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## FOREWORD

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The member economies in the APEC region are well aware that small and medium enterprises (SMEs) have the potential to enhance their business competitiveness. Many member economies have taken different approaches and implemented different policies for their SMEs. However, in the era of the digital economy, a member economy can no longer survive on its own. As the world becomes globalized, competition will occur anywhere, anytime and by anyone using Information and Communication Technology (ICT). SMEs are most vulnerable to this changing competitive environment since they do not have enough finances, technical skills, and human resources to implement ICT. One of the characteristics of the digital economy is that the digital gap widens much faster in this economy than before. In particular, the digital gap between large and small companies needs to gain special attention because unless the gap closes, balanced economic development will not be achieved and the social security net will be undermined.

APEC recognized the importance of ICT for SMEs and started the promotion of the use of ICT. At the 2000 APEC SME Ministerial meeting, ministers discussed how to enable SMEs to access ICT easily and to utilize e-Commerce, and stressed the needs to collaborate with APEC Electronic Commerce Steering Group (ECSG) and Telecommunication Working Group (TELWG). In 2002, ministers emphasized the development of policies for the informatization of micro-enterprises (MES).

While discussions made in APEC focused on technical issues such as coordination of standards, regulations, and security measures for e-Commerce, there has been little discussion on the support policies, support organizations, education and training, and awareness levels regarding SME informatization in member economies. Taking this into account, the Korea Small and Medium Business Administration (SMBA) and Korea Information Management Institute for SMEs (KIMI) made a proposal to conduct a project to develop an e-APEC strategy for the better promotion of SME informatization. The project has three phases and this document contains the outcome of the first phase whose title is "APEC Informatization Survey for SMEs."

The objective of the *APEC Informatization Survey for SMEs* was to identify the levels of SME informatization by analyzing and evaluating ICT strategies, infrastructure readiness, systems building and utilization, ICT education and training, and etc. The survey was based on a research framework that consists of three components: the national ICT infrastructure, business environment and supporting organizations. For the survey, overall information related to SME informatization from 21 member economies was gathered by way of web-site searches and the e-mailing of the questionnaire. And for more specific information, the research team interviewed government officials in 12 economies regarding their government's support policies, support organizations, and others. The team also conducted 18 case studies in 10 economies on the informatization levels of these economies by evaluating infrastructure readiness, systems building and utilization, and etc. As a result, the team compiled and categorized all the information gathered into individual member economies' profiles, analyzed the characteristics of ICT policies of each member surveyed, compared the informatization levels among the economies, derived best practices and made suggestions for the enhancement of SME informatization in the APEC region. The interviewees were found to believe that the benefits of SME informatization were great and welcomed this survey research for the

promotion of SME informatization at the APEC level.

Finally, I would like to express my deepest appreciation to all the people involved in this survey research. First of all, without the proactive cooperation from the focal points in APEC SMEWG, this survey would not have been possible. In particular, I want to give my warm-hearted thanks to the following seven economies: Canada, Hong Kong, Japan, Korea, Philippines, Russia and Chinese Taipei. They were very cooperative in our compilation of the member economies' profiles by answering our questionnaire. Special thanks also go to the Korean research team. Many thanks to KIEP (Korea Institute for International Economy Policy), first of all, for their role as the leading researcher as commissioned by KIMI. From KIEP, there were Drs: Seong-Bong Lee, Chang-In Yoon, Sangkyom Kim, Jun-Gu Kang, and others. From CenterWorld, a participant from the private sector, Dr. Jin-Young Sirh. From Universities, there were Professors: Sundong Kwon, Yong-Yeop Sohn and Hee-Dong Yang. From KIMI, there were Drs: Joo-Yong Kim, Juhwan Oh and Hunwha Yang. And, last but not least, a special appreciation to Ms Bong-Yeon Hwang, deputy director of SMBA for enabling this project.

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## EXECUTIVE SUMMARY

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The informatization of SMEs (e-business and ICT adoption by SMEs) can not only strengthen their corporate competitiveness, but also contribute to the stable growth of each APEC economy. In this regard, Korea started the "APEC SME Informatization Project (Enabling e-MES Environment through survey and e-community based capacity building)" in 2003 to develop an e-APEC strategy for SMEs, which can help expand the opportunities for APEC SMEs to enhance the ICT use and adoption. As the first phase of this project, this study aims at contributing to the promotion of informatization of SMEs in APEC by sharing Best Practices based on member economies' experiences such as policies, supporting structures, and needs of and barriers to SME informatization.

The study has two core research agendas. The first one, "*SME Informatization Policies and Approaches in APEC Member Economies*," looks into the policies each government uses to promote and improve SME informatization and the intermediaries that support SME informatization. The other one, "*SME Informatization Survey*," which includes the case studies (18 cases) in 10 member economies and a questionnaire survey of Korea's SMEs, reviews the current status, characteristics and major issues of SME informatization from the SMEs' point of view. For both research agendas, the research team categorized the APEC member economies into two tiers in the National Informatization Index (NII) and compared these two main groups.

### ***SME Informatization Policies and Approaches in APEC Member Economies***

Regarding the policies and approaches for promoting SME informatization in APEC member economies, we found that only a few member economies have launched a set of integrated policies for SME informatization, pursuing generic SME support and SME informatization at the same time. In contrast, the economies in the low tier in the NII have not taken any systematic approach towards SME informatization.

In the case of the economies in the high tier in the NII, some member economies do have specific policy frameworks for SME informatization (SME-focused ICT policy) but others do not (generic ICT policy). The former member economies have taken many approaches to promote SME informatization (providing useful information, resources, financial support, and training and consulting), while the latter member economies have only taken some basic approaches to SME informatization (providing information and expanding the ICT infrastructure).

This study reviews the intermediaries playing an important role in promoting SME informatization. This study also confirms the importance of intermediaries and that governments lack the ability to identify the needs of SMEs and provide tailored solutions to them. The intermediaries can be categorized into public and private intermediaries, and have different roles and approaches in their responsibilities (mainly endowed by the government). Diverse cases on the efforts of intermediaries to meet SME needs for informatization are presented.

### ***SME Informatization Survey***

The survey and case studies analyze the levels of SME informatization in terms of ICT adoption, ICT awareness and readiness, ICT benefits and factors affecting ICT adoption.

Regarding ICT adoption in APEC SMEs, there are substantial differences between low tier and high tier SMEs in their levels of hardware, software and Internet usages. Moreover, limited access to the Internet and the high cost of computer equipment are the most serious problems low tier SMEs face.

In terms of ICT awareness, the case studies show a significant difference in the levels of ICT infrastructure and financial resources between the low tier and high tier SMEs. The low tier SMEs do not have adequate levels of equipment such as hardware, software and networks for they view these products to be too expensive to buy. Although many CEOs and employees of the SMEs in the case studies showed a high level of awareness of the importance of ICT development, many SMEs lack ICT organization and systems management, ICT education and training, and ICT maintenance capability.

As for the benefits ICT offers, many SMEs in this study have increased their business efficiency by using ICT. However, there does exist disparity in efficiency between the low and high tier SMEs in the NII. Only high tier SMEs have increased their business performance for both internal and external operations using ERP, CRM and SCM.

In the case studies, we identified the factors affecting ICT adoption by SMEs such as the national ICT infrastructure, the business environment and supporting organizations. The low tier SMEs have more problems with accessing the Internet due to the slow speed and high cost. Moreover, they have less pressure to adopt ICT from business partners such as buyers, vendors or competitors. In some cases, however, intermediaries do function as a bridge between SMEs and the government for SME informatization.

The survey on the Korean SMEs shows that they do not have sufficient ICT experts/staff, and that they only manage the internal processes with the basic software rather than conduct B2B transactions over the networks. The three major reasons for this outcome are the lack of financial resources, human resources and ICT capabilities.

## ***Suggestions***

All interviewees SME businesspeople, government officials and SME informatization intermediaries in member economies believe that the potential benefits of SME informatization are great and welcome the involvement of APEC economies in lowering the barriers to SME informatization efforts not only at the individual governmental level, but also at the APEC level. Based on the research results, we offer suggestions to facilitate SME informatization for individual APEC SMEs, intermediaries, member governments, APEC as a whole, and the future research.

### ***(1) Suggestions for APEC SMEs***

- ***Recognize the need for informatization and raise the ICT awareness and knowledge of CEOs of SMEs.*** APEC SMEs should thoroughly examine the potential benefits of utilizing ICT, developing new products and services, and creating new markets through new approaches to customers. Raising the ICT awareness and knowledge of SME CEOs is critical, considering the absolute influence of CEO leadership in small companies.
- ***Use ICT for integrating SMEs and business partners into the value chain.*** Integrating processes and data through community-based networks with partners in the value chain is desirable because by doing so they can share costs as well as the benefits of the integrated system.

## **(2) Suggestions for Intermediaries**

- **Intermediaries in charge of promoting SME informatization should assess the needs of SMEs and develop programs from the SME point of view.** Both public and private intermediaries should be reviewing whether they are meeting the SME needs through their programs. In order to keep up with the changing ICT environment and SMEs' needs for informatization, intermediaries should have more knowledge and flexibility in their approaches to promote SME informatization.

## **(3) Suggestions for Governments**

- **Governments should give priority to enhancing the national ICT infrastructure.** Governments should try to lower Internet access fees and increase Internet access speed. Without low-cost efficient ICT infrastructure in place, SMEs will not be able to see the benefits of informatization. Governments should also support the growth of the ICT industry so that SMEs can use locally produced software and access contents at reasonable prices.
- **Develop diverse, business-driven supporting programs and team up with support intermediaries.** The government should develop diverse programs responding to the changing informatization needs of SMEs. To address the imbalances between government policy and SMEs' demands, governments should keep in close contact with SMEs. As governments will depend on many intermediaries, they should ensure that effective cooperation takes place between diverse intermediaries to create the desired synergy effects.
- **Consider the gender issue in the development and implementation of supporting programs for SME informatization.** While limited, this report presents the case studies on how to improve the role of women in SME informatization. These cases demonstrate that governments need to pay more attention to the gender issue in developing SME informatization policies.

## **(4) Suggestions at the APEC Level**

- **Improve the ICT infrastructure across the APEC region.** Collective measures at the APEC level should be taken to ease the burden of purchasing computers for SMEs in the low tier economies in the NII. For example, tariff rates on PCs in APEC member economies could be lowered collectively, or outdated computers in high tier members could be resold to low tier members at low costs.
- **Prepare collective measures at the APEC level to enhance the effectiveness of the SME supporting intermediaries.** The "APEC SME Informatization Forum" in 2004, to be held in Korea following this study, can provide the momentum for this. In addition, the "APEC Training Program for SME Informatization" in 2004 could become the cornerstone for enhancing the ability of key staffs in these intermediaries to respond quickly to SME demand for informatization.

#### **(5) Suggestions for Future Research**

- ***The relationship between the ICT infrastructure and SME informatization.*** The correlation between the digital divide among the companies and the indexes of digital divide among member economies should be analyzed in detail. In addition, the digital divide between SMEs and large enterprises in member economies also needs to be studied.
- ***The relationship between SME informatization and the business environment.*** Discussion at the APEC level is needed to assert the benefits of ICT. The discussion should not only cover the promotion of SME informatization, but also the required business conditions for SMEs to gain the benefits of informatization.
- ***In-depth study on SME informatization.*** An in-depth study on the current status of SME informatization by industry should be undertaken, taking into account the different characteristics of each industry. Future studies should consider the regional differences when analyzing the informatization levels of member economies.