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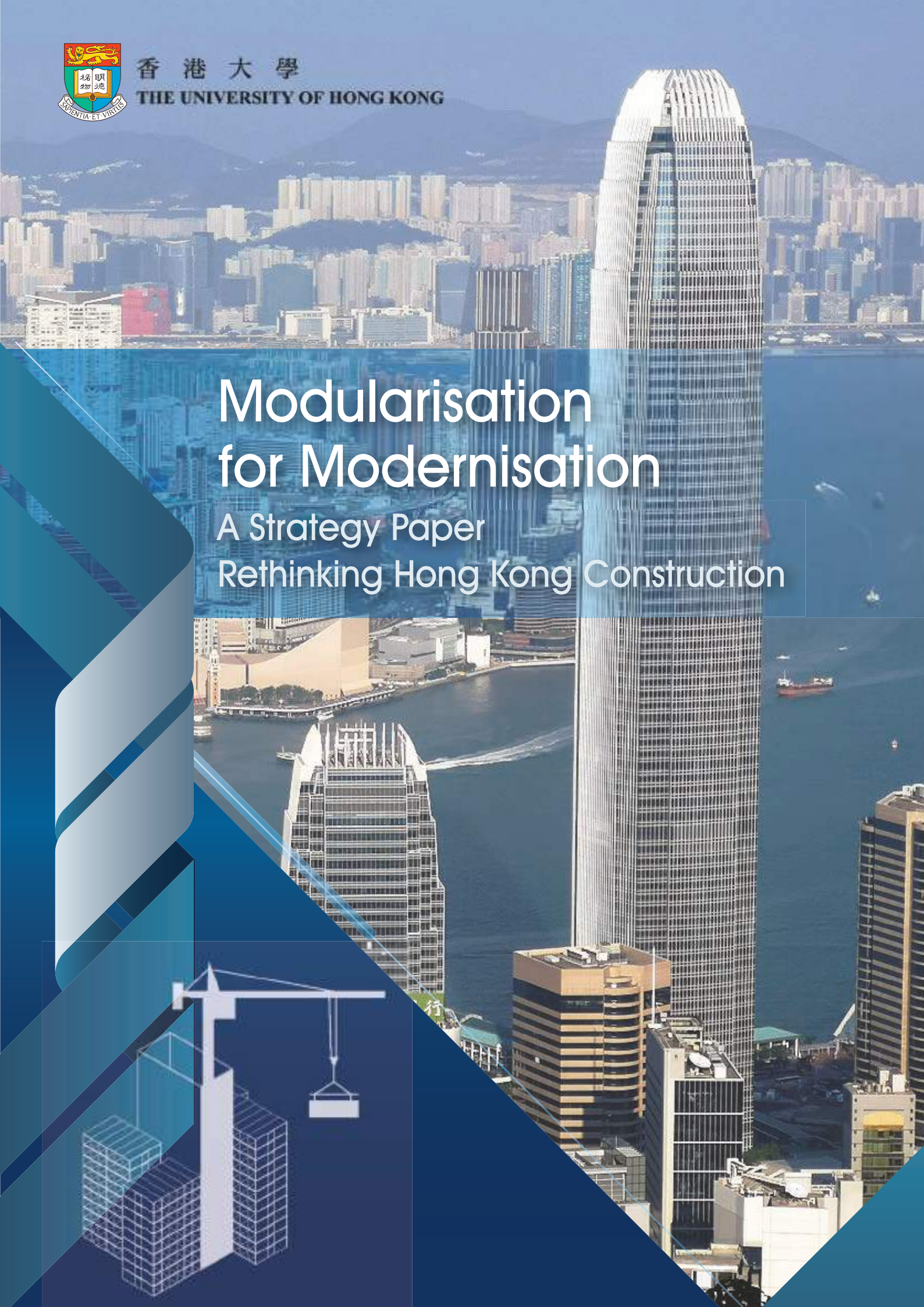
Modularisation for Modernisation

A Strategy Paper
Rethinking Hong Kong Construction



Modularisation for Modernisation

A Strategy Paper Rethinking Hong Kong Construction

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Preface

In the past few years, the construction industry in Hong Kong has been facing severe challenges. High construction cost, declining construction productivity and shortage of construction workers have aroused concerns on the efficiency and cost-effectiveness of the construction sector. Albeit the improved site safety in the past few decades, we are still under immense pressure to perform better in safety.

Against this background the Government announced in the 2018 Policy Address to lead the industry to make changes by implementing "Construction 2.0" to uplift the capacity and sustainability of the industry, increase productivity, enhance regulation and quality assurance, improve site safety and reduce environmental impact. To achieve this, we have to embrace innovation and adoption of advanced technologies to promote industry enhancement.

Modular Integrated Construction (MiC), a new construction method in building sector here, has been used in other parts of the world including the UK, Singapore, the USA, China and Australia. By adopting the concept of "factory assembly followed by on-site installation", MiC has clear benefits in terms of quality, environment, safety, time and cost and can address many of the challenges the construction industry is facing. Moreover, to materialize the benefits of MiC, the extensive use of BIM in MiC building projects is fundamental. The hand-in-hand use of MiC and BIM indeed helps push the construction industry to go digital and smart. Thus the Government is supporting the construction industry for a wider adoption of MiC.

Like other new construction methods, certainly there are hurdles facing MiC including the supply chain, market, procurement and technical issues. I am confident that through the concerted effort of the industry and the support from the Government, MiC is able to take root in Hong Kong and will become an important means to modernize Hong Kong construction industry.

Ir LAM Sai-hung, JP
Permanent Secretary for Development (Works)
The HKSAR Government

Executive summary

The construction industry has witnessed a major shift from being dirty, dangerous and low-tech towards being professional, productive and innovative. Nevertheless, the extent is not great and the pace is yet to be improved, with the construction industry still being alleged to lack far behind manufacturing industries in many aspects of performance such as productivity, quality, health and safety, and sustainability.

Modular integrated construction (MiC) has been brought forward in the Chief Executive's 2017 Policy Address as a new policy initiative to promote innovative construction. The 2018-19 Budget announced by the Financial Secretary allocated HK$1billion to promote construction innovation and technology with MiC being a key initiative. This strategy paper elaborates on the MiC policy initiative by providing a definition grounded in the modularisation and production theories and recommending strategies for successful adoption of MiC in Hong Kong in a multi-level systems framework.

MiC is defined in this strategy paper as a game-changing disruptively-innovative approach to transforming fragmented site-based construction of buildings and facilities into integrated value-driven production and assembly of prefinished modules with the opportunity to realise enhanced quality, productivity, safety and sustainability. Modularisation carried by the MiC approach offers a golden opportunity to unleash productive forces, shape the relations of production and enhance construction productivity, quality, safety and sustainability, hence supporting the modernisation of Hong Kong construction.

There are many significant benefits achievable from the adoption of MiC, but there co-exist multifaceted challenges. Success strategies are required for securing the technical feasibility, ensuring the regulatory compliance, enhancing the commercial viability, increasing the supply chain competency and shaping the market preference of MiC adoption in Hong Kong. With the suggested framework of MiC policy scenarios in the short, mid and long term against a range of policy areas of MiC technologies and systems categorised by material, design, supply chain location, procurement method, building type, building status, funding source, functional area, location, and building height, there is a promising future of marching towards a modern construction industry and society.

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