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HOW READY ARE WE FOR E-TENDERING?
A MALAYSIAN CASE STUDY IN THE PREPARATION FOR IMPLEMENTING OF E-TENDERING FOR THE CONSTRUCTION INDUSTRY

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Abstract: This paper examines the validity of the claim through an analysis of an IT-led construction tendering initiative soon to be implemented in Malaysia. The National ETendering Imperative (NETi) 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. Online or e-tendering is a good test subject for validating the IT/Business connection, because it has met with a mix of responses in real-life implementation recently like in the USA, UK, Japan, Singapore, Hong Kong and other countries. Are we ready? A question pondered many global leaders in Government, business and social organizations around the world to considered 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

Much of the literature concerning IT in the construction industry deals with integration, programming and innovation issues without linking them to the construction enterprise itself. New research initiatives are starting to explore new and strategic areas in the construction business. Betts (1992), Brochner (1990), Björnsson and Lundegard (1992) and others are beginning to investigate the strategic potential for IT in the business context for the industry. Various base models were used predominantly from the competitive strategy stable (Porter, Mintzberg, etc), IT strategists (McFarlan, Ives and Learmonth) and IT strategic planners (Earl, etc).
However, these research tended to concentrate on:

1. Established systems within organisations without robust measures of IT success or otherwise.
2. Arbitrary implications about organisational and structural dynamics caused by the IT revolution in the industry.
3. Looking at and adopting models of business strategy and IT technology strategy as stand-alone models.
4. Adapting established models of competitive strategy and organisational theories (e.g. transaction cost) without any significant modifications for construction.
5. Covering potentials rather than more elaborate factors of business and IT success in the construction industry such as implementation, organisational and human factors.
6. "Successful" organisational implementation without also investigating "unsuccessful" IT projects to compare factors and attributes of both.

Nevertheless, implementation is key. And in order to successfully implement IT strategies, readiness factors must be tackled first. What is “readiness” then. One can say that readiness is preparation; the state of having been made ready or prepared for use or action. 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 taught of introducing the industry to the advantages of 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?

2. UNDERSTANDING LEGACY PROBLEMS IN TENDERING FACING THE MALAYSIAN CONSTRUCTION INDUSTRY

The term electronic tendering or e-tendering brings together the idea of entering and conducting a tender or a tendering process electronically. More fundamental, 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?
Preparing tendering documentation and conducting tenders for employers and obtaining, processing and submitting tenders for contractors are costly. For contractors, the costs associated with preparing and submitting a tender will go to waste if their tenders are rejected. Studies conducted by Holt, etc. (1996) and Pasquire and Collins (1996) further showed that contractors would have invested their own resources in preparing and submitting items like brochures, presentation materials, estimating resources, administration and clerical assistance. These can be significant. They would put an extra strain against contractors’ finances, especially on those whom already would have to cut down their profit margins when tendering competitively for a project (Williamson (1981), Alsagoff (1996), Walker and Chau (1999), Bridge (1999)). Sometimes, in order to ensure selection in the face of the risks of abortive tender costs, some contractors may even go as far as conducting themselves in underhanded and sometimes illegal practices (CBM Construction Sdn. Bhd. v. Buildcon And Development Sdn. Bhd.).

For employers, factors other than tendering costs may be important. Apart from the employer’s belief that the lowest prices can be only obtained through a competitive process, there are other aspects that must be considered in selecting a contractor for his project. For some employers, especially those linked with government authorities or large corporations, accountability may be paramount. If tenders are assessed through negotiations only, it is difficult for the employer’s agents or his employees to show that the negotiations have been conducted purely objectively and that the best package has been secured through this process. Transparency becomes more important in situations where the contract has been substituted or novated, or where there are further requirements to show that the employer has discharged an unprejudiced selection of replacement contractors (see circumstances in Government Of The State Of Selangor v. Central Lorry Service & Construction Ltd.)

In addition to these legacies, there have great difficulties to restrict uncompetitive tactics practiced by contractors themselves. For contractors, the submission of a cover price and bid peddling is as much a norm as it is a strategic maneuver. An industry study in Australia conducted by Ray et. al (1999) concluded that a majority of employers considers bid peddling as important to obtain a competitive price from a preferred contractor. In another study in the UK, Pasquire and Collins (1997) found a similar majority showing support for cover pricing practices and concluded that this majority felt that it was necessary to avoid “offending” the employer or prejudice the contractors’ future opportunities.

3. INDUSTRY BACKGROUND: IS THE WORLD READY?

Now is a good time as any for a revival of enhanced levels of transparency, efficiency and collaboration in construction. There is beginning to be a gradual liberation of global trade in this industry brought out by the new developments in the General Agreement on Tariffs and Trade (GATT) and the General Agreement of Trade in Services (GATS) from 1993 onwards. There have also been new developments in easing trade restrictions like a reform in construction procurement by over 20 countries agreeing towards a “Government Procurement Agreement” initiative which came into force in 1996. Nevertheless, the objectives of the tender system in construction even in the global context remains unchanged, that is to devise a most efficient framework to select capable
contractors who can complete the construction project within set parameters of time, money and quality.

There have been some initiatives worldwide for e-Tendering in construction, as illustrated in Table 1. Some has been successful while others have fallen prey to poor implementation results. For Malaysia, it is no different. Whist there have been many private-based initiatives but nevertheless, the implementation of information and communication technologies by businesses in the construction industry has been very slow relative to other industries. Statistics show (MER, 2000) that the construction sector has not improved its capitalisation of such new technologies to bring about more productive outputs. For the moment the capital-to-output ratio had risen from 3.0 in 1988 to 6.5 in 1997, suggesting that the use of capital, including I.T. related spending has been increasingly less efficient. There has been little implementation of I.T. related cutting-edge advances in design and manufacturing systems locally.

Table 1: International Comparison Of Government Electronic Construction Procurement Systems
(Adapted from Liao, et. al 2002)

<table>
<thead>
<tr>
<th>Country</th>
<th>Government electronic procurement system</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>FACNET</td>
<td>• Announcing governmental procurement opportunities</td>
</tr>
<tr>
<td></td>
<td>FACNET applies to open procurement processes if simplified procurement process requirement is met</td>
<td>• Providing related governmental procurement information</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Accepting bidding electronically</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Processing online payment towards contractors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Collecting related governmental procurement information</td>
</tr>
<tr>
<td>Canada</td>
<td>MERX</td>
<td>• With built-in procurement matching system, contractors can be informed immediately with appropriate procurement cases and receiving related information</td>
</tr>
<tr>
<td></td>
<td>MERX applies to open procurement processes and some limited procurement processes</td>
<td>• Accepting bidding electronically</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Providing documents to contractors, confirming orders online and inquiring buyers’ ordering history</td>
</tr>
<tr>
<td>Australia</td>
<td>Transigo</td>
<td>Electronic tendering system: digitalising procurement and bidding submission documents, which can be retrieved and submitted online</td>
</tr>
<tr>
<td></td>
<td>Transigo applies to open and limited procurement processes</td>
<td>Government procurement information system: providing information about government procurement announcement, classification, procurement entity and address, deadline for requesting tender documentation and bidding means requesting tender documentation, contractor requirement, contact deadline, budgets, winning bid price winning contractors and debarred contractors</td>
</tr>
<tr>
<td>R.O.C (Taiwan)</td>
<td>Electronic tendering system</td>
<td>This system applies to open selective and limited procurement</td>
</tr>
</tbody>
</table>

230
Within this changing environment, construction procurement needs to be modernised to face its new challenges. The usual way of choosing, selecting and appointing a contractor through a tendering process, (that is simply the acceptance of an offer of price along some prescribed project conditions) must be streamlined. Also termed as “bidding” or “bid process”, the common process is that contractors will be invited to place their offer after reviewing the details of the project (drawings, specifications, requirements, etc.) and conditions attached (time, security, performance, etc.). The employer will then be in a position to choose between the contractors' bids, in turn accepting the tender offered to him.

4. NeTI AS A GOVERNMENT LED INITIATIVE

Following the needs of the industry, a clear direction, for instance the issue of A GOVERNMENT DIRECTIVE from the government is necessary. For its successful implementation, initiatives shall then take the micro-projects approach as a strategy, to leverage on an implement-via-use and produce a quick benefit return model. This not only ensures support, ownership and relevance, but also produces maximized and immediate returns for the effort.

With these objectives, a taskforce under patronage by the Ministry of Works (MoW or “KKR”) Malaysia conceived an initiative for e-tendering or NeTI (National ETendering Initiative). Taking stock of the industry’s needs and national aspirations and armed with case studies from similar government backed initiatives, the National eTender initiative (NeTI) promises to integrate and greatly improve on the tedious and multi-faceted tendering process into a streamlined, progressive and 'intelligent' one by use of procedural streamlining and technology empowerment. What distinguishes NeTi from her other international counterparts is that it is designed to integrate with the Malaysian eGovernment Flagship as a 2nd tier infrastructure to like up and interface with all other agencies for construction procurement and tenders as well as project management. By doing this, as illustrated in Diagram 2, NeTi synthesizes all aspects of pre, during and post tender processing for government projects as well as private-based projects; providing not only integration but also streamlined processing of all data and payment directly.
New awareness for a closer examination into IT success has prompted work from different perspectives instead of mainstream strategic areas. Technology adoption and utilization in construction for Malaysia is evolving from the infancy stage and poised to enter the ‘growth’ stage in the coming years. According to an IT Masterplan for Malaysia (ISIS, 2002), as the Malaysia government progress to the new phase of ICT deployment, it is focusing more and more on the systematic alignment of people, policies, processes and technology. The technology investment constitute only the small portion of the total investment in the initiative, as more resources and time are needed for the soft elements e.g. policies, skills, culture, governance. Therefore we are left with policy, process, people and technology variables in the hunt for the three main objectives of construction tendering (Diagram 1). IT “solutions” typically focus on the process (Workflow re-engineering) and Technology (security, architecture, etc.) but not the qualitative measures of Policy (laws, regulations, standards, etc) and the People (users, knowledge implementation, trust factor, etc.)

**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 is 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.

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 be 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.
Table 2: E-readiness ranking for Malaysia.

<table>
<thead>
<tr>
<th>Report title</th>
<th>Organization</th>
<th>Year</th>
<th>Top performer</th>
<th>Malaysia's ranking</th>
<th>Total countries assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>e-ASEAN Readiness Assessment 2001</td>
<td>ASEAN</td>
<td>2001</td>
<td>Singapore</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Measuring Globalization</td>
<td>AT Kerney</td>
<td>2005</td>
<td>Singapore</td>
<td>19</td>
<td>62</td>
</tr>
<tr>
<td>The 2005 E-Readiness Ranking</td>
<td>Economist Intelligence Unit</td>
<td>2005</td>
<td>Denmark</td>
<td>35</td>
<td>65</td>
</tr>
<tr>
<td>Information Society Index</td>
<td>IDC</td>
<td>2003</td>
<td>Denmark</td>
<td>36</td>
<td>53</td>
</tr>
<tr>
<td>Digital Access Index</td>
<td>International Telecommunication Union</td>
<td>2002</td>
<td>Sweden</td>
<td>46</td>
<td>178</td>
</tr>
<tr>
<td>Monitoring the Digital Divide ...and Beyond</td>
<td>Orbicom</td>
<td>2003</td>
<td>Sweden</td>
<td>45</td>
<td>139</td>
</tr>
<tr>
<td>The 2006 World e-Government Ranking</td>
<td>Waseda University</td>
<td>2006</td>
<td>US</td>
<td>14</td>
<td>32</td>
</tr>
<tr>
<td>Knowledge Assessment Methodology</td>
<td>World Bank</td>
<td>2002</td>
<td>Sweden</td>
<td>46</td>
<td>128</td>
</tr>
<tr>
<td>The Networked Readiness Index Ranking 2004</td>
<td>World Economic Forum</td>
<td>2005</td>
<td>Singapore</td>
<td>27</td>
<td>104</td>
</tr>
</tbody>
</table>

(Source: Various)

5. CONCLUSION

Our study shows that the Malaysian construction industry is ready to adopt ICT for e-tendering, at least in a simplified form – the NETi NetAds and BQ Editor has been readily received in all focus group tests. 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.

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