PRIORITIZING BIM INITIATIVES IN MALAYSIA CONSTRUCTION INDUSTRY

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OUTLINES

- Background
- Definition
- Where are We in BIM?
- BIM Progress at Global Perspectives
- Development of Malaysia BIM Initiatives
- Benchmarking & Engagement with Local Experts
- Initiatives that is in Progress
• The involvement of a multitude of participants in design environments contribute to:
  – poor design information
  – inaccurate information transfer and
  – wrong deliveries
made the construction industry a highly fragmented business

BACKGROUND OF CONSTRUCTION INDUSTRY

• The integrative use of Building Information Modelling (BIM) for the building lifecycle is seen able to integrate the disjointed practices, and act as the catalyst for changing business process (Aranda-Mena et al. 2009).

BACKGROUND
DEFINITION

BIM can be thought of as a database of the building project. The information in this database spans the full range of data as an integrated data set.

As such, BIM integrates the information created by many industry domains.

Various BIM Definition

- BIM is an integrated various construction process of generating and managing a building by exploring a digital model before the actual project is constructed, during its construction and later facility operation and maintenance (Luthra, 2010).

- BIM is defined as the use of ICT technologies to streamline the building lifecycle processes to provide a safer and more productive environment for its occupants, to assert a list of possible environmental impact from its existence, and to be more operationally efficient for its owner throughout the building lifecycle.
BIM Definition by Malaysia Steering Committee

BIM is modeling technology and associated set of processes to *produce, communicate and analyze* digital information models for construction life-cycle.

Where are we in terms of BIM adoption?
Where BIM Delivers Value Today

- Reduced Conflicts During Construction
- Improved Collective Understanding of Design Intent
- Improved Overall Project Quality
- Reduced Changes During Construction
- Reduced Number of RFIs
- Better Cost Control/Predictability

### BIM Initiatives Around The World

<table>
<thead>
<tr>
<th>Country</th>
<th>BIM Initiative</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>The General Services Administration (GSA) in the U.S.A. is a pioneer in advocating the adoption of BIM for public sector projects. It has also developed a suite of BIM guidelines.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>The BIM Industry Working Group in the U.K. has prepared a BIM strategy to increase BIM use over a five-year period by 2016.</td>
</tr>
<tr>
<td>Norway</td>
<td>The Norwegian government has stated its commitment to succeed in BIM adoption in 2010.</td>
</tr>
<tr>
<td>Denmark</td>
<td>Danish state clients such as the Palaces &amp; Properties Agency, the Danish University Property Agency and the Defence Construction Service require BIM to be used for their projects.</td>
</tr>
<tr>
<td>Finland</td>
<td>Finland's state property services agency, Senate Properties, requires the use of BIM for its projects since 2007.</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>Hong Kong’s Housing Authority has set a target to apply BIM in all new projects by 2014. It has also developed a set of modelling standards and guidelines for effective model creation, management and communication among BIM users.</td>
</tr>
<tr>
<td>South Korea</td>
<td>South Korea’s Public Procurement Service made the use of BIM compulsory for all projects over S$50 million and for all public sector projects by 2016.</td>
</tr>
<tr>
<td>Singapore</td>
<td>The Building and Construction Authority (BCA) implemented the BIM Roadmap in 2010 with the aim that 80% of the construction industry will use BIM by 2015. This is part of the government’s plan to improve the construction industry's productivity by up to 25% over the next decade.</td>
</tr>
<tr>
<td>Australia</td>
<td>The Australian Government set a date of 1 July 2016 from which procurement for all its buildings will require full collaborative BIM based on open standards for information exchange (commonly referred to as Open BIM).</td>
</tr>
</tbody>
</table>
FIRST BIM TERM USED IN MALAYSIA’s CONSTRUCTION INDUSTRY

KUALA LUMPUR: Construction companies should adopt information and communications technology (ICT) to enhance their capability, says Public Works Department director-general Datuk Seri Prof Judin Abdul Karim.

He said the awareness of using ICT was there but the cost of investment prohibited companies from adopting the technology.

"Big companies can afford ICT investment while most of the small companies find its adoption unaffordable," he told a press conference after the opening of the two-day Infrastructure & Construction Asia’s Building Information Modelling & Sustainable Architecture 2009 conference on Wednesday.

Some small companies had already adopted ICT to enhance their operations but could not afford to upgrade due to the higher cost, he added.

"It is not a problem of knowledge and information on the usage of ICT; it is always about the cost," he said.

FIRST BIM PROJECT PUBLISHED

INSTITUT KANSER NEGARA
CADANGAN MEREKABENTUK, MEMBINA, MENYIAPKAN, MELENGKAPKAN, MENGUJITERIMA, MENTAULIAH DAN MENYELENGGARA INSTITUT KANSER NEGARA DI ATAS SEBAHAGIAN LOT PT 25 & 128, PRESINT 7, PUTRAJAYA
DEVELOPMENT OF MALAYSIA BIM INITIATIVES...

4-STEP PROCESS

GLOBAL BENCHMARKING
- United Kingdom
- Australia
- Hong Kong
- Singapore

ENGAGEMENT WITH LOCAL EXPERTS
- Workshops
- Interviews

PRIORITIZING PROCESS
- The long list of initiatives received is being prioritized

SELECTION OF THE INITIATIVES THROUGH FOCUS GROUP
GLOBAL BENCHMARKING & ENGAGEMENT WITH LOCAL EXPERTS...

**Spectrum of Global BIM Initiatives**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>INITIATIVES</th>
<th>Hong Kong</th>
<th>Singapore</th>
<th>Australia</th>
<th>United Kingdom</th>
<th>Malaysia</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Establishment of National BIM Roadmap</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>2</td>
<td>Incentivize BIM implementation</td>
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<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Vendor Support &amp; capacity development of industry players</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Digital Infrastructures Capability</td>
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<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Risk Assessment &amp; Proven benefits</td>
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<td></td>
<td>✓</td>
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<td></td>
</tr>
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<td>6</td>
<td>Standard and common practice</td>
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<td>7</td>
<td>Legal and insurance</td>
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<td>8</td>
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<td>9</td>
<td>Promoting success stories</td>
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<td>11</td>
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<td>12</td>
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<td>14</td>
<td>Information Exchange</td>
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<td>15</td>
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<td>16</td>
<td>Changing Procurements process</td>
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<td>17</td>
<td>Business process Change</td>
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</table>
### Spectrum of Global BIM Initiatives (Cont’d)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>INITIATIVES</th>
<th>Hong Kong</th>
<th>Singapore</th>
<th>Australia</th>
<th>United Kingdom</th>
<th>Malaysia</th>
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<td>20</td>
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<td>21</td>
<td>Forming BIM committee</td>
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<td>✓</td>
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<tr>
<td>22</td>
<td>Registration with international bodies (BuildingSMART International)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>23</td>
<td>Increased exports of AEC/FM professionals through BIM</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>24</td>
<td>Mandate BIM for public sector</td>
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<td>✓</td>
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<td>25</td>
<td>Annual BIM award to recognise advance use of BIM</td>
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<tr>
<td>26</td>
<td>Collaboration of BIM activities among Government agencies and professional bodies</td>
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<tr>
<td>27</td>
<td>Use Government procurements to drive the adoption</td>
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<td>28</td>
<td>BIM reference center</td>
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</tbody>
</table>

### SUMMARY AFTER CONSOLIDATION

<table>
<thead>
<tr>
<th>CODING</th>
<th>INITIATIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.01</td>
<td>Establishment of National BIM Roadmap</td>
</tr>
<tr>
<td>I.02</td>
<td>Incentives for software and training</td>
</tr>
<tr>
<td>I.03</td>
<td>Collaboration of BIM activities among agencies</td>
</tr>
<tr>
<td>I.04</td>
<td>BIM Standard and common practice</td>
</tr>
<tr>
<td>I.05</td>
<td>Legal and insurance related to BIM implementation</td>
</tr>
<tr>
<td>I.06</td>
<td>Awareness, training and education</td>
</tr>
<tr>
<td>I.07</td>
<td>Building capability &amp; capacity of people</td>
</tr>
<tr>
<td>I.08</td>
<td>Mandating BIM for public sector</td>
</tr>
<tr>
<td>I.09</td>
<td>In-house proprietary BIM solution</td>
</tr>
<tr>
<td>I.10</td>
<td>Product Information &amp; BIM libraries</td>
</tr>
<tr>
<td>I.11</td>
<td>BIM Guidelines</td>
</tr>
<tr>
<td>I.12</td>
<td>Digital Infrastructures Capability and vendor support</td>
</tr>
<tr>
<td>I.13</td>
<td>Information Exchange platform for Level 2 BIM</td>
</tr>
<tr>
<td>I.14</td>
<td>Compliance, Accreditation &amp; Certification</td>
</tr>
<tr>
<td>I.15</td>
<td>Changing Procurements processes</td>
</tr>
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<td>I.16</td>
<td>Business process Change</td>
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<tr>
<td>I.18</td>
<td>Special interest groups</td>
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<td>I.19</td>
<td>Research &amp; Development fund</td>
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<tr>
<td>I.20</td>
<td>Forming BIM committee</td>
</tr>
<tr>
<td>I.21</td>
<td>Establish BIM reference center</td>
</tr>
<tr>
<td>I.22</td>
<td>Registration with international bodies (BuildingSMART International)</td>
</tr>
<tr>
<td>I.23</td>
<td>Annual BIM award to recognise advance use of BIM</td>
</tr>
<tr>
<td>I.24</td>
<td>Increased exports of AEC/FM professionals through BIM</td>
</tr>
</tbody>
</table>
Step-3: PRIORITIZING CONCEPT

**Factors**

<table>
<thead>
<tr>
<th>IMPACT (Imp)</th>
<th>Dimension</th>
<th>Drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits (B)</td>
<td>Defined Value (DV)</td>
<td>L/M/H</td>
</tr>
<tr>
<td>Coverage (Cv)</td>
<td>General Industry (GI)</td>
<td>L/M/H</td>
</tr>
<tr>
<td>CV = (B+1)/2</td>
<td>Bumiputra (B)</td>
<td>L/M/H</td>
</tr>
<tr>
<td>CV = (B+1)/2</td>
<td>SME (S)</td>
<td>L/M/H</td>
</tr>
<tr>
<td>CV = (B+1)/2</td>
<td>Professionals (P)</td>
<td>L/M/H</td>
</tr>
</tbody>
</table>

**PRIORITIZED INITIATIVES**

<table>
<thead>
<tr>
<th>PRIORITIZED INITIATIVES</th>
<th>BUMIPUTRA (B)</th>
<th>L/M/H</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL INDUSTRY (GI)</td>
<td>L/M/H</td>
<td></td>
</tr>
<tr>
<td>SMALL AND MEDIUM ENTERPRISES (SME)</td>
<td>L/M/H</td>
<td></td>
</tr>
<tr>
<td>PROFESSIONALS (P)</td>
<td>L/M/H</td>
<td></td>
</tr>
</tbody>
</table>

**EASE OF IMPLEMENTATION (EOI)**

<table>
<thead>
<tr>
<th>PRIORITIZING FACTORS</th>
<th>TIME (T)</th>
<th>L/M/H</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROFESSIONALS (P)</td>
<td></td>
<td>L/M/H</td>
</tr>
<tr>
<td>RESOURCES (Rs)</td>
<td></td>
<td>L/M/H</td>
</tr>
</tbody>
</table>

**Score EOI = 1(Cplx:Rt:Rs)/3**

**Resistance (Rt)**

<table>
<thead>
<tr>
<th>RESOURCES (Rs)</th>
<th>L/M/H</th>
</tr>
</thead>
<tbody>
<tr>
<td>REQUIREMENT (Rq)</td>
<td>L/M/H</td>
</tr>
</tbody>
</table>

**Score EOI = 1(Cplx:Rt:Rs)/3**

**Prioritizing Matrix**

![Graph showing the Prioritizing Matrix with various data points indicating prioritization levels for IMPACT (Imp) and EASE OF IMPLEMENTATION (EOI).](image-url)
### Step 4 (Focus Group): SELECTED INITIATIVES

<table>
<thead>
<tr>
<th>INITIATIVES</th>
<th>ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.01 Establish National BIM Roadmap</td>
<td>TBD</td>
</tr>
<tr>
<td>I.02 Incentives for software and training</td>
<td>TBD</td>
</tr>
<tr>
<td>I.04 BIM Standards &amp; Common practise</td>
<td>TBD</td>
</tr>
<tr>
<td>I.06 Awareness, training and education</td>
<td>TBD</td>
</tr>
<tr>
<td>I.07 Building capability &amp; capacity of people</td>
<td>TBD</td>
</tr>
<tr>
<td>I.08 Mandating BIM for public sector</td>
<td>TBD</td>
</tr>
<tr>
<td>I.10 Product Information &amp; BIM libraries</td>
<td>TBD</td>
</tr>
<tr>
<td>I.11 BIM Guidelines</td>
<td>TBD</td>
</tr>
<tr>
<td>I.14 Compliance, Accreditation &amp; Certification</td>
<td>TBD</td>
</tr>
<tr>
<td>I.19 Research &amp; Development fund</td>
<td>TBD</td>
</tr>
<tr>
<td>I.20 Forming BIM committee</td>
<td>TBD</td>
</tr>
<tr>
<td>I.21 Establish BIM reference center</td>
<td>TBD</td>
</tr>
<tr>
<td>I.22 Registration with international bodies (BuildingSMART International)</td>
<td>TBD</td>
</tr>
</tbody>
</table>

### INITIATIVES THAT ALREADY IN PROGRESS...
STEERING COMMITTEE OF BUILDING INFORMATION MODELLING

Chairman : Dato' Haji Sallehuddin
PROKOM JKR
Secretariat : BPM, CIDB

First Meeting Sit on 24th July 2013

Members : CIDB, EPU, ICU, PAM, BEM, RISM, UKAS, MAPMA, MAFM, UTM, UTM, Sime Darby

BIM ROADMAP
BIM User Guides

Standards & Accreditation

MALAYSIA CHAPTER
THANK YOU

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mhim2u@gmail.com