

A RESEARCH ON STRATEGIC POSITIONING OF E-GOVERNMENT EDUCATION IN KOREA

SUNGSIK PARK¹, YOUNGSIK KIM² AND TAESOO LIM^{3,*}

¹Department of Management Information Systems
Konkuk University
120, Neungdong-ro, Gwangjin-gu, Seoul 05029, Korea

²Department of Information and Communication Engineering
Korea Aerospace University
76, Hanggongdaehang-ro, Deogyang-gu, Goyang-si, Gyeonggi-do 412-791, Korea

³Department of Computer Engineering
Sungkyul University
53, SungkyulDaehak-ro, Anyang City, Gyeonggi-do 430-742, Korea

*Corresponding author: teshou@gmail.com

Received November 2015; accepted February 2016

ABSTRACT. *With role change of economy in global society and world level e-Government practice, Korea government needed a strategic direction to spread its e-Government solutions and services to developing countries. To support such direction, we tried to find developing countries' e-Government education demand and to propose global education strategy for Korea government based on the demand. To accomplish those objects, firstly, we researched global ICT (Information and Communication Technologies) training programs and skill frameworks. Based on the researches, we derived a survey module framework and performed an actual survey to domestic consultants and developing countries' officers. Based on the results, we presented some global education strategies for Korea government. We expect this research will contribute to improving our e-Government training curriculum and furthermore efficiently transfer our practices to developing countries.*

Keywords: e-Government, Education demand survey, Global ICT education

1. Introduction. With the rapid development of economy, Korea has experienced its role change in global society from taking to giving country. Korea joined as a founding member of the World Bank's DGF (Development Gateway Foundation) council established in December 2001. Since that time Korea has been involved in many consulting projects for developing countries to transfer Korea's experiences about how to become one of the OECD (Organization for Economic Cooperation and Development) countries from the poorest country [1]. Especially, Korea has been focused in ICT and e-Government sector after they become a member nation in DAC (Development Assistance Committee) in 2009 [2].

With the role change of economy in global society, Korea government is considered to achieve world level e-Government practice. Korea government was ranked as No.1 in UN (United Nations) e-Government Development Index from 2010 to 2014 triple times and exported 4 billion dollars of e-Government related projects in 2013. Those environments motivated Korea government to keep strategy to deploy its e-Government implementation knowledge and experiences for developing countries [3]. To complete this strategic objective, the government needed a very competitive training institute like eGGA (e-Government Global Academy) which can hold the best training capacity for developing countries [4].

To meet such requirements, we have focused on two objectives. The first is to find out developing countries' e-Government education demand through real survey. The other one is to propose global education strategy for Korea government based on the demand. Our research consists of four steps. Firstly, we researched global ICT training programs and various e-Government related skill frameworks. Based on the researches, we derived a survey module framework for global e-Government training program in Korea. Using the module framework, we performed survey with both e-mail and visit to domestic consultants and developing countries' officers. Finally, we analyzed survey results and presented some strategies for global e-Government education.

The remainder of this paper is organized as follows. Section 2 describes global ICT and e-Government related education programs and skill frameworks. Section 3 presents survey module framework, procedure, results and some education strategies and finally Section 4 offers conclusions.

2. Related Programs and Frameworks.

2.1. ICT education programs. Major domestic and abroad ICT education organizations including e-Government training are listed in Table 1. Most Korea organizations focus on theoretical degree and short-term invitation training courses, whereas Japan opens practical technology courses and global company is involved in mid-term education in USA.

Comparative study with foreign countries' education programs gives us two main implications. First, domestic education programs are not sufficient for covering practical engineering skills and collaborations with solution vendors cannot be found. ICT solution vendors possess front-edge knowledge and have a desire to participate in ODA (Official Development Assistance) projects. Therefore, establishing practical education programs supported by solution vendors will be beneficial to both developing countries and domestic ICT enterprises. Secondly, domestic education programs lack in localization technology considering developing countries' environments. While ICT has complex and diverse characteristics, developing countries require simple, standardized and low cost technologies. Therefore, to effectively conduct global education programs, we need to know developing countries' training demand and reorganize domestic education programs based on the demand. Those two implications motivated our survey research and gave directions to set up global education strategies.

2.2. ICT competency model frameworks. Major domestic and abroad ICT competency model frameworks are summarized in Table 2. Most competency models are driven by government because competency, skill and knowledge set are related to education and certification system driven by government.

Most countries have already recognized the importance of systematic education, so have supported the ICT competency models by law and legislation. Whereas those models cover entire ICT related competencies and skills, we needed e-Government related competencies for our research. Therefore, we derived e-Government related competencies from those domestic and global models through the previous e-Government skill related researches [9-13].

3. Survey and Analysis.

3.1. Survey module framework. To derive our survey module framework, we used three information resources, which include global ICT training programs, global ICT competency models and previous e-Government skill related researches. Global ICT training programs helped us to have a training organization perspective, whereas the other surveys

TABLE 1. Domestic and global ICT education program

Organization	Education program
Global MPA (Masters of Public Administration)	<ul style="list-style-type: none"> • Sunkyunkwan University's master course of e-Government and information policy for developing countries. • KOICA (Korea International Cooperation Agency) support tuition, stay cost and so on.
Gobal ITTP (Information & Telecommunication Technology Program)	<ul style="list-style-type: none"> • KAIST (Korea Advanced Institute of Science and Technology)'s master and doctoral course of information technology and management for developing countries. • MSIP (Ministry of Science, ICT and Future Planning) support tuition, stay cost and so on.
Central Official Training Institute	<ul style="list-style-type: none"> • Official training of Korea development practices for developing countries' public officers. • Foreign government's requesting course, KOICA invitation course and ASEAN (Association of South East Asian Nations) collaboration projects.
Gyeonggi Education Institute	<ul style="list-style-type: none"> • Provincial official training of local administration and information for developing countries. • KOICA invitation course and education course of China provinces with sisterhood relationships.
JICA (Japan International Cooperation Agency)	<ul style="list-style-type: none"> • Training of IT engineer, instructor and public policy officer. • Training of e-Government advisor and consultant.
USTTI (United States Telecommunications Training Institute)	<ul style="list-style-type: none"> • Invited training program for developing countries' public officers. • Participation of global enterprises (HP, IBM, Cisco, etc.).
UKTA (United Kingdom Telecommunications Academy)	<ul style="list-style-type: none"> • Training of overall ICT using outside facilities. • Personalized lecture of ICT.

gave us core competencies for e-Government planning and implementation. With the information resources, we conducted multiple expert group meetings to design questionnaire module.

The procedures can be summarized in three steps. In the first step, we determined survey respondents, period and contents direction (ICT, standardization, interoperability, administration and so on). In the second step, we derived module pool based on current education system and documented detail classification of each module. Also, we determined to strengthen administration of e-Government. In the final step, we reclassified module pool, so deleted similar or redundant 56 items. Through those steps, we determined final 120 module pool in Figure 1.

In Figure 1, each module consists of 3 levels in depth. For example, the first module level 'Leadership' contains the second level 'Vision/Strategy' and 'National Information Policy', and the 'Vision/Strategy' consists of five third level modules, which are 'Understanding of International Development Cooperation and Aid', 'Korea's Economic Development and

TABLE 2. Domestic and global ICT competency model frameworks [5-8]

Country	Descriptions
USA	<ul style="list-style-type: none"> • Federal CIO (Chief Information Officer) driven training model • Defining 12 Clinger-Cohen core competencies: policy, leadership, process, information resource management, IT performance evaluation, IT project management, investment, ordering, e-Government, security, enterprise architecture, technology management
UK	<ul style="list-style-type: none"> • Defining 6 core competencies: strategy, business, solution, service, procurement, user interface • Defining 2 high level competencies: enterprise wide strategy, human resource management
EU	<ul style="list-style-type: none"> • Defining 4 dimension hierarchy • 5 areas in 1st dimension, 32 informatization competencies in 2nd dimension, 5 skill levels in 3rd dimension, knowledge and skills related to 32 competencies in 4th dimension
OECD	<ul style="list-style-type: none"> • Defining 4 core skills: information technology skills, information management skills, information society skills, updated management skills • Defining sub skills in each core skill category
Korea	<ul style="list-style-type: none"> • Defining G-IRMPF (Government Information Resource Management Process Framework) • Defining 9 areas, 36 processes and related competencies



FIGURE 1. Survey module framework

ICT's Role in the Development', 'Korea's Economic Development Experience and its Implication to the Developing Countries', 'Cooperation with developing countries in the ICT field' and 'Global Communication Strategy'.

3.2. Survey procedure and results. In this research, we conducted survey to find out the demand of e-Government education in the following steps.

- (1) The first survey: 100 consultants in domestic global consulting organizations, 180 officers in e-Government related organization of developing countries

- (2) Pilot analysis for first collected data and conducting second survey
- (3) The second survey: 51 consultants in domestic global consulting organizations, 104 officers in e-Government related organization of developing countries

As for domestic education need, the survey is performed with both e-mail and visit to the domestic global consulting organizations, and as for the need of developing countries, the survey is with both e-mail and interview with the officers being studying in Korea from Dec. 8, 2014 ~ Dec. 28, 2014. The foreign public officers came from Asia (73.6%), Africa (21.9%), Europe (2.6%) and South America (1.9%).

Through analysis of survey results, we can find education module preferences for 1st and 2nd level modules (refer to Table 3). We did IPA (Importance-Performance Analysis) for preference visualization and deriving focus area. Table 3 shows that 1st and 2nd quadrant education modules are necessary for domestic consultants and 1st and 4th quadrant education modules are for developing countries' public officers.

TABLE 3. Education module preferences

Quadrants	1 st and 2 nd module included in the quadrant
1 st quadrant: common interest area	<ul style="list-style-type: none"> ● [Leadership] Vision/Strategy
2 nd quadrant: domestic consultant interest area	<ul style="list-style-type: none"> ● [Policy] Industry promotion ● [Administration] Planning ● [Service] Public (front office), Administration (back office)
3 rd quadrant: common low preference area	<ul style="list-style-type: none"> ● [Policy] Information culture/gap, e-Government law /system ● [Administration] Ordering, Building ● [Strategic infra.] N/W, Standard framework, New technology, Information resources
4 th quadrant: developing countries' public officers interest area	<ul style="list-style-type: none"> ● [Leadership] National information policy ● [Policy] Information security ● [Administration] Operation, Performance (evaluation) ● [Strategic infra.] Human resources

Also, we inquired into recommended subjects to be opened. Domestic consultants wanted the subjects about consulting strategy and methodology customized to each country. Also, they hoped the subject about lessons-learned from previous experiences to be opened. On the other hand, developing countries' public officers wished practical subjects to develop their e-Government system. Detail subjects are listed in Table 4.

The main results of demand survey and focused interview can be summarized as follows. Those suggest strategic positioning of e-Government global education system.

- Education contents should focus on not overall information technology but e-Government related technology and policy considering that target audience is public officer.
- Curriculum sharing is needed with the cooperation of the department of Ministry of Government Administration and Home Affairs.
- To give customized education, developing countries need to be classified according to economic power (Gross Domestic Product per person) and information level (UN's e-Government index).
- The main objective of education is to publicize Korea's e-Government policy and technology and also to support domestic enterprises entering into foreign market.

TABLE 4. Recommended subjects

Respondent	Recommended subjects
Domestic consultant	<ul style="list-style-type: none"> ● Consulting strategy, methodology for establishing master plan and feasibility study methods ● Communication strategy and procedure to invite foreign public officers ● Korea public offices' supporting plan and requesting procedure ● Lessons learned in the history of Korea e-Government
Developing countries' public officer	<ul style="list-style-type: none"> ● Korea e-Government history, operation, policy and strategy ● Decision making methodology, change management and business transformation ● Public service innovation methods and public data utilization ● Development methodology of public Web and App. application

- Classification of curriculum according to the role in the organization (for example, person in charge, manager, middle manager, executive officer) is needed.
- We should explore various education methods including inviting training, cyber education, dispatching expert, inter-organization cooperation, ICT volunteer's group, public project, long-term education and so on.

4. **Conclusions.** This paper focused on how Korea e-Government consulting and training curriculum can be supplied. To accomplish those objects, we investigated domestic and global ICT training programs and various e-Government skill frameworks. Based on the researches, we derived a survey module framework for global e-Government training program in Korea. Using the module framework, we performed survey with both e-mail and visit to domestic consultants and developing countries' public officers. Finally, we analyzed survey results and presented some strategies for global e-Government education. We expect that our research will contribute to the improvement of our e-Government training curriculum and furthermore to help advancement of developing countries and enhancing Korea image in global world. However, to realize our survey results and proposed strategies, systematic organizational efforts are needed. Those include designing new course syllabus, recruiting competent instructors, securing budget and so on. Therefore, continual researches to make the policy or strategy visible are required.

Acknowledgment. This work was supported by National Information Society Agency and the KU Research Professor Program of Konkuk University. The authors also gratefully acknowledge the helpful comments and supports of Prof. Seogjun Lee (Konkuk University, Korea) and Prof. Pilky Hong (Seoul Digital University, Korea).

REFERENCES

- [1] C. S. Chung, Policy advice on the e-Government ODA strategy: Focus on e-Gov ODA in the developing countries, *Journal of the Korea Society of IT Services*, vol.12, no.3, pp.231-252, 2013.
- [2] KOICA *E-Government Program Model Research*, 2012.
- [3] National Information Society Agency, *2013 National Informatization White Paper*, 2014.
- [4] National Information Society Agency, *Enable Demand-based e-Government Study on Global Education*, 2014.
- [5] CIO Council, <http://www.cio.gov/index.cfm?function=itwstatement>.
- [6] UK Cabinet Office, *Transformational Government – Enabled by Technology*, 2005.
- [7] OECD, *The e-Government Imperative*, 2003.
- [8] K. T. Oh, Exploratory study on e-Government evaluation methodology and indicators developed, *Korean Journal of Policy Analysis and Evaluation*, vol.11, no.2, pp.119-143, 2001.

- [9] T. Schuppan, *Competency Assessment and Training for the Uptake of e-Government Services by Public Authorities*, Universität Potsdam, 2010.
- [10] S. Maihemuti, *Exploring e-Government Skills and Competencies Required in Public Sectors: A Literature Study*, Swedish Business School at Örebro University, 2011.
- [11] G. F. Khan, J. Moon, C. Rhee and J. J. Rho, e-Government skills identification and development: Toward a staged-based user-centric approach for developing countries, *Asia Pacific Journal of Information Systems*, vol.20, no.1, pp.1-31, 2010.
- [12] A. Ojo, T. Janowski, E. Estevez and I. K. Khan, Human capacity development for e-Government, *UNU-IIST*, 2007.
- [13] UNESCO, *e-Government Toolkit for Developing Countries*, 2005.