Malaysia, Indonesia and Revenue of Mayor Companies, 2000

(in billion US \$)



Source: ASEAN Statistics <http://www.aseansec.org/macroeconomic/>), Der Spiegel 30-07-2001

So far the benefits of globalisation and the “knowledge revolution” have remained in the hands of the managers and shareholders of large corporations and the OECD states, mainly the US. The gap between rich and poor nations has widened and one has to be rather sceptical, whether the knowledge gap will be closed and the digital divide bridged. The glamour of dot.com companies has waned, the computerisation of the poorer sections of any society has been minimal and patents and Nobel prizes are concentrated on a few countries and regions. Nevertheless knowledge in many fields is expanding, most of it is translated into information and applied to production, services and to the every-day life of most people around the globe, being either beneficial or destructive as it may be. The global knowledge society is emerging, at all cost. But the global knowledge society is fragmented, divided and differentiated.

The epistemic landscape still has hills and valleys, fast running streams and backwaters. Research is needed, how to channel the stream of knowledge into ones own backyard, how to utilize local knowledge and local cultural traditions, how to gain a competitive advantage by maintaining ones cultural identity. Knowledge does not consist of ICT alone, without a social, political and cultural context ICT and a knowledge economy will not flourish.

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