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GeoSmart Asia 2016

"Roles and Readiness of Land Surveyors Towards The Implementation of BIM in Malaysia"

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Department of Survey and Mapping, Selangor

CONTENTS

- Introduction
- Parties Involved In BIM
- BIM Life Cycle & Surveyor's Role
- Challenges
- Technology in the Market for BIM
- BIM Level of Development (LoD)
- BIM Implementation
- Standard & Accreditation
- Collaboration & Incentives
- Education & Awareness
- Conclusions

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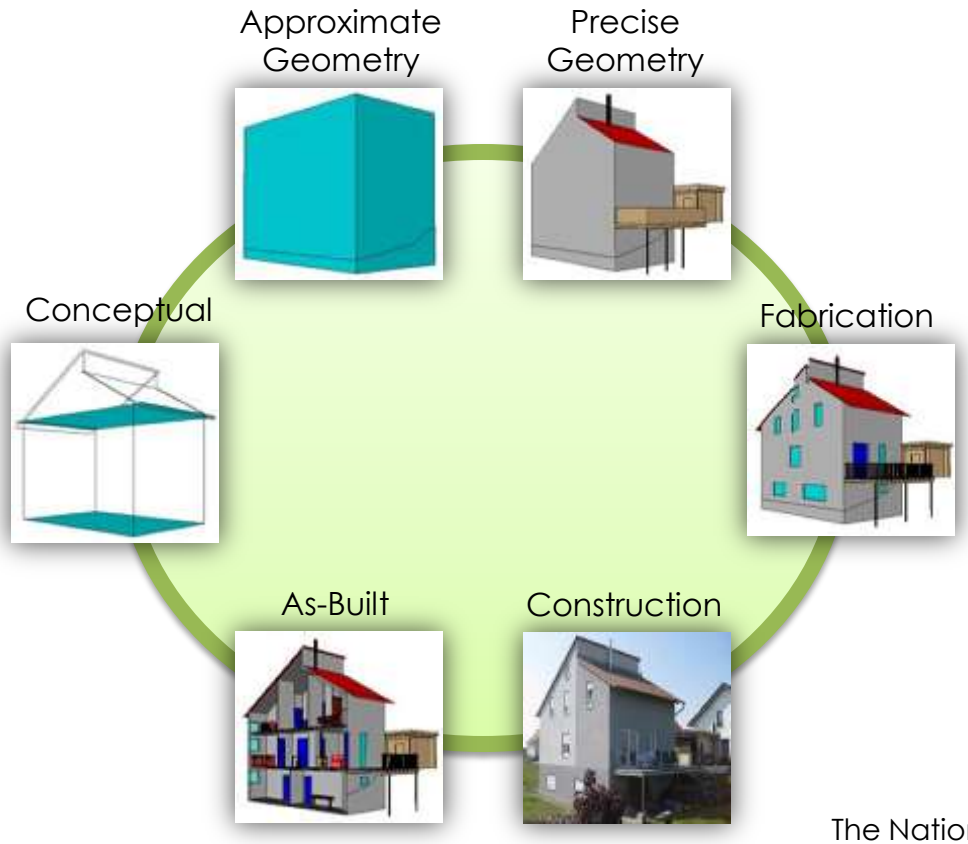
INTRODUCTION: What Is BIM?

BIM Definitions



"Building Information Modeling (BIM) is a digital representation of physical and functional characteristics of a facility. A BIM is a shared knowledge resource for information about a facility forming a reliable basis for decisions during its life-cycle; defined as existing from earliest conception to demolition."

National BIM Standard, United States:
The National Building Information Model Standard Project Committee

BIM Objectives

1. Decision Making

2. Commit Project's Objectives

3. Visualize Design Solutions

4. Coordination of Designs

5. Increase and secure building process.

6. Effective

7. Improve Safety

8. Cost & Life Cycle Analysis

9. Data Management

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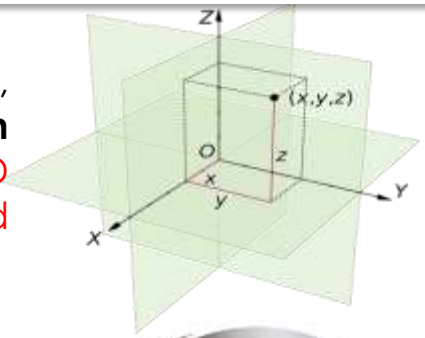
n Dimensional of BIM

3D + 1D + 1D

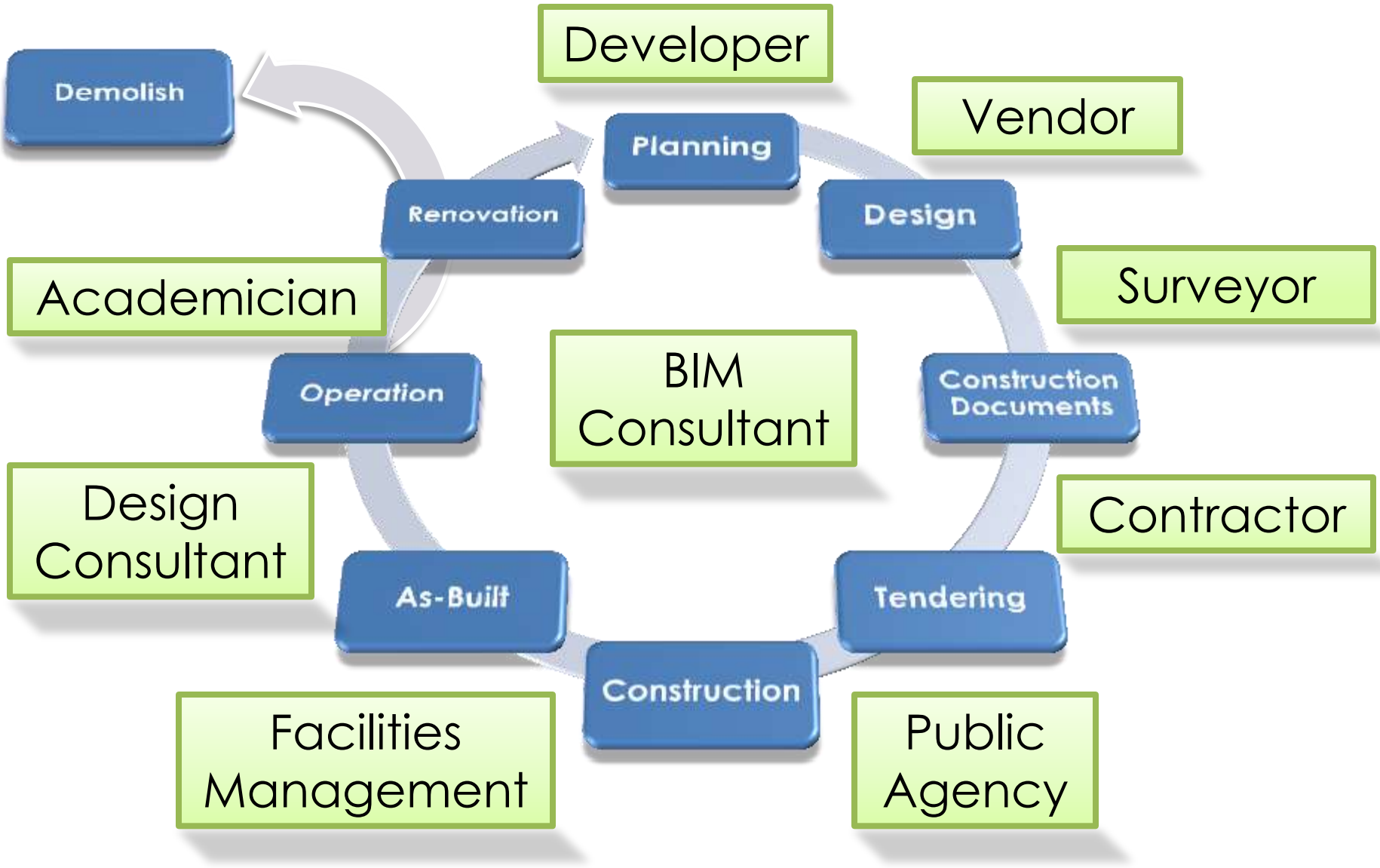
Parametric design models and space programming tools, i.e. use of **spatial dimensions of width, length and depth (X,Y,Z)** to represent an object, which enables 3D visualisations and walkthroughs, clash detection and coordination, and item scheduling.



3D + "**TIME**". Delivery timeline, including scheduling of resources and quantities, and modular prefabrication to assist tracking and project phasing.
In addition to collaboration, 4D simulations function as communication tools to reveal potential bottlenecks.

4D + "**COST**". Integration of design with estimating, scheduling and costing, including generation of Bills of Quantities, and derivation of productivity rates and labour costs.

Parties Involved in BIM



BIM Life Cycle

Demolish

Planning

Renovation

Design

Construction Documents

Operation

As-Built

Construction

Tendering

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BIM Life Cycle: PLANNING

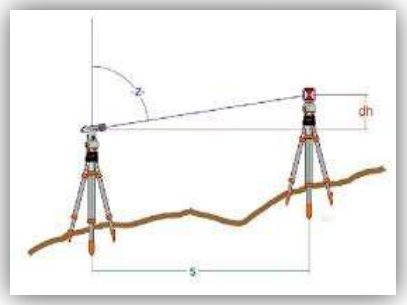
PLANNING

Surveyor's Role:

- Reconnaissance Survey
- Title Survey (amalgamation, subdivision & re-survey)
- Details Topographic Survey
- Engineering Survey
- Heighting / Leveling

Deliverables:

- Preparations of Related Plans



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BIM Life Cycle

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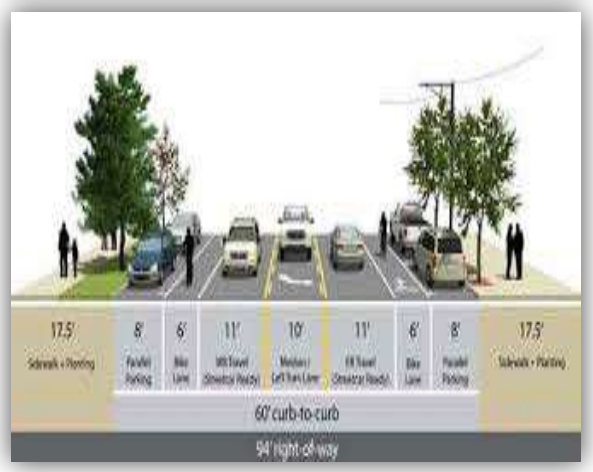
BIM Life Cycle: DESIGN

DESIGN

Surveyor's Role:

- Pre-Computation Plan (Pre-Comp) for Development Orders (DO)
  - ✓ Road Design
  - ✓ Building Layout
  - ✓ Drainage Reserves and Road Reserves
  - ✓ 5% of Green Area
  - ✓ Utilities
  - ✓ Any other requirements from the Planner.
- Slope design for Roads, Drainages and Sewerages.



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BIM Life Cycle

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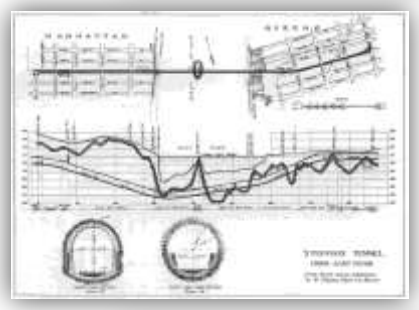
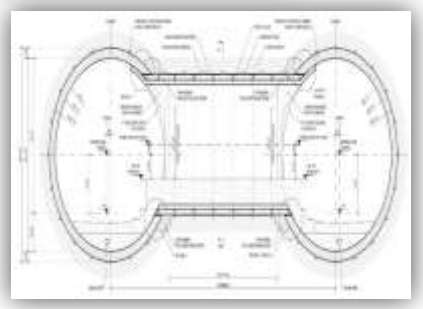
BIM Life Cycle: CONS. DOCUMENTS

CONSTRUCTION DOCUMENTS

Surveyor's Role:

- Consultant to the Developer / Project's Owner
- Consultant to the Contractor / Tender Participants
  - ✓ Assist Tender Participant to prepare Tender Document Proposal





BIM Life Cycle

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BIM Life Cycle: TENDERING

TENDERING

Surveyor's Role:

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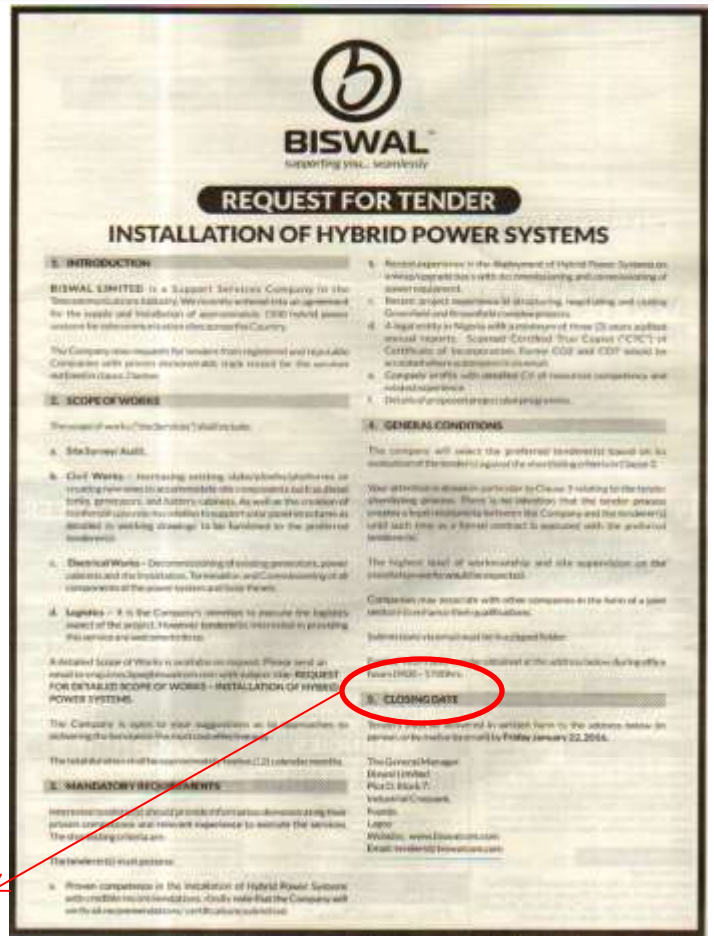
BISWAL

supporting you.. seamlessly

REQUEST FOR TENDER

INSTALLATION OF HYBRID POWER SYSTEMS

1. INTRODUCTION

BISWAL LIMITED is a Support Services Company in the Telecommunications industry. We recently entered into an agreement for the supply and installation of approximately 1500 hybrid power systems for telecommunications sites across the Country.

The Company now requests for tenders from registered and reputable Companies with proven environmentally track record for the services outlined in clause 2 below.

2. SCOPE OF WORKS

The scope of works ("the Services") shall include:

a. Site Survey Audit.

b. Civil Works – Increasing existing slabs/plinths/platforms or creating new ones to accommodate site components such as diesel tanks, generators, and battery cabinets. As well as the creation of reinforced concrete/steel support structures and panel enclosures as detailed in working drawings to be furnished to the preferred tenderer(s).

c. Electrical Works – Decommissioning of existing generators, power cabinets and site installation. Re-location and Commissioning of all components of the power system and solar panels.

d. Logistics – It is the Company's intention to execute the logistics aspect of the project. However tenderer(s) interested in providing this service are welcome to bid.

A detailed Scope of Works is available on request. Please send an email to engr.ceo.fgs@biswal.com.ng with subject title: REQUEST FOR DETAILED SCOPE OF WORKS – INSTALLATION OF HYBRID POWER SYSTEMS.

The Company is open to your suggestions as to approaches to achieving the best value for the most cost effective way.

The total duration of the commissioning activities (12) calendar months.

3. MANDATORY REQUIREMENTS

Interested tenderer(s) should provide information demonstrating their proven competence and relevant experience to execute the services. The shortlisting criteria are:

The tenderer(s) must possess:

a. Proven competence in the installation of Hybrid Power Systems with credible recommendations. Kindly note that the Company will verify all recommendations/certifications submitted.

b. Recent experience in the deployment of Hybrid Power Systems on wireless/upgrade sites with site commissioning and commissioning of power equipment.

c. Recent project experience in structuring, negotiating and costing Greenfield and Brownfield tenders projects.

d. A legal entity in Nigeria with a minimum of three (3) years audited annual reports. Scanned Certified True Copies ("CTC") of Certificate of Incorporation, Former CAC and CAT should be accepted where a change in name occurred.

e. Company profile with detailed CV of resources competence and related experience.

f. Details of proposed project plan and timelines.

4. GENERAL CONDITIONS

The Company will select the preferred tenderer(s) based on its evaluation of the tenderer(s) against the shortlisting criteria in Clause 3.

Your attention is drawn in particular to Clause 7 relating to the tender shortlisting process. There is no intention that the tender process creates a legal relationship between the Company and the tenderer(s) until such time as a formal contract is executed with the preferred tenderer(s).

The highest level of workmanship and site supervision on the installation/works will be expected.

Companies may associate with other companies in the form of a joint venture if they can demonstrate their qualifications.

Submissions via email must be in a zipped folder.

Tenders should be delivered in written form to the address below during office hours (9:00 – 17:00hrs).

5. CLOSING DATE

Tenders must be received in written form to the address below in person, or by email to [illegible] by Friday January 22, 2016.

The General Manager
Biswal Limited
Plot 23, Block 7,
Industrial Crescent,
Ikeja,
Lagos
Website: www.biswal.com.ng
Email: tenders@biswal.com.ng

BIM Compliance

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BIM Life Cycle

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BIM Life Cycle: CONSTRUCTION

CONSTRUCTION

.pla *.asc* *.cad* *.dwf* *.rte*
.rvt *.idw* *.dwg*
.tgo *.lck* *.gdl* *.tab*
.nwd *.gtc* *.fbx*
.pln *.nwf* *.nwc* *.dmg* *.nwc*

Surveyor's Role:

- Transforming **concept** and **design to the ground.**
  - ✓ Setting out using Surveyor's Pre-comp Plan.
  - ✓ Vertical, horizontal and alignment (x,y,z) control survey of the structure.

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BIM Life Cycle: AS-BUILT

AS-BUILT

Surveyor's Role:

Private Surveyor

- As-Built Survey
  - ✓ Certificate of Completion and Compliance (CCC)
  - ✓ Final contract payment
- Proposed Strata Plan (Pelan Cadangan Strata)
  - ✓ Preparing Share Unit (SiFUS)
  - ✓ Preparing Plans and Documents for DO Approval
  - ✓ Preparing Plans and Documents that fulfill BIM's Environments and Standards.
  - ✓ Submit CPSP to JUPEM
  - ✓ Fulfill requirements stated in A1450 & 757 Acts.

Government Surveyor

- Receive and Checks
- Issuing Parcel Units (Jadual Petak)
- Inspectorate / Site Visit
- Approve Strata Plan

BIM Life Cycle: AS-BUILT

AS-BUILT

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Private Surveyor

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BIM Life Cycle

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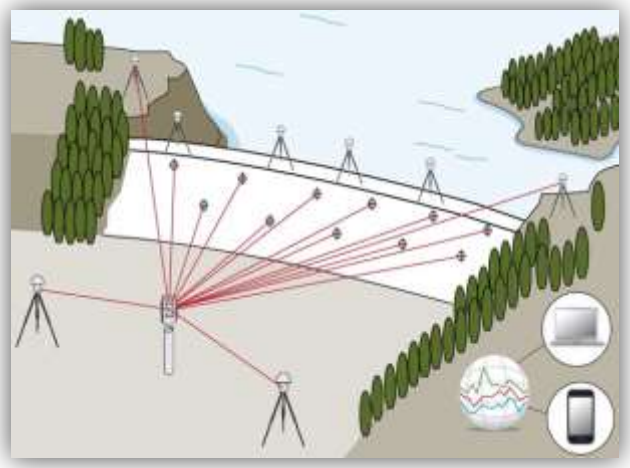
BIM Life Cycle: OPERATION

OPERATION

Surveyor's Role:

- New facilities and upgrade
- Monitoring
  - ✓ Deformation Survey for Infrastructure eg: Maintenance of Dam



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BIM Life Cycle

Demolish

Renovation

Planning

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Construction Documents

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As-Built

Operation

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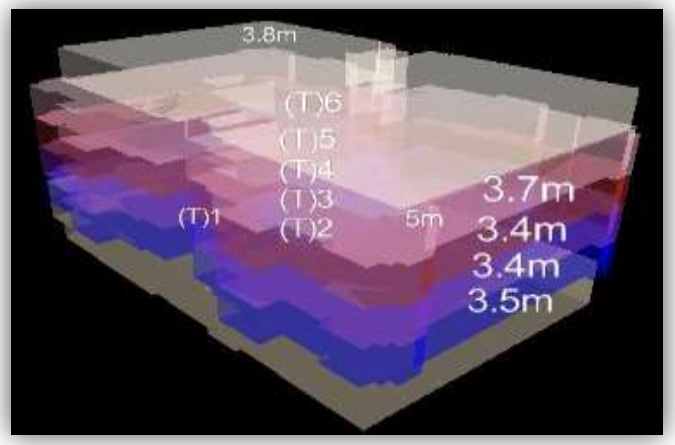
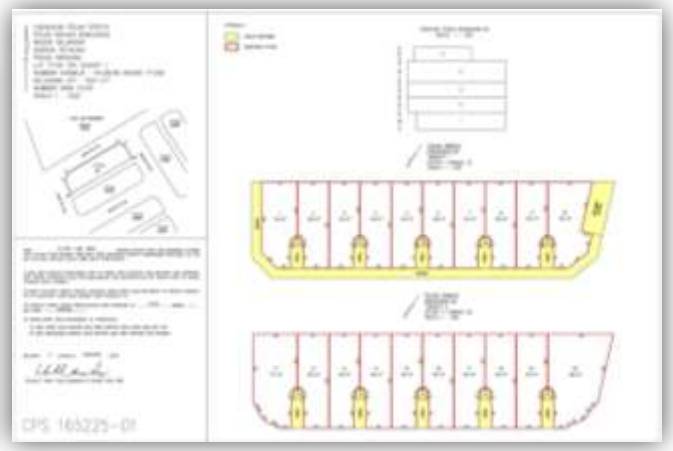
BIM Life Cycle: RENOVATION

RENOVATION

Surveyor's Role:

- New additional facilities and upgrade
- Single to multiple ownership eg: from hotel to individual strata title.
- Old and new data integration in BIM





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CHALLENGES

Surveyor's Role:

- **Surveyor's role not formally recognized in BIM implementation. (referring to CIDB and JKR slides)**

- **Role of surveyors in other countries**
  - ✓ **Institution of Civil Engineering Surveyor UK (insert screen capture program)**
  - ✓ **In Hong Kong BIM Centre of Excellence**
  - ✓ **In Singapore SISV LS Division**

- **Surveyor are not involved in any BIM's Committee**

- **Data Compatibility between various survey method and software in data acquisition.**

…….are you ready??

CHALLENGES

Surveyor's Role:

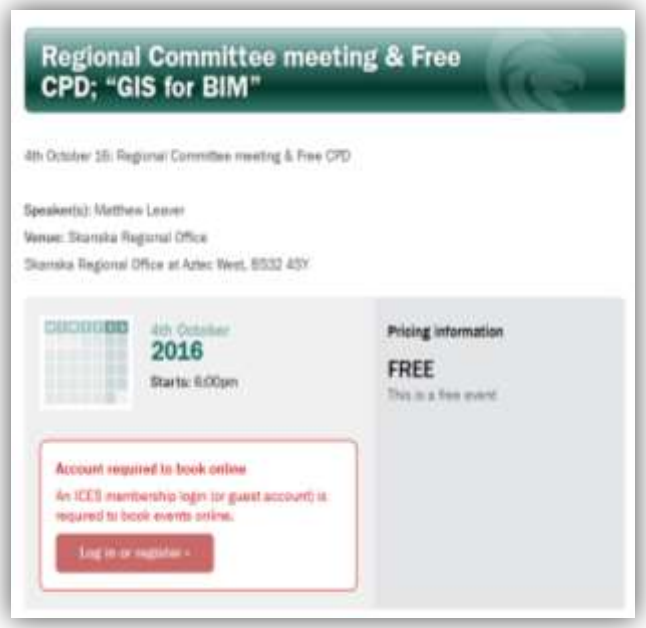
- Surveyor's role not formally recognized in BIM implementation.

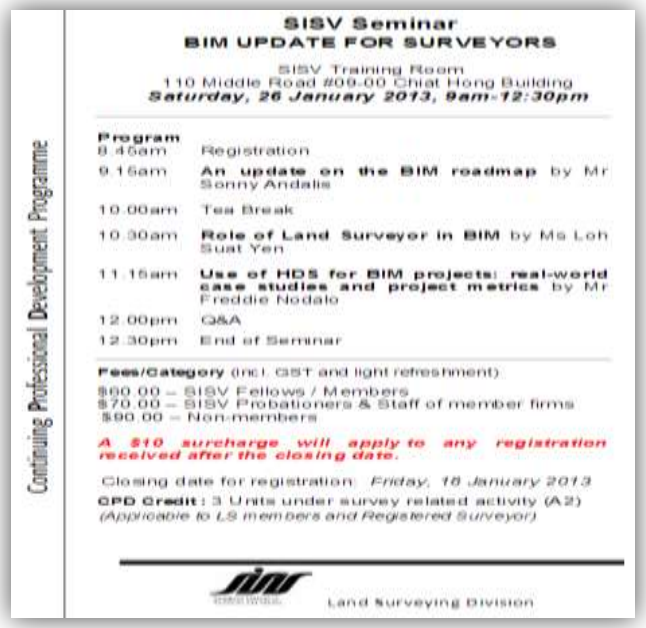
LAND SURVEYOR?

CHALLENGES

Surveyor's Role:

- Role of surveyors in other countries
  - ✓ Institution of Civil Engineering Surveyor UK
  - ✓ In Hong Kong BIM Centre of Excellence
  - ✓ In Singapore SISV LS Division





CHALLENGES : Geo-Enable BIM

Over the next five years, BIM will drive not just transformation of the built environment but the geospatial industry itself.

Its successful implementation is dependent on collaboration across all participants.

SURVEY PROFESSION needs to be at the forefront of geo-enabling BIM.

Technology in the Market for BIM

ARCHITECTURE

Autodesk Revit Architecture
Graphisoft ArchiCAD
Nemetschek Allplan Architecture
Gehry Technologies - Digital Project Designer
Nemetschek Vectorworks Architect
Bentley Architecture
4MSA IDEA Architectural Design (IntelliCAD)
CADSoft Envisioneer
Softtech Spirit
RhinoBIM (BETA)

SUSTAINABILITY

Autodesk Ecotect Analysis
Autodesk Green Building Studio
Graphisoft EcoDesigner
IES Solutions Virtual Environment VE-Pro
Bentley Tas Simulator
Bentley Hevacomp
DesignBuilder

CONSTRUCTION (SIMULATION, ESTIMATING AND CONST. ANALYSIS)

Autodesk Navisworks
Solibri Model Checker
Vico Office Suite
Vela Field BIM
Bentley ConstrucSim
Tekla BIMSight
Glue (by Horizontal Systems)
Synchro Professional
Innovaya

FACILITY MANAGMENT

Bentley Facilities
FM:Systems FM:Interact
Vintocon ArchiFM (For ArchiCAD)
Onuma System
EcoDomus

STRUCTURES

Autodesk Revit Structure
Bentley Structural Modeler
Bentley RAM, STAAD and ProSteel
Tekla Structures
CypeCAD
Graytec Advance Design
StructureSoft Metal Wood Framer
Nemetschek Scia
4MSA Strad and Steel
Autodesk Robot Structural Analysis

MEP

Autodesk Revit MEP
Bentley Hevacomp Mechanical Designer
4MSA FineHVAC + FineLIFT + FineELEC + FineSANI
Gehry Technologies - Digital Project MEP Systems Routing
CADMEP (CADduct / CADmech)

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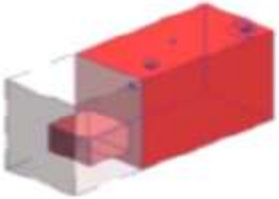
BIM Level of Development (LoD)

LOD 100 Conceptual	LOD 200 Approximate geometry	LOD 300 Precise geometry	LOD 400 Fabrication	LOD 500 As-built
				
CONCEPTUAL	**APPROXIMATE GEOMETRY**	**PRECISE GEOMETRY**	**FABRICATION**	**AS-BUILT**
The model element graphically represented in the model with a Symbol or other Generic Presentation.	The model element graphically represented in the model as a generic system, objects, or assembly with approximate quantities, size, shape, location	The model element graphically represented in the model as a specific system, objects, or assembly accurate in term of quantity, size, shape, location and orientation.	Graphically represented in the model as a specific objects that is accurate with detailing, fabrication, assembly and installation information.	The model element is a field verified representation accurate in terms of size, shape, location, quantity and orientation.

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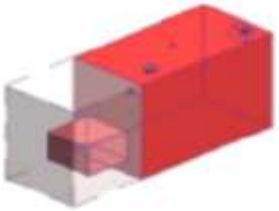
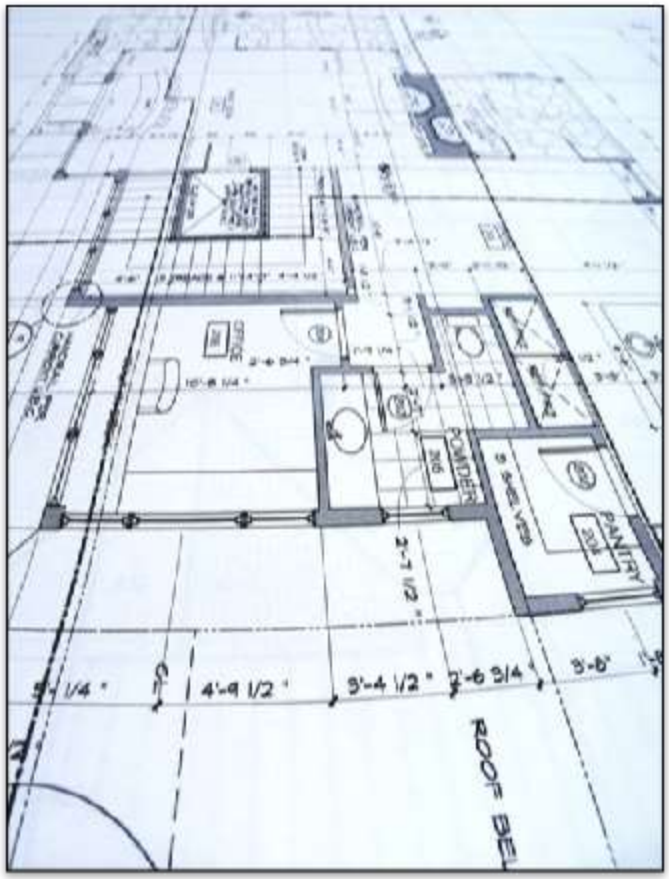
Land Surveyor & BIM LoD

LOD 100 Conceptual	LOD 200 Approximate geometry	LOD 300 Precise geometry	LOD 400 Fabrication	LOD 500 As-built
				
Land Demarcation Plan. - Depicts respective territory or a cadastral excerpt in relation to a land plot which specifies certain pieces of information entered into the State Cadastral Register.	**Topographical Map** - show the main physical features on the ground, such as buildings, fences, roads, rivers, lakes and forests, as well as the elevation between land forms such as valleys and hills (called vertical relief) depicted by contour lines.	**Setting-out.** - Marking out every physical feature that appears on engineering plan, is in correct position on ground.	**Monitoring Survey** -an intermitten (regular or irregular) series of observations in time, carried out to show the extent of compliance with a formulated standard or degree of deviation from an expected norm. Hellawell (1999)	**As-Built Plan** - Verify the building dimension and location according to engineering plan. Strata Plan - Floor plan for each parcel in a high rise building. 3D model

CHALLENGES : Building Scheme Model

"A scheme of development that comes into existence where defined **land is laid out in parcels** and intended to be sold to different purchasers or leased or subleased to different lessees, each of whom enters into a restrictive covenant with the common vendor or less or agreeing that his or her particular parcel is subject to certain restrictions as to use, the restrictive covenants constituting a special local law applicable to the defined land and the benefit and burden of the covenants passing to, as the case may be, the purchaser, lessee or sublessee of the parcel and his or her successors in title"

~British Columbia Land Tittle Act~



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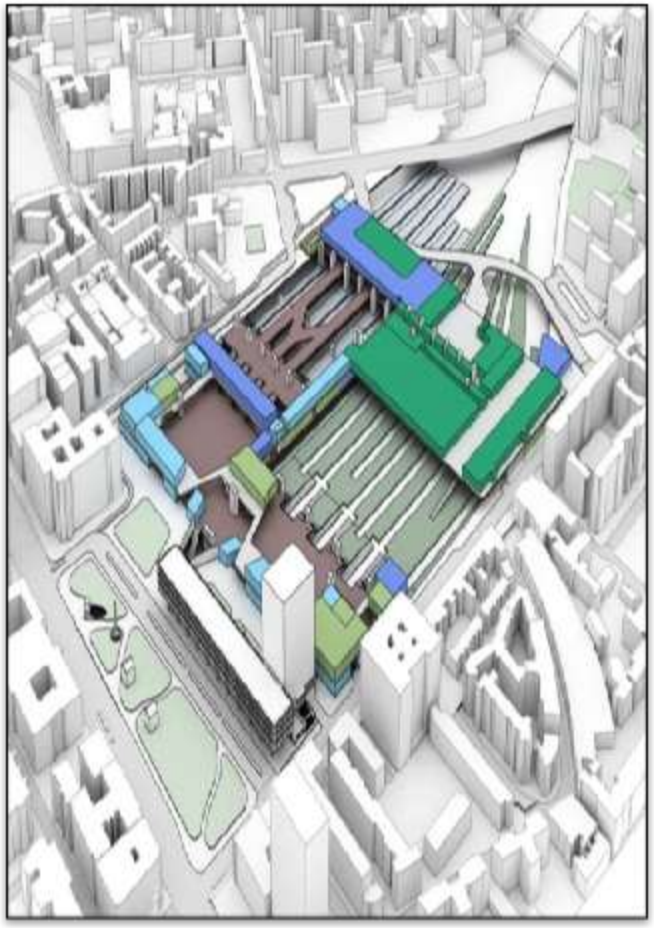
Building Scheme Model

(a)apa-apa bangunan atau bangunan-bangunan yang mempunyai dua tingkat atau lebih dalam kawasan pemajuan dan dicadangkan untuk ***dipecahbahagikan kepada petak-petak; dan apa-apa tanah di atas lot yang sama*** *yang dicadangkan untuk dipecah bahagikan kepada petak - petak yang akan dipegang di bawah hakmilik strata yang berasingan atau yang baginya suatu permohonan untuk pecah bahagi telah dibuat di bawah Akta Hakmilik Strata1985 [Akta 318];*

(b)apa-apa kawasan pemajuan yang mempunyai dua bangunan atau lebih yang ***dicadangkan untuk dipecahbahagikan kepada petak tanah*** *sebagaimana yang ditakrifkan dalam Akta Hakmilik Strata 1985.*



~AKTA 663 - AKTA BANGUNAN DAN HARTA BERSAMA (PENYENGGARAAN DAN PENGURUSAN) 2007

Mengandungi Pindaan Terkini - Sel. P.U.16/2011- Pindaan Jadual Pertama Perintah 2011~

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BIM Implementation

In Singapore

2010	2012	2013	2014	2015
*GPE Pilot Projects *GPE Engagement	*GPE to stipulate BIM as part of project's requirement	Architecture Submission for all new projects	Engineering Submission for all new projects	80% of Construction Industry will use BIM

*GPE – Government Procurement Entities
Source – Building and Construction Authority, Singapore.

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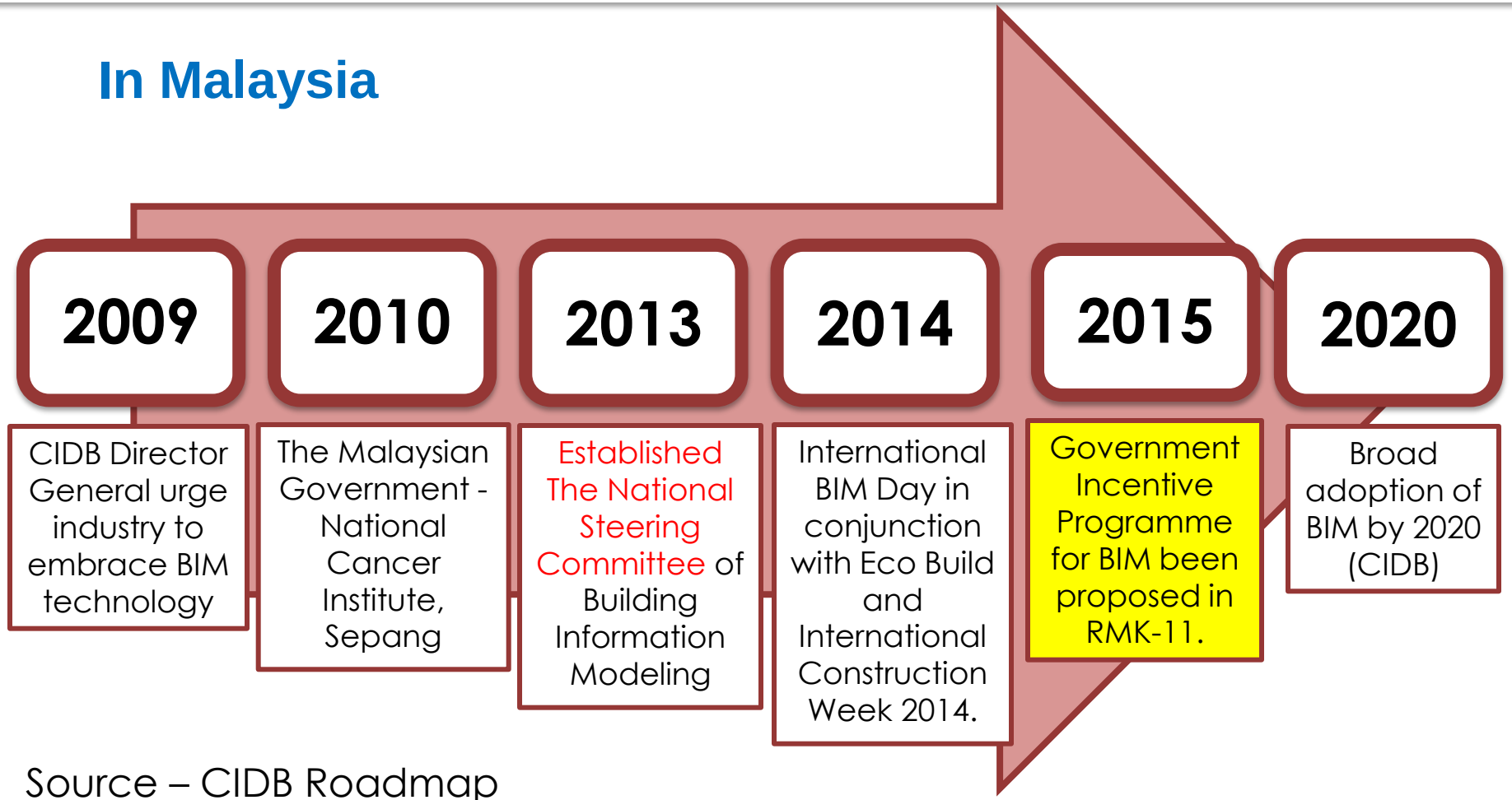
BIM Implementation

In Malaysia



Source – CIDB Roadmap

CHALLENGES: Standard and Accreditation

ACTIVITIES	LEAD AGENCIES
Establishing BIM standard and common practice (standards, technical codes and object oriented classification) for Architect, C&S, M&E, QS, and FM.	CIDB, JKR, BEM, PAM, BOA, BQSM RICS, IFC, Standard Writing organization (SWO) to be named
Guideline and standard template for drawing submission (Architect, C&S, M&E, QS, and FM)	
Build a reference document aiming at providing a unified BIM standard/ methodology/ convention/ required level of details that can easily be easily adopted to suit different projects with reasonable modification	
Malaysia has to register as a member of BuildingSMART (Align Malaysia standard and codes with international)	
Foster international collaboration on developing a global view of standards such as best practices/common practice	

Standard and Accreditation

ACTIVITIES	LEAD AGENCIES
CAD to BIM migration along the construction value chain (Design, construction and FM). To standardize and formulate standard, guideline and procedure to the required level of development (LOD)	CIDB, PAM, BEM, BOA, BQSM, MAPMA, JKR, SURVEYOR??
Promote the adoption of BIM throughout the construction supply chain in Malaysia	
Accreditation for certification of completed BIM project and BIM user (Architect, C&S, M&E QS, and FM) by BIM certification and qualified body (to be appointed).	CIDB, JKR, BEM, PAM, BOA, BQSM, RICS and international recognized body

LAND SURVEYOR?

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CHALLENGES: Standard and Accreditation

ACTIVITIES	LEAD AGENCIES
• Surveyor's providing all related data for: ❖ Pre-Computation Plan (Pre-Comp) for Development Orders (DO) ✓ Road Design ✓ Building Layout ✓ Drainage Reserves and Road Reserves ✓ 5% of Green Area ✓ Utilities ✓ Any other requirements from the Planner. ❖ Slope design for Roads, Drainages and Sewerages.	CIDB, PAM, BEM, BOA, BQSM, MAPMA, JKR, SURVEYOR??

LAND SURVEYOR?

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Collaboration and Incentives

ACTIVITIES	LEAD AGENCIES
CIDB collaborate with government key agencies (e.g.; JKR, Local authorities) to initiate strategic implementation plan such as: ✓Financial (e.g. Government/ Client provide BIM infrastructure requirement in the form of incentive, to include BIM price in contract procurement) ✓Technical (e.g. training, approve software, database of BIM users)	CIDB, JKR and other related government agencies
Recommendation: ✓To identify a body that will regulate and coordinate on BIM implementation ✓To setup recognised co-ordinating body to foster collaboration locally and internationally ✓Ministry's decision ✓Coordinate with authority to provide subsidized technical training programme of BIM hand-on skill set for SMEs.	

Collaboration and Incentives

ACTIVITIES	LEAD AGENCIES
BIM fund and support (cost for hardware, software and training) for BIM practitioners: ✓Tax exemption for BIM software purchase ✓MDEC incentive to remain and enhance ✓Infrastructure – Internet and storage capacity to cater BIM adoption ✓Allocate technical and financial resources/engage services to help key organization and construction firm to kick start the project ✓Client to introduced the BIM Fund, which covers the costs for training, consultancy services and purchase of hardware and software for businesses and projects	CIDB, MDEC, JKR, PAM, BOA, BEM, BQSM, MAPMA, JARING

Education and Awareness

ACTIVITIES	LEAD AGENCIES
✓BIM international conference once in every two years ✓Demonstrate the benefits of adopting BIM quantitatively with respect to project cost as well as operating cost of an organization.	PAM, BEM, BOA, BQSM, MAPMA, CIDB, JKR
BIM competition every year at both university and industry level.	CIDB, MOSTI, University, Professional body (AEC/FM), Media
Media promotion (e.g. BIM Idol) Newspaper, Media, Website	CIDB, PAM, Relevant Ministry
BIM Award (Architect, Engineer, Quantity survey, Facilities Management) yearly.	CIDB, MOSTI, University, Professional body (AEC/FM), Media

Education and Awareness

ACTIVITIES	LEAD AGENCIES
BIM syllabus to be included in degree and master (Built Environment and engineering Courses)	University, MOHE, JKR, PAM, BEM, BOA, BQSM, MAPMA,
To draft national BIM training modules and documentations for Architectural, Engineering, Quantity survey, Facilities Management	University, MOHE, JKR, CIDB, PAM, BEM, BOA, BQSM, MAPMA
✓BIM infrastructure for hardware and software (e.g.: free license software) in university and training centre ✓Fund/ Grant/ Contribution	University, MOHE, JKR, MITI, Software vendor

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Education and Awareness

ACTIVITIES	LEAD AGENCIES
✓Teaching and training (polytechnic graduate) ✓Professional registration bodies will also need to modify their current methods, and continuing profession development programs will be vital to support knowledge development in integrated project delivery ✓300 students of intermediate BIM user ✓To produce BIM Modeller (Level 1, Level 2 and Level 3) University, Polytechnic, vocational to produce 600 BIM modeller/ per year	Polytechnic, CIDB
Evaluation/ Comparison with international BIM standard, technology and syllabus for university and industry application.	CIDB, Industry, University, Software Vendor, MOHE
Education & Training - RISM & PEJUTA	

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National BIM Library

ACTIVITIES	LEAD AGENCIES
✓BIM object library standard (designer and manufacturers) that comply with Malaysian standards (interoperability, concurrent architectural engineering design) and specifications. ✓Operate a repository library for showcase, shared document and standard, best practices, etc. under a single portal	CIDB, IFC, PAM, BEM, BOA, BQSM, MAPMA, vendor and manufacturer
✓Cloud computing and BIM infrastructure (Hardware and software) to incorporate in CIDB BIM Portal establish at CIDB ✓The object in the library are available in open standard and common proprietary software formats (cloud computing) ✓Funding and infrastructure	CIDB, vendor and manufacturer
Formulate strategies (voluntary) to encourage the collection of BIM object (from user and manufacturer) in the National BIM Library (e.g: CIDB BIM Library user Day 2015 - once a year).	CIDB, PAM, BEM, BOA, BQSM, MAPMA, vendor and manufacturer

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National BIM Library

ACTIVITIES	LEAD AGENCIES
Information, helpdesk services and consultancy services on BIM application from approved and recognized agency or one stop referral centre (to be determined).	CIDB, PAM, BEM, BOA, BQSM, MAPMA, software vendors and BIM consultancy
National BIM pilot project (e.g.: National Cancer Institute – National Cancer Institute, JKR; The Véo - Sime Darby and others)	CIDB, JKR and private sector

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BIM Guidelines and Legal Issues

ACTIVITIES	LEAD AGENCIES
Guideline : To develop National BIM Guide that compiles the overall process of BIM for project. National BIM Guide will documented the followings: ✓Roles and responsibilities of project members at different phases/ protocols. (covered the building lifecycle) ✓Framework for Collaborative/ Interoperability (architectural, engineering , construction and facilities management) ✓Approved software ✓Modelling requirements ✓Digital deliverables	CIDB, JKR, PAM, BOA, BQSM, MAPMA, Malaysia Standard, Government agency and local Government\ SURVEYOR??

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BIM Guidelines and Legal Issues

ACTIVITIES	LEAD AGENCIES
Legal Issue: Review legal principle of Intellectual Properties (IP) right as it applied to information held in BIM environment: ✓Procurement and contract ✓IP right and data ownership ✓To review current contract agreements, procurement system, scope of works of each discipline to enable the co-operative mode of BIM operation can be implemented among different parties of a construction project	CIDB, JKR, PAM, BOA, BQSM, MAPMA, Malaysia Standard, Government agency and local government

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Special Interest Group

ACTIVITIES	LEAD AGENCIES
✓Establish steering committee (to be detailed out) ✓Establishment BIM Steering Committee to oversee implementation of BIM and address any issue that may impede the adoption of BIM	CIDB,JKR, PAM, BEM, BOA, BQSM, MAPMA
Establish BIM communities (e.g. : BIM Archi SIG, BIM MEP SIG, BIM QS SIG, BIM FM SIG)	CIDB,JKR, PAM, BEM, BOA, BQSM, MAPMA, Vendor SURVEYOR??

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Research and Development

ACTIVITIES	LEAD AGENCIES
Activities: ✓Sponsor and steer long term research on necessary initiatives ✓Research fund ✓BIM related publications from research projects ✓Collaboration between industry and university (looking into win-win situation)	Software vendor, Industry, university, JKR, CIDB, PAM, BEM, BOA, BQSM, MAPMA SURVEYOR??

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Research and Development

ACTIVITIES	LEAD AGENCIES
Research themes & titles: i. Technical: ✓Sustainability, BIM lifecycle costing, productivity, supply demand of BIM from industry ✓BIM value for each user (Architect, Engineer, Quantity Survey, Contractor and Facilities Management) ✓Knowledge transfer program in BIM (industry bring the issues-technical)- so research on technical need to be customised Global competitiveness (current technology and knowledge used) ✓Simplify BIM process ✓Development of new BIM Application/ Software ii. Financial: ✓BIM financial implication, ✓non-financial implication, ✓measurement of ROI on BIM for infrastructure projects	Software vendor, Industry, university, JKR, CIDB, PAM, BEM, BOA, BQSM, MAPMA

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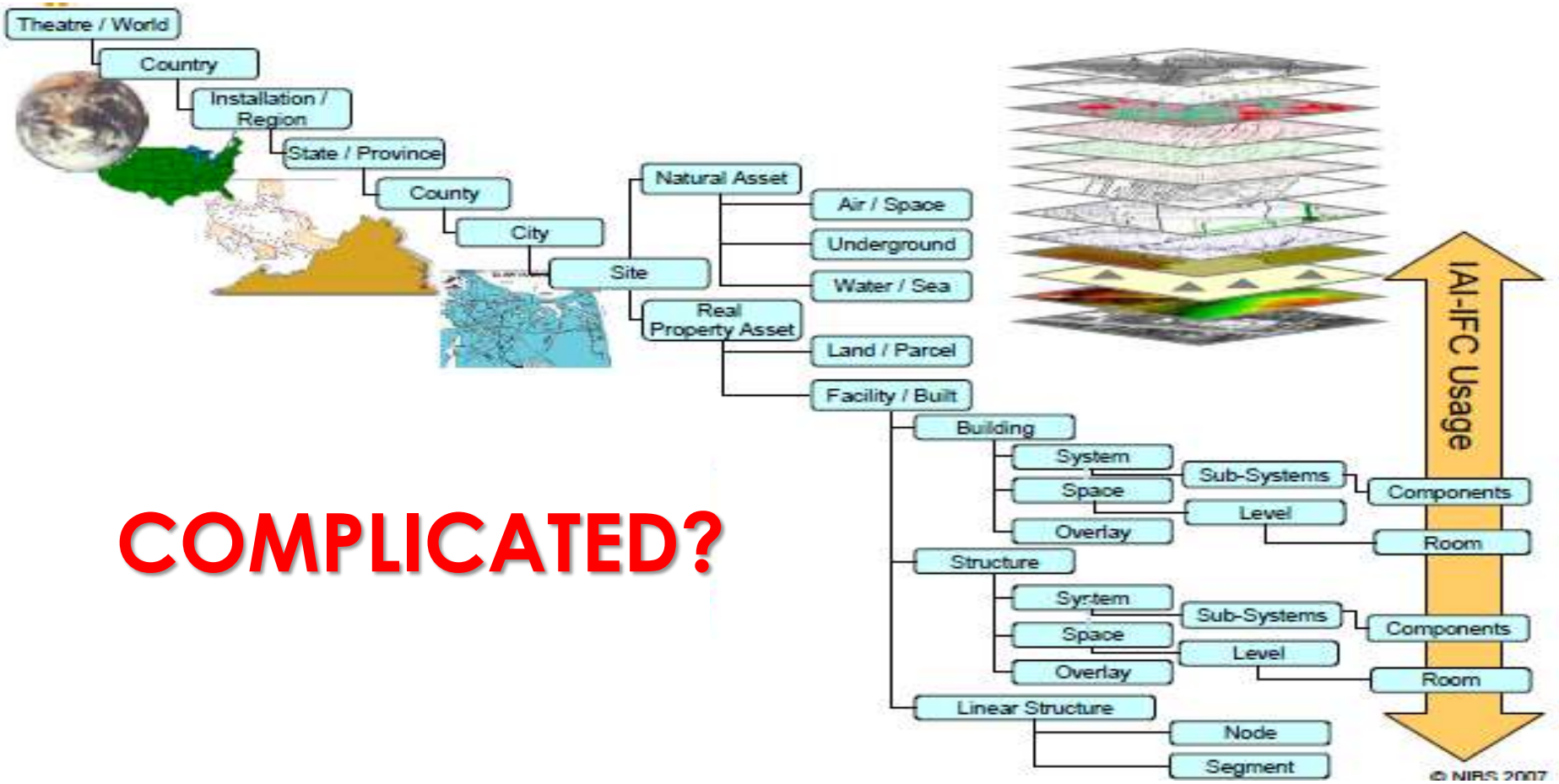
Conclusions

- Many parties/professionals involve in building industry
- Land Surveyor has many roles in BIM's life cycle
- BIM implementation need coordination, education & awareness, standards & National BIM library, collaboration, guidelines, R&D, authority body…….
- Land Surveyor's role still not formally recognized
- One day….. BIM compliance is needed to every party involve.

BIM COMPLIANCE, ARE YOU READY???

THANK YOU

BIM Conceptual Diagram



COMPLICATED?

BIM Life Cycle

BIM Implementation in Malaysia

2009 - Y. Bhg Dato' Seri Ir. Dr. Judin bin Abdul Karim (CIDB Director General) urged the industry to embrace technology in their deliverables in 2-day Infrastructure & Construction Asia's Building Information Modeling & Sustainable Architecture Conference.

2010 - The Malaysian government then announced its adoption of BIM with the National Cancer Institute in Sepang being the first infrastructure construction project. Currently, the private sector is progressively taking lead in the positive adoption of BIM. The different BIM platforms available in the market includes Revit, Bentley Aecosim, ArchiCAD and Tekla.

2013 - Acknowledging the importance of having a smooth technology transition process, the National Steering Committee of Building Information Modeling was established in July 2013. The Committee, tasked at providing perspectives and ideas in the development of National BIM Roadmap and the National BIM Standard & Guide, consists of critical government agencies, professional bodies, private sectors and members of the academic sector.

BIM Implementation in Malaysia

2014 - In conjunction with the International Construction Week 2014 (ICW 2014), CIDB organized a one-day International BIM Conference on the 22nd September 2014 at the Putra World Trade Centre, Kuala Lumpur. The event was officially launched by Y. Bhg Deputy Minister of Works Datuk Rosnah Abdul Rashid Shirlin. At the conference, Dato Sri Ir. Dr. Judin Abdul Karim, CIDB Chief Executive emphasized that by optimizing on the benefits of BIM, industry player can contribute to the reduction of construction project cost.

2015 – Incentives program is also being introduced in the 2nd Construction Industry Master Plan (CIMP2) and had been proposed in the RMK-11. However, the approval will be subject to further review by the industry player.

2020 - BIM Steering Committee that sitting on 26th September 2013 organised by CIDB has suggested to develop a Malaysia BIM Roadmap in order to foster the construction industry towards broader adoption of BIM by 2020. (CIDB Roadmap)

BIM in Malaysia - CIDB

CONSTRUCTION INDUSTRY DEVELOPMENT BOARD

1. Providing sustainable environment in Malaysia's construction industry scene for BIM to survive and thrive.
2. Organizing awareness programs and workshops to promote the adoption of BIM throughout the construction industry.
3. Currently, CIDB has a record of over 20 projects utilizing the BIM concept.
4. The BIM initiatives in Malaysia are currently being led by the industry's BIM expert and Deputy Chairman 2 of BuildingSMART Malaysia Chapter, En. Mohd Harris Ismail.

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BIM in Malaysia - JKR

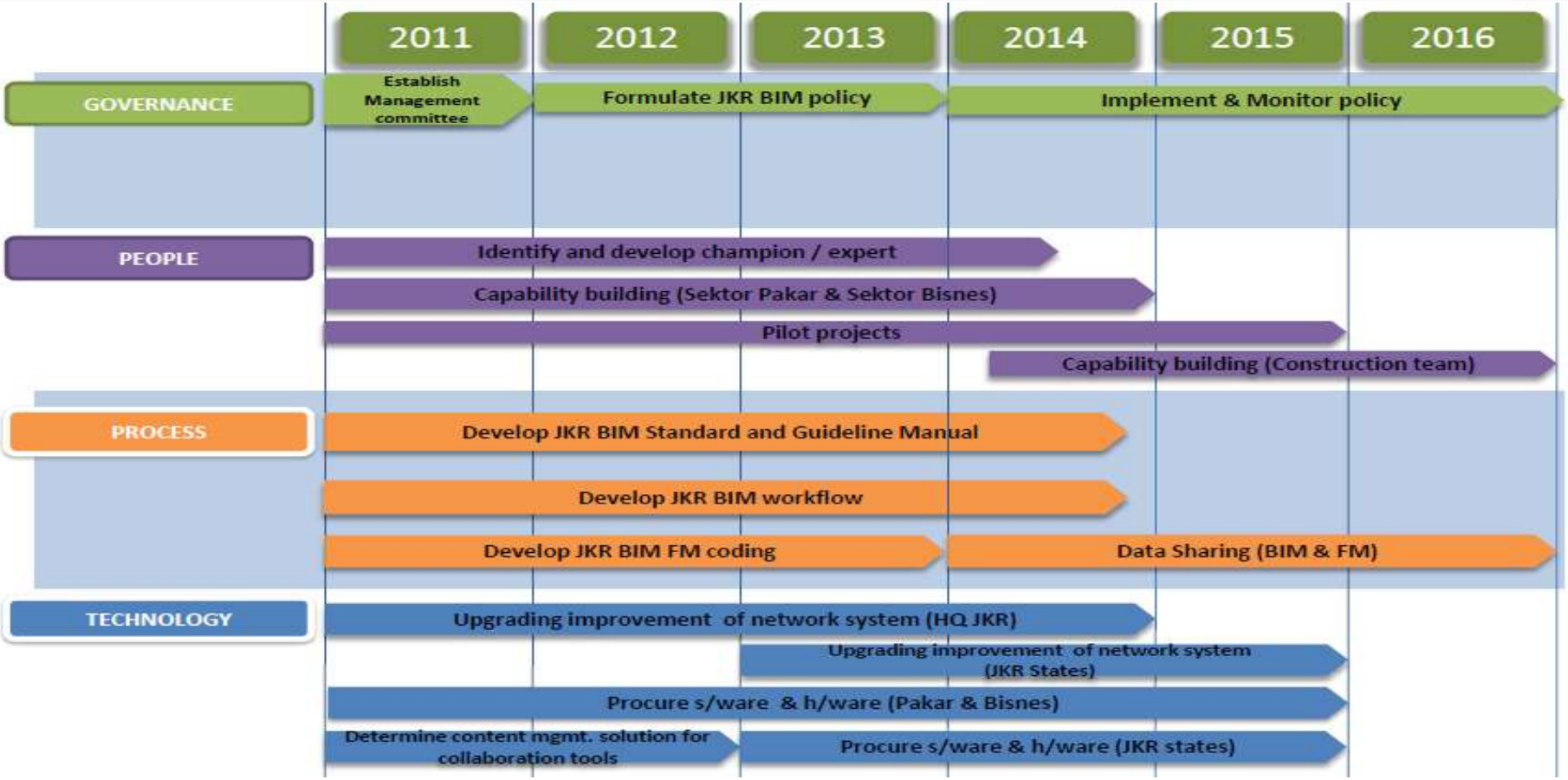
VISION

To lead in the implementation of BIM to enhance project delivery and asset management.

MISSION

Supporting BIM users by developing BIM standard, guideline, BIM Library and providing BIM facilitation services.

JKR BIM Roadmap 2011-2016



Source: JKR BIM Roadmap: Industry Engagement 4 April 2013

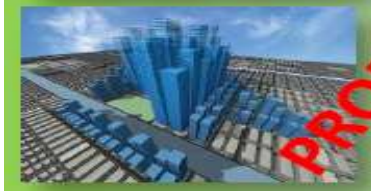
JKR BIM Roll Out 2013-2016

In-House Design

- All JKR projects > RM10 mil
- Selected RP4 projects RM10 mil – RM50 mil
- Pilot Projects & Selected RP3 projects

2013 | 2014 | 2015 | 2016

Conventional Consultant & Design - Build



PROPOSED

- Stakeholder engagement sessions
- Communicate requirement to stakeholders
- All JKR projects > RM10 mil (conventional consultant)
- All JKR Design & Build projects

Source: JKR BIM Roadmap: Industry Engagement 4 April 2013

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Collaboration and Incentives

ACTIVITIES	LEAD AGENCIES
CIDB collaborate with professional bodies (e.g. BEM, PAM, BOA, BQSM, RICS) to form special interest group (SIG) and WG/ WC on BIM priority area. To align with BuildingSMART initiative and strategic direction.	CIDB, BEM, PAM, BOA, BQSM, RICS, BuildingSMART
✓Private sector to take the lead. (E.g United States) ✓Public sector to take the lead (E.g Singapore) and make BIM mandatory submission once the industry is ready. *(BIM practices and experience in Singapore are more suitable and practical to be adopted in Malaysia)*	CIDB, BEM, PAM, BOA, BQSM, RICS
Compliant BIM tools - Collaborate with vendors (Architect, C&S, M&E QS, and Facilities Management) to ensure standards software's are suitable with Malaysian practice and IFC compliant (open BIM).	CIDB, BEM, PAM, BOA, BQSM, RICS, buildingSMART and software vendors