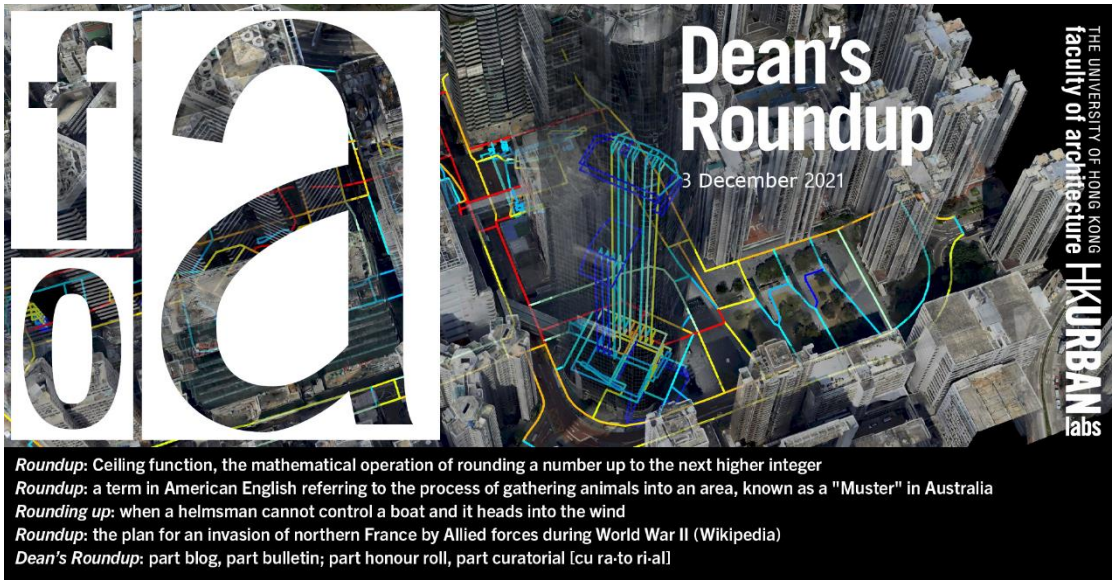


What makes a great city?

The question was put to me this week by a musicology PhD student studying Beethoven. It was a fair question, since I had earlier asked him 'how does music produce joy?'. There's nothing like a simple but profound question from someone who knows little about your field, to hone the essence of one's intellectual craft (or perhaps to cause one to look for that essence!). Since I have been thinking for some time about writing a paper on the question, here goes, with a first shaping of thoughts.

My impromptu answer to the Beethoven scholar was three-fold: wealth, distribution and nature. A good city is one that generates wealth (keeping the city attractive), makes space for the low-incomed (keeping the city workable), and preserves nature (keeping the city bearable). This formulation broadly follows the three-Es: efficiency, equity and environment, but I select these dimensions not for the alliteration but for more profound reasons of the dynamics that underpin the city.

Cities are clusters of individuals who come together to seek wealth and welfare: to improve themselves, their families and progeny. While people can advance themselves in isolated locations, this is only possible if they are tapped into the urban system, with whatever they are doing in geographical isolation being one way or another shipped to the urban system to realise its value. It is now well understood scientifically, that cities are motors of economic growth and that as a general rule, larger cities create more wealth (studies of urban systems show that as city size doubles, GDP and income per head rise roughly in order of 110-120%). So, if the basic rationale, purpose, explanation and driver of people moving to and staying in cities is wealth creation, then the first answer to the question must be 'a city that is good at producing wealth is a great city'. This makes bigger cities better cities, as a general rule.

Second, for a city to sustain itself as a place where individuals, from whatever starting point or background or resource endowment, can prosper, it has to be accessible to individuals of all incomes and skills. Since cultural heterogeneity is linked with creativity, productivity and wealth creation, we might add that a great city also makes space for cultural and ethnic diversity. One fascinating possible explanation for the UK being the birthplace of the industrial revolution, is that it is a melting pot of successive waves of the persecuted, dispossessed, adventurers and non-returners, over many centuries. There is a natural and unavoidable tension between this second trait of a great city and the first. As cities become wealthier, much of the value of that wealth finds itself in land. Since land is the only truly immovable asset, societies' wealth has always tended to end up being stored in land rights. For this reason, the poor, low-incomed and the city's key manual and service workers, tend to get priced out of the cities that they are helping to make wealthy. The second fundamental feature of a great city must therefore be that it solves this paradox and finds ways of accommodating the lower-incomed. The more acceptable the level of accommodation, the better the city.

The third plank of greatness clearly has to be something about infrastructure, since the quantity and quality of urban infrastructure, soft and hard (services and roads etc), clearly has a great bearing on the life and productivity of city dwellers. But if we are drilling down to *essence*, which infrastructure? In answering my musicologist friend's question, I found myself eliminating most urban infrastructure and instead, picking 'nature' as the third distinguishing essence of a great city. This is because hard-wired civil infrastructure such as roads, sewerage and potable water systems, telecommunications, shopping streets, schools, hospitals, places of worship and so on, all have the tendency to emerge naturally to keep up with the wealth created in a city. Whether by government or by markets, services and utilities emerge over time to meet the consumption, social and social reproductive needs of those working in the city. While Shenzhen's 11.6M non-local hukou holders have until very recently, not been eligible for government supplied education, that has not stopped them producing much of the city's wealth, supported by a private education system. Many of Mexico City's and Istanbul's squatter areas of the 1970s and 80s are now well-serviced and even smart and up-and-coming urban neighbourhoods. The same studies that show urban wealth increasing at +15% above linear against population numbers, show infrastructure growing at -15% below linear, such that as a city doubles in population, it typically only requires an 85% increase in road, sewerage pipe and telecommunication cable length. These things *cannot* consistently be undersupplied. In spite of lags in quantity and quality, they *have to* eventually emerge, or the city stops producing wealth. When working on a UNESCAP project in the early 2000s, I visited an impoverished squatter neighbourhood built on an old garbage dump in the Sri Lankan capital of Colombo. After years of unsuccessful lobbying of the city government to supply metered water pipes to each home, eventually the owner of the local 7-11 shop organised the capital to make this investment, which the squatters were willing to pay for, and then organised the installation and

management. Mechanisms to supply the basic needs of urban living will eventually be discovered and over time improve. This is not true, however, of nature. Urban land-use will always outcompete urban nature unless nature is protected by collective action (the state, community) and in times gone by, by the land-owning aristocracy. All shared urban resources and spaces suffer their own particular *tragedies of the commons*. But while commons tragedies of road crowding tend to eventually be addressed by more road building and better traffic management, nature will always tend to disappear from the wealth-seeking city. Hence those cities that find a way to protect, increase and improve their natural areas, should be considered great cities.

Because land is the ultimate store of society's wealth, it is the land market (rather than, for example, the labour or capital or political market) that chases out both the poor and nature. It turns out, therefore, that intervening in the land market to reserve land for low-income housing and for nature, is the most direct and probably most powerful singular mechanism for making cities great.

Congratulations to colleagues mentioned below for their achievements, with a special mention to our five exceptional teachers who smashed this year's HKU teaching awards, led by Matthew (appropriately Associate Dean for Teaching & Learning), who takes the university's top teaching accolade.

Chris
Dean, FoA

Faculty of Architecture

A warm welcome to our new colleague, Dr Run Shi, who joined us as Post-doctoral Fellow with the Department of Urban Planning and Design in November 2021. Dr Shi works with Professor Anthony Yeh on Internet-of-Things (IoT) technology, urban mobility and urban big data.

1. 2021 Teaching Excellence Awards

   - Five of our faculty members have received the University's 2021 Teaching Excellence Awards, for their dedication to teaching, their tireless and creative efforts to make learning enjoyable and challenging, and the impact they have made on student learning:

     - **Mathew Pryor**, Associate Dean (Teaching and Learning) and Head of the Division of Landscape Architecture, received the *University Distinguished Teaching Award*, the only one award across all the Faculties, for his dedication to teaching and continuous improvement in pedagogy, excellence in the leadership and scholarship of teaching and learning, and curriculum design and innovation.

     - **Vincci Mak**, Senior Lecturer at the Division of Landscape Architecture, received the *Outstanding Teaching Award*, for her excellent contributions to teaching and achievements in enhancing students' learning.

     - **Lidia Ratoi**, Assistant Lecturer at the Department of Architecture, received the *Early Career Teaching Award*, for her excellent contributions to teaching and achievements in enhancing students' learning.

     - **Ashley Scott Kelly** and **Dr Xiaoxuan Lu**, Assistant Professors at the Division of Landscape Architecture, received the *Teaching Innovation Award (Team Award)*, for their creative BALS Studio Laos 'Strategic Landscape Planning for the Greater Mekong'.

Department of Architecture

1. Dr Kristof Crolla

   - introduced the Faculty's new Building Simplexity Laboratory, created based on the philosophy that simplicity in construction can still facilitate spatially complex systems, in the current issue of the University Bulletin, November 2021, 23(1), 20-21.

     'Simple Materials, Complex Outcomes':
     https://www4.hku.hk/pubunit/Bulletin/ebook_2021Nov(23.1)/20-21/

Division of Landscape Architecture

1. Dr Chao Ren and Dr Shi Yin

   - have won the 'Advancing Net Zero (ANZ)' Ideas Competition (Future Building category), organised by the Hong Kong Green Building Council (HKGBC), for their joint building design and as a consulting team of microclimatic design, in collaboration with Ronald Lu & Partners (project team lead), Cundall, Rider Levett Bucknall Limited, Siemens, The Chinese University of Hong Kong, and Transsolar KlimaEngineering.

     Organised by the HKGBC, the ANZ Ideas Competition aimed to push boundaries and design future-ready buildings to advance the net-zero emissions economy by 2050. The winning concept is 'Treehouse', which is a stunning, net-zero, wellness-focused workplace for the climate generation and a true building of the future.

     The team's work is currently exhibited at Lincoln Bridge (between PCCW Tower and Lincoln House), Taikoo Place, 979 King's Road, Quarry Bay, from 29 November to 17 December 2021, 8:00am–9:00pm, daily.

Department of Real Estate and Construction

1. Professor K. W. Chau

   - was invited to join the Jury Panel for The Hong Kong Institute of Surveyors' Best Development & Conservation Award 2021, and its Presentation Ceremony on 12 November 2021.

Mrs Carrie Lam, GBM, GBS, Chief Executive of the HKSAR (front row, forth from right); Sr Edwin Tang, HKIS President (front row, sixth from left); Sr Alexander Lam, HKIS BDCA 2021 Organising Committee Chairman (front row, third from right), Sr Prof Bay Wong, Jury Panel Convenor of HKIS BDCA 2021 (front row, fifth from left), and Prof K. W. Chau (front row, third from left) at the HKIS BDCA Award Presentation Ceremony.

2. REC Executive Talk Series

   - was held on 24 November 2021, where Professor Patrick Kwok, Adjunct Professor of the Department of Real Estate and Construction, and Mr Claudius Tsang, CEO and Chairman of Model Performance Acquisition Corp. and CEO of A SPAC (Holdings) Group Corp., delivered talks for MSc(RE) students on the topic of Special Purpose Acquisition Companies (SPAC).

     Co-organised with the Real Estate Society, student association of the MSc(RE) programme, the event was conducted in hybrid mode at our lecture theatre and via Zoom with over a hundred participants.

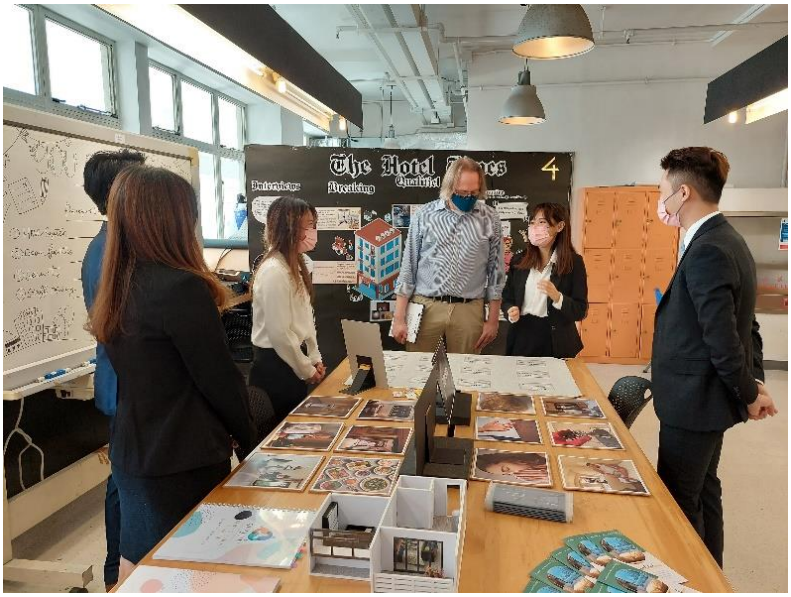
3. CIOB (HK) Outstanding Student Awards 2021

- Kathrine Choi Yan Ching, a BSc(Surveying) graduand, received Outstanding Student Award from the Chartered Institute of Building (Hong Kong) and attended the Presentation Ceremony on 26 November 2021.

Kathrine Choi Yan Ching received the award certificate from Mr Wong Hon Fai, Chair of the Chartered Institute of Building (Hong Kong).

4. BSc(Surveying) Final Year Studio Exhibition

- was successfully held on 24 November 2021, with the theme of 'The Next Normal – Towards an Anti-virus Built Environment', where graduating students showcased their innovative projects related to critical issues facing the Real Estate and Construction sector. The projects are also presented on the RECO4002 Surveying Studio 5 website and circulated with teachers and guests.



5. Leo Cheung Sing Din

   - commented as Adjunct Associate Professor on the sale of the old Kai Tak Airport site from Kaisa Group Holdings to a joint venture of New World Development and Far East International, on Sing Tao Daily, 25 November 2021, in an article titled '佳兆業等售啟德地 新世界遠展 79 億買入'.

Centre of Urban Studies and Urban Planning

1. Professor Anthony Yeh

   - led an interdisciplinary research team with members including Chair Professor Zhigang Tao of the Business School, Chair Professor George Lin of the Department of Geography, Dr Xingjian Liu of DUPAD and CUSUP, and Dr Fiona Yang of the School of Geography and Planning, Sun Yat-Sen University, Guangzhou, to conduct a questionnaire survey of 363 domestic, Hong Kong, and other overseas funded high-tech firms in the Pearl River Delta (PRD) from December 2020 to May 2021.

     This firm-based survey of high-tech firms in the PRD is part of the research project titled 'In Search of New Economic Cooperation Models between Hong Kong and the Greater Bay Area', under the Strategic Public Policy Research (SPPR) Funding Scheme of the Policy Innovation and Co-ordination Office (PICO) of the HKSAR Government. The research team has completed the three-year study and will submit the final report to PICO soon.

     A press release on the findings of the above research project has been published at: www.hku.hk/press/press-releases/detail/23601.html

     Research background: *Hong Kong and the Pearl River Delta (PRD) have collaborated intensively and effectively since China's economic reform in the late 1970s. However, the once-successful market-driven economic cooperation model of 'Front Shop, Back Factory' encountered severe challenges in the face of the PRD's rapidly rising economic power and Hong Kong's declining role as its bridge to the world in the last two decades. Of the traditional Four Key Industries, namely financial services, tourism, trading and logistics, and professional and producer services, only financial services and professional services are the industries that Hong Kong still has an edge, in addition to new high-tech industry that is rapidly developing in the PRD. With rapid development of high-tech industries in the PRD of the Greater Bay Area (GBA), Hong Kong has a role to play as an innovation hub for high-tech development in the Greater Bay Area. With 4 universities among the top 100 universities in the Quacquarelli Symonds (QS) World University Rankings and 16 State Key Laboratories in Hong Kong as compared to none in the 9 cities in the PRD and 11 State Key Laboratories in the whole of Guangdong Province respectively, Hong Kong is leading the GBA in innovation research. Although Hong Kong's high-tech research is leading in the GBA, has our high-tech research been used by the high-tech industries in the Pearl River Delta?*

     It is hoped that this study will receive attention from the community and the Government, and subsequently lead to the development of appropriate policies based on the findings of the study.

(From left) Dr Xie Yu, Business School; Professor George Lin, Department of Geography; Professor Anthony Yeh and Dr Jili Xu, Department of Urban Planning and Design, HKU.

Media Coverage:

- 有調查指大灣區內地企業少用香港高新科技 認為合作成本高
  (TVB News, 18 November 2021)
- 港大研珠三角企業 多未用港高新科技
  (Sing Tao Daily, 18 November 2021)
- 調查：9 成深莞中資企業拒用港產科技　礙港成灣區創科中心
  (HK01, 18 November 2021)
- 港大調查指珠三角企業應用本港高新科技存障礙
  (CRHK, 18 November 2021)
- Survey: HK should deepen tech cooperation with GBA cities
  (China Daily, 18 November 2021)

Healthy High Density Cities Lab

1. Ka Yan Yvonne Lai (PhD researcher, in collaboration with Dean Webster, Professor John Gallacher, Sarika Kumari and Dr Chinmoy Sarkar)

   - presented at the *Public Health Science: A National Conference Dedicated to New Research in UK Public Health*. The study was published in *The Lancet* as an abstract.

     Lai, K. Y., Kumari, S., Webster, C., Gallacher, J., & **Sarkar, C.** (2021). Associations of neighbourhood housing density with loneliness and social isolation: a cross-sectional study using UK Biobank data. *The Lancet, 398*, (S2):S60. DOI: https://doi.org/10.1016/S0140-6736(21)02603-9.

     Abstract:

     ***Background**: With increasing urbanisation, the role of urban density on mental wellbeing has gained importance. However, the evidence linking housing density, a fundamental attribute of urban built environment, with loneliness and social isolation has been scarce. We examined associations of neighbourhood housing density with loneliness and social isolation in a UK-wide cohort by using the high-resolution UK Biobank Urban Morphometric Platform (known as UKBUMP) database created by our team.*

     ***Methods**: We leveraged data from UK Biobank, a cohort of adult participants aged 37–73 years recruited between 2006 and 2010. Neighbourhood housing unit density was objectively measured within a walkable scale of 1km and 2km street catchments of participant's geocoded dwelling (equivalent to approximately a 10-min and 20-min walk). Other built environment factors, including density of public transport, traffic intensity of the nearest street, terrain variability, street-level physical walkability, and greenspace, were also modelled. A series of logistic regression models examined the associations of housing density with loneliness and social isolation after rigorous adjustments for built environment and sociodemographic covariates. Restricted cubic spline models were used to examine non-linear associations. We stratified analyses by sex and age. Ethical approval was received by the UK Biobank from the National Health Service National Research Ethics Service and data access for the study was approved by the UK Biobank Scientific Committee.*

     ***Findings**: Our study comprised 478 265 participants (260 641 [54·5%] of whom were women) with complete data on either outcome and housing density. 281 418 and 291 190 participants remained after full adjustment in models of loneliness and social isolation, respectively. Each 1000 units per km^2 increment in housing density within a 1km residential street catchment was independently associated with an*

increase of 3·7% (OR 1·037 [95% CI 1·02–1·05], p<0·0001) and 17·4% (1·174 [1·16–1·19], p<0·0001) in odds of loneliness and social isolation after full adjustment. The results remained consistent for a catchment of 2km. A non-linear dose-response was observed. The association between housing density and loneliness was more pronounced among participants aged 50–59 years (participants aged <50 years: OR 1·108 [95% CI 0·97–1.26], p=0·1171; 50–59 years: 1·188 [1·06–1·33], p=0·0023; ≥60 years: 1·114 [0·99–1·25], p=0·0646 for the highest housing density quartile vs the lowest; $p_{interaction}$=0.0171) and among men (men: 1·235 [1·12–1·36], p<0·0001; women: 1·051 [0·96–1·16], p=0·3054 for the highest exposure quartile vs the lowest; $p_{interaction}$<0·0001). Limitations included the cross-sectional study design, non-representativeness of the UK Biobank base population, and potential residual confounding.

***Interpretation**: In a UK-wide study, we found that increased neighbourhood housing density was associated with increased odds of loneliness and social isolation. High density environments might exacerbate unwanted social contacts, resulting in higher social stress and reduced social connections. With more than 65% of the global population projected to reside in urban areas by 2050, strategic city planning achieved by optimising residential density might constitute a population-wide preventive approach for reducing burdens of loneliness and social isolation.*

***Funding**: Post-graduate research fellowship of the University of Hong Kong.*

iLab

1. Professor Wilson Lu and iLab researchers have the following articles accepted for publication in various academic journals:

(i) **Xu, J. Y.** (PDF, REC), **Lu, W. S.**, & Papadonikolaki, E. (Associate Professor, UCL) (2021). Human-Organization-Technology (HOT) fit model for BIM adoption in construction project organizations: Impact factor analysis using social network analysis and comparative case study. *ASCE Journal of Management in Engineering*. Accepted.

Abstract: *The sluggish adoption of Building Information Modeling (BIM) is attributable to various technical, managerial, personnel, procedural, and institutional issues encountered by an organization within which such adoption takes place. However, these issues are under researched from a holistic perspective. Based on a proposed human-organization-technology fit (HOT fit) model, this paper aims to study the impacting factors of HOT fit in BIM adoption within construction project organizations (CPOs). It operationalized the HOT fit of 14 BIM case projects using social network analysis (SNA) methods and investigated how the different factors impact the HOT fit and its three sub-dimensions, i.e., Human-Technology (HT) fit, Organization-Technology (OT) fit, and Human-Organization (HO) fit using comparative case study. It is found that the project size has significantly negative relations with HOT fit, HT fit, and OT fit; while hierarchy steepness has positive correlations with HT fit, OT fit, and HO fit. OT fit is also found to have a weakly negative relationship with BIM level of details (LODs). A joint factor analysis further discloses that flatter the hierarchy, the larger the project size, and the higher the BIM LOD, the more difficult to achieve a high HOT fit, HT fit, or OT fit. Thus, CPOs should use steeper hierarchical structure and take a progressive BIM adoption strategy by adopting from smaller projects and/or lower LODs. This research empirically examined how project organizational and technological factors can impact BIM adoption. The HOT fit model can help CPOs evaluate their general HOT fit status, redesign optimal HOT configuration, diagnose the problems when the HOT fit is not ideal, and make strategic directions to better harvest the benefits of BIM. Limitations and future research directions are also identified.*

(ii) **Wu, L.** (PhD student, REC), **Lu, W. S.,** & **Xu, J. Y.** (PDF, REC) (2021). Blockchain-based smart contract for smart payment in construction: A focus on the payment freezing and disbursement cycle. *Frontiers of Engineering Management*. Accepted.

Abstract: *Late payment, and indeed no payment, is a rampant and chronic problem that has plagued the global construction industry for too long. Recent development in blockchain technology, particularly its smart contract, seems to provide a new opportunity to improve this old problem. However, this opportunity is largely unexploited. This study aims to develop a blockchain-based smart contract (BBSC) system for smart payment in the*

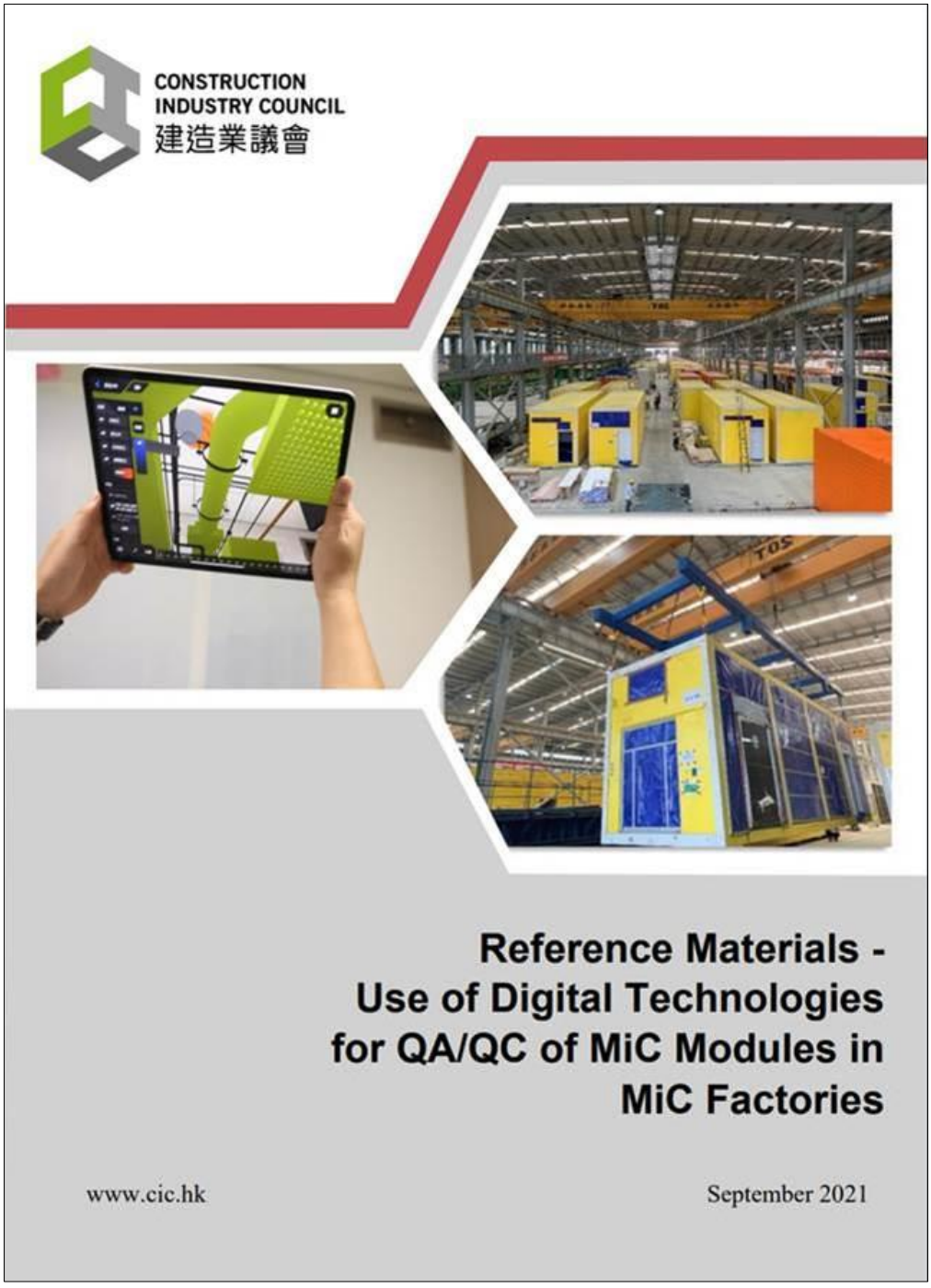
construction industry by focusing on the fundamental cycle of payment freezing (sometimes also synonymously called payment guarantees) and disbursement application. Firstly, a BBSC framework, containing three processes of (a) initiation and configuration, (b) payment freezing, and (c) disbursement application, is developed. Next, based on the framework, the system architecture of the BBSC system, containing three layers of (1) Infrastructure as a Service (IaaS), (2) Blockchain as a Service (BaaS), and (3) Software as a Service (SaaS) is proposed and elaborated. Finally, based on the system architecture, a BBSC prototype system is developed using a real-life modular construction project as a case study. It was found that the prototype system can improve the certainty and efficiency of the progress payment, thereby enabling smart payment in construction transactions. Without advocating radical changes (e.g., the contractual relationships or the intermediate role of banks in modern construction projects), the prototype can be developed into a real-life BBSC system that can work compatibly with current advancements in the field. Future works are recommended to fine-tune the findings and translate and implement them in real-life applications.

(iii) Li, X., Wu, C. K., **Xue, F.**, Yang, Z., **Lou, J. F.** (PhD student)**,** & **Lu, W. S.** (2021). Ontology-based mapping model for automatic work packaging in modular construction. *Automation in Construction*. Accepted.

Abstract: *Many cross-knowledge domain tasks involving various professional backgrounds have been transferred from construction sites to factories in modular construction (MC). In MC, handling the complexity of product breakdown structures and dynamics of project progress is critical for task planning and execution. However, forming MC work packages is time-consuming and ineffective because it is performed manually while not adequately considering domain knowledge. To address the problem, this study proposes a dynamic ontology-based mapping (DOM) approach to automatically generate semantic-enriched work packages. For this purpose, ontologies of MC products, topology, and tasks are established to incorporate domain knowledge. Then, a customized Latent Dirichlet Allocation model for mapping products to tasks and a weighted hierarchical clustering model for grouping dynamic tasks into work packages are developed. The effectiveness of the DOM approach is tested in an MC case project and controlled experiments. The results demonstrate that the DOM approach can significantly increase the accuracy and efficiency of the dynamic work packaging process while reducing planning time compared to conventional methods, thus improving the collaborative working and performance of MC projects.*

2. Professor Wilson Lu, Jinfeng Lou (PhD student, REC) and Dr Jinying Xu (PDF, REC)

   - prepared a 'Suggested Naming Convention for MiC/Offsite Modules and Components' as the Appendix B in 'Reference Materials – Use of Digital Technologies for QA/QC of MiC Modules in MiC Factories', published by Hong Kong Construction Industry Council (CIC) in September 2021.



In the current inspection practice, requests for inspection/survey checks are made on paper forms and checks are carried out physically on site. There is also a specific requirement for certain supervision personnel to make periodic inspections of the production work at the MiC factory. It is resource demanding for these personnel to make inspections at MiC factories located outside Hong Kong. Also, the inspection records, even if they are in digital form, are stored separately and used individually. There is no facility for sharing/review of the data/records collected amongst different parties.

With the advent of modern technologies, such as in cybersecurity, cloud computing, mobile technologies, 5G, Internet of Things, Radio Frequency Identification (RFID), Quick Response (QR) codes, big data and analytics, augmented reality, blockchain, etc., all of which form the technological pillars of Industry 4.0, it has now become possible to turn the inspection process into a digital process. There are now many web-based inspection application programs available in the market, which makes it easier to do the work. It has now become mandatory to adopt Digital Works Supervision Systems (DWSS) in government capital works contracts, including capital subventions contracts, with a pre-tender estimate exceeding $300 million[1]. To echo the implementation of the DWSS, BD will develop a Common Digital Platform for Site Supervision for storing and maintaining digitalised site records for the purposes of the Buildings Ordinance on a centralised common platform for private development sites. It is targeted to complete the pilot system in 2022, after which the system will be put on trial and the findings and experience will form the basis for the development of the full scale system.

This publication sets out some important quality assurance (QA)/quality control (QC) aspects and good practices for MiC pursuant to the ISO 9001 or equivalent requirements, and the parties involved in the supervision checks and inspections as required by different government regulatory departments for MiC private projects. It includes (i) the critical inspection activities involved in the production of MiC modules and typical Inspection and Test Plans for structural, architectural, mechanical, hydraulic and drainage, and electrical works for a MiC project, and (ii) an approach to turn the paper submission and physical checking process into a digital process making use of the latest technologies, and recommendations to take forward the use of an e-Inspection Management System (EIMS).

[1] DEVB (2020). DEVB TC(W) No. 3/2020. Digital Works Supervision System.

Typical Inspection and Test Plans (ITP) for different types of works are given in Appendix A for reference.

A suggested naming convention for MiC/offsite modules and components is included in Appendix B for reference. The naming convention is prepared by Professor Wilson Lu, Department of Real Estate and Construction, Faculty of Architecture, the University of Hong Kong.

APPENDIX B – A SUGGESTED NAMING CONVENTION FOR MIC/OFFSITE MODULES AND COMPONENTS

(Version: 0.3.1)[16]

1. General Requirements

It is highly recommendable to establish a naming convention for a Modular Integrated Construction (MiC)/offsite project when the project is commenced. Such naming convention will bestow a qualified name to every component in the project and its digital representation (i.e., Building information model [BIM]). This good practice will help connect physical projects and digital BIM worlds to further enhance project information management throughout a project lifecycle ranging from design, manufacturing, logistics and supply chain, construction to operation & maintenance.

The naming convention below is formulated to support a suitable naming method for a particular project to facilitate documentation and management of its important information, including Project Name, Location, Module, Component, Production, Transportation, and Installation.

Here, a **name** is the unique identifier of the module/component in both the cyber world (e.g., building information models) and the physical world. It is the key to manage the project information throughout its design, construction, and operation & maintenance stages.

A **module** refers to a freestanding volumetric module (with finishes, fixtures, fittings, etc.) manufactured off-site and then transported to site for assembly.

A **component** (a.k.a. element) refers to an individual entity at a particular location and orientation within a module.

This naming convention needs to meet the following general requirements:

1. It should be easily followed in local construction practices.
2. It should comply with existing local standards (e.g., *CIC Production of BIM Object Guide General Requirements*, and *CIC BIM Standards – General (Version 2 – December 2020)*).
3. The names of MiC modules/components should be unique to differentiate themselves and allow retrieval of relevant project information.
4. The names of MiC modules/components should contain enough information that is understandable for professionals, laymen, and computers (i.e., machine-readable).
5. The names of MiC modules/components should contain concise information that could be organised systematically and logically in various fields.
6. Abbreviations are strongly recommended to avoid lengthy names. It is encouraged to adopt the existing resources on abbreviations, e.g., *Family Library Interchange Program (FLIP) Master Type List* provided by Autodesk Industry Advisory Board (AIAB) (http://www.aiab.org/index.php/flip-guideline).
7. It is recommended to use the underline (_) as delimiters.
8. Each field should include only the following characters:

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[16] Prepared by Prof. W. Lu, Department of Real Estate and Construction, Faculty of Architecture, The University of Hong Kong. Email: wilsonlu@hku.hk

3. Professor Wilson Lu

- was featured in TVB's *Pearl Magazine* on 21 November 2021, to talk on the circularity of wood waste in Hong Kong.

- gave a talk titled 'Parallel Systems for "Trial and Error", OpenBIM, and Blockchain: Some Propositions on Hong Kong's BIM E-submission', on the Task Force on BIM Submission to the HKSAR Government's Buildings Department, on 2 December 2021.

- gave a talk titled 'Blockchain Technology for Modular Integrated Construction (MiC) Management: Some Recent Experiences', to CIB Student Chapter, on 2 December 2021.

- gave a lecture titled 'A Tour of Hong Kong Construction Industry' to students from North Carolina State University (US), Tianjian University (China), and University of Largos (Nigeria) via video conferencing.

- in the capacity of Chairman of the Chinese Research Institute of Construction Management (CRIOCM), officiated at the Opening Ceremony of the 26th International Symposium of Advancement of Construction Management and Real Estate and the 7th Cross-Strait Forum on Sustainable Urban Development joint conference, held online during 20-21 November 2021, at Tsinghua University, Beijing, China.

- chaired the keynote speeches by Dr Pierpaolo Franco (Glodon Company Limited), Professor Kincho H. Law (Stanford University), and Dr Hongling Guo (Tsinghua University), at the CRIOCM 26th International Symposium of Advancement of Construction Management and Real Estate, on 20-21 November 2021.

4. Dr Frank Xue

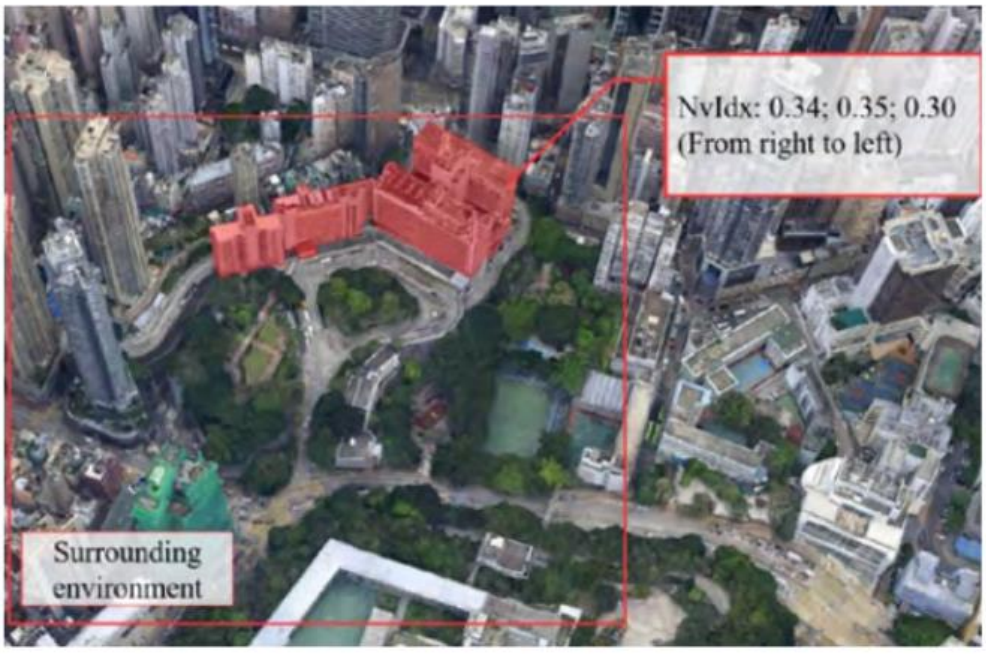
- chaired the session of 'BIM and Emerging Technologies' at the CRIOCM 26th International Symposium of Advancement of Construction Management and Real Estate, on 20 November 2021.

- gave a sharing session on BIM Training at HKU FoA, and at the 2nd CIC-BIM Network Sharing Session, which took place at the CIC Headquarters in Kowloon Bay, on 22 November 2021.

- gave an invited talk on 'OpenBIM and Blockchain Integration' in the 2nd Anniversary of HKABAEIMA at CIC's Zero Carbon Park in Kowloon Bay, on 23 November 2021.

- uses open big data to investigate how view height is a factor for well-being in high-rise cities such as Hong Kong. His study has been featured in the current issue of the University Bulletin, November 2021, 23(1), 12-13.

  'A New Angle on Views':
  https://www4.hku.hk/pubunit/Bulletin/ebook_2021Nov(23.1)/12-13/



Ruttonjee Hospital (shaded in red) enjoys a higher Nature View Index than its surrounding environment in Wan Chai, thus potentially providing its patients and members with better view health.

5. Dr Junjie Chen

- gave a talk titled 'Big Data, Computer Vision and AI for Construction Waste Management in Hong Kong', to students from the University of Reading via video conferencing.

6. Conferences and Presentations

- A group of iLab members attended the 26th International Symposium of Advancement of Construction Management and Real Estate and the 7th Cross-Strait Forum on Sustainable Urban Development online, on 20-21 November 2021.

- Zhongze Yang (PhD student at REC, supervised by Professor Wilson Lu) presented a paper at the 26th International Symposium of Advancement of Construction Management and Real Estate, where the paper won a Merit Paper Award:

  Xu J. Y., Yang Z. Z., Lu W. S. & **Xue F**. (2021). 'Impacts of the COVID-19 Pandemic on construction industry: a comparison between Hong Kong and Singapore'.

- Zhe Chen (RA and incoming PhD student, REC) presented a paper at the 26th International Symposium of Advancement of Construction Management and Real Estate, where the paper won an Outstanding Paper Award:

  Li, C. Z., **Chen, Z., Xue, F.,** Xiao, B., & Tam, V. W. Y. (2021). 'Cloud asset-enabled integrated blockchain platform for prefabricated construction management'.

Architecture, Urbanism, and the Humanities Initiatives

1. Dr Cole Roskam

- has published the following article:

  Roskam, C. (2021). Constructing climate: the Hong Kong Observatory and imperial Britain's meteorological networks, 1842–1912. *The Journal of Architecture*, 1-30. DOI: https://doi.org/10.1080/13602365.2021.1983005

  ***Abstract**: Meteorology emerged as an important science in late nineteenth-century colonial Hong Kong. It deepened imperial knowledge concerning the environmental forces affecting the colony's economic, political, and social affairs and the region at large. This research examines the historical study of the weather through the architecture that enabled it, namely, the design and construction of the Hong Kong Observatory, initiated in 1879 at the behest of the London-based Meteorological Society and eventually completed in 1885. Overlooked in the architectural history of colonial Hong Kong and Britain's imperial sphere, the observatory's history offers insight into the spaces, systems, instruments, and data that defined the colony's climate and proved critical to Hong Kong's governance, commercial culture, and physical development over time. More generally, the entwinement of environmental science and the built environment that took place in and through the Hong Kong Observatory illuminates architecture's role in what may be understood as the conceptual construction of climate — a systematic process of collecting, documenting, organising, and translating meteorological data over time into what was understood to be an ordered form of weather-related, atmospheric knowledge. Architecture's contribution to such processes was significant; understanding it allows for a reconsideration of the historical relationship between buildings, climate, and our planet.*

- has published the following book:

  Roskam, C. (2021). *Designing Reform: Architecture in the People's Republic of China, 1970-1992*, Yale University Press. https://yalebooks.yale.edu/book/9780300235951/designing-reform

  ***Abstract**: Investigating the rich architecture of post-Mao China and its broad cultural impact: In the years following China's Cultural Revolution, architecture played an active role in the country's reintegration into the global economy and capitalist world. Looking at the ways in which political and social reform transformed Chinese architecture and how, in turn, architecture gave structure to the reforms, Cole Roskam underlines*

architecture's unique ability to shape space as well as behavior. Roskam traces how foreign influences like postmodernism began to permeate Chinese architectural discourse in the 1970s and 1980s and how figures such as Kevin Lynch, I. M. Pei, and John Portman became key forces in the introduction of Western educational ideologies and new modes of production. Offering important insights into architecture's relationship to the politics, economics, and diplomacy of post-Mao China, this unprecedented interdisciplinary study examines architecture's multivalent status as an art, science, and physical manifestation of cultural identity.