

ESTABLISHING MICROSOFT RESEARCH CENTRE IN INDONESIA: A ROAD PATH TOWARD EXPORTING INDONESIAN SOFTWARE

¹Nurhajati Ma'mun, Wawan Dhewanto, Ronaldi,

²Kridanto Surendro, Basuki Sugiharto

¹School of Business and Management, Institut Teknologi Bandung
Ganesha 10 Bandung 40132

²School of Electronics and Informatics, Institut Teknologi Bandung
Ganesha 10 Bandung 40132

¹E-mail: nurmtm@sbm.itb.ac.id, w_dhewanto@sbm.itb.ac.id, ronaldi_08@yahoo.com

²E-mail: endro@informatika.org, masbasuki@students.itb.ac.id

ABSTRACT: *Entering the 21st century, information and communication technology (ICT) has become an un-separated part in daily human activities. ICT business has become the means in creating wealth and welfare for those commanding this technology. Indonesia with her abundance of people could have compete and create a mass of entrepreneurs in the ICT business. Lack of human development and other causes have brought Indonesia to become merely just user and buyer in the thriving business. The Government of Indonesia has long realized this and has made some efforts in closing the gap. President Yudhoyono's visit the USA in 2005 has brought an early discussion whether Microsoft will open its research centre in Indonesia. The discussion arouse to a level that in the future Indonesia would able to export its software to the world market. There are steps to be taken and resources to be prepared. There are certain constrains for Indonesia to rise as the world software powerhouse in the future, including the ever changing environment of the software market, as some regard as maelstrom effect. This paper describes the steps should be taken to establish the Microsoft Research Centre in Indonesia and the link to make Indonesia as a world software exporter.*

Keywords: *ICT, Microsoft Research Centre, maelstrom effect*

BACKGROUND

The world in the 21st century is entering what Alvin Toffler said the Third wave or the rise of Information Technology. Information Communication Technology now is more important than ever as the means of value creation both for individuals and for a nation as a whole.

This has long been realized by the Government of Indonesia. One policy regarding research and technology state: " The Development of Information and Communication Technology are aimed at the dissemination of ICT infrastructure available to be mass, strengthening of the human resources and ICT institutions, also implement ICT solutions to enhance economic development, industrial competitiveness, trading efficiency, independence in defense ICT devices, effective public services and the quality of life of the people."

The policy is later taken into action by some initiatives by the government. One of which, was the visit of President Yudhoyono to the USA May 2005. On that occasion the President asked Microsoft chairman Bill Gates to establish a Microsoft Research Centre in Indonesia. The conversation later resulted in MOU between the Indonesian Government and Microsoft Research Centre Asia in Beijing later on that year. In March

2006 the initiatives took place in ITS as Microsoft Innovation Centre, and later in ITB May 2006.

These developments coherent with the development of Indonesian people as the major capital in the Information age. The Indonesian ICT business is still in infancy, but as we can see in the world market the ICT business is moving fast and accelerating. This market is the aim for Indonesia to become the next powerhouse, especially the software market which would utilize the best capital Indonesian have, the human capital.

METHODOLOGY

The search for the proper ways to build Indonesia's competence as the software exporter is based on literatures of technology management and secondary data gathering via the internet and other means. The prior analysis for this matter has been conducted. The current study is taking previous data and analysis, align it to the plan of Microsoft Research Center establishment in Indonesia. Bruell (2003) stated that Indonesian human resource is still hampered by economic issues, and real development in software export was left behind.

Heeks and Nicholson (2002) create the framework for analyzing Software export from developing and transitional economies. The framework analyzes the economies using these parameters:

- Demand for Software
- National Software Strategy and Vision
- International Linkages and Trust
- National Software Industry Characteristics
- National Software Related Infrastructure

Their correlation is described in Figure 1.

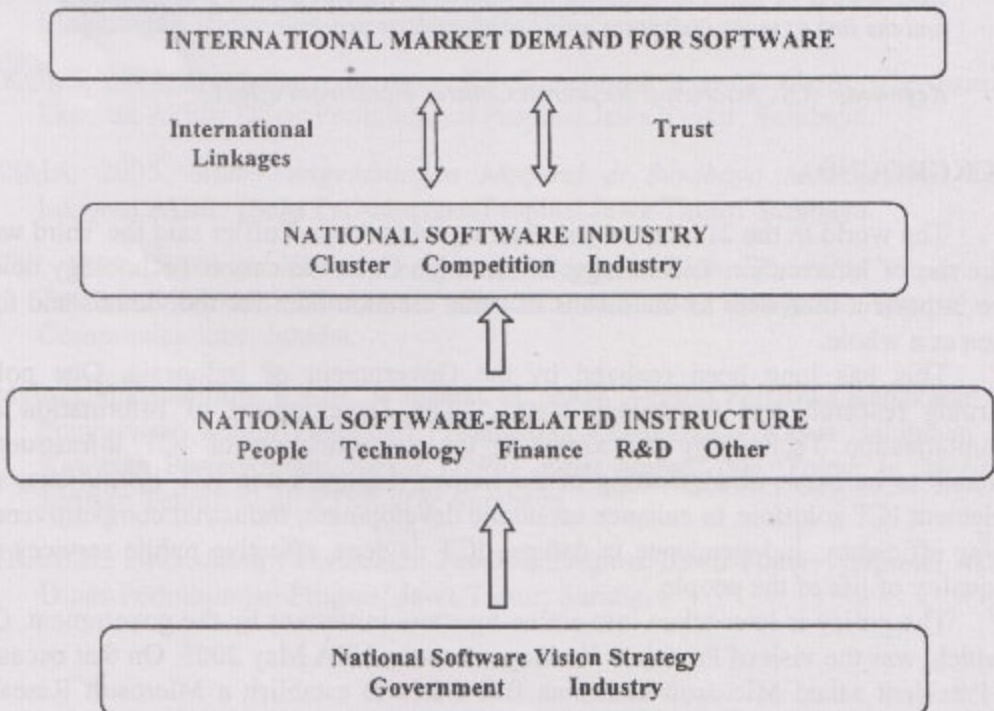


Figure 1: Software Export Framework (Heeks & Nicholson, 2002)

Other characteristic that should be brought into account is the fast moving ICT business which Bowen (2004) reckon as the Maelstrom effect. The effect shortens the product life cycle and also the technology life cycle. The underlying strategy is being flexible, flexible to anticipate change, prepare to change and induce the change. The Maelstrom Effect described as shown in Figure 2.

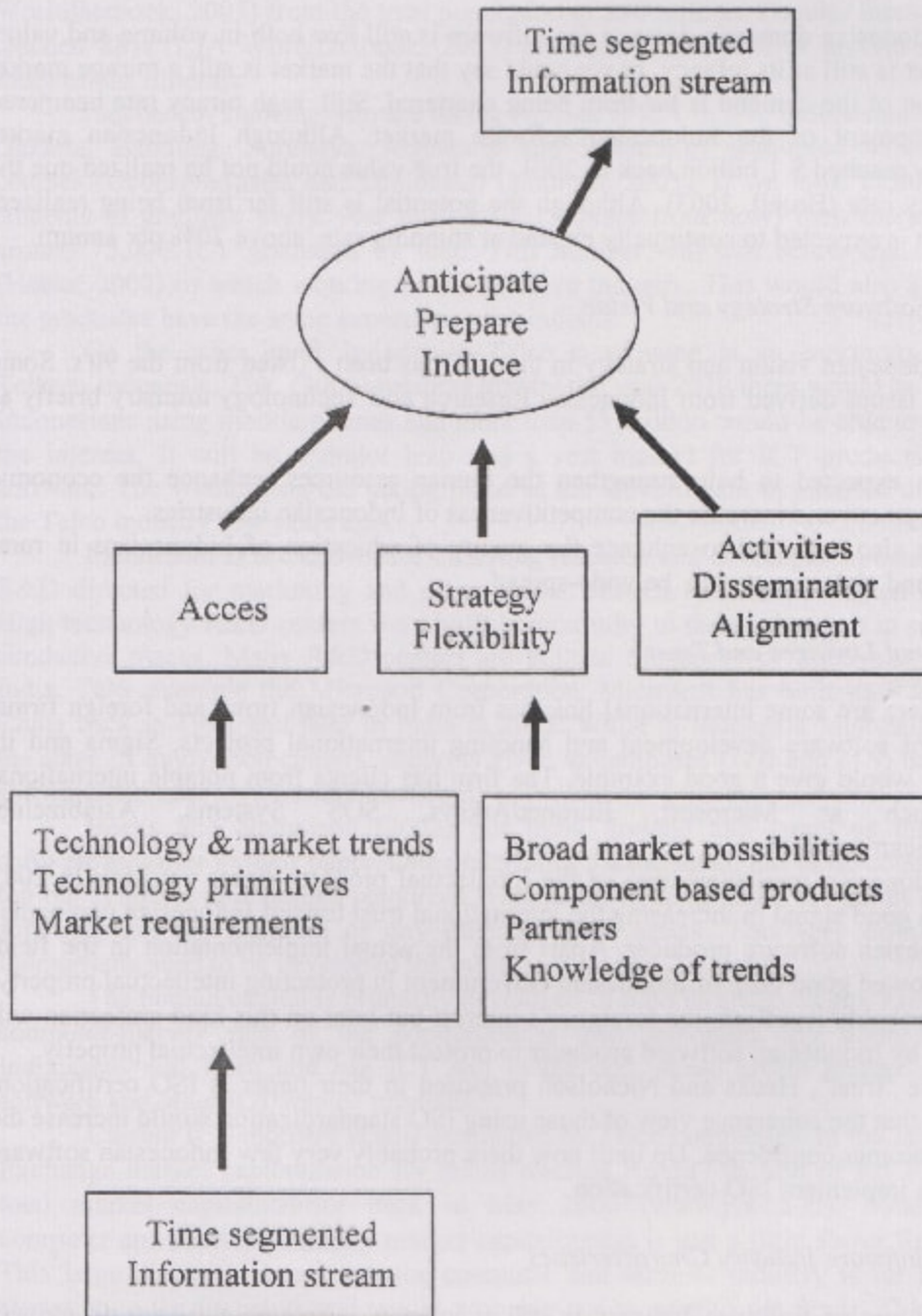


Figure 2: Maelstrom Paradigm (Bowen, 2004)

RESULTS

Indonesian condition is examined with the framework from Heeks and Nicholson using various sources. Each important factor for a developing country to export software is put down and later discussed.

Demand for Software

Indonesian domestic demand for software is still low both in volume and value. The market is still at its infancy, or we could say that the market is still a mirage market where most of the demand is far from being chartered. Still, high piracy rate hampered the development of the Indonesian software market. Although Indonesian market potentially reached \$ 1 billion back in 2001, the true value could not be realized due the high piracy rate (Bruell, 2003). Although the potential is still far from being realized, the market is expected to continually expand at stunning rate, above 20% per annum.

National Software Strategy and Vision

Indonesian vision and strategy in the ICT has been existed from the 90's. Some important issues derived from Indonesian Research and Technology ministry briefly as follows:

- o ICT is expected to help strengthen the human resources, enhance the economic development and increase the competitiveness of Indonesian industries.
- o ICT is also expected to enhance the quality of education of Indonesians in rural areas and also expected to be wide-spread

International Linkages and Trust

There are some international linkages from Indonesian firms and foreign firms. In terms of software development and handling international projects, Sigma and its BaliCamp would give a good example. The firm has clients from notable international firms such as Microsoft, Euronet/Arksys, SOS Systems, Asiabizclub. (www.balicamp.com)

Indonesian implementation of the Intellectual property rights act back In 2003 has been a good signal in increasing the international trust toward Indonesian companies and Indonesian software producer. Apart from the actual implementation in the field, this act showed good faith of Indonesian Government in protecting intellectual property, for now probably it reflects the foreigner's interest but later on this kind protection will be sought by Indonesian software producer to protect their own intellectual property.

The "trust", Heeks and Nicholson proposed in their paper is ISO certification. They said that the coherence view of those using ISO standardization would increase the user or customer confidence. Up until now there probably very few Indonesian software companies implement ISO certification.

National Software Industry Characteristics

Indonesian Software Industry is still at infancy. Although software developers have spawned throughout Indonesia, many of which are still unregistered. Lack of

capital and entrepreneurship are also indicated by Bruell (2003) as the major factor in Indonesian Software lagging performance

National Software-Related Infrastructure

Indonesian people are abundant in number but yet far from well educated. There's only around 8 million Indonesians who are using the Internet back in 2002 (CIA Worldfactbook, 2005) from the total population of 240 million. Popular literacy rate has reached 88% (CIA Worldfactbook, 2005) but there's still 12% or around 29 million Indonesians illiterate.

Indonesian students who are taking courses in ICT in five Indonesian large cities (Jakarta, Bandung, Surabaya, Jogjakarta and Semarang) accounted 47,268 in 128 courses (Undergraduates and Diplomas) (Kompas, 2005). If we took 15,000 of these students to graduate every year until 2011 (5 years from now) then there would be around 75,000 ICT graduates by then. This number will still below India's 150,000 (Heeks, 2002) of which working in the software industry. This would also assume that the graduates have the same expertise as the Indians.

On the other hand, Indonesian Telco is growing in an enormous pace. PT. Telkom Indonesia, Tbk. (2006) predicts that by the year 2010 there would be 90 million Indonesians using mobile phones and more than 55 million would be able to connect to the internet. It will be a major leap and a vast market for ICT products including software. The whole progress taking place as the Government has started deregulating the Telco industry few years ago.

Indonesian is not known for its strong research and development bases. Applied R&D directed for marketing and other market related research are often conducted. High technology R&D centers were built in proximity to the market, but in suitable and conducive places. Many R&D centers are built in Singapore or Malaysia, China and India. Take example the Microsoft Corporation. Microsoft has built its R&D base in China back in 1998 and later in India in 2005. While in Indonesia Microsoft is still at the stage of innovation centers, supports given to campuses (ITB and ITS) in hardware, software and tutors. (www.detiknet.com)

Heeks and Nicholson (2002) put India, Ireland and Israel as the first tier software exporter in their paper. One underlining factor which put those countries in the top tier is strong able human resources. This factor is the primary capital in developing software, not the building or any other tangible assets. This very point is where Indonesians need to be developed the most.

The human capital is primarily developed in schools and colleges. Enhancing the computer-literacy rate of the population is also important. By doing this more Indonesian will learn and use ICT and in the end would create greater market for software and other ICT related products.

Current ICT industry is still dominated by Telco companies. In the Jakarta Stock Exchange market capitalization for telcos reached Rp 187 trillion of Rp 1000 trillion total market capitalizations back in May 2006 (www.jsx.co.id). Meanwhile the computer and services industry market capitalization is just a little above Rp 1 trillion. This large disparity shows that the computer and services industry is far from being attractive to the investors and would probably not so easy to get funds. This point just reflects another difficulty for Indonesian software companies to take off the ground and become public listed company

Another problem is the entrepreneurs. When enough entrepreneurs in the software industry and creating networks by then the market will have primary movers from the supply side. If the market is only created from the customer's side then the goal of being a software exporting country will not be achieved. The critical mass of the entrepreneurs in this industry is becoming more and more important to be fulfilled.

The Indonesian government should proactively support the ICT industry. Vision and policy would not do any good if in day to day activities are still in the vogue. The government must take necessary action in order to create stimuli for the industry to flourish. The stimuli could be incentives in ICT educations for the people or even further in entrepreneurial level.

The Indonesian Government invites Microsoft to establish Research Centre in Indonesia back in 2005. The initiatives later turn into Microsoft Innovation Centre (MIC) in ITS and ITB in 2006. The MIC is a development centre for Independent Software Vendors (ISVs) to develop software and further learning in software making. The MIC is sponsored by Microsoft Corporation through its subsidiary, Microsoft Indonesia. The place is prepared by college partner and other facilities such as computers, networks, software and also tutors are prepared by Microsoft.

These initiatives brought the Indonesian intellectuals into a fast-track of software development. The software would be able to be sold to other developers or software houses if the creator wishes to. By doing so, the supply side of the Indonesian ICT market will soon be realized. This initiatives also would bring knowledge dissemination throughout the ISVs and furthermore to the Indonesian society. In the end this kind of learning will increase the capability of Indonesian human capital.

When Indonesian resources and market have grown into formidable size, then further development should take place. Indonesia would be able to stand in the edge of the development of ICT. By then these vast resources should be directed in some points of breakthrough, so it would generate more in the output terms. Microsoft Research Centre will have sound foundations by then. The research centre will be focusing in cutting edge technology as Indonesia will become the powerhouse of ICT.

Trust and linkage will also develop during those times. As Indonesia emerges as one ICT powerhouse in the world, Indonesian would be dispersed all around the world. The establishment of the Microsoft Research Centre in Indonesia would also benefit Indonesia as other companies could see that a company as big and powerful as Microsoft would open a research centre in Indonesia that mean good for business.

There will be troubles in the future as technology rise and fall in the technology life cycles. The pace will become faster and faster. Bowen (2004) name this as the Maelstrom effect. As companies rush into new technology the pace would go faster and faster as if in a maelstrom. Changes would become day to day phenomenon. At this point the impulse will come from outside the company in the form of time-segmented information stream. This paradigm is described in figure 2 above.

The implication of this paradigm is that the process for Indonesia to emerge as software exporter would also being affected by this paradigm. If during the construction of the Indonesian infrastructure and industry the world market is changing then the whole development process would have to adapt to the changes. The rise of new technology and market trends should be watched very closely if yet Indonesia to emerge as the victor in the ICT arena.

Another point to watch is the strategy of the development itself. The Maelstrom paradigm suggests that the strategy is flexibility itself. Being flexible is not having any

direction. Being flexible is being to know what to act, and when. The component of the strategy is underlined as broad market possibilities, component based products, partners and knowledge of trend.

Knowing this paradigm would give Indonesian a great advantage in entering the ever-changing ICT landscape. As the conditions for Indonesia to be able to export its software can be stated above, the ways of getting there is not as easy as one would imagine. The fast changing market requires flexibility even for those trying to swim around the maelstrom.

CONCLUSIONS

In order to make Indonesia for being able to export software in the future there are few things that should be addressed. There are conditions to be prepared: Increasing the Indonesian human resource capability, Developing critical mass of entrepreneur in software industry, Building proactive government approach in regulating and developing the industry, Increasing the technological base through R&D, Building trust and linkage with the export market

The Maelstrom paradigm sees the problem not linier or sequential but time segmented and it should be kept in mind that the strategy to win is being flexible. The Microsoft Research Center could be seen as an important stage to build Indonesia to become software powerhouse.

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