

## THE EVALUATION FOR VALUE-ORIENTED PUBLIC E-PROCUREMENT SERVICE

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**ABSTRACT.** The public e-procurement service pursues two values, that is, transparency and efficiency. The public e-procurement has been used as a means of innovation in public procurement. This is why establishing the e-procurement system helps to attain the goal of government innovation (the reinforcement of transparency and efficiency). However many governments would forget to hold their ground that e-procurement system pursues what values are. So, the government has brought in the e-procurement system but the government reform might be elusive during the growth of e-procurement system. While the value of transparency and efficiency is contradiction to each other in the e-procurement services, the e-procurement services are needed to maintain the optimal level of two values. If the e-procurement services are placed emphasis on the transparency, the convenience of e-procurement services may decrease. Conversely, if the e-procurement services are placed emphasis on the efficiency, the importance of any communication with customers (the people) may decrease. Therefore, keeping the balance between transparency and efficiency in e-procurement services is meaningful and come near to true reform in the public procurement. The purpose of this paper is to evaluate the e-procurement services of countries (Korea, USA, EU, and etc.) in terms of the transparency and efficiency. To do that, the evaluation indicator that measured the transparency and efficiency of e-procurement services is developed exploratory and is applied to the e-procurement service evaluation of countries according to the transparency and efficiency.

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## INTRODUCTION

Various values and goals have been pursued by most of the public procurement policy in each country. The e-procurement is a mirror of the public procurement policy. Because e-procurement is a specific set of instruments, technologies and organizational solutions supporting the public procurement processes, it projects the values of public procurement on e-service. The e-procurement has to do with the intentions of innovation in the public procurement.

Generally two values, efficiency and transparency, is oriented by e-procurement system as innovative means. Depending on the goals of public procurement policy, the value of e-procurement varies. For example, the primary value of e-procurement in South Korea is transparency, set great store by responsibility, because it is the aim of public procurement implementations. But just single or two values are not highlighted in the e-procurement. There are many values associated with e-procurement as like effectiveness, competitive, accountability, responsibility, etc. Under the political leader's innovation will and the conditions related to public procurement policy, the main values of e-procurement should be determined. Ultimately, the values pursued by e-procurement converge on two main attribute, economical (efficiency) or political thing (transparency). The fundamental value of e-procurement in any country seems to be determined by one value in spite of fact that another value should be considered.

While transparency and efficiency is contradiction to each other in e-procurement, it is needed to maintain the optimal level of two values. If the e-procurement services are placed the emphasis on transparency only, the convenience provided by e-procurement system may diminish. Conversely, if the e-procurement services are placed the emphasis on the efficiency, the communication with customers(the people) may become weak. Therefore the balance of transparency and efficiency in e-procurement service is meaningful. Depending on current circumstances of each country, only single value is taken priority, and in future, may be, other value would be chosen. Eventually the value pursued by e-procurement will be met a balance point.

By this time, there is hard up for any literatures and researches how well e-procurement has gone forward to the values and how

degree to meet the balance between two values. Therefore an academic approach on the value-oriented e-procurement service model is so important, as the way of e-procurement will be settled and the successive direction of innovation by e-procurement should be predicted.

The purpose of this paper is to evaluate the value-oriented model of e-procurement service. This paper is focused on the balance of two values (efficiency and transparency) in the e-procurement service. The e-procurement in the public sector pursues a political and economic rationality in common with public procurement, and as a desirable thing, the authors expect that the governments in countries will be rationalities fused. At this point, this paper evaluates the e-procurement service of Korea, USA, EU, etc, as a pilot test.

## ESTIMATING THE VALUE OF E-PROCUREMENT

### 2.1 Values pursued by e-procurement

Definitions of e-procurement vary across literature in the field. Simply defined, e-procurement is the process of electronically purchasing the goods and services needed for an organization's operation. It offers a real-time platform for conducting business while providing a significant opportunity to cut costs, increase organizational effectiveness, and improve customer services (Mitchell, 2000; Lee, 2010). The e-procurement can be viewed more broadly as an end-to-end solution that integrates and streamlines many procurement processes, including searching, sourcing, negotiation, ordering, receipt, and post-purchase review, throughout the organization (Vaidya et al., 2006; Lee, 2010).

In public sector, the e-procurement is the use of electronic means for publishing, processing, exchanging and storing all of the information related to institutional purchases in public organizations (Assar & Boughzala, 2008; Lee, 2010). By the World Bank (2003), the definition of e-procurement categorize in three levels, using the term 'Electronic Government Procurement (e-GP)'. The first level definition states that e-GP is the use of information and communication technology (especially the internet) by governments in conducting their procurement relationships with suppliers for the acquisition of goods, works, and consultancy services required by the public sector, while the second level

definition distinguishes between e-tendering and e-purchasing and the third level definition covers the basic steps as part of the e-tendering and e-purchasing process (World Bank, 2003; Vaidya et al., 2004).

As such, values of e-procurement have originated in the innovative goals of public procurement. The reason is that e-procurement system is the tool reforming public procurement process. It has been highlighted that e-procurement has to be evaluated in its complexity, which encompasses numerous goals: to rationalize expenditure, to reduce administrative confusion and costs, to foster operational efficiency, to strengthen organizations' network vision and technological collaboration with business partners, even to completely automate certain procurement activities (Croom, 2000; Gamble, 1999; Greenemeier, 2000; Murray, 2000). These focus of the goal is on the expected benefit, performance, success related to e-procurement implementation. In the long run, the benefit or performance is the outcome of realization of underlying values.

Therefore, the value of e-procurement equate to the impact and the goal of the innovation for public procurement process. When public procurement should create any values, these values used to be mentioned to efficiency, effectiveness, transparency, competitiveness, accountability, responsibility, and so on. There is the conceptive explanation of values as follows:

- Efficiency: it is the ratio of output over input and involves effectiveness broadly. So Efficiency is related to the usage of resources during a process. E-procurement impacts this dimension allowing employees to achieve at least the same results of a traditional paper-based procedure, but using less time (Gardenal, 2010).

- Effectiveness: it is the extent to achieve the goal for public policy. It is important the need to achieve good purchasing prices, while granting the respect of qualitative standards.

- Transparency: it consists in ensuring the highest circulation of information, both inside and outside an organization. Especially e-procurement could improve this dimension, as tender documentation and outcomes of the procedures (winning suppliers, rankings, final offers) are automatically posted online.

- Competitiveness: it is the production and distribution with actors' capacity in economic market. Although it is an analysis dimension that generally seems more suitable to private sector

than public sector, in public procurement, it is related to the fairness in division of public funds and important to promote the mutual achievement of operational excellence.

- Accountability: it exists when rights holders and duty bearers both deliver on their obligations (UNDP 2008). Following UNDPs Guidelines for Capacity Development (CD) in public procurement, CD for accountability can be about engaging with civil society and other actors through independent review mechanisms, disclosure of information and instating participatory monitoring systems (UNDP, 2010). To ensure accountability, transparency mechanisms such as public oversight and monitoring, are important (UNPCDC, 2010).

- Responsibility: it is similar to accountability, but different from accountability as political and ethical sector. In public procurement, it is related to procurement activities based on institutional duty.

As stated above, on some occasions, the conceptual scope between values is overlapped in public procurement. For instance, efficiency includes effectiveness, and is connected with competitiveness. Transparency has to do with accountability, and accountability is legal and institutional responsibility. Generally efficiency is composed of values with economical attributes. On the other hand, transparency is made up to values with political attributes. It is important for the efficiency and transparency oriented e-procurement to implement public procurement process, as same fundamentals in public procurement.

## 2.2 Current Researches

The typical focus on evaluation the value of e-procurement is as in the following: issues related to measuring e-procurement benefits (BuyIT, 2002), the impact of e-procurement (Segev et al., 1998), the performance of e-procurement initiative (Vaidya et al., 2004), and adoption of e-procurement models (Davila et al. 2003)

By Vaidya et al. (2004), performance measures for e-procurement are needed to determine how effective e-procurement policies and practices have been to meet the stated objectives. If e-procurement systems are to achieve their potential to add value, there should be wider discussion and agreement on what the benefits are and how the benefits can be quantified in terms of performance measures. In other words, the performance

for e-procurement is the benefit to add value in e-procurement system.

Trkman & McCormack (2010) said that an estimation of the value of the technology-enabled procurement process is often lacking, and the challenge is how to measure the increase in efficiency (both value and risks) of e-procurement implementations and simultaneous changes in the organization and strategy. Nevertheless, various research and practitioner papers have dealt with how to estimate the benefits of e-procurement implementation focused on efficiency.

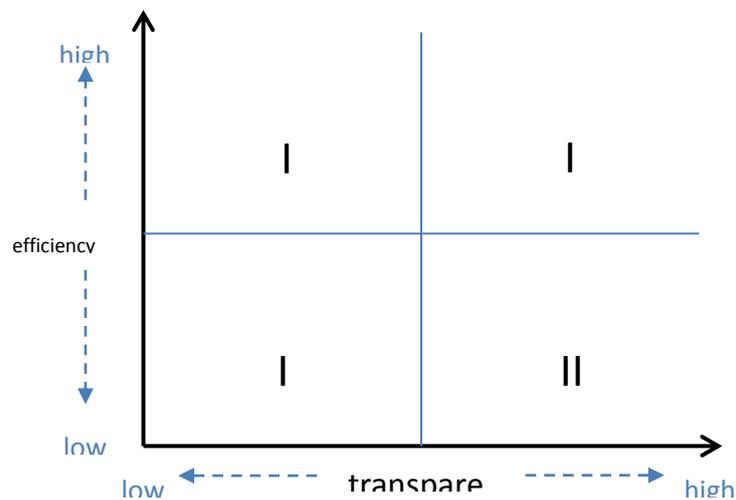
Also, Gardenal (2010) analyzes how e-procurement could impact the purchasing process of public services, and propose a performance model consisted of six main impact dimensions if e-procurement: efficiency, effectiveness, transparency, competitiveness, governance and dematerialization. In Anderson's paper(2005), e-Government in action, information technology produces direct effects on organizational skills, as far as effectiveness and efficiency of the process are concerned, and on the other hand, IT indirectly affects organizational interactions, coordination and cooperation, interaction models, internal control and organizational power.

Finally, current researches about the benefit, performance and impact of e-procurement is on specific values for the innovation in the public procurement process (primarily efficiency, transparency). Although efficiency and transparency have a contradiction relation or zero-sum in public e-procurement, as performance and benefit estimated, we regard them. The reason is that they represent some advantage and risk provided by e-procurement. Thus two conflicting values should coexist in working for e-procurement, and naturally modulate the balance points. Practically, Countries' government adopted to e-procurement don't expect to accomplish just single value, but can attain two values both set up their goal, in different weight of each value. In this context, the coexistence of two values in e-procurement service will be duly weighed and considered.

## THEORETICAL FRAMEWORK

The e-procurement service is provided to conform to any target value occupied preemptive ratio according to the competition of two values (efficiency and transparency). If transparency is preferred to efficiency as a target value in public procurement, e-

procurement service could be expressed not by way of conducting procurement process at once, but be included on the process taking a customer's advice. Therefore the value-oriented model of e-procurement service is to measure how e-service appeared by e-procurement system could reflected a target value set up in public procurement policy. Depending on the occupation between two values, the model has two attributes: efficiency-oriented and transparency-oriented. Again there are four types by the mixture extent of two attributes (See Figure 1).



<FIGURE 1> Four types of value-oriented e-procurement

As you can see in Figure 1, the four types are respectively as in the following:

- Type I: low efficiency + low transparency
- Type II: high efficiency + low transparency
- Type III: low efficiency + high transparency
- Type IV: high efficiency + high transparency

In Figure 1, the most idealistic type is 'Type IV', but most countries may adopt Type II or Type III, as a value for e-

procurement, and are gradually getting better for 'Type IV'. Type I is arisen in the beginning of developing e-procurement systems. By the way, Figure 1 explains deductive reasoning or suppositions for e-procurement value model. Actually it needs empirical-positive approach for what type or attribute are most countries. To do so, we can develop the indicator measuring efficiency and transparency, by priority.

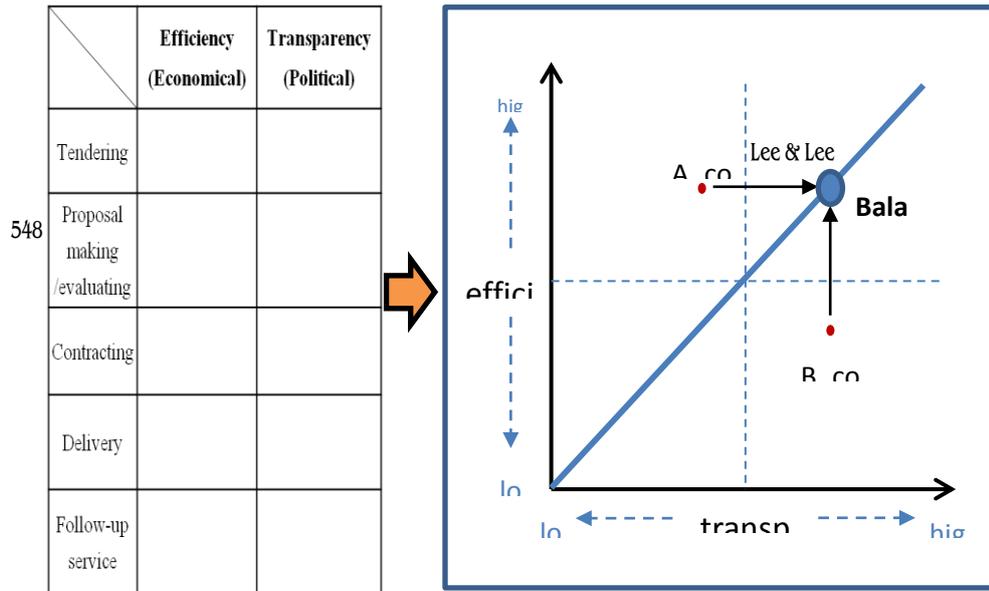
In current researches related to the evaluation of e-service in public procurement, that is, e-procurement service, the measuring items of efficiency and transparency are as follows:

- Efficiency items (cover effectiveness items): Improved management and control of tendering procedures, Increased knowledge of the procurement processes, More time available for activity generating an higher value-added, improved mastery of IT instruments, New interaction, collaboration and sharing opportunities both within and outside the organization, Simplified and expedited the course of the procedures, Reduction of administrative/bureaucratic activities and redundancies, Bides evaluation phase elapsed time save, Cost reduction, user satisfaction, reduction in error and so on (Gardenal, 2010; Vaidya etc, 2004)
- Transparency items (cover accountability items): Improved transparency of the tender procedures, Using technical evaluation, Accessing procurement information, Standardization of bidding procedures, Improving accountability, improvement in supplier relationships, effective communication, blue law for procurement process, monitoring mechanism and so on (Gardenal, 2010; Vaidya etc, 2004; UNPCDC, 2010)

<TABLE 1> Measuring indicator of two values for e-procurement

Attributes Function	Efficiency (Economical)	Transparency (Political)
Tendering	- reduction of bidding time and cost by portal - reduction of request forms and documents by portal - simplification of tender process - economy of scale for tendering	- more online access for tender information (policy and law, tendering in charge) - online publishing standard of tender process - various tendering channels connecting between government contractor and

	participation (improvement of the number of participation, portal)	supplier (e-mail, BBS, web-call center, messenger, PDA/mobile etc.)
Proposal making /evaluating	<ul style="list-style-type: none"> <li>- saving elapsed time in bids evaluation phase (e-submitting, e-evaluating, etc.)</li> <li>- reduction of paper working (paperless)</li> <li>- simplification of proposal evaluation process</li> </ul>	<ul style="list-style-type: none"> <li>- more online access for tendering forms and documents</li> <li>- online publishing standard of proposal evaluation</li> <li>- various information protection applications for sign-up of proposal</li> </ul>
Contracting	<ul style="list-style-type: none"> <li>- discounts on the reserve price</li> <li>- reduction of contracting time and cost</li> <li>- simplification of contracting process</li> </ul>	<ul style="list-style-type: none"> <li>- more online access for successful bidder information</li> <li>- various contracting channels connecting between government contractor and supplier (e-mail, BBS, web-call center, messenger, PDA/mobile, etc.)</li> <li>- various information protection applications for digital sign of contract agreement</li> </ul>
Delivery	<ul style="list-style-type: none"> <li>- reduction of transactions cost through e-catalog and online shopping mall</li> <li>- improvement of customer's satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>- more online access for delivery information (policy and law, delivery in charge)</li> <li>- publishing online notice for delivery process</li> </ul>
Follow-up service	<ul style="list-style-type: none"> <li>- reduction of the number of clam for total procurement process</li> <li>- reduction of human errors for total procurement process</li> </ul>	<ul style="list-style-type: none"> <li>- more online access for contract performance evaluation results</li> <li>- reduction of corruption for procurement activities</li> </ul>



<FIGURE 2> Theoretical Framework

E-procurement service is provided electronically in public procurement process, and thus should be also estimated to concern the function of procurement. Table 1 shows the indicators of each functions and it refers to the items discussed in current researches.

As mentioned earlier, we could use indicators based on Table 1 in order that we know what attribute one country has. This paper is the exploratory study for evaluating the e-procurement value, and we pretest some e-procurement cases of major countries. The evaluation framework is expected to load up what value model of e-procurement is located in the world or historical status. We evaluate the e-procurement system according to the e-procurement process(Tendering, Proposal making/evaluating, Contracting, Delivery, Follow-up Service). And we denote the mature level of e-procurement system in countries.

[The evaluation table per one country]  
[Measure level for countries]

## CASE STUDY

### 4.1 Case descriptions - The story in brief

\* The description on cases of Korea, U.S.A., Australia and New

Zealand are quoted a whole sentence of Lee (2010).

#### Case 1: Korea

The government e-procurement system was developed in 1996, starting from the procurement EDI to the G2B portal website. The procurement EDI project was begun in order to construct a government EDI such as Supply Request, Alternation of Procurement Request, Accounting Business, or Contract Business. The procurement EDI/EC project was expanded to include foreign capital contracts and facility contracts in 2000. In addition, the GoBIMS provided vendors with the issue of electronic signatures and registration services for e-bidding user. Many public organizations use the GoBIMS, but other organizations have constructed similar systems because the use the GoBIMS is non-compulsory. Korea has enforced G2B systems to provide the total services with vendor as single window for public procurement.

The Korean e-procurement system 'Nara Jangter' provided a portal service through which it is possible to login and confirm the individual contract for bidding from the web site. Also, the system searches for commodity information and will be able to contract the commodity selectively in connection with the total shopping mall. Currently, e-procurement systems execute various electronic supply services that are not discontinuance and the wireless bidding services and so on. The Public Procurement Service as a main organization in Korea is accomplishing the supplier subjectively and adopts a central procurement method. The Public Procurement Service developed the e-procurement system in order to attain transparency and effectiveness of public procurement.

#### Case 2: Japan

Japan is adopting a dispersive supply method which each agency procures individually. Therefore, there is not the e-procurement portal website. The individual websites are used by the notice of bids and successful contractor. The prequalification (PQ) system, general procurement information system and e-bid system is operated separately. In case of PQ system, the Ministry of Internal Affairs and Communications (MIAC) entitles buyers to bid in the goods and services in the public procurement and as the Ministry of Land, Infrastructure, Transport and Tourism (MLITT)

does in the construction.

### Case 3: United States

The US General Service Administration (GSA) is the competence agency of government procurement and adopts a central procurement method, much like Korea. The GSA is pursuing a purchasing effectiveness as best value. Purchase effectiveness means to purchasing a commodity and a service rationally according to the market principle in sufficient in supply demand. This means that the GSA is not putting only a price at priority but considering the price and quality.

Many public entities are in the process of enforcing electronic bidding in the USA. In particular, the Ministry of National Defense supply headquarters constructed a DIBBS (DSCC Internet Bid Board System), through which it is possible to exchange proposition papers and bid electronically on the internet. Further, the state governments are enforcing electronic bidding, as in California and Texas.

The GSA is putting out the bidding notification which is regular from 'FedBizOpps' website ([www.fedbizopps.gov](http://www.fedbizopps.gov)). The e-procurement system assists in contracting the commodities and MAS services and evaluates the bidding participation qualification of enterprises from the Central Contractor Registration (CCR) and the Online Representation & Certification Application (ORCA). Also, the e-procurement system has an e-tool called an 'e-offer' which helps submit the proposition paper electronically. The system is constructed variously for procurement officer of federal government agency as 'GSA Advantage!' and e-Buy system.

### Case 4: Australia and New Zealand

Australia and New Zealand are adopting a dispersive supply method which federal government agencies or state governments procure individually. There is not competence agency which is controlled the government procurement. Yet there is an agency that provides guidelines about supply as the Department of Finance and Deregulation in Australia and the Ministry of Economic Development in New Zealand do.

These nations are dispersed the supply relation legal system which is influenced British. Contracting officer is a free rein in

terms of value for money. Australia is providing various supply information and bidding notifications from the AUSTender website ([www.tenders.gov.au](http://www.tenders.gov.au)). New Zealand is doing so from the GETS (Government Electronic Tenders Service) website. For example, the proposition paper enters and submits on-line from web is possible in Canberra, the government which has like this program is restrictive. New South Wales uses the 'NSWbuy' as like Korean e-procurement system.

#### Case 5: European Union – the United Kingdom (UK), France, Germany, Italia and Spain

In 2008, the EU started the Pan European Public Procurement On-line (PEPPOL) project to enable members of the EU to exchange the electronic invoices and business documents in on-line between public and private. Members of the EU have opened the notice of tender over the gross amount through the TED (Tenders Electronic Daily). The EU has operated the SIMAP website and e-CERTIS website. SIMAP is to provide legal information services about public procurement and e-CERTIS is to provide the standard documents on bidding, public procurement documents. Members of the EU are supposed to announce the small amount of the notice of bid in the individual country's websites, because the small amount of tender is not announced in TED.

The e-procurement stories focused on five major countries (the United Kingdom, France, Germany, Italia and Spain) of EU Members are as following:

Firstly, the UK has established the public procurement portal website in 2012 as a single window including the public procurement unit system actually started or in contemplation. As the subsystems, Contract Finder is operated for the notices of bid and final contractor and Government eMarketplace is enrolling various e-catalogs to transact in on-line. Nevertheless, the public procurement in UK adopts a kind of dispersive supply method. So each government agency has own its websites.

Second, in France, there is the e-procurement platform called PMI (Place de marches interministrielle). It is possible to provide the information about public procurement, the notice of bid and tender documents, and to submit the documents in on-line. If anyone who want to check public tenders in all district of France, he or she has to use BOAMP (bulletin officiel des annonces des

marchés publics). The PMI is the e-procurement portal website, but the BOAMP has only e-bulletin. France is adopting a dispersive supply method like UK. Though there are PMI and BOAMP, each agency's websites should be used to look for the substantive public procurement information.

Third, Germany has managed the portal website called as e-Vergabe since 2000. Most of the ordering quantities have been computerized via this website since 2010. Most of the tenders are checked through e-Vergabe. ANA as e-bid help application program provided with e-Vergabe is enabled the buyer to submit RFP, communicate with the government officials, and send or receive e-invoice in on-line.

Fourth, in Italia, Consip is the agency of government procurement. Thus Italia has the central supply method. There is an Acquistinretepa as the e-procurement portal managed by Consip. It is enabled the company to transact online by managing e-catalog.

Finally, Spain has managed CONTRATACION as the e-procurement platform to check the tender of local and central government. Spain is adopting the dispersive supply method as like UK and France. Therefore, the process of detailed public procurement is conducted by the individual agency. But, Spain has operated the SCCE (Sistema de Contratación Centralizada Estatal) website to central procure the commodities and services used frequently in public sector. Giving the e-catalog on commodities and services, the SCCE supports the procurement procedure running electronically.

Table 2 shows that each country has developed the e-procurement capability(e-procurement service functions) based on the process of e-procurement service.

<TABLE 2> The public e-procurement system in ten countries

	Korea	Japan	USA	Australia	New Zealand
e-government development index (UN, 2012)	Ranking 1	Ranking 18	Ranking 5	Ranking 12	Ranking 13

THE EVALUATION FOR VALUE-ORIENTED PUBLIC E-PROCUREMENT SERVICE

F U N C T I O N S	Tendering	<ul style="list-style-type: none"> <li>- notice of bid/contractor qualification: G2B</li> <li>- request for e-bid</li> <li>- mobile//PDA tendering</li> </ul>	<ul style="list-style-type: none"> <li>- notice of bid: CAS e-procurement and each department website</li> <li>- contractor qualification: MIAC and MLITT e-procurement website</li> </ul>	<ul style="list-style-type: none"> <li>- notice of bid: FedBizOpps</li> <li>- contractor qualification: CCR/ORCA</li> <li>- request for e-bid</li> </ul>	<ul style="list-style-type: none"> <li>- notice of bid: AUSTender</li> </ul>	<ul style="list-style-type: none"> <li>- notice of bid: GETS</li> </ul>
	Proposal making /evaluating	<ul style="list-style-type: none"> <li>- proposal forms download</li> <li>- e-submit by G2B</li> </ul>	-	<ul style="list-style-type: none"> <li>- proposal making e-tool: e-offer</li> <li>- proposal evaluation result e-tool: e-buy</li> </ul>	<ul style="list-style-type: none"> <li>- proposal forms download: AUSTender</li> <li>- e-submit by e-mail</li> <li>- each agency's each system</li> </ul>	<ul style="list-style-type: none"> <li>- proposal forms download: GETS</li> <li>- submit by e-mail</li> </ul>
	Contracting	<ul style="list-style-type: none"> <li>- notice for contacting: G2B</li> <li>- e-contracting</li> </ul>	-	<ul style="list-style-type: none"> <li>- notice for contacting: FedBizOpps</li> <li>- e-contracting</li> </ul>	<ul style="list-style-type: none"> <li>- notice for contacting: AUSTender</li> </ul>	<ul style="list-style-type: none"> <li>- notice for contacting: GETS</li> </ul>
	Delivery	<ul style="list-style-type: none"> <li>- shopping mall (e-catalog)</li> <li>- e-payment system</li> <li>- mobile checking</li> </ul>	-	<ul style="list-style-type: none"> <li>- shopping mall: GSA Advantage! (e-catalog)</li> <li>- online ordering/purchasing recording service</li> <li>- e-payment system</li> </ul>	<ul style="list-style-type: none"> <li>- each state, each shopping mall</li> </ul>	-

	Follow-up service	- e-customer center (call center) - information for contract performance evaluation	- each agency, each service	- information for contract performance evaluation	- each agency, each service	- each agency, each service
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		UK	France	Germany	Italia	Spain
e-government readiness index (UN, 2012)		Ranking 3	Ranking 6	Ranking 17	Ranking 32	Ranking 23
F U N C T I O N S	Tendering	- notice of bid: Contract Finder and each state and agency website - contractor qualification: each state and agency website	- notice of bid: PMI, BOAMP, each state and agency website - contractor qualification: PMI, each state website - request for e-bid	- notice of bid: e-vergabe - contractor qualification: e-vergabe (setting up AnA) - request for e-bid	- notice of bid: acquistinretepa - contractor qualification: acquistinretepa - request for e-bid	- notice of bid: CONTRATACION - contractor qualification: ROLECE - request for e-bid
	Proposal making /evaluating	- proposal forms download: Contract Finder and each agency website - submit by e-mail	- proposal forms download: PMI - e-submit by PMI or e-mail	- proposal forms download: e-vergabe (setting up AnA) - e-submit by AnA	- proposal forms download: acquistinretepa - submit by e-mail	- proposal forms download: CONTRATACION and each agency website - submit by e-mail

Contracting	- notice for contacting: Contract Finder and each agency website	- notice for contacting: PMI, each state and agency website	- notice for contacting: e-vergabe (setting up AnA) - e-contracting	- notice for contacting: acquistinretepa - e-contracting	- notice for contacting: CONTRATACION
Delivery	- shopping mall (e-catalog): Government eMarketplace, GPS (only for Framework Agreement) - e-payment system	-	- online ordering : AnA - e-payment system	- e-catalog/online ordering: acquistinretepa - e-payment system	- e-catalog/online ordering: SCCE (only for frequently used goods and services)
Follow-up service	- each agency, each service	- each agency, each service	- each agency, each service	- information for contract performance evaluation - purchasing recording service	- each agency, each service

4.2 Results of Pilot Test

Table 3 shows the features of public e-procurement systems in ten countries. The target of e-procurement evaluation is e-procurement portal and side sites in ten countries and is what type of values-oriented the e-procurement services by the procurement functions. The result of evaluation does not represent the absolute rating of the procurement functions in countries, but represents the relative ranking of ten countries vis-à-vis each countries. Ten countries were graded according to the degree of connection on e-procurement system. In other words, if there is the e-procurement system, the more weaker connected e-procurement system, the lower graded.

Korea reduced costs through the G2B system, 'NaraJangter' over eighty billion dollars (PPS, 2009). Also, Korean G2B system has improved the communication with customer via the various



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\* E = efficiency, T = transparency

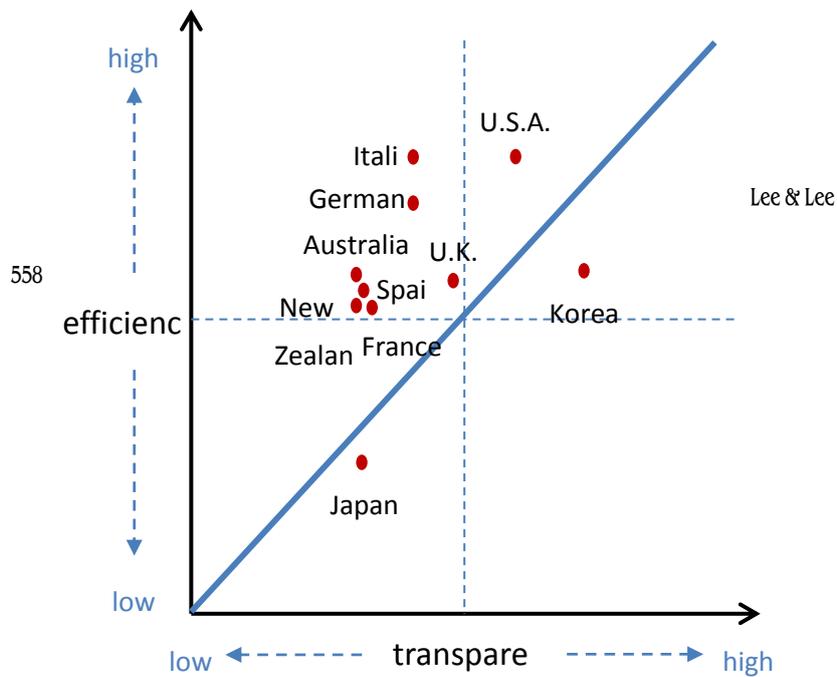
\*\* - = No data, o = Good, ● = Very Good, ● = Excellent

In Japan, there has not e-procurement portal, each agency take the responsibility of each procurement function through the website. Therefore, e-procurement system is judged to be less efficient. Also, because accessing the procurement information is costly and time consuming, e-procurement system is rated low in transparency respect.

In USA, the e-procurement system has various functional subsystems according to the procurement process. An e-tool has been vitalized in order to communicate with the supplier and buyer. The suppliers easily use the e-procurement system conducting the contract. However, the suppliers tend to prefer the face to face interview to the communication with public officials through the various on-line channels. Because contracting is processed to government officials' discretion under the idea of 'Best Value', the advantage of the transaction cost reduction for e-procurement systems might be not detected well by long time of procurement process. In a number of respects, the e-procurement system in USA is considered that the efficiency might be more important than transparency.

The e-procurement systems in Australia and New Zealand have only the functions informing the notice of bid and contractors. So in operating total process and connecting to other functions, there are relatively lower efficiency and transparency than that of Korean and U.S.A. Also Australia and New Zealand have the procurement tradition of 'value for money' and dispersive supply method, as like U.K. The attributes for e-procurement service in Australia and New Zealand tend to be similar to that of U.K.

The members of EU; the United Kingdom (UK), France, Germany, Italia and Spain have been established the e-procurement portal website and started to make further effort to shift the central procurement from dispersive procurement. In case of the members of EU, a little of dispersive procurement institution is still working, the members of EU does not obtain more cost reduction. But the countries of EU are judged to be more efficiency-oriented e-procurement system pursuing the idea of Value for Money.



<FIGURE 3> The result of evaluation for ten countries

We mark the each country on the quadrant according to the level of e-procurement. Most countries showed the high efficiency but low transparency. Japan seems to be lower both the efficiency and transparency. U.S. and South Korea's e-procurement system has been evaluated high transparency and efficiency.

## CONCLUSION

This paper draws the indicators for value (efficiency and transparency) oriented e-procurement system deductively and evaluates ten countries which value is pursued in e-procurement system. There are some differences among countries according to the traits of their procurement institutions and the base value in terms of the capability of each system. The USA, Australia and New Zealand, EU countries make use of information system to fulfill a contract based on purchasing efficiency according to the best value, while Korea uses the system to provide convenient services based on procurement transparency and efficiency. The dissimilar circumstances of procurement among these countries are probably due to the subtle differences mentioned above. Nevertheless, we should still carefully analyze the value of the capability of e-procurement systems.

The e-procurement system of each country is identified as what

value pursues through this study. Whether each country pursues what kind of value in procurement system or not, it is important for each country to realize their presumed value determining the innovation of procurement. However, the evaluation of this study may not be elaborate because of excluding the environmental factors that each country is adopting which of procurement institution (dispersive or central procurement system). In order to examine the e-procurement system elaborately, further study is needed to develop the indicator considered the environmental factors. Developing the indicator enables to evaluate the e-procurement system and strengthen the maturity of e-procurement service such as UN e-government development index.

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