Background:

Building Information Modelling (BIM) is believed to improve the AEC industry projects' productivity: including cost, schedule and sustainability. However, the usage rate of BIM is extremely low due to:

- Lack of benchmark / yard stick of BIM requirement among project participants - lead to inconsistency of performance;
- Lack of prioritized key implementation areas - lead to over-estimation of BIM cost;
- Experience based BIM implementation approach - lead to low in return and reduced people's willingness of using BIM.

Problem Statement:

The solution for the aforementioned issues is to develop a strategic decision making framework to assist BIM practitioners to have BIM customised for specific scenario –project and organisational level. However, existing tools have limitations in the followings: criteria selection, criteria weightage calculation, assessment coverage and effectiveness of tools.
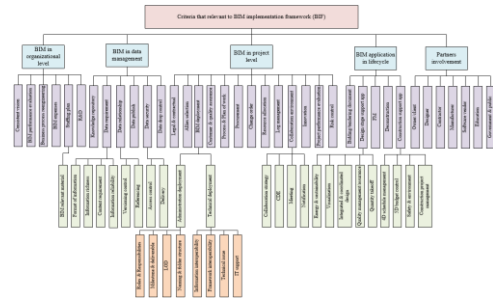
Research questions (RQs):

1. What are those dimensions and criteria for BIM implementation and evaluation?
2. What are the most applicable criteria for BIM implementation in the design stage in a specific context, e.g. China?
3. How to develop a multi-criteria decision making tool to assist in strategic BIM implementation and assessment for an organisation?
4. How to validate whether the proposed evaluation framework is practical to use, as well as its efficiency, effectiveness and user satisfaction?
5. How to, by implementing BIM, to achieve the most preferable strategic goals (e.g. sustainability, customer satisfaction and commercial value) for an organisation through altering their current criteria priorities?

Research Aim:

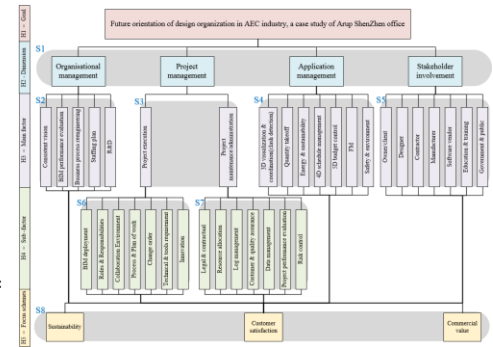To develop a strategic decision framework to assist AEC projects to meet BIM Level 2 requirement

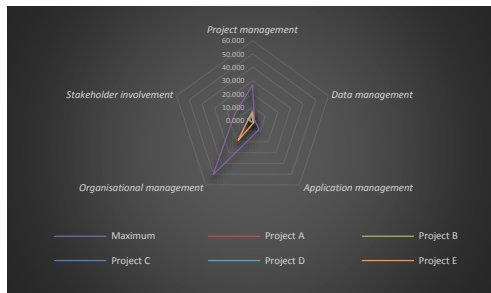### Research Step 1 – 4 (RQ 1 & 2) outcome: Generic framework for BIM implementation:

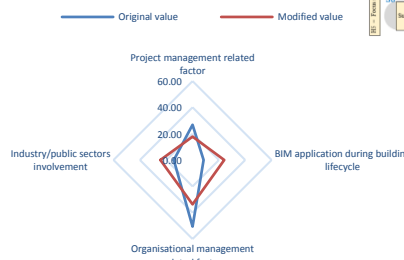## PhD outcome: Strategic decision making framework:

Research Step 5 (RQ 3-5) outcome: Customised framework for BIM management in a specific scenario:

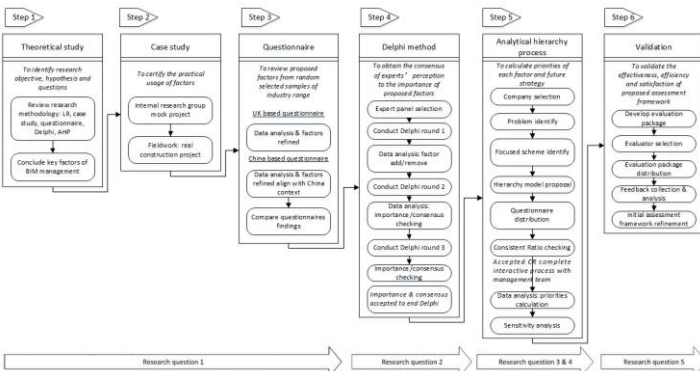## Research output 1: Evaluation results comparison among projects:

Research output 2: Adjustment of criteria priority:

Original value — Modified value

Research output 2: Comparison of attitude on various objectives before and after priority shifting:

	Commercial value	Customer satisfaction	Sustainability
Original value	59.31	26.4	14.48
Modified value	48.11	28.23	23.64

Research methodological framework:

Application of PhD outcome in practical project: