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Ready? Go The National E-Tendering Initiative – A Malaysian experience

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ABSTRACT

Are we ready? A question pondered many global leaders in Government, business and social organizations around the world to consider how best to harness the power of information and communication technology (ICT) for development. Malaysia is no exception. The Government is moving towards electronic tendering or e-tendering for the construction industry at the national level. This report outlines and measures the level of e-readiness of Malaysia, focused on the construction industry from international surveys and reports, self-assessments, case studies and questionnaires. Our world today presents no technological barriers – perhaps the only barriers are the people and process itself – using ICT to suite everyday work and practices.

Keywords: E-Readiness, E-Tendering, I.T. in Construction, Malaysia

1. INTRODUCTION

Information and communication technology or ICT is among the best known jargon today – not only among *techies* or academic community, but among the business and world leaders. Everyone is into ICT. Everyone wants to implement it. Everyone wants to use it. But are we ready to embrace ICT? This paper examines the readiness level. In short, how ready are we?

Readiness is preparation; the state of having been made ready or prepared for use or action (Princeton University, 2006). In this case, electronic readiness or e-readiness forwards the message and indication of

the preparedness of the public and private sectors in providing services and participating in the networked world. E-readiness demands the adoption of important applications of ICTs in offering interconnectivity between Governments, businesses and citizens. However, the definition of e-readiness has caused much confusion, stirred by the great interest shown in e-readiness by the public, multinational corporations, international bodies and nations. One may ask, why must we be ready? How to get ourselves ready?

A general perception – the construction industry is well known as being a traditional and fragmented industry; an information and communication reliant industry. The thought of introducing the industry to ICT generated a lukewarm response, what more trying to implement it. Transforming the construction industry to accept ICT into day-to-day responsibilities is a big *shake-up*. How do we change their mindsets? Here we sample the human issues; how ready is the construction sector workforce ready to receive ICT?

The term electronic tendering or e-tendering brings together the idea of entering and conducting a tender or a tendering process electronically. More fundamentally, it could be defined as the electronic conduct of tender exercises from advertisement through to contract placement, including the exchange of all relevant documentation throughout the tender stage. Electronic processes involve the use of ICT as well as the internet. Construction conservatives will point out – its easier the old way. How do we change an informative and paper environment into an electronic format? Will this change the tendering process?

2. WHAT IS E-READINESS?

There are no single accurate definitions for e-readiness; different groups describe it differently. To answer this continuing debate, a few thoughts are outlined here to help in this discussion. The level of e-readiness relates to individuals, communities, organizations and nations. This is what they say. The World Information Technology and Services Alliance (WITSA) states that an e-ready country requires consumer trust in e-commerce security and privacy; better security technology; more trained workers and lower training costs; less restrictive public policy; new business practices adapted to the information age; and lower costs for e-commerce technology (WITSA, 2004), while the United Nations appraise e-readiness as the public sector e-Government initiatives of member states according to a weighted average composite index of e-readiness based on website assessment; telecommunication infrastructure and human resource endowment (UN, 2005). The community assessment of e-readiness by the Center for International Development, Harvard University describes an e-ready society is one that has the necessary physical infrastructure (high bandwidth, reliability, and affordable prices); integrated current ICTs

throughout businesses (e-commerce, local ICT sector), communities (local content, many organizations online, ICTs used in everyday life, ICTs taught in schools), and the Government (e-Government); strong telecommunications competition; independent regulation with a commitment to universal access; and no limits on trade or foreign investment. On the other hand, the Technology CEO Council (Technology CEO Council, 2005) views an e-ready community is equipped with high-speed access in a competitive market; with constant access and application of ICTs in schools, Government offices, businesses, healthcare facilities and homes; user privacy and online security; and Government policies which are favorable to promoting connectedness and use of the network.

3. WHY BE E-READY?

E-business has the potential to generate huge new wealth and to transform the way business is conducted in unprecedented ways (Amit and Zott, 2001). The use of new technology in procurement seems to promise substantial benefits (Neef, 2001); where e-procurement is the most important development in the B2B e-commerce area and is believed to be replacing business-to-consumer e-commerce as the fastest growing area of the economy. Many leaders in Governments, businesses and social organizations around the globe have considered how best to harness the power of ICT for development. In general, three factors motivate developing countries' decision makers to improve e-readiness and promote the adoption of ICT in their countries. First; ICT promises enormous benefits as part of the solution to economic and social problems. Second; countries face the threat of being left further behind if they do not address the growing digital divides both between and within countries. Third; international leaders, foreign donors and lending agencies are integrating ICT into development and aid programs. The assessment of the readiness level provides a guide development effort by providing benchmarks for comparison and gauging progress. Several e-readiness initiatives have also been launched to help developing countries and numerous e-readiness assessment tools have been created and used by different groups, each looking at various aspects of ICT, society and the economy.

It is also increasingly clear that ICT alone is not enough to solve long-standing imbalances, and can make inequalities worse if it is not applied wisely. The infusion of ICT into a country paints the existing landscape of poverty, discrimination and division onto the new canvas of technology use. Perhaps the single most important reason to be ready is to gain economic superiority – ICT is widely believed to be the trump card in businesses today. The continuing expansion of e-business and e-commerce provides opportunities for improved business processes which are more efficient and responsive, reducing the reliance on paper

transactions, leading to reduced costs and time – e-tendering is one such opportunity. But how do we do it?

4. THE NATIONAL E-TENDERING IMPERATIVE (NeTI)

The National E-Tendering Imperative (NeTI) in Malaysia is a national initiative that integrates and bridges every process and component of the entire construction tendering supply chain onto an electronic or digital medium in the hope that it can then transcend geographical, time, economical and people-based error and inefficiency barriers, making it faster, more efficient and more profitable for all the players in the industry. The NeTI Imperative covers a wide scope. For now, public open tenders' advertisements are available through NeTI NetAds (CIDB E-Construct Services, 2005) and BQ Editor (CIDB E-Construct Services, 2006) e-tendering software application.

There is no doubt that Malaysia has entered the knowledge economy, where the traditional ways of working have been transformed into a more effective mode – reflecting the global movement of developed countries. Nevertheless, in Malaysia in specific, the construction industry continues to be the most complex and fragmented industry. The approach is therefore straightforward, simple and effective, focusing on the capture and analysis of current proven systems. To provide a concise description, the following describes the problems and issues faced, based on parties involved in the current Tendering System:

Issuers of National Construction Tenders
Problems in authenticating Contractors' registration status; Insufficient copies of documents available due to high demand; Problems in Issuing of addendums; Tedious process of manually opening and checking the documents received; Errors associated with manual data entry for scheduling of tenderers; Time consuming to prepare schedule of tender; Lack of information for decision making; Inconsistency of tender evaluation; Uncertainties in validity of information used in tender evaluation.
Contractors
Insufficient copies of tender documents available due to high demand; Incomplete information/document supplied by office issuing the tender; Personally collect the document at the office issuing the tender; Problems of collecting the addendums; High documentation fees; Voluminous tender documents; Arithmetical errors in pricing; Incomplete and errors in submission.

Tender Authorities Administrators
<p>Delays in printing process; High cost of printing; Error and wastage in printing; Tedious due to manual data entry for analysis of tender; Errors associated with manual data entry; Time consuming to enter data; Insufficient information on the tenderers; Accessibility of information for verification process; Issuing addendums; Delay due to corrections and amendments before issuance of documents; Current tender evaluation process requires experienced officers; Administrative problems in advertising tender; Voluminous documents to vet through; Possible leaking of restricted information; Possible mix up of documents.</p>

Table 1 The problems and issues faced by parties involved in the current Malaysian tendering system.

Although ICT is fast becoming an important enabler for today's organizational goals and national competitiveness, its effective implementation is even more challenging, as it is imperative to implement the right ICT solutions for the right processes, to the right degree with right timing. Striking the right balance is a goal which all organizations and countries are striving to achieve. To strike this balance, the industry together with its decision-makers, executives and operational staff need to continuously assess where we are now.

5. WHERE WE STAND

A country or an organization can never be e-ready enough; but one is never completely unready for electronic interventions, either. We just have to start somewhere. How do we know where to start? Here is where e-readiness international surveys and reports, self-assessments and case studies present benchmarks and indications tell us where we stand.

E-readiness international surveys and reports aim to rank and rate countries on various measures held to indicate e-readiness or e-competitiveness. Although some of the reports included here are not fundamentally e-readiness-specific, their inclusion is owing to the fact that they measure important aspects of e-readiness, and contribute to an understanding of the field. While some utilize questionnaire methodology, many rely on statistical indicators garnered from other sources. Among international surveys and reports available include McConnell International's *Risk E-Business: Seizing the Opportunity of Global E-Readiness*; Economist Intelligence Unit (EIU)'s *E-Readiness Rankings*; IDC's *Information Society Index (ISI)*; CIDCM's *Negotiating the Net*; World

Bank's *Knowledge Assessment Methodology (KAM)*; Statistical Indicators Benchmarking the Information Society (SIBIS)'s *Measuring the Information Society in the EU, the EU Accession Countries, Switzerland and the US Booklet 2002/2003*; World Economic Forum's *Networked Readiness Index (NRI)*; AT Kerney's *Measuring Globalization*; Orbicom's *Monitoring the Digital Divide ...and beyond*; United Nation's *Global E-Government Readiness Report*; Waseda University's *2006 World e-Government Ranking*.

Case study reports assess the specific countries' e-readiness; this could be used as bases for e-readiness tools. Some bodies and organizations conduct assessments of a number of countries, utilizing their specific tool and thus, enabling comparison or ranking of countries. The case study e-readiness assessments featured in this discussion are the International Telecommunications Union's Internet Country Case Studies and the ASEAN e-readiness assessments.

There are few *ready-to-use* self-assessment tools freely available on the internet. Three such tools have been identified: Harvard University's Center for International Development (CID)'s *Readiness for the Networked World: A Guide for Developing Countries*, Asian Pacific Economic Cooperation's (APEC)'s *E-Commerce Readiness Assessment*, and the Computer System Policy Project's (CSPP)'s *Readiness Guide for Living in the Networked World*. A more specific assessment application is introduced by the academia – VERDICT – an e-readiness assessment application for construction companies (Ruikar, Anumba & Carrillo, 2006). Still in its infancy, this self-assessment is still in its development stage. These tools produce scores or ratings from which communities or countries are supposed to identify where they fit according to each tool's definition of e-readiness.

6. HOW WE DID IT

The NeTI e-readiness study addresses a range of key issues and implications – the development of the right infrastructure that would, at best, facilitate the seamless integration into the electronic environment; examining e-Government issues; discovering viable alternatives to potential changes in the social structure with the uptake of ICT; exploring value propositions for businesses venturing into e-business with the end-goal of developing local capability for national competitiveness. These issues are explored in greater detail using a strategic three-phase approach.

Phase 1 – environment enablement analysis – focuses on scanning the environment and identifying critical enablers to ICT as well as identifying barriers to the implementation of ICT. Together with our client, we analyze the following four key components of the environment – Infrastructure development; Macroeconomic

policies; Institutional framework; Social and skills development. Within this phase, we assessed the drivers and barriers to ICT and our analysis of ICT adoption in key countries around the world to formulate the appropriate vision for our client.

Phase 2 – National policy analysis – builds on Phase 1 and study three areas of policies – Investment; Industry; Trade. We determined the best direction for our client and articulate suitable Government responses to drive them in this direction.

Phase 3 – ICT implementation strategies – builds on Phase 1 and study three areas of policies – Investment; Industry; Trade. We determined the best direction for our client and articulate suitable Government responses to drive them in this direction. The above development strategies aim at building distinctive competitive advantage in the emerging knowledge-based, global economy. Throughout the development, we took a holistic approach in incorporating considerations of people, processes and technology. We concurrently ensure that the components are aligned to the overall ICT strategy. In the technology arena, we investigated the issues of communications infrastructure, as well as integration and inter-operability. In terms of business processes, we designed a suitable business-Government-consumer interaction framework which enabled the most effective and efficient connectivity between the key stakeholders within the economy. This study employ qualitative methods, reinforced by quantitative techniques, to elicit the views and perceptions of Contractors with regard to potential opportunities, perceived benefits and barriers to the adoption and use of electronic commerce. The study is not intended to make a statistical measurement of e-commerce uptake by Contractors.

The e-readiness assessment did not stop there. NeTI continued to employ multiple lines of evidence – focus groups, web surveys, key informant interviews and desk research – to assess the perceptions of Contractors regarding the real and potential future benefits of electronic commerce, the obstacles and inhibitors to their use and appropriate measures that may be employed to enable more rapid adoption of electronic commerce by the Contractors community.

Focus groups – groups with Contractors is organized in collaboration with Contractors-oriented organizations and/or associations. The group discussions is facilitated by local consultants experienced in planning, recruiting and delivering focus groups, and in analyzing and reporting the results. Contractors are hand-picked for the focus group sessions based on the objective of

achieving a mix of factors, such as firm size, sector, level of e-commerce capability and degree of export orientation.

Key interviews – interviews are conducted with Government officials, industry leaders and other key informants. In general, these interviews were conducted in person, with the telephone used as a substitute when required. In a few cases, interviews were conducted with a small group of people from the same organization, rather than with a particular individual. These interviews provided a contextual understanding through the insights and expert opinions of experienced electronic commerce practitioners throughout the region.

Desk research – desk research is conducted with members to supplement information obtained from the interviews, focus groups and web survey. This desk research included collection of documents and studies related to Contractors and electronic commerce in various APEC economies. Questionnaires are also distributed and the results analyzed.

The analytical framework employed in this study is designed to address the wide differences in the economic structures and levels of development among the Construction Industry Development Board (CIDB) Malaysian members relevant to the adoption, uptake and use of electronic commerce. It also aimed to address the diverse opinions and perspectives of Contractors.

This study also seeks the opinion of Contractors who were early adopters and users of electronic commerce. While these firms may still be a minority among Contractors in Malaysia, they are in the best position to assess the benefits and barriers to e-commerce adoption and the measures that would be most helpful. The study also aimed to examine the unique perspectives of firms at varying levels of e-commerce capability and development.

7. WHAT WE FOUND

We are different. Our statistics show that the concept of e-tendering in Malaysian construction community is still in its infancy. Similarly, the construction industry is also fragmented, traditional and stubborn. Nevertheless, the Malaysian construction community, as a whole, is different – we are ICT savvy. The community is interested in ICT, the community is knowledgeable in ICT, the community is willing to change and accept ICT openly. With the younger generation entering the industry, more changes are expected; the ICT trend will increase, improve and expand further in the Malaysian construction community.

Through 277 application tests and distributed questionnaires, the responses from the participants are encouraging. This is what they say about the e-tendering application – NeTI BQ Editor (CIDB E-Construct Services, 2006). The community believes that e-tendering will reduce tender administration, workload and paperwork, thus, increasing productivity and efficiency in day-to-day responsibilities. Paperwork is reduced. Electronic copies of the tenders are distributed, thus, reducing the reliance on paper, eliminating human error in tender production and seamless tender exchange among project team members, among the advantages. The electronic tender copies also allow a more efficient pricing and costing strategy to be implemented, reducing calculation errors and improved project planning. This will lead to a better project management through automated planning, costing and resources allocation, complete with audit trail.

The participants also state that the central tender repository, through NeTI NetAds (CIDB E-Construct Services, 2005), allows the community to obtain the latest tender invitation, information and qualification. Contractors now could buy tenders from their offices. Past tenders could also be referred through the central tender repository. Tender information is also available more openly, such as the project owners, scope of work, location and maps, among others.

A closed door discussion with Malaysian Construction Industry – the Government and Private sector – key findings from the feedback of the participants reflect the acceptance, usability and stability of the system. The application software is released to the public for testing and usability purposes with the aim of obtaining feedback. Findings were collected from written, verbal and observation methods; questionnaires were also distributed to the participants at the end of every Workshop session. The case sample allows the feedback to be split into four (4) major categories - Government Sector, Private Sector, Management Staff and Clerical Staff. This categorization presents different views of the system, different usage and the different mind-sets of the users. Thus, providing essential data to improve and evolve the current system.

On the whole, the participants enthusiastically agree that e-tendering is here to stay. The applications are user-friendly, simple and precise. Perhaps the most important element is the replication of the tender process; by converting the existing tender processes into simpler and easier workflows. The community wants things to be clear, effortless and transparent.

8. MIND THE GAP

Malaysia ranks among the top-40 countries in the area of national e-readiness – not an encouraging result. Lets remember that every report have different methodologies and not specifically dedicated to the

construction industry. We must build on our strengths and improve on our weaknesses.

The internet penetration and connectivity is poor; the uptake of internet broadband is also poor. Penetration in the urban areas are average, while the uptake in the rural areas are poor; the gap alarmingly wide. There are only two Malaysian broadband internet services providers (ISP) – Malaysia is one of the countries with high demand for ICT household indicators but low demand. Internet users in the nation are recorded at 10 million users in 2005 (Internet World Statistics, 2006).

Electronic business is not widely accepted in Malaysia, mentally, we are not prepared to *let go* the traditional ways. This is also reflected by the low information security, thus, reflecting low confidence in e-business. Electronic services in the country are also below par.

Despite placing much priority, effort and money into various mega ICT projects, the country still has its loopholes. Many countries have used ICTs as a development enabler and Government policies have helped them reach an impressive level of ICT access. This includes major ICT projects such as the Dubai Internet City in the United Arab Emirates, Cyber City in Mauritius and the Malaysian Multimedia Super Corridor (MSC) – being the pulse of the Malaysian ICT industry. Only the Government is pushing towards construction automation systems, thus, resulting to low public awareness and poor response from the private sector.

9. YES! WE ARE READY

The Malaysian construction community is ready. The industry is ready to adopt ICT for e-tendering – the NeTI NetAds and BQ Editor is readily received. This is reinforced by the e-readiness study carried out in three phases; environment enablement analysis; national policy analysis; ICT implementation strategies. The study is further reinforced by multiple lines of evidence from focus groups, key interviews and in-depth desk research.

Among lessons learnt from NeTI are the 8Cs : connectivity, content, community, commerce, capacity, culture, cooperation and capital. There is a need to increase broadband penetration among the public; focus on content, knowledge and intelligence management through two or more languages; cultivate a more IT-savvy culture in the community; encourage further uptake and higher volume of e-commerce transactions; create closer cooperation between the Government, private and citizen relationships for better private sector services to the public; higher ICT capital injection by private sector and guidance from the Government is the recipe to boost ICT development in the country.

Malaysia is among the leaders in e-leadership; the Government is leading in ICT uptake. National mega ICT projects, such as the MSC, are the icon of national leadership to develop the knowledge economy in the country, the construction industry included. The infrastructure is complete,

the Masterplan implemented, now is getting people to use it. This shift of focus is evidence to the development of human capital in the country; from the root of education in schools, to the allocation of education funds to working professionals by the Human Resource Development Fund (HRDF) (Ministry of Human Resource Malaysia, 2006).

To improve further, emphasis must now be focused on continuous technology infrastructure and maintenance. This is the basis of all electronic transactions. Information security must be strengthened; the Government recognized this through the formation of National Security Cyber Centre (MSC, 2006). Consumer and business adoption to e-business must be improved, as well as the legal and policy environment to e-business.

People and process, not technology, are the barriers. Today, we are in the world of borderless and unlimited technology. Unlike in the past few decades, there are now no barriers in the research, development and manufacturing of technology – corporate and personal computing are easily available, internet broadband connects us to anywhere in the world, artificial intelligence software and applications simplifies our day-to-day responsibilities – technology is changing the world; technology is shaping a global village. Focus now must be on the people, ICT users in this case. How can we benefit from ICT? How can we use ICT as a competitive tool? The Malaysian National E-Tendering Imperative (NeTI) presents the ideal case to demonstrate that the Malaysian construction community is ready to brace ICT, with focus on the people and the tender process, whilst technology is not a barrier.

10. THE WAY FORWARD

The way forward is to establish an international assessment, where everyone could use and set the platform for a standard benchmark for assessing readiness; whereby for a country, multinational organisation or a small and medium scale industry. There is also a need to recognise the importance of e-readiness. Ever since the dot com burst, organisations are ever more careful in ICT and Internet investments. The national and organisational readiness could set the milestone in statistic and quantifiable measurements – to answer the question of – are we ready?

Report title	Organization	Year	Top performer	Malaysia's ranking	Total countries assessed
e-ASEAN Readiness Assessment 2001	ASEAN	2001	Singapore	2	10
Measuring Globalization	AT Kerney	2005	Singapore	19	62
The 2005 E-Readiness Ranking	Economist Intelligence Unit	2005	Denmark	35	65
Information Society Index	IDC	2003	Denmark	36	53
Digital Access Index	International Telecommunication Union	2002	Sweden	46	178
Monitoring the Digital Divide ...and Beyond	Orbicom	2003	Sweden	45	139
Global E-Government Readiness Report 2005. From E-Government to E-Inclusion	United Nations	2005	US	43	179
The 2006 World e-Government Ranking	Waseda University	2006	US	14	32

Knowledge Assessment Methodology	World Bank	2002	Sweden	46	128
The Networked Readiness Index Ranking 2004	World Economic Forum	2005	Singapore	27	104

Table 2 E-readiness ranking for Malaysia. (Source : Various)

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