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**Measurement for e-Commerce Readiness  
of the Philippine Government Units**

by  
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## **I. Introduction**

### Philippine Electronic Commerce Act

The Republic Act Number 8792, which is known as Electronic Commerce (e-Commerce) Act (ECA), was enacted into law last June 2000. The ECA “*aims to facilitate domestic and international dealings, transactions, arrangements, agreements, contracts and exchanges and storage of information through the utilization of electronic, optical and similar medium, mode, instrumentality and technology to recognize the authenticity and reliability of electronic documents related to such activities and to promote the universal use of electronic transaction in the government and general public*”<sup>2</sup>.

Section 27 of the ECA<sup>3</sup> states as follows,

*“...within two (2) years from the date of the effectivity of this Act, all departments, bureaus, offices and agencies of the government, as well as all government-owned and controlled corporations, that pursuant to law require or accept the filing of documents, require that documents be created, or retained and/or submitted, issue permits, licenses or certificates of registration or approval, or provide for the method and manner of payment or settlement of fees and other obligations to the government, shall.*

- a. accept the creation, filing or retention of such documents in the form of electronic data messages or electronic documents;*
- b. issue permits, licenses, or approval in the form of electronic data messages or electronic documents;*

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<sup>1</sup> President, Chief Information Officers Forum and Assistant Chief, Management Information Service, Department of Trade and Industry, respectively.

<sup>2</sup> The Electronic Commerce Act, Philippines, June 2000, Section 3.

<sup>3</sup> *ibid.*

- c. require and/or accept payments, and issue receipts acknowledging such payments, through systems using electronic data messages or electronic documents; or*
- d. transact the government business and/or perform governmental functions using electronic data messages or electronic documents... “*

To implement the said law, on July 12, 2000, the Office of the President (OP) issued a memorandum, which instructed all government organizations to submit an Action Plan (AP) for the implementation of the ECA to the Department of Trade and Industry (DTI) within sixty (60) days. In turn, the DTI would submit a regular status report beginning October 15, 2000 to the President through the Executive Secretary.

However, the DTI found it very difficult to monitor the progress of the e-commerce initiatives of the government offices because the submitted APs varied in format and content. As a solution, i.e., to standardize the format, the National Computer Center (NCC) prepared the Guidelines for the Preparation of e-Commerce Plan of Action.

Thus, on October 29, 2001, the OP released another memorandum of similar directives but this time, the APs to be submitted should be in accordance with the incorporated Guidelines, which facilitated the DTI to control the monitoring activities.

Subsequently, to achieve its responsibility, the DTI adopted a methodology formulated by the authors of this study. This scheme served as a guide or tool in assessing the e-commerce readiness of the government offices.

## **II. Objectives**

This study on the design of the measurement for e-commerce readiness of the Philippine government agencies was guided by the following objectives:

1. To determine the extent of ECA implementation in government offices, and
2. To come up with a rating scheme that will serve as a tool that will assess the performance, strengths and weaknesses of the agency action plans for e-commerce implementation.

This will include recommendations that can possibly enhance the implementation of these action plans.

## **III. Methodology**

Definition of Terms:

### **GOVERNMENT TO CLIENT (G2C)**

This is when the government can perform transactions as service provider for the customer (client)

## GOVERNMENT TO BUSINESS (G2B)

This is when the government can perform transactions as service provider for the business community

## GOVERNMENT TO GOVERNMENT (G2G)

This is when the government can perform transactions as an oversight office for the other government organizations

## e-FILING

This is when the government can “accept the creation, filing or retention of documents in the form of electronic data messages or electronic documents” for its clientele (G2C, G2B, and G2G) as contained in Section 27 (Government use of electronic data messages, electronic documents, and electronic signatures) of ECA

## e-ISSUANCE

This is when the government can “issue permits, licenses, or approval in the form of electronic data messages or electronic documents” for its clientele (G2C, G2B, and G2G) as contained in Section 27 (Government use of electronic data messages, electronic documents, and electronic signatures) of ECA

## e-PAYMENT

This is when the government can “require and/or accept payments, and issue receipts acknowledging such payments, through systems using electronic data messages or electronic documents” for its clientele (G2C, G2B, and G2G) as contained in Section 27 (Government use of electronic data messages, electronic documents, and electronic signatures) of ECA

## e-TRANSACTION

This is when the government can “transact the government business and/or perform governmental functions using electronic data messages or electronic documents” for its clientele (G2C, G2B, and G2G) as contained in Section 27 (Government use of electronic data messages, electronic documents, and electronic signatures) of ECA

## e-COMMERCE READINESS

This is when the government can perform any of the G2C, G2B, and G2G transactions electronically. Specifically, these transactions are contained in Section 27 (Government use of electronic data messages, electronic documents, and electronic signatures) of ECA: e-filing, e-issuance, e-payment or e-transaction

## e-COMMERCE ENABLE

This is when the government can already perform a complete/full cycle (from e-filing to e-payment) government transactions (G2C, G2B, and G2G) electronically. Specifically, these transactions are contained in Section 27 (Government use of electronic data messages, electronic documents, and

electronic signatures) of ECA: e-filing, e-issuance, e-payment or e-transaction

### Source of Data

The population covered all the departments, bureaus, offices, and agencies of the government, including the government-owned-and-controlled corporations, as directed under the Section 27 of ECA and issued out with presidential memoranda. They were required to electronically transact any or all of their frontline services such as the acceptance of document, the issuance of document, the payment, or other business transactions. Yet, some of these organizations could not conform to this directive because their main roles were not indicative of the required functions, such roles as publishing, or informative services. To address this so as to capture the true picture of the required electronic transactions in the government units, 60 priority offices were targeted that upheld the criteria stipulated in the law. Among these 60, the Information Technology and Electronic Commerce Council (ITECC)<sup>4</sup> identified 20 core offices with priority mission critical systems that would be the main focus of the monitoring. Whereas, the rest were still monitored based on their initiative to have internet-enabled governmental functions as emphasized in their respective specific roles.

The DTI, in its attempt to cover all the government units, and as part of its monitoring initiatives, included the local government units (LGUs) because it believed that the LGUs would play a crucial role in enabling e-commerce down to the grassroots level. It piloted<sup>5</sup> the Province of Bulacan who cooperated and eventually regularly updated its status on the implementation of e-commerce. The province was selected on the basis of proximity and of popular e-commerce initiatives. The latter afterwards became the initial representative of LGUs.

### Collection of Data

The APs were collected by the DTI in both electronic and paper forms through any means such as e-mail, facsimile, courier service, messenger pick up, or post mail. Eventually, the respondents were requested to regularly submit a status report directly to the DTI so as to update their implementation effort or accomplished activities through any media.

To validate the submission, the DTI conducted an interview through phone or personal visit. The DTI ensured high level of response by consistently following up the submission through letters and phone.

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<sup>4</sup> This was agreed upon during the "ITECC e-Government Implementation Committee Meeting" last February 28, 2002.

<sup>5</sup> During the conference dubbed "*e-LGU: Implementing e-Commerce in Local Government*" held last 04 April 2002 at the Century Park Hotel in Manila, DTI presented the methodology on measuring the e-Commerce readiness as applied to LGUs.

The standard AP comprised of the following four parts, specifically, the organization background, planning and preparing for e-commerce, e-commerce work plan and resource planning. The first part described the specific roles of the organization for e-commerce implementation (either G2C, G2B, or G2G), its delegated responsibilities and accountabilities, and its current established IT infrastructure. The planning and preparing part illustrated the business processes of the organization indicating the identified top two or three applications or processes related to the criteria stated in the ECA and with highest impact to the business or general public. The organization should also show here its plans for human development and policy and procedure formulation. The work plan part would indicate the activities needed, with timeframe and deliverables, to implement the identified e-commerce applications as guided by the major standard activities that were to be present as shown in Table 1 below. The last part should identify the resources needed such as the financial matters, business plan and financing and other strategies.

Table 1. Major activities that should be present in the standard Action Plan of an organization.

ACTIVITIES	TIMEFRAME
1. Setting up of e-commerce think tanks within the various operating units	2 months (dates)
2. Convening EXCOM to deliberate and formally approve e-commerce operations	2 weeks (dates)
3. Setting up of Application Task Force for various e-commerce applications to include orientations	2 weeks (dates)
4. Implementing required activities for each e-commerce applications to be developed such as a. Systems analysis and design b. Program development c. Program testing d. System testing and integration e. Parallel testing	1 year and 9 months (dates)

#### Assessment of Data

The DTI adopted the methodology designed by the authors in the evaluation of the submitted documents and the assessment of e-commerce implementation of each government unit. The result of the assessment would categorize the extent of e-commerce readiness of each organization relative to its initiatives on the implemented activities and established IT infrastructure. Thereupon, the DTI had maintained an unbiased assessment using the measurable standard rating scheme. DTI-MIS regularly submitted the assessment report to the Office of the President every 3 months.

The rating of each government unit was measured based on two components, i.e., the stages of accomplishment and IT infrastructure. A weight in percent was assigned to each component, 80% for the first and 20%, the second, with an overall weighted total of 100%.

The accomplishment part showed how much each of the stages of the major activities for the establishment of each e-commerce system had now been implemented. This was the implementation level of each stage of e-commerce activities that were required to be present in the standard AP, as discussed in the previous section.

Respective weight was assigned to each major activity based on the degree of implementation of the activities and timeframe involved as shown in Table 2 below. It could be observed that the first three (3) stages and the last one acquired the lowest weights because the activities involved in them were not as critical as those in the fourth stage.

Table 2. Basis of weights for Implementation Level.

STAGES OF e-COMMERCE	WEIGHT (in %)	PERCENTAGE LEVEL
1. Setting up of e-commerce think tanks within the various operating units	5	5
2. Convening EXCOM to deliberate and formally approve e-commerce operations	2	7
3. Setting up of Application Task Force for various e-commerce applications to include orientations	3	10
4. Implementing required activities for each e-commerce application to be developed such as the following:		
a. Systems analysis and design	20	30
b. Program development	30	60
c. Program testing	15	75
d. System testing and integration	20	95
5. Implementing the e-commerce application	5	100
Overall Total	100	

Note: The Weight Column was the measurement in percentage of the degree of heaviness and volume involved in performing each activity or stage. On the other hand, the Percentage Level showed the implementation status of the Stages of E-Commerce by getting the cumulative total of weights expressed in percentage.

The score could be derived with the following formula,  $\% \text{ Score} = \sum_i (\text{Percent completion} \div \text{target}) \times \text{weight}$ , where, *target* was always 100% and *percent completion* was 100% if an activity was already completed or successful or operational, while, *n* represents the respective activity or stage.

The IT infrastructure part would pertain on how the physical environment for e-commerce business transactions was established/prepared and how the e-commerce applications would be implemented using the available IT resources. It would determine the extent of online capability, connectivity and network coverage for business transactions of the organization.

Each qualitative nominal criterion was assigned with weight factor as shown in Table 3 below. Organizations with websites could have a grade between 80% to 100% depending on the state of web presence they had, while those without could only gain a highest score of 60% or down to the lowest of no infrastructure (i.e., a zero, 0, point).

Table 3. Basis of weights for IT Infrastructure.

IT INFRASTRUCTURE	WEIGHT/RATE (in %)
1. With Website	100
Static (Emerging)	80
Static (Enhanced)	90
Dynamic (Interactive)	100
2. Without Website	60
Network	20
a. LAN connection	10
b. WAN connection Coverage	
i. Nationwide	20
ii. Not Nationwide	15
Internet Connection	30
MIS/EDP Division	10
Overall Total	100

The presence of website could be categorized as dynamic/interactive with the highest grade of 100% in infrastructure, or static as either emerging with 90% or enhanced, 80%. The websites were evaluated based on the criteria<sup>6</sup> adopted from the measurement on Five Stages of e-Government<sup>7</sup> developed and introduced by the United Nations and the American Society of Public Administration (UN-ASPA). The methodology was used by the NCC and the ITECC to gauge the status of web presence for Philippine government organizations.

There were three factors considered, assigned with weights in percent, for those with no website yet. First, the presence of network, the organization would be given at most 20 points for having nationwide wide area network (WAN) connection or 15, if not yet nationwide, or if the connection was still local (LAN), by 10. Second, the presence of internet connection would gain a high grade of 30%. Lastly, a score of 10% was allocated for the presence of MIS/EDP Division. Absence of a factor meant zero or no point. Points obtained from each factor would be accumulated to get the % score for the IT infrastructure.

The total score of a organization being assessed in determining its e-commerce readiness would consider the points gotten from the above criteria on implementation level and IT infrastructure by applying in the given weights as

<sup>6</sup> Column 1 of Table 4, "Comparison of DTI's and UN-ASPA's Methodology", page 14

<sup>7</sup> "Five Stages of e-Government", [http://www.digitalphilippines.org/files/investorinfo\\_10.pdf](http://www.digitalphilippines.org/files/investorinfo_10.pdf), Digital Philippines

follows: the accomplishment for the implementation level of an organization's application system had an 80% weight or share of the total score while IT Infrastructure, 20%. The overall weighted score in percent would have the total of the two critical factors. As such, below was the formula for computing the total score for e-commerce readiness of an organization:

$$\text{e-Readiness Rating} = (\% \text{ Score for Accomplishment} \times 80\%) + (\% \text{ Score for IT Infrastructure} \times 20\%)$$

In cases wherein the organization might have more than one (i.e., two or three) identified critical application systems, an average of the accomplishment scores would represent the % score for the accomplishment.

#### IV. Conclusion

The DTI rating scheme was reconciled with the parameters developed by the UN-ASPA entitled Five Stages of e-Government, as shown by Table 4 below. The most notable distinction between the two designs was that the UN-ASPA was web-driven and failed to measure the back-end operations. On the other hand, DTI's method was application specific, and, thus was able to capture this aspect in more detailed form. Another significant difference was that the UN-ASPA was a classification scheme while DTI's approach was a monitoring one which measured the exact progress of applications development in terms of percentages.

For example: An agency might already have an operational intranet-based e-Commerce application, say Bureau of Customs (BOC). In our rating, this agency garnered a weighted score of 98 percent. But under the UN-ASPA, BOC was categorized in Stage 2, Enhanced Web Presence. On the other hand, an agency whose application was under development, say DTI, and whose web page contains interactive databases, was classified in Stage 3, Interactive Web Presence. In other words, although our Department's rating was lower at 66 percent, it occupied a higher stage of e-Government relative to BOC based on the UN-ASPA categorization scheme.

Table 4. Comparison of DTI's and UN-ASPA's Methodology.

UN-ASPA's 5 STAGES OF e-GOVERNMENT	DTI's e-READINESS RATING <sup>8</sup>
(BACK-END not considered)	
Stage 1: EMERGING WEB PRESENCE <ul style="list-style-type: none"> <li>• Sites serve as a public information source</li> <li>• Static information on the government is provided</li> <li>• FAQs may be found</li> </ul>	Infrastructure: Static (Emerging) website = 80% of 20%  = 16% Overall Score

<sup>8</sup> The highest score that could be achieved by the organization

UN-ASPA's 5 STAGES OF e-GOVERNMENT	DTI's e-READINESS RATING <sup>8</sup>
<ul style="list-style-type: none"> <li>Contact information is provided</li> </ul>	
<p>Stage 2: ENHANCED WEB PRESENCE</p> <ul style="list-style-type: none"> <li>Access to specific information that is regularly updated</li> <li>A central government homepage may act as a portal to other departmental sites</li> <li>Useful documents may be downloaded or ordered online</li> <li>Search features, e-mail and areas for comments are accessible</li> </ul>	<p>Infrastructure: Static (Enhanced) website = 90% of 20%</p> <p>= 18% Overall Score</p>
<p>Stage 3: INTERACTIVE WEB PRESENCE</p> <ul style="list-style-type: none"> <li>Access to specific information that is regularly updated</li> <li>A central government homepage may act as a portal to other departmental sites</li> <li>Useful documents may be downloaded or ordered online</li> <li>Search features, e-mail and areas for comments are accessible</li> </ul>	<p>Infrastructure: Dynamic website = 100% of 20%</p> <p>= 20% Overall Score</p>
(BACK-END considered)	
<p>Stage 4: TRANSACTIONAL WEB PRESENCE</p> <ul style="list-style-type: none"> <li>Users will be able to conduct complete and secure transactions online</li> <li>The government website will allow users to customize a portal in order to directly access services based on specific needs and priorities</li> <li>Sites will be ultimately secure</li> </ul>	<p>Infrastructure: Dynamic website = 100% of 20%</p> <p>= 20%</p> <p>Implementation/Accomplishment: = 100% of 80%</p> <p>= 80%</p> <p>Overall Score = 100%</p>
<p>Stage 5: FULLY INTEGRATED WEB PRESENCE</p> <ul style="list-style-type: none"> <li>Country provides all services and links through a single central portal</li> <li>No defined demarcation between various agencies and departments</li> <li>All transactional services offered by government will be available online</li> </ul>	