Adoption of Building Information Modelling in Construction Projects in Hong Kong from the Perspective of Construction Contractors

Mr WONG Kwok Ho, BEng (Hons) in Building Services Engineering,

Department of Construction, Environment and Engineering

Supervisor: Ir Dr NG Tsz Ho Roger, Associate Professor

Background information

Building Information Modelling (BIM) is crucial in Hong Kong's construction sector as it offers a collaborative platform for stakeholders to share information and reduce errors, thus enhances the construction industry's productivity. The Construction Industry Council has developed and improved BIM standards since 2013 to balance construction interests and guidelines, emphasising the public sector's role and facilitating private sector transition and integration. While numerous studies have examined the industry's overall views on BIM, contractors' unique insights and experiences still need to be explored. As contractors play a crucial role in the construction process, exploring their perspectives on adopting BIM in construction in Hong Kong is essential.

BIM adoption for BSE in Hong Kong:	in general at a low level under the BIM maturity model
design projects	43.90%
construction projects	44.20%
O&M works	61.10%
the most common length of time of using BIM:	
only 1-2 years" by BS designers	37.50%
"only 1-2 years" by BS contractors	34.10%
"not at all" by BS O&M professionals	40.30%

Notes:
low level: between Level 0 (i.e.Unman aged CAD probably 2D, with paper (or electronic paper) as the most likely data exchange mechanism) and Level 1b (i.e. Managed CAD in 3D format; data managed by standalone finance and cost management packages with no integration).

Objective

This research investigates contractors' views of updated BIM Standards and technology in Hong Kong and to understand its effects on work efficiency. This study can inform policymakers, industry leaders, and contractors about the best practices and strategies for effective BIM implementation, leading to more efficiency and savings on construction projects.

Methodology

The desktop research incorporates newly discovered material into the established database from literature review. The collected data are designed into questionnaires.

A questionnaire survey is conducted on Building Services Engineering construction contractors in Hong Kong.

Based on the collected questionnaire data, the responses from construction contractors are statistically analysed via a thematic approach. Then, a thematic analysis is conducted.

Findings

The adoption of BIM technology by construction contractors in Hong Kong is primarily aimed at coordinating clash detection/analysis and spatial/combined services coordination.

The Primary Purpose of Using BIM in Contractors

Challenges of Construction Contractors in Hong Kong When Using BIM
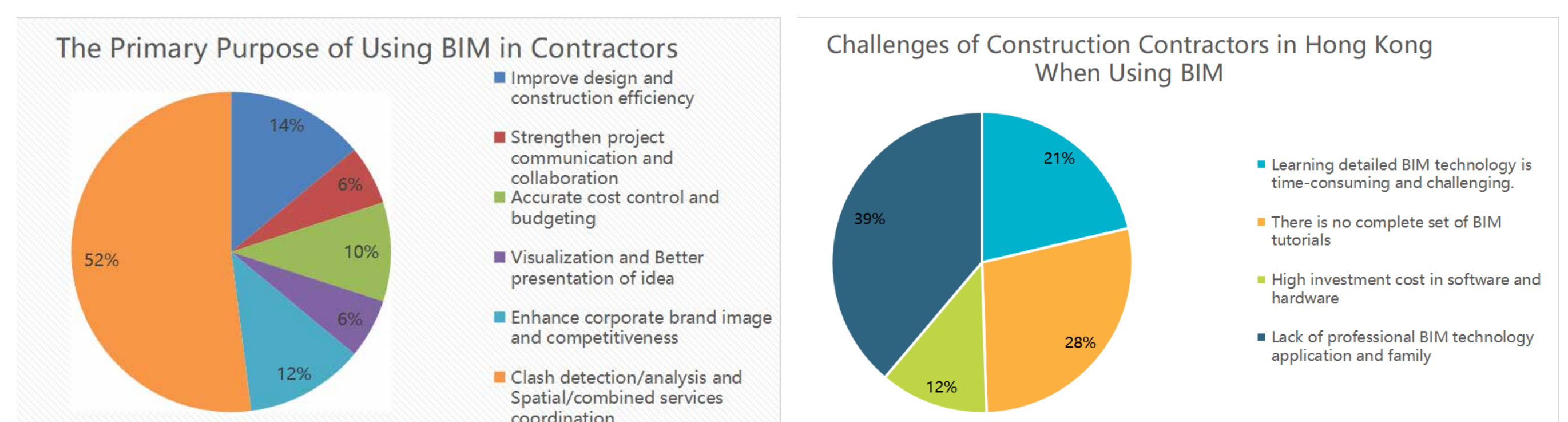
The main challenges still faced by contractors are the lack of time to learn BIM due to heavy daily workloads, scattered BIM tutorials, insufficient comprehensive BIM technology, and related services of BIM.

In response to contractors' opinions on "promoting the widespread use of BIM in the future stage", some effective suggestions are illustrated in the diagrams below.

Methods to Promote The Application of BIM in Contractors

RECOMMENDATIONS FOR ADVANCING BIM IN THE FUTURE
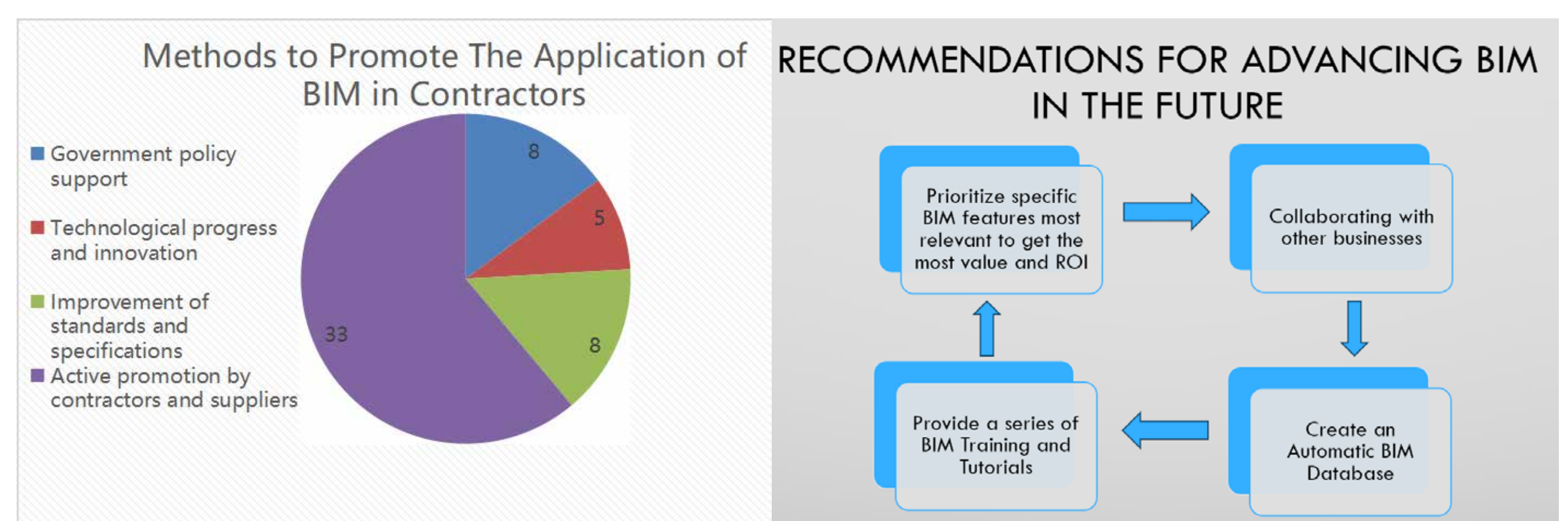
Conclusion

The questionnaire results show that higher recognition of BIM by contractors. Although contractors still face many difficulties when using BIM, they can accurately handle building model or equipment collisions, detecting equipment, and automatically calculating the time required for the equipment. In the long run, due to the acceleration of digitalisation and intelligence, BIM technology will be combined with advanced technologies such as big data and artificial intelligence, as more contractors gain experience with BIM. As long as we provide a series of BIM training and tutorials, Hong Kong contractors can cooperate with suppliers and construction teams in different cities and create a BIM database. BIM can be widely used in construction due to its efficiency, intelligence, and accurate technology.