

Specially prepared for:

PUJA CPD Talk

Adopting BIM for Better Cost Advice and Heritage Building Conservation

18th April 2019 in Brunei



**CONSERVATION OF HERITAGE BUILDINGS THROUGH
BUILDING INFORMATION MODELLING**

Dr. Noor Azeyah Dato' Khiyon; Undergraduate Programmes Lead

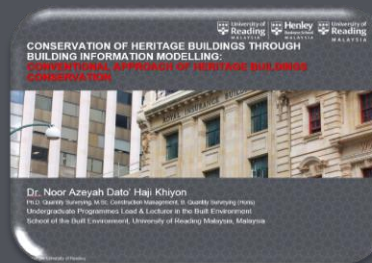
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ABOUT THE SESSION...



Overview of Heritage Buildings
Conservation (20 minutes)



Conventional Approach of
Heritage Buildings Conservation
(10 minutes)



Digital Approach of Heritage
Buildings Conservation
(1 hour)



Virtual Reality – Demonstration
(30 minutes)



Way Forward
(15 minutes)

CONSERVATION OF HERITAGE BUILDINGS THROUGH BUILDING INFORMATION MODELLING: **CONVENTIONAL APPROACH OF HERITAGE BUILDINGS CONSERVATION**



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Introduction

The implementation of a conservation project involves various professionals including architects, building surveyors, quantity surveyors, engineers, conservators and contractors

Historians are also needed to translate the historical background of a building or structure

As for the contractors, the contractors must be credible and possess relevant experience to conduct the conservation project

Best Practices of Conservation

Criteria to support best practices of conservation



Common Defects of Heritage Buildings



Fungus stain

Harmful growth

Peeling paint

Cracking of walls

Insect or termite
attack

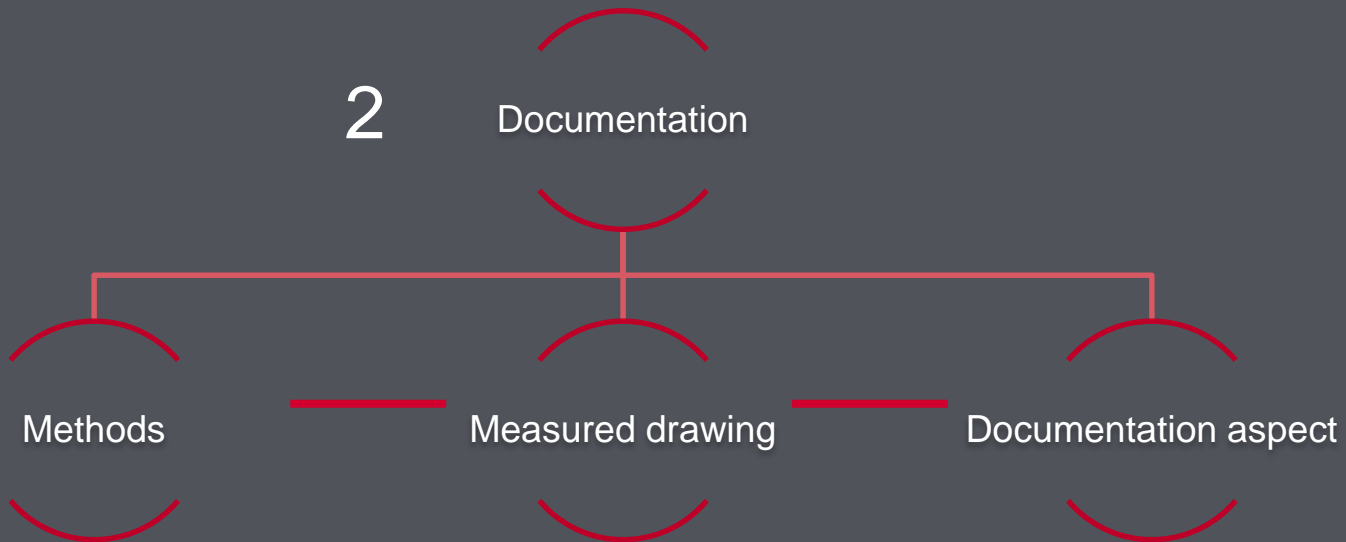
Roof or ceiling
defects

The Conventional Approach



2

Documentation



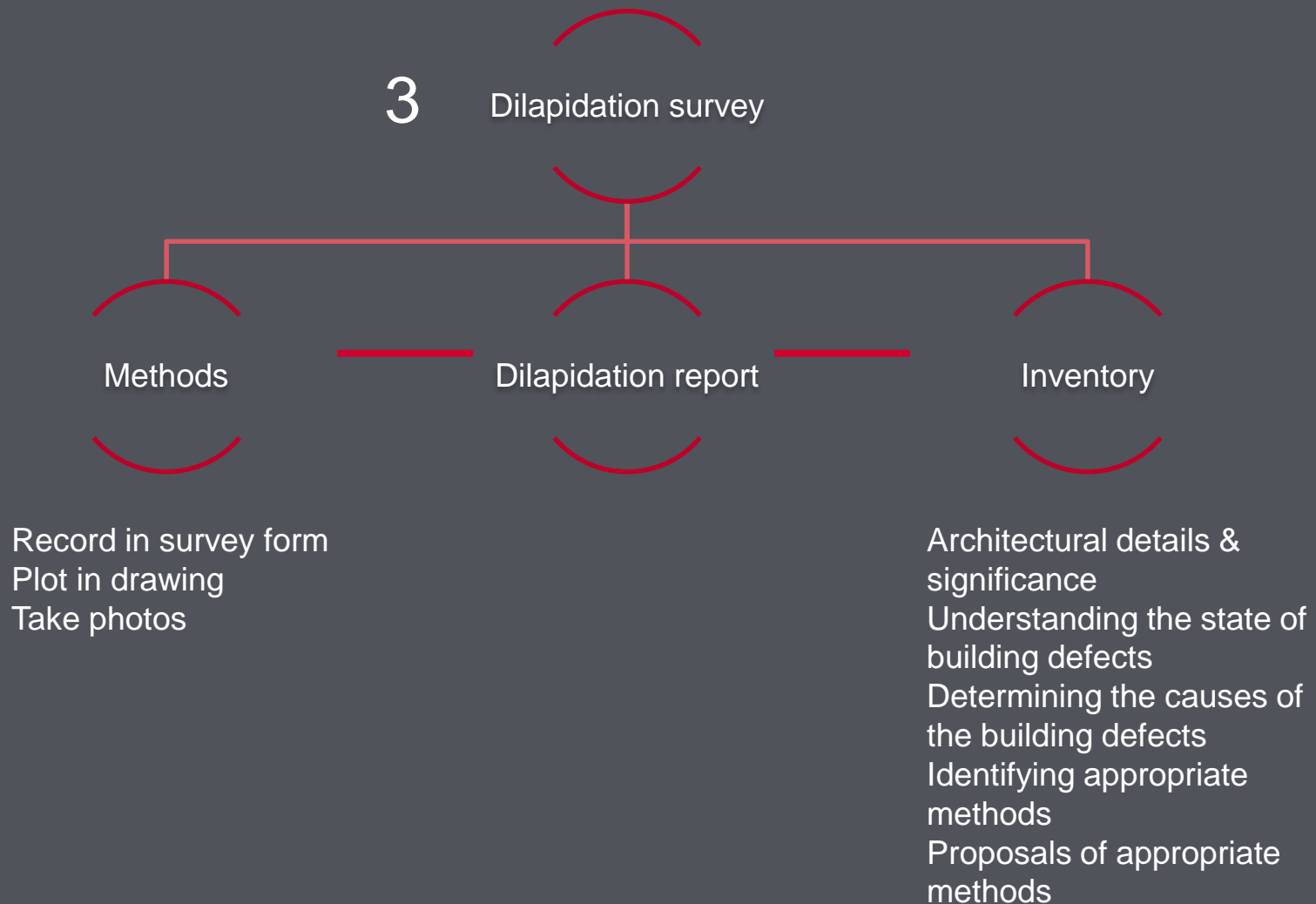
Methods

Measuring
Site records
Take photos
Photogrammetric

Measured drawing

Documentation aspect

As found drawing – set of line drawings that, accurately and in some detail, delineates the subject building in existing condition



4 Material & structural analysis report

Methods

Inventory

Non-destructive test
Site test
Laboratory test

Material & structural test
Humidity & moisture level
Compressive strength & porosity
Timber species & grading
Elements composition
Salt level & iron test
Paint test & colour scheme

5

Preliminary
conservation works

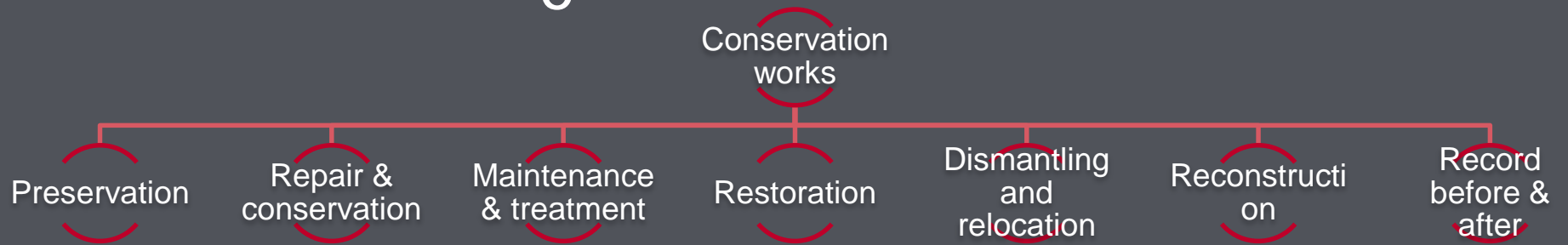
Record before
conservation

Choice of compatible
material

Cleaning

Stabilization/
consolidation

6



7

Final report

Conservation of heritage
building

Required Competencies

Decision making

Exchange ideas

Collaboration with others

Interdisciplinary skills

Theoretical knowledge

Teamwork

Communication

Conservation skills

Practical experience

Continuous training



The Quantity Surveying Perspectives...

Conservation works are perceived to be significantly riskier than new building works

It requires non-standard scope of works, different approach and special project management experience

It is insufficient for Quantity Surveyors (QS) to prepare tender for conservation works by merely using standard documents for new building works that cannot reflect actual needs and special processes in conservation work

This is currently happening in Malaysian construction industry – ill prepared documents have caused cost overruns and contractual disputes during post-contract stages

Hence, QS should develop an in-depth knowledge of conservation works including its specifications, techniques, requirements and etc

Issues Faced by QSs...

Cost estimating is a
challenging task

Lack of information
on cost

Complexity of
conservation
method

Difficulty in
sourcing for
required materials

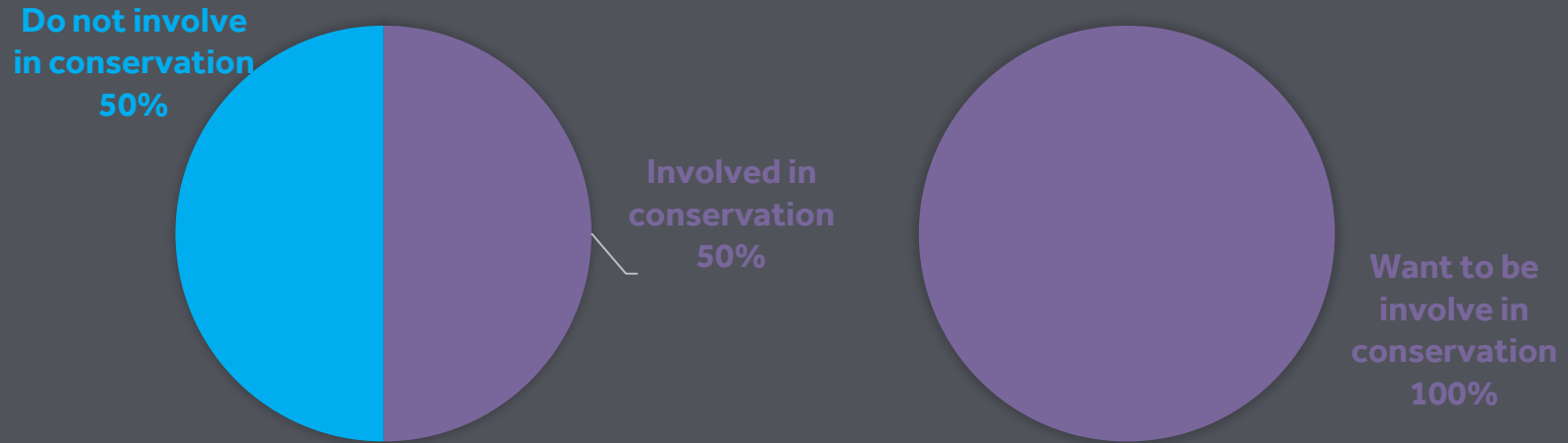
Lack of documents
in relation to
conservation

Lack of
understanding of
conservation

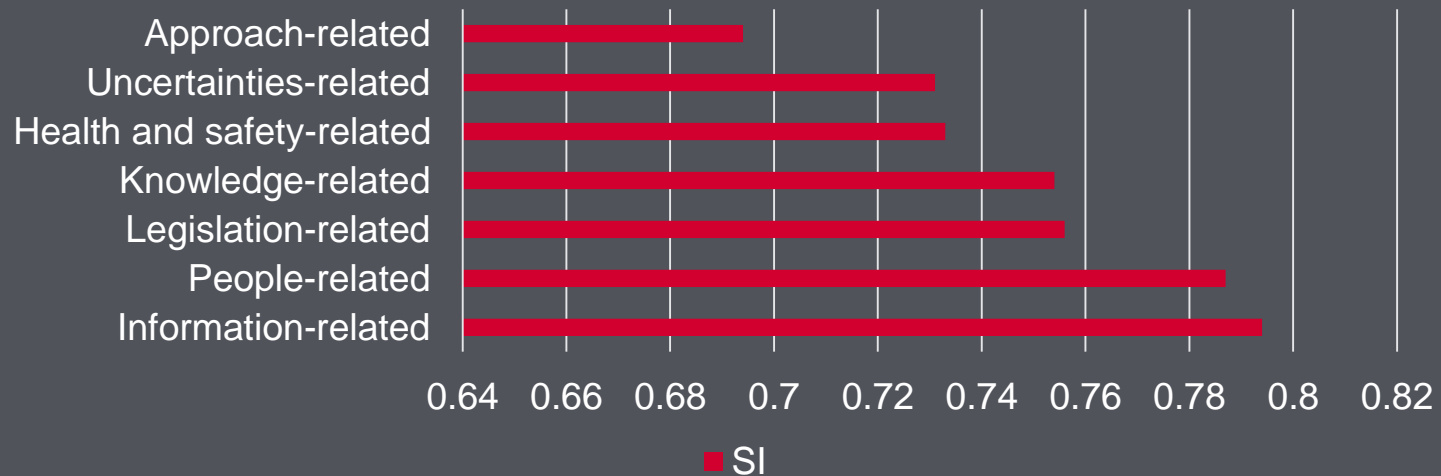
Impossible to use
standard
documents and
references

Differs from new
building work

The Current Situation



Challenges faced by QS in conservation



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THANK YOU

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