

## Preface

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## PREFACE

The Institute of Developing Economies, Japan External Trade Organization (JETRO), has been undertaking the studies on economic development policies in collaboration with academicians, government officials, and subject matter experts in ASEAN and regional countries since 1987. The major objectives are to analyze from a historical perspective the changes in the national development strategies and policies, and to identify the orientation of policies to achieve economic development in the future. This volume is the result of a joint research project on “Human Resource Development in the Information Age” with researchers in Singapore and Malaysia.

The revolutionary development of information and communications technology (ICT) presents a significant impact on production and human resource development worldwide. The ICT industry signifies one of the fastest growing industries in today’s economic environment. The ICT contributes to the improvement in productivities at offices as well as in factories in all industries. Furthermore, the recent ICT advances also facilitate the change from the traditional and energy-based economy to the knowledge-based economy, as ICT represents in this new economy an essential element as an effective means to operate, communicate, utilize and exchange information. The continued merger between ICT and all businesses is a crucial factor in the post-modern knowledge-based economy (KBE). Thus, ICT is considered a vital determinant in international competitiveness. A country which fails in making a wide diffusion and active use of ICT would lose the market edge and have difficulty in catching up

with the competition. The so called “digital divide”, which is supposed to bring about a wider economic difference, is pressuring and challenging not only the advanced countries’ but also the developing countries’ governments.

In response to this urgent challenge, Singapore and Malaysia, members of the ASEAN (Association of Southeast Asian Nations), have placed ICT-oriented policies at the core of their economic development strategies, with objectives to maintain these two economies’ advantageous and initiative position in the region concerning the ICT. Efforts to reinforce national capabilities in this direction are noticeable. The government has planned and implemented such measures as improvements and expansion of the infrastructure for communication, promotion of investment through deregulations, growth of venture businesses by giving preferential conditions, and human resource development in the ICT-related areas.

The contributors to this volume discuss human resource development from the viewpoint of labour market, education and manpower development which will be a key differentiator in the information age. In addition, Japanese international cooperation in the field is discussed.

Part I addresses the case of Singapore. Chapter 1 focuses on the nature and characteristics of the Singapore labour market in the emergence of KBE resulting from changes in industrial structure and policy response undertaken by the Singapore Government. A rise in the residual component of labour productivity and a decline in the application of capital in production process, the need of education and skill levels of the labour force, and dramatic shift in employment from the manufacturing to the service sector are examined. In addition, it is pointed out that the nature of labour contract and industrial relations would change due to change in the demand for and supply of labour. Policies aiming for globally

competitive KBE are analyzed. With an excellent tract on public governance, it is expected that policy distortions would be minimized and the synergy and equilibrium of the Manpower 21 and the Industry 21 strategies would be maximized. Alternatively viewed from the labour market perspective, the demand for labour and the supply of labour would be harmonized through seamless, flexible and efficient labour market and supported by responsive institutional infrastructures and administrative capabilities.

Chapter 2 addresses many of the current ongoing efforts across several of the institutions such as primary and secondary schools, polytechnics and universities and other ancillary private sector in education and training. It reviews ICT in schools before the landmark 1996 inception of the initiative to integrate ICT into Singapore educational systems. In addition, it attempts to describe a reasonably accurate picture of the state of ICT in Singapore education, and to also discuss some future trends and challenges. In particular, it presents the important factors included in the original conception of the Masterplan for IT in Education, and also presents a range of spinoff consequences and new developments which have occurred since then, highlighting the various linkages between ICT use in schools and national economic development. Following this, some of the specific school projects or initiatives and upcoming trends in Singapore are discussed, including the specialized topic of e-Learning in Singapore schools. It is pointed out the incorporation of ICT into education will continue to have as its ultimate goal the economic regeneration of the country.

Chapter 3 provides a brief overview of Singapore's ICT manpower development, identifying relevant demand trends and supply responses in the past 20 years, and highlighting new challenges and emerging policy responses as the need to

shift towards a knowledge-based economy hastens and the pace of digital convergence quickens. It is clear that Singapore's digital economy has increased substantially over the years, measured in terms of direct value added and contribution by statistical analysis. It is argued that the main obstacle to faster ICT development in Singapore in the future is not the ICT manpower supply constraint, but the need for an environment that fosters greater technological innovation, encourages creativity and entrepreneurial experimentation, and stronger public sector priority focus on nurturing selected emerging ICT clusters. The need for more focused manpower training assistance programs to support the growth of new entrepreneurial technology is suggested.

Part 2 addresses the case of Malaysia. Chapter 4 focuses on labour market in Malaysia on the transition of knowledge-based economy (K-economy). It discusses the development of the K-economy, particularly in the context of globalization and changing patterns of employment, drawing attention to the increase in employment emerging from those sectors that require the use of ICT. The supply and demand for labour in relation to the development of K-economy is also discussed and the government's efforts using education as a strategy to increase the people's capabilities reviewed. It traces the development as well as evaluates the changing structure of industrial policy in Malaysia. Lastly, it examines the government's role in education, training, and managing foreign labour in the K-economy.

Chapter 5 focuses on educational development in Malaysia which has been given the highest priority by the government. It points out robust developments in education from 1980 to the present and rapid adoption of technology in education. The various initiatives at the school level such as computerization programme, e-learning, global schools

network, education portals, satellite education and smart school are provided. In addition, new paradigms in higher education such as distance learning, portals, Open University, and ICT in Teacher Training are presented, and existing problems and future directions of ICT in Higher Education are pointed out. Lastly, major plans for human resource development as contained in the Eighth Malaysia Plan and Third Outline Perspective Plan (OPP3) are presented and future challenges in the educational development for the information age are discussed.

Chapter 6 addresses a pivotal aspect of the Malaysian K-economy development – the human dimension. The quality of knowledge worker (k-worker) and human resource is considered the single most important factor in the successful transition to the k-economy. The current status, challenges and strategic directions of k-worker development are discussed, within the context of national development and ICT development. It discusses on the inadequate level of education and skills, the lack of pre-employment training, and the low level of training undertaken by private companies which characterize the current workforce. Lastly, the necessary action measures to cultivate and secure the necessary k-human resources such as reforming the educational system, upgrading of skills through training, retraining and life-long learning, and supplementing the supply of local talent with international talents, are suggested.

Part 3 (Chapter 7) discusses issues on Japan's international cooperation to improve the negative aspects of ICT development such as digital divide and to enhance human resource development. It examines characteristics of Japan's ODA, reviewing her aid experience through case studies of Singapore and Malaysia. In addition to bilateral cooperation of both countries, regional and global cooperation through ASEAN and

APEC in the field of ICT is examined under the scheme of Okinawa charter. Academic network through university network in ASEAN and educational cooperation by satellite communication are presented. It is pointed out that Singapore and Malaysia shall be Japan's good counterpart in implementing her international cooperation on human resource development in the region in the information age.

Our research sheds lights on the latest critical issues on the ICT development and Human Resource Development in Singapore and Malaysia, and also the role of Japan in narrowing the digital divide in ASEAN. Needless to say, each contributor is solely responsible for the findings and conclusions contained in these chapters. The definition of "Knowledge economy" is interchangeably used as "knowledge-based economy" or "K-economy" and "Digital Economy" in this paper. However, these definitions of "knowledge-based economy" are commonly referent to the growing importance of knowledge in all economic activities in the information age.

Lastly, I would like to express my deepest appreciation to all of the contributors. I would also take this opportunity to show my gratitude to the Institute of Southeast Asian Studies (ISEAS) in Singapore and the Institute of Developing Economies (IDE), JETRO in Japan for extending encouragement and support to conduct this study. Also thanks to those persons who have extended kind assistance and cooperation towards completion of this study. It is hoped that this study will be of interest and benefits to the academic/research community and policy planners interested in the human resource development towards Knowledge economy.

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