© *International Review of Public Administration*
2002, Vol. 7, No. 2

DEVELOPMENT OF AN E-GOVERNMENT SERVICE MODEL: A BUSINESS MODEL APPROACH

KYOUNG JUN LEE
Graduate School of Public Administration, Seoul National University

JOON HYUNG HONG
Graduate School of Public Administration, Seoul National University

Most discussions on electronic government have provided ad hoc guidelines. For a systematic framework for e-government service, this article adopts a business model approach and develops an e-government service model. Based on the analysis of business model researches and a comparison between e-business and e-government service, the paper defines and identifies the characteristics of the components of an e-government service model. These components are objectives, value proposition, service offering, activity configuration, and financial sustainability. Based on this framework, the authors perform a case analysis of the electronic services in the offices of the presidents of Korea and the U.S.A.

E-government is defined as the transformation of the internal and external processes of governments by information and communications technologies. On the other hand, e-government service is about using technology to enhance access to and delivery of government information and services to citizens, business partners, employees, agencies, and government entities. This definition of e-government service emphasizes the concept of service using information and communication technologies at its core. In this paper, we focus on the service part of e-government and differentiate between the term 'e-government service' and the term 'e-government.' To better describe the concept, the term 'electronic service of government' is more precise than 'e-government service;' however, for convenience and brevity, we use the latter term in this paper.

There are many discussions on e-government service, but most provide ad hoc guidelines and lack systematic approaches. In e-business, both practitioners and academics have emphasized the 'business model' as a useful construct and methodology for the successful design and implementation of an e-business. This paper also adopts the 'business model' approach. By applying the business model approach to e-government service, we will define an e-government service model and thus identify the characteristics of the components of an e-government service model.

Since the Internet receives much attention as a key business platform, the term 'business model' is used much more frequently than before. The Internet enables a wider range of new business models with its universality, time moderation effect, and infinite virtual capacity (Afuah and Tucci 2002). The old so-called 'brick-and-mortar' companies were forced to change their existing business models to new business models. While the computerization and digital networking within organizations in the early 1990s demanded business process reengineering, the business-to-business and business-to-consumer digital networking with Internet has called for innovative business models and a framework for analyzing them.

The business model framework essentially exists to design a new business or plan the transformation of an existing business. In addition, a business model is a guide to evaluating a business by generating critical business model questions. Finally, a business model can

be a basis for employee communication and motivation (Magretta 2002). A good business model can become a powerful tool for improving execution.

RESEARCHES ON BUSINESS MODELS

There is no agreement on the definition and scope of a business model. Timmers (1998) defines a business model as: 1) an architecture for product, service and information flow, with a description of the various business actors and their roles; 2) a description of the potential benefits for the various business actors; and 3) a description of the sources of revenues. Mahadevan (2000) suggests three business model building blocks: value streams, revenue streams and logistical streams, and claims that a business model is a unique blend of the three. The value stream identifies the value proposition for the buyers, sellers, and the market makers. The revenue stream is a plan for assuring revenue generation for the business. The logistical stream addresses various issues related to the design of the supply chain for the business.

Rayport and Jaworski (2001) define a business model as four choices on (1) a value proposition or a value cluster for targeted customers, (2) a marketspace offering - which could be products, services, information or all three, (3) a unique, defendable resource system, and (4) a financial model. The value proposition defines the choice of target segment, the focus of customer benefits, and a rationale for a firm's delivering the benefit package significantly better than its competitors can. The marketspace offering entails a precise articulation of the products, services, and information provided by the firm. The resource system supports the specific set of capabilities and resources that the firm will engage in to deliver the offering in a unique way. The financial model is the various ways that the firm proposes to generate revenue, enhance value, and grow.

Afuah and Tucci (2002) suggest the components of a business model are profit site, customer value, scope, pricing, revenue source, connected activities, implementation, capabilities, sustainability, and cost structure. They define a business model as the method by which a firm builds and uses its resources to offer its customers better value than its competitors, and make a profit by doing so. A business model describes the location of a firm in a value configuration vis-à-vis its suppliers, customers, rivals, potential new entrants, complementors, and substitutes (*profit site*), the value that a firm offers its customers (*customer value*), it's target customers, the scope of products/services it offers and to which customers (*scope*), its sources of revenue (*revenue source*), the price it puts on the value offered its customers (*pricing*), the activities it must perform in offering that value (*connected activities*), the basis of theses capabilities (*capabilities*), what a firm must do to sustain the advantages it has (*sustainability*), how well it can implement these components of the business model (*implementation*), and the relationship between its revenues and the underlying costs of generating those revenues (*cost structure*).

As seen above, there is no consensus on the definition of a business model. Research into business models has been inspired by the recent spread of the Internet; consequently, the research itself is still embryonic. Porter (2001) points out the risk of using the 'business model' concept at this early stage. Amit and Zott (2001) also agree that the theoretical foundations of the business model concept are not yet fully developed, and that business model concepts in the nonacademic literature suffer from ambiguity, contradiction, and misconception. They suggest, however, that no single entrepreneurship or strategic management theory can fully explain the value creation potential of e-businesses, and consequently an integration of theoretical perspectives on value creation is needed. To enable such integration, they offer the business model construct as a unit of analysis for future research on value creation. Amit and Zott define a business model as the design of transaction content, structure, and governance to create value through the exploitation of business opportunities. New value can be created by the ways in which transactions are enabled, and that a firm's business model is an important locus of innovation and a crucial source of value creation for the firm, its suppliers, partners, and customers.

From a technology management perspective, Chesbrough and Rosenbloom (2002) state that a business model is composed of 1) value proposition (i.e., the value created for users by the offering based on the technology), 2) market segment (i.e., the users to whom the technology is useful and for what purpose), 3) value chain structure (within the firm required to create and distribute the offering), 4) cost structure and profit potential (of producing the offering, given the value proposition and value chain structure chosen), 5) value network positioning (i.e. the position of the firm within

Table 1. Appoximate mapping of business model definitions

Mahadevan (2000)	Amit & Zott (2001)	Timmers (1998)	Afuah & Tucci (2002)	Rayport & Jaworski (2001)	Chesbrough & Rosenbloom (2002)
- Logistics Stream	- Transaction structure	- Architecture for the product, service and information flows - Actors and their roles	- Scope	- Marketspace offering	- Value network positioning
- Value Stream	- Transaction content	- Potential benefits for actors	- Customer value - Profit Site	- Value proposition	- Market segment - Value proposition
- Revenue Stream	- Transaction governance	- Sources of revenues and profits	- Revenue source - Pricing - Sustainability - Cost structure	- Financial model	- Cost structure and profit potential
N.A.	N.A.	N.A.	- Implementation - Capabilities - Connected activities	- Resource system	- Value chain structure
N.A.	N.A.	N.A.	N.A.	N.A.	- Competitive strategy

(N.A.: Not available or applied)

the value network linking suppliers and customers including identification of those with whom the firm will potentially complement or compete), 6) competitive strategy (by which the innovating firm will gain and hold advantage over rivals). Table 1 shows the comparison and approximate mapping between the components in the above definitions of business model.

AN E-GOVERNMENT SERVICE MODEL

The business model definitions above cannot be directly applied to a definition of an e-government service model. Therefore, we have modified them in consideration of the characteristics of e-government service. As summarized in Table 2, e-business and e-government service differ in their basic structures, reasons for existence, main deliverables, sources of uncertainty, evaluation criteria, and perspectives on information and knowledge. Both e-business and e-government service pursue cost reduction and customer ('citizen' in government service) satisfaction, but an e-government service is inherently monopolistic and does not pursue profits. In addition, the main deliverables of e-government service are intangible services, and they are regarded as public assets rather than as proprietary or commercial assets. While e-business suffers from the uncertainties of the market, competitors, and disruptive technologies, the stability of e-government service depends on policy orientation and political considerations.

Combining the business model researches and considering the differences between e-government service and e-business, we derive the components for an e-government service model: Objectives, Value Proposition,

Table 2. Comparison between e-business and e-government service

	e-business	e-government service
Basic Structure	low entry barrier and fierce competition	inherent monopoly
Reason for Existence	cost reduction (efficiency) customer satisfaction revenue and profit	cost reduction (efficiency) citizen satisfaction citizen empowerment
Main Deliverables	tangible and intangible product and services	intangible service
Source of Uncertainty	market, competitors, and disruptive technologies	policy orientation or politics
Evaluation Criteria	quantitative	qualitative
View on information & knowledge	proprietary asset and commercial product	public goods and assets

Table 3. The Five Components of an E-Government Service Model

Components	Description
Objectives	A set of ultimate goals of a governmental organization delivered through its electronic service
Value Proposition	Benefits received to related actors by digitalizing new or existing government services
Service Offering	Operational service flows between actors involved in an e-government service to accomplish its objectives and realize its value proposed
Activity Configuration	Arrangement and positioning of internal and external government activities for the fulfillment of an e-government service
Financial Sustainability	Financial scheme for the implementation, operation and sustenance of an e-government service

Service Offering, Activity Configuration, and Financial Sustainability (Table 3).

Objectives

The unique component of an e-government service model is its 'objectives.' They are the ultimate goals of a governmental organization that are delivered through its electronic service. The most inherent distinction between e-business and e-government service lies in the objectives. Usually, the objective of an e-business is the maximization of profit by the generation of revenue and cost reduction in exchange for the value offered to its customers. Therefore, a business model of an e-business need not specify its objectives. However, an e-government service does not assume profits, so its main objectives need to be specified and shared among the e-government service initiators. Setting the main objectives of e-government service is closely related to the scope of the service and the citizen-government paradigm (Phang 1998). The mapping between the types of e-government service and its main objectives can be summarized as in Table 4.

It is important to recognize that an e-government service usually has multiple objectives. For example, in adopting e-procurement for government, there are policy tensions and the resultant three aims of government initiatives (Coulthard and Castleman 2001): 1) increased efficiency in government business, 2) government as electronic commerce initiator, and 3) modernization of public service. Because of the multiple agendas that characterize government activities at all levels, the adoption of e-procurement cannot be only about achieving efficiencies.

Value Proposition

The value proposition of an e-government service is defined as the benefits that related actors would be received by the digitalization of new or existing government services. Various actors in e-government service can be classified as 1) organizations: governmental agencies, business entities, interest groups, 2) people: government officers, citizens, and politicians, 3) communities: communities of citizens, policy advocates, or experts, and 4) new actors: virtual agencies (e.g. cross-agency web portal operators) and information technology or content providers.

Typical benefits of e-government service include faster service, convenience, affordability, ease of use, and openness (U.K. Cabinet Office 2000b). Even a citizen who has to pay a parking fine can receive benefit, i.e., a reduction in the time it takes to pay the fine, by using a government electronic payment service. An important difference between business and government service is in the scope of the recipients of the value proposed. While the value proposition of a business is defined as the benefits to its 'target' customers, an e-government service pursues universal service to 'general' citizens. Providing universal e-government service to

Table 4. Types and objectives of e-government services

Type of e-government service	Main objective of e-government service
'efficiency' e-government service	Cost efficiency
'service' e-government service	Citizen satisfaction
'democratic' e-government service	Citizen empowerment

every citizen is an important agenda of e-government (U.K. Cabinet Office 2000a; U.S. Department of Commerce 2000). The universality of e-government service affects the technological choice in its implementation. A leading-edge technology may not be adopted unless most of citizens are ready to use it.

Service Offering

The service offering of an e-government service refers to the operational service flows on the Internet between the actors that are involved in the service in order to accomplish the objectives and realize the value proposed. One of the useful and frequently used methods to categorize e-government services is a stage model that distinguishes between published, interactive and transactional services (U.K. Cabinet Office 2000b). Balutis (2001), and Baum and Di Maio (2000) add another stage, 'transform.' Layne and Lee (2001) refine the 'transform' stage into the two stages: 'vertical integration' and 'horizontal integration,' and Moon (2002) categorizes the five stages into administrative functions (one-way communication, two-way communication, transaction, integration) and political functions (political participation).

However, stage models run the risk of misleading readers. In fact, it is not necessary for every agency, department or government to go through each stage step by step. An agile government could skip to 'interaction' or even 'transaction' and bypass the other stages, although it is unlikely that any bureaucracy would jump directly to the 'high' level stage. In addition, an agency or department can run multiple sites in different stages of development.

To avoid misunderstanding we suggest a two-dimensional model composed of the dimensions 'process' and 'integration' as opposed to a one-dimensional stage model. The two dimensions are independent and therefore may proceed in parallel simultaneously. The process dimension has three types: 'publish,' 'interact,' and 'transact' (Table 5). The integration dimension has three types: 'interagency integration' (Landsbergen and Wolken 2001), 'on & off integration,' and 'virtual integration' (Table 6). An e-government service may simultaneously have mixed types of processes and integrations. The process dimension and the integration dimension are related to the 'operational change' dimension and the 'institutional change' dimension in Fountane (2001) respectively, though her emphasis is different from this paper.

Table 5. E-Government Service Process

Types	Typical service instances and examples
Publish	Information diffusion and publication: e.g. policy announcement through digital network
	Personalized information: e.g. tax notice, traffic law violation notice through digital network
Interact	Information gathering and feedback: e.g. Public poll through digital network
	Monitoring: e.g. Policy compliance monitoring using digital network
	Sharing: e.g. Knowledge sharing among officers, citizens, and experts
Transact	Intermediation: e.g. Matching between two parties by e-government service
	Citizen participation and collaboration: e.g. Virtual collaboration between citizen and government
	Workflow processing: e.g. petition, patent/passport application through digital network
	Transaction of intangibles: e.g. product and service distribution through digital network
	Transaction of tangibles: e.g. procurement and asset clearing using digital network

Table 6. E-Government Service Integration

Types	Description and Examples
Interagency Integration	Agency-oriented integration: e.g. documents diffusion from high-level agency to low-level one
On & Off Integration	Integration of offline activities into online: e.g. transforming off-line contact into on-line process
Virtual Integration	Recipient-oriented interagency service integration: e.g. one-stop e-government service

Activity Configuration

The activity configuration of an e-government service means the arrangement and positioning of internal and external government activities for the fulfillment of an e-government service, i.e. the production and delivery of the service. The set of the connected activities has been normally called a value chain because value is added to materials or knowledge as they move up the chain (Porter 1985). However, since government agencies are closer to service providers than product manufacturers, the mechanical application of the value chain approach that suits a manufacturing organization is not appropriate to government service sectors. Therefore, an e-government service model needs to be analyzed based on alternative-activity configuration models such as value shop, value network, and a hybrid of the two (Stabell and Fjelstad 1998). Most independent agency services are expected to be well-modeled with the value shop model, and interagency services may be well-analyzed using the value network model.

Financial Sustainability

The financial sustainability of an e-government service refers to the financial plan for its implementation, operation and sustenance. While the financial component of the business model focuses on revenue and profit generation, the financial sustainability of an e-government service model is concerned with the financial flow only for the sustainability of the service. Funding is known as one of the most important impediments to implementing e-government service (University of Maryland 2000) because conventional funding mechanisms, such as the budget appropriation process, move very slowly in comparison to the rapid pace of technology. Consequently, government agencies have resorted to innovative funding approaches to 'work-around' the existing funding process. For instance, to generate revenue the U.K. government has allowed advertisements on e-government sites. The revenue generation cannot be regarded as an objective of an e-government service, but it can be considered as one of the methods for sustaining it, although there are conflicting views on generating revenue from e-government service (Atkinson and Ulevich 2000; U.K. Cabinet Office 2000b).

ANALYSIS OF E-GOVERNMENT SERVICES BASED ON THE MODEL

Based on the developed model of e-government service, in November 2002 we analyze the electronic services of two presidential offices: Korea's Blue House (*www.bluehouse.go.kr*) and the U.S.A.'s White House (*www.whitehouse.gov*). The unique feature of the electronic service of Korea's Blue House is the Internet Shinmoongo. Utilizing the Internet, it promotes an interactive conversation between citizens and the government and provides a forum for gathering opinion. Using the bulletin board system, citizens can file an application to appeal a civic decision or report an instance of corruption directly to the Presidential office. The presidential office is then assumed to either process the application directly or transfer it to other governmental agencies. Citizens can choose whether their application is open to public or visible only to the applicant. In the thirty-three months from Feb. 2000 to Nov. 2002, there were about 158,700 applications.

On the other hand, *www.whitehouse.gov* of the U.S.A. does not provide a public forum. There are no public opinions on the site. The site, however, does allow for an electronic application process for presidential appointments and invitations to the President. In addition, the site gives the e-mail addresses of the President, the Vice President, the First Lady, etc., as well as general Whitehouse contact information.

A comparison of the sites discovered some interesting facts. The Blue House site has a public forum for expressing and sharing citizen's opinions, but it does not provide any official contact information to the presidential office. It appears that bluehouse.go.kr and the real world Blue House are isolated from one another. *Bluehouse.go.kr* looks more open and democratic than *whitehouse.gov*, but the features of the *bluehouse.go.kr* are not well integrated with the main 'off-line' activities of the presidential office. On the other hand, *white - house.gov* does not support online sharing of the public opinions, but does support citizen's 'off-line' interaction with the presidential office. According to our service dimension, *bluehouse.go.kr* is strong on 'interaction' and *whitehouse.gov* is strong on 'on & off integration.' Both e-government services are hybrids of value shop and value network, and both are fully supported by their governments. The results of the comparison are summarized in Table 7.

Table 7. Comparison of BlueHouse.go.kr (B) and WhiteHouse.gov (W)

Components of E-government Service Model		Evaluation
Objectives	Efficiency	Both
	Citizen satisfaction	B > W
	Citizen empowerment	B > W
Value Proposition	Quality service	B > W
	Cost efficiency & affordability	Both
	Reduction of time to receive service	Both
	Convenience improvement	Both
	Reduction of time spent	Both
	Improvement of service environment	Both
Service Offering	Information diffusion and publication	Both
(Publish)	Personalized information	B > W
(Interact)	Information gathering and feedback	B > W
	Monitoring	N.A.
	Sharing	B > W
	Intermediation	B > W
	Citizen participation and collaboration	B > W
(Transact)	Workflow processing	B < W
	Transaction of intangibles:	N.A.
	Transaction of tangibles	N.A.
(Interagency Integration)	Integration between agencies	B > W
(On & Off Integration)	Integration of off and on-line activities	B < W
(Virtual Integration)	Virtual integration of services	N.A.
Activity	Value chain	N.A.
Configuration	Value shop	Both
	Value network	Both
Financial Sustainability	Fully supported by governments	Both

(>: Stronger than, <: Weaker than, Both: applied to both, N.A.: not applied to either)

RELEVANCE OF BUSINESS MODEL TO E-GOVERNMENT SERVICE

Customer-centered public administration is one of the most prominent paradigms to have emerged in recent years (Osborne and Gaebler 1992). According to the customer model, citizens are regarded as "customers" who become the focus in designing government service delivery. The purpose of government is to produce and deliver quality services to its citizens. The effectiveness of a government is therefore determined by its ability to deliver quality service and to measure and monitor citizen satisfaction. The business model approach to e-government service can be classified as being based on the customer paradigm.

Although the customer paradigm is criticized for neglecting citizens and modeling citizen involvement on passive consumers who either like or dislike services and who express their views of the government primarily through complaint or satisfactions surveys (Frederickson 1994), it is considered a powerful tool for breaking the bureaucratic focus of government (Ho 2002). The central feature of the customer model - the notion of exchange - can be broadened to accentuate the importance of administrators' responsiveness to the public and their engagement in various exchanges with customers

can enrich citizenship (Alford 1999).

As an alternative to the customer model, the owner model, views citizens as owners of government who are proactive in managing the government's scope and affairs (Schachter 1995). In the value model (Smith and Huntsman 1997), citizens are not merely owners or consumers. The discussion on which paradigm is more appropriate to e-government service is beyond the scope of this paper. That the business model approach to e-government service belongs to the customer model may justify this approach and, at the same time, may imply its limitation. We expect to see the development of new approaches to e-government service based on the owner model or the new value model.

CONCLUSIONS

The greatest benefit of the business model approach to e-government service lies in the efficient and systematic derivation of the definition of the e-government service model. Four of its five components (value proposition, service offering, activity configuration, and financial sustainability) have been inherited and refined from corresponding business model components. The business model approach to e-government service has the advantage of acquiring the accumulated knowledge of e-business research and practices and clarifying the differing approaches between e-business and e-government service. We believe that the e-government service model defined in this paper can play a role in the systematic efforts on e-government research.

The most distinct feature between the e-business model and the e-government service model is the status and function of the revenue model. The e-government service model is less constrained by the revenue model than e-business. In e-government service, a revenue model exists to prevent the 'tragedy of the commons' and to support the operational costs of the service. Since the financial concern in e-government service is less important than in e-business, a more creative service model can be devised. For example, designers of e-government service models can consider a peer-to-peer networking model (vs. client-server model) or sharing model (vs. give-and-take model) more freely than e-business designers can. E-government service also is not concerned about the channel conflict issue, a crucial dilemma when an incumbent begins an e-business.

In order to provide citizens with the convenience of using e-government services, the necessity of a virtually integrated government service has been emphasized. It is believed that cross agency portals will drive the transformation of the electronic services of each governmental agency because the real benefits to citizens come from citizen-oriented virtual integration, process innovation and agency-oriented e-government services. In order to develop such cross agency portals, the e-government service model should consider conflicting objectives, various value propositions to various actors, mixed types of service processes and their integration, a viable financial sustainability, and complex form of activity configuration. We believe the discussion on the e-government service model in this paper will contribute much more to designing and implementing such a virtually integrated e-government service rather than individual agency services.

NOTES

* This paper is a revised version of a paper (Lee and Hong 2001) presented in the 3rd International Conference on Electronic Commerce held in Vienna, Austria, in 2001.

REFERENCES

Afuah, A., and Tucci, C. 2002. ***Internet Business Models and Strategies***. McGraw-Hill.

Alford, J. 1999. "Defining the customer in the public sector: a social exchange perspective." ***Melbourne Business School Working Paper 14***.

Amit, R. and Zott, C. 2001. "Value creation in e-business." ***Strategic Management Journal*** 22:493-520.

Atkinson, R., and Ulevich, J. 2000. "Digital Government: The Next Step to Reengineering the Federal Government." ***Progressive Policy Institute Policy Report***, March 1.

Balutis, A. 2001. "E-Government 2001, Part I: Understanding the Challenge and Evolving Strategies." ***The Public Manager***, Spring, 33-37.

Baum, C., and Di Maio, A. 2000. "Gartner's Four Phases of E-Government Model." ***Gartner Group Research Note***, November.

Chesbrough, H., and Rosenbloom, R. 2002. "The Role

of the Business Model in Capturing Value from Innovation: Evidence from Xerox Corporation's Technology Spin-off Companies." ***Industrial and Corporate Change*** 11(3), June.

Coulthard, D., and Castleman, T. 2001. "Electronic Procurement in Government: More Complicated than Just Good Business." ***Proceedings of the 9th European Conference on Information Systems***, Bled, Slovenia.

Fountain, J. 2001. "A Virtual Agency for Business." ***Chapter 9 in Building the Virtual State: Information Technology and Institutional Change***, Brookings Institution Press.

Frederickson, H. 1994. "The Seven Principles of Total Quality Politics." ***PA Times*** 17(1): 9.

Ho, A. 2002. "Reinventing Local Governments and the E-Government Initiative." ***Public Administration Review*** 62(4): 434-444.

Landsbergen, D. and Wolken, G. 2001. "Realizing the Promise: Government Information Systems and the Fourth Generation of Information Technology." ***Public Administration Review*** 61(2): 206-218.

Layne, K. and Lee, J. 2001. "Developing fully functional E-government: A four stage model." ***Government Information Quarterly*** 18:122-136.

Lee, K.J. and Hong, J.H. 2001. "Developing an e-Government Service Model: Business Model Approach." ***The 3rd International Conference on Electronic Commerce***, Vienna, Austria, 2001.

Magretta, J. 2002. "Why Business Models Matter." ***Harvard Business Review***, May, 86-92.

Mahadevan, B. 2000. "Business Models for Internet-Based e-Commerce." ***California Management Review*** 42(4): 55-69, Summer.

Moon, M.J. 2002. "The Evolution of E-Government among Municipalities: Rhetoric or Reality?" ***Public Administration Review*** 62(4): 424-433.

Osborne, D. and Gaebler, T. 1992. ***Reinventing Government. How the Entrepreneurial Spirit is Transforming the Public Sector***. Reading, MA: Addison-Wesley.

Phang, S. 1998. "Taxonomy of Electronic Government and the Evaluation of Korea Electronic Government Planning (in Korean)." ***Korean Journal of Public Administration*** 30(2): 41-65.

Porter, M. 1985. ***Competitive Advantage: Creating and Sustaining Superior Performance***. New York, Free Press.

_____. 2001. "Strategy and the Internet." ***Harvard Business Review***, March, 62-78.

Rayport, J., and Jaworski, B. 2001. ***E-Commerce***. McGraw-Hill.

Schachter, H. 1995. "Reinventing Government or Reinventing Ourselves: Two Models for Improving Government Performance." ***Public Administration Review*** 55(6): 530-537.

Smith, G., and Huntsman, C. 1997. "Reframing the Metaphor of the Citizen-Government Relationship: A Value-Centered Perspective." ***Public Administration Review*** 57(4): 309-318.

Stabell, C., and Fjelstad, Ø. 1998. "Configuring Value For Competitive Advantage: On Chains, Shops, And Networks." ***Strategic Management Journal*** 19: 413-437.

Timmers, P. 1998. "Business Models for Electronic Markets." ***Electronic Markets*** 8(2): 3-8.

U.K. Cabinet Office. 2000a. ***E-Government: A Strategic Framework for Public Services in the Information Age***. United Kingdom.

_____. 2000b. ***E.gov: Electronic Government Services for the 21st Century***. United Kingdom.

U.S. Department of Commerce. 2000. ***Leadership for the new millennium: Delivering on the digital progress and prosperity***.

University of Maryland. 2000. ***Alternative Funding Strategies for Electronic Commerce Projects***, Robert H. Smith School of Business.

Kyoung Jun Lee (BS, MS, and Ph.D. in Management Science at KAIST; MS in Public Administration, SNU) is a Visiting Assistant Professor at the Graduate School of Public Administration, Seoul National University. He has published papers on knowledge-based systems, electronic commerce, intelligent agents, and Internet business models in international journals.

Joon-Hyung Hong is a Professor of Law at the Graduate School of Public Administration, Seoul National University (SNU). He received his LL.B. and LL.M. from SNU and a Doktor iuris from University of Gottingen. His research interests include administrative and public law, information law and policy, environmental law and policy, dispute resolution and management, and comparative public law.