Construction Industry Council

Committee on Productivity

Meeting No. 004/23 of the Committee on Productivity (Com-PRO) was held on 13 December 2023 (Wednesday) at 2:30 pm in the Board Room, 38/F, COS Centre, 56 Tsun Yip Street, Kwun Tong, Kowloon and via MS Teams.

Summary Notes of the Com-PRO Meeting No. 004/23:

Agenda Item	Paper	Major Resolutions / Progress Highlights
4.1	CIC/PRO/M/003/23	**Confirmation of Minutes of the Previous Meeting** Members confirmed the minutes of the Com-PRO Meeting No. 003/23 without further amendment.
4.2	-	**Matters Arising from the Previous Meeting** **(a) Item 3.9a: Construction Industry Council (CIC) Research and Technology Development (R&D) Forum 2023** The CIC R&D Forum 2023 was held on 13 October 2023 (Friday). The theme was on the use of concrete sensors in construction projects. Over 1,100 attendees joined the forum in hybrid format. **(b) 2023 CIC R&D Fund Proposals Summary** 35 R&D applications were received in 2023 and six proposals were shortlisted for further consideration of approval. Members suggested exploring the feasibility of revising the current R&D schedule. The Secretariat took note of it and would follow up.
4.3	-	**Report on the Key Performance Indicators (KPIs) Status of Com-PRO 2023 & 2024**

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		The Secretariat reported on the status of Com-PRO KPIs of 2023 and 2024 respectively.
		Com-PRO KPI 2023:
		(a) **Establish a Digital Resource Centre with Object Library (Please refer to Agenda item 4.6.)**
		(b) **Establish or revamp manpower forecast model for professionals, technicians, and site supervisory personnel (SSPs)** The Secretariat had completed the final draft forecast model and kept liaising with the Development Bureau (DevB) regarding the details. The tentative schedule of publication to the public would be Q2 2024.
		(c) **Consultancy Study on "Digitalising Construction for Enhancing Project Delivery"** The draft Best Practice Guidebook with self-assessment form system would be ready by Q1 2024 for Members' review and comment.
		(d) **Other than MiC and MiMEP, identification of 10 solutions that can have significant gain in construction productivity (Please refer to Agenda item 4.4.)**
		(e) **Track the strategies and actions recommendation in the TCQ Report** The Secretariat would keep following up the update of strategies and actions.
		Com-PRO KPI 2024:
		(a) Manage the Digital Resource Centre with Object Library to facilitate MiC and MiMEP Adoption with 50,000 target number of visits to the website of Digital Resource Centre. (Please refer to Agenda item 4.6.)

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		(b) Identify and Promote Practical Solutions bringing Significant Gain to Construction Productivity
		(c) Identify Innovation Technology to enhance Productivity Significantly in Building Projects
		(d) Preparation of Marketing Works for the CIC Innovation Award 2025
		Members had no comments on the status of Com-PRO KPIs 2023 & 2024.
4.4	-	**Status of Identification of 10 Solutions for Improving Construction Productivity**
		The Secretariat identified and presented 10 solutions for improving construction productivity. Solutions were identified from the meetings, interviews and site visits with current construction practitioners, including contractors, professional bodies and work associations, suppliers, innovation technology seminars and forums.
		The 10 solutions were:
		1. Concrete Sensor
		2. High Strength Steel Material – S690
		3. Acoustic Metamaterials
		4. Gondola-free Water Tightness Test
		5. Drilling Robot
		6. Artificial Intelligence (AI) Rock in Ground Investigation Logging
		7. Painting Robot
		8. Framework for Project Management Enhancement
		9. Cost-Based Procurement

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		10. Drone Survey – Aerial Light Detection and Ranging (LiDAR) Inspection The Secretariat summarised that these 10 solutions would be promoted to the industry via webinar or seminar in early 2024. The Secretariat would collect data and feedback from contractors and suppliers to review the innovative technology adoption and productivity performance. Members suggested sharing the successful project references from users' perspective on CIC's website to promote the innovative application for productivity enhancement. The Secretariat took note of the comments and would follow up accordingly.
4.5	-	**Research & Technology Development (R&D) Fund Agenda 2024** The Secretariat presented the proposed R&D funding agenda 2024 which are stated as below: (a) Advance Internet of Things (IoT) construction tools to enhance construction productivity; (b) Innovative technologies/ tools for efficient and effective construction management; (c) Development of AI for construction productivity enhancement; (d) Development of advanced construction materials; and (e) Development of unmanned construction machinery application The Secretariat also presented 2024 R&D Funding Schedule in which it would be divided into 4 quarters: (a) Q1 (January to the end of March) - Application opening (b) Q2 (April to the end of June) - Application assessment (c) Q3 (July to the end of September) - Committee endorsement (d) Q4 (October to the end of December) - Project commencement

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		Members had no adverse comments on the proposed funding agenda. About the 2024 schedule, Members suggested exploring the feasibility of revising the current R&D schedule to speed up the application assessment and endorsement process. The Secretariat took note of it and would follow up. The revised schedule would be circulated to Members for review in due course.
4.6	Paper CIC/PRO/P/010/23 (for approval by circulation)	**High Productivity Construction – Modular Integrated Construction (MiC) & Multi-trade Integrated Mechanical, Electrical and Plumbing (MiMEP)** **(a) Report on KPIs of MiC 2023 & 2024** (i) The Secretariat reported the successful completion of KPI regarding the Master Class on MiC Project Management (Project Managers) with over 100 graduates. (ii) The Secretariat reported the status of the MiC website click rate. As of the end of November 2023, the click rate has exceeded 270,000 clicks. The Secretariat anticipated the target of 300,000 clicks will be achieved by the end of December 2023. (iii) Regarding the Com-PRO KPI for the Digital Library, the Secretariat reiterated the agreed two-stage plan: issuing Expression of Interest (EOI) as the first stage while preparing MiC & MiMEP starter guide / reference materials as the second stage. For the EOI status, the Secretariat reported to Members that the EOI had been issued to stakeholders listed on the Buildings Department List of Pre-accepted MiC systems, List of Consultants of AACSB and List of Specialist Contractor of MEP on 1 December 2023. As of the meeting date, a total of 19 of stakeholders had expressed interest in contributing to the digital library. The Secretariat expected to receive the necessary information by 29 December 2023 and planned to publish the relevant and useful information on the CIC MiC website for public reference.

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		(iv) The Secretariat restated the approved KPI for MiC 2024 and presented the plan and approaches for implementation in the subsequent Agenda items.
		(b) Report on MiC & MiMEP upcoming events
		(i) The Secretariat reported that the final report on Nam Cheong 220 had been distributed to Members for review and comment and no comments were received and hence the report would be released officially in Q1 2024. Meanwhile, a webinar on Nam Cheong 220 has been scheduled for 19 December 2023 to provide valuable insights and knowledge on this subject matter.
		(ii) The Secretariat proposed the plan of coming events in 2024. Firstly, organising a visit to the MiC mock up units at Yuen Long for the Fire Station-cum-Ambulance Depot with Departmental Quarters and Facilities in Area 72, Tseung Kwan O. Secondly, organising a factory visit for the MiC project - High West Site Development for the University of Hong Kong (HKU) with a webinar follow-up for broader audience. Thirdly, the grand opening of the MiC Centre after renovation is proposed to take place in Q3 2024. Lastly, a series of webinars on MiMEP experience sharing would be held in Q4 2024. Members suggested having Chinese Medicine Hospital for visit as one of the MiMEP experiences.
		Members had no further comments on the above proposed plan.
		(c) Proposal for MiC Centre Revamp (for approval by circulation)
		(i) The Secretariat presented the revised design proposal for the MiC Centre Revamp. The primary objectives of the centre are twofold: to gain public recognition and support for MiC & MiMEP and provide a deeper understanding of MiC & MiMEP technologies to construction stakeholders with a technical background. To achieve these dual

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		objectives, the proposed design incorporates the use of digital equipment, which allows the creation of two separate exhibition content areas within the same physical space. (ii) The Secretariat proposed the option of receiving donations from the industry stakeholders as a means to ensure that the MiC Centre showcases the latest technologies while delivering value-for-money items. To allow various stakeholders with a fair opportunity to showcase their technologies, EOI would be issued to MiC & MiMEP suppliers, contractors, consultants, etc. Members had no further comments on the proposed plan and thereby approved it accordingly.
4.7	Paper CIC/PRO/P/009/23 (for approval by circulation)	**Applications for the CIC Research and Technology Development (R&D) Fund – AI-based Real-time Construction Progress Monitoring System** Mr. LEE Kai-sun from Chun Wo Construction & Engineering Co., Ltd. presented the proposed research. The aim of the proposed research was to develop an AI-based real-time construction progress monitoring system targeted to monitor the number of site workers from different sub-contractors and the progress of 11 interior work trades such as plastering work and door installation work. The research team is planning to collect data through fixed "fish-eye camera" for AI-training and site inspection record. Members were concerned about the practicality and possibility of using wired "fish-eye cameras" to collect data for AI training under variable site conditions especially in building project. Also, Members doubted the replicability of the development in terms of excessive hardware cost. Members suggested that the research team could adopt mobile devices for data collection and utilise BIM model with LiDAR technologies to achieve more practical and sustainable research outcomes.

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		Members declined the R&D application submitted by Chun Wo. The Secretariat would announce the application result to the research team accordingly.
4.8	-	**Final Presentation on the Funded Research Project – Autonomous Mobile Robot for Material Delivery and Site Inspection** Mr. CHAN Cheung-ho and Mr. PONG Kuong-hon presented their final KPIs achievement of their funded project. Shui On completed the development of the Autonomous Mobile Robot (AMR) with SLAM navigation, automatic material delivery function, 360camera progress record function and the AI safety monitoring and alerting function. Three KPI achievements were presented and demonstrated via videos: Adopting the AMR in four building projects, Reducing the material delivery time by 50% and Reducing three man-hour per day by using AMR. Members had no adverse comments on the research and accepted the KPI achievements stated in the project agreement. The Secretariat would liaise with the project team for the closing of the project.
4.9	-	**Final Presentation on the Funded Research Project – Study of Artificial Intelligence for Road Surface Depression Detection Using 3D LiDAR Data** Prof. Charles WONG Man-sing from The Hong Kong Polytechnic University presented the research progress. The aim of the proposed research was to develop an A.I. road surface depression detection algorithm, a 3D point cloud library for the defects, a set of tools for the detection, a user guideline as well as a manual and standard to detect the defects. The AI detection algorithm was accomplished at the end of November 2023 and adopted by the Highways Department for highways maintenance.

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		Members had no adverse comments on the research and accepted the research outcomes stated in the project agreement. The Secretariat would liaise with the project team for the closing of the project.
4.10	-	**Consultancy Services on Digitalising Construction for Enhancing Project Delivery** Ms. Didi MAK from Llewellyn & Partners Co. Ltd. reported the progress of their consultancy services. The team had submitted the draft of the final report and the Best Practice Guidebook. The digital maturity assessment result was counted based on 1) Construction; and 2) Environmental, Social, and Governance (ESG) performance index to establish a unique zonation of digital maturity type for the local projects. After data from ten selected local projects had been collected, the most prioritised digital technologies, including Common Data Environment (CDE) and Building Information Modelling (BIM), were identified during the assessment. Besides, local projects could examine the prioritised strategies by performance to indicate the strategies when starting a project. The teams introduced the design of Best Practice Guidebook and online self-assessment tool to publish one-off results for the local projects. The online self-assessment tool would be launched to the public as a webpage hosting in the CIC server. Members suggested circulating the draft Best Practice Guidebook to the Members for review before publication. The Secretariat would follow up accordingly and further liaise with the project team to monitor the final stage of the consultancy services.
4.11	-	**Course for Senior Executives** The Secretariat presented the background, intent and outline of the course for senior executives. Two options for engaging institutes for course design, development and delivery were proposed: tendering and non-procurement items. The Secretariat also sought Members' advice on the course content, expenses and return.

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		Members suggested considering various universities for innovative and advanced technology. The Secretariat would further consider and circulate a paper to seek Members' pre-approval for proceeding non-procurement items.
4.12	-	Any Other Business (a) **Merger of Com-PRO and Com-CBD (Construction Business Development) and Members in 2024** The Com-PRO and Com-CBD were suggested to be merged in 2024 to enable a more comprehensive and coordinated approach of operations. The details of merger would be further discussed and reported. The Secretariat took note of it and would follow up.
4.13	-	**Next Meeting (No. 001/24)** The next meeting would be held on 19 March 2024 tentatively. The Secretariat would inform Members upon confirmation of the meeting details. The meeting was adjourned at 6:00 pm.

Remarks: The mentioned papers discussed at the Committee on Productivity Meeting No. 004/23 and the full minutes can be made available to Council Members by the CIC Secretariat upon request.