

# The Indonesian Archipelago's IT Growth on the Path to the Digital Economy Era

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## Preface

Indonesia is still struggling to overcome its weak macroeconomic condition, reflected in a budget deficit that threatens macro stability and both international and domestic market confidence in the government's medium-term policies for restoring the economy. The exchange rate appreciated about 18.7 percent between February and December 1999 and then depreciated by around 29 percent from January to December 2000 due to domestic and political instability. The open unemployment rate reached 6.3% in 2000, up from 4.5% in 1999, while the inflation rate increased from 2.01% in 1999 to 9.35% for 2000. Policies for the medium-term include stabilizing the exchange rate, reducing the inflation rate, creating more jobs, and maintaining economic growth.

Despite the internal macroeconomic problems, Indonesia's growth reached 4.77% up from 0.5% in 1999, primarily due to firm oil prices, rising exports of non-primary goods, and a moderate upturn in investment. Also, there were noticeable steps made toward re-capitalizing, restructuring, and consolidating the banking system. At 3.8% of GDP, the current account surplus was slightly below the 1999 level of 4.8%.

Despite the country's economic problems, the flow of information through information technology could not be stopped. This new technology has been put to use in almost every segment of human activity from electronic commerce to education, medicine, transportation, tourism, the environment, and entertainment.

As a country comprised of many islands with a land area as large as that of the United States, Indonesia has encountered a lot of problems in preparing its population for global competition in the new era of the digital economy. There are wide gaps in economic and technological levels due to local geography and conditions. Indonesia is aware that information technology (IT) and telecommunications play a major role in the nation's competitive capability in the global digital economy. Therefore, in addition to providing better government support, coordination, and programs, Indonesia needs to develop and implement a good physical and non-physical infrastructure and improve its human resources.

During the economic crisis, Indonesia learned that small and medium-scale businesses, known as "Usaha Kecil dan Menengah" or UKM, helped the economy to survive. These firms will not be able to continue to play this role, however, unless a proper and well-organized infrastructure is put in place.

This paper discusses the role of telecommunications infrastructure, Internet, and the UKM in Indonesia's IT industry and the problems, solutions, and business opportunities.

## Profile and Problems

The emergence of the Internet and the benefits it offers have pushed the Indonesian people to acknowledge it and take advantage of the benefits in their social and economic life.

Statistics from the Indonesia Internet Service Provider Association (APJII) give the following profile of the Internet in Indonesia in the year 2001:

- The number of Internet subscribers will reach 2 million (about 1% of the population), more than 200% above the number in 2000.
- About 75% of Internet access is from offices and/or Internet kiosks, as many people find subscription fees high and computer equipment and installation expensive.
- Home Internet users comprise less than 3% of total households in the cities, a much lower share than in other Asian countries (10% or more).
- Among Indonesians aged 35 and under, Internet usage time is mostly less than 30 minutes per month and among those over age 35, 34% spend more than two hours per month on the Internet.
- Most users access the Internet for email (79%), entertainment (62%), and surfing (52%).

- Internet traffic increased from 35 Mbps in 2000 to 52 Mbps in March 2001.

In the youth market segment (ages 11 to 25), the survey found that:

- 88.2% use computers for homework, 74.1% to play games, and 43.3% to access the Internet
- Around 62% said they have accessed the Internet—56.8% of them from Internet kiosks and 24% from their homes
- Around 62.4% say they access the Internet 1 to 3 times per week and 23.9% more than 6 times per week. Of the frequent users, 72.9% say that use it for obtaining information; 69.3% for e-mail, 60.1% for chatting, 55.3% just for the sake of knowing, and 7.1% for on-line shopping. In addition, 66.9% know about Yahoo and 41.2% know about Hotmail.

Due to market growth and the limited availability of wired infrastructure, the incumbent Indonesian carrier, PT Telekomunikais Indonesia (PT Telkom) and several private companies are providing broadband Internet access service via satellite.

### **Small and Medium -scale Companies (UKMs)**

Along with Internet growth in Indonesia, a number of small and medium-sized companies have become Internet service providers (ISPs). As of March 2001, there were a total of 150 ISP companies of which 60 were active. Another 100 new ISP companies are expected to begin within the year.

A new business phenomenon appeared in Indonesia during the economic crisis. Due to the convergence of telecommunications and IT, UKMs mushroomed in the telecommunications and Internet industry in the form of telephone and Internet kiosks popularly called WARTEL (Warung Telepon) and WARNET (Warung Internet). The number of WARNET companies increased 30% during 2000 to 2,500, and they can be found in every major city in Indonesia. As a result of this phenomenal growth Indonesia has the most Internet kiosks among countries in the Asia-Pacific region.

The WARNET companies have played a strategic role in fostering the spread of Internet technology throughout the country. They have become an important part of the network in partnership with ISPs and NSPs (network service providers) because they are located in the end-user areas.

### **IT Exports and Imports**

The latest data available on IT exports and imports are from the Central Bureau of Statistics for 1998-99. Indonesia's IT products include printed circuit boards (PCBs), central processing units (CPUs), computers, telephone and fax machines, computer printers, integrated circuits (ICs), and semiconductors.

From 1998 to 1999 IT exports increased 20%, from US\$1.19 billion to US\$1.43 billion. The increase was confined to CPUs (up 218%), printers (up 108%), and PCBs, while exports of the 11 other products declined. The largest share of exports went to Singapore (35.9%) followed by Japan (22.8%), the U.S. (14.9%), Malaysia (9.1%), and Germany (3.9%).

The persisting economic crisis in Indonesia had a negative impact on the import of IT products, which decreased by 5% from US\$456 million in 1998 to US\$222 million in 1999.

Investment in the IT sector is still taking place despite the continuing economic slump and unstable political situation. From 1999 to mid 2000 total FDI in the IT sector amounted to US\$525.7 million. The largest investment was made by Epson of Japan (US\$15.1 million) followed by Advanced Microtronics USA (US\$151.2 million), Wearness Technology of Singapore (US\$74.0 million), NEC of Japan (US\$65.0 million), and Seagate Technology Singapore (US\$65.1 million).

### **Problems**

Information and telecommunications technology businesses and users in Indonesia currently face the following obstacles:

- Difficulties in access due to limited availability of telecommunication infrastructure
- Low access performance and quality due to the age and quality of the cable, which is suitable for voice only. Some fiber optic cable has been laid within cities and at inter-city

- connections to function as a network backbone.
- Unsupported policy. Some policies of the incumbent carrier, PT Telkom, discourage Internet penetration, e.g., an incremental ISP subscription charge of from Rp32,700 to Rp300,000 per month per line.
  - Low financial capability. UKMs find it difficult to invest in information technology and telecommunications because of the current economic crisis conditions.
  - Lack of technological knowledge and skilled human resources. UKMs cannot afford current technology and skilled workers that would improve their delivery of Internet services and their business prospects
  - Low awareness of the benefits of information technology. Indonesian businesses as well as households lack awareness of the benefits of investment in IT. Indonesia spends only 0.8% of GDP on IT compared to 3% in Singapore and 6% in the United States.
  - Reliance on the government to promote IT utilization. Implementation of IT is financed largely by grants and aid projects or foreign loans.
  - Lack of a comprehensive policy covering the gamut from infrastructure, financing, incentives, and marketing to human resources.

### **Summary and Conclusions**

The huge market growth and existing problems have opened opportunities for local and/or foreign institutions and organizations to participate in the development of information and telecommunications service and business in Indonesia. The new telecommunications regulation states that information and telecommunications services can be provided by regional government institutions, private companies, and UKM associations as well as by government-owned institutions (such as PT Telkom and Indosat). New participants may use the existing infrastructure and do not need to develop their own networks unless there is no infrastructure in the destined service area.

UKMs prefer broadband (wireless) Internet, VPN (virtual private network), and IP technology to reduce their dependence on the incumbent carrier and to provide better service. The better the services that the UKMs provide, the sooner the Indonesian people will be ready to join the new digital economy.

Indonesia recognizes that the Internet has become a vital part of the economy, as a tool for channeling goods and services between regions and countries, among other things. Global export and import activity increased substantially due in part to the development of e-commerce. In 1997 international e-commerce trade reached US\$4 billion. In 2002 the figure is predicted to reach US\$33 billion.

Indonesia lags somewhat behind the other Asian countries in use of the Internet for e-commerce, but recently the growth rate of domestic computer use and Internet use have both increased. This is probably due to the realization of the many opportunities of e-marketing and e-commerce such as creating business opportunities, reducing operating expenses, and cutting bureaucratic red-tape.

The advantages of IT have led to increased application in almost every area of economic activity from e-commerce to education, medicine, transportation, tourism, the environment, and entertainment.

Recently, most domestic businesses have chosen to expand their IT usage by outsourcing rather than by investing in IT hardware and software. They lease software from application service providers, which act as data centers providing software on a real-time basis. Such businesses include banking, enterprise resource planning, customer relationship management, human resources, accounting, freight forwarding, and stock market. Even small and medium-scale enterprises have started using such services due to the relatively low cost of leasing software.

The Ministry of Communication has drafted a new Cyber Law to minimize the negative effects of the spread of IT and the Internet. Among other things, the law covers copyright protection, pornography, and abuses of electronic commerce.

Insofar as it is not used to control or supervise web sites but is applied to protect customers and suppliers in commercial transactions, support copyright law, and reduce the spread of pornography, the cyber law is a positive idea. Whether Indonesia's new law can be effective remains to be seen.

Indonesia is far behind its neighbors and even farther behind the advanced countries in the quality of human resources. Efforts to improve educational levels, particularly in relation to information technology, are capital intensive and therefore depend heavily on foreign loans and aid. Indonesia must realize that the international competitiveness of the economy is determined to a large extent by the quality of its human resources and level of information technology, rather than by its natural resources .