

An AI-integrated CDE smart platform for building construction management

Lily Lee-yi Lau

WSP (Asia) Limited, Hong Kong, People's Republic of China

ABSTRACT

In view of the shortage of professionals and the challenges of project delay factors in Hong Kong, how to improve the efficiency and productivity in construction project management has been a critical and significant issue in recent years. Unlike traditional paper-based information management, the Common Data Environment (CDE) is a cloud-based digital platform for all working partners to store, share, and modify the project information through the same destination. The cores of the CDE concept are 'Integration' and 'Single source of truth'. Integration of information can avoid professional work in silos and provide a holistic review of project status. 'Single source of truth' can reduce disputes and arguments which make the collaboration among professionals much easier, quicker, and accurate. The CDE concept can be widely used for the whole life cycle of any built asset including documentation and construction. In this age of Artificial Intelligence (AI), it is worth exploring how AI can be integrated with the CDE concept and how the integration can optimise the efficiency and productivity for not only documentation and construction but also project management in building construction.

KEYWORDS construction project management; artificial intelligence (AI); common data environment (CDE); AI-CDE; submission management; site progress management

CONTACT Lily Lau

✉ lily.lau90@icloud.com

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1. Introduction

The shortage of engineers in the construction industry has raised great concerns in Hong Kong in recent years, with a total of 4.6% declines in qualified engineers during 2018-2023 (Legislative Council Secretariat, 2024). Apart from four talent admission schemes, the industry also tried to boost new local blood via promotion in education and increasing subsidies. However, the situation of professional resources for future development in Hong Kong is still critical.

On the other hand, except for low cash flow and unexpected ground conditions, there are many surveys (Larsen et al., 2015) revealing that the main delay factors in Hong Kong's construction industry are poor site management, slow response, and lack of effective communication. Generally, a building construction project always involves various stakeholders, including government authorities, users, project management teams, designers, architects, consultants, and contractors. How information can be effectively and accurately passed from one person to another is critical and challenging. Furthermore, such delays and inconsistency of information always lead to project overrun.

Building Information Modelling (BIM) has been widely used for new construction projects in Hong Kong in recent years. Apart from 3D modelling through which BIM enables designers and contractors to have a comprehensive understanding and review of the design and existing services to enhance the buildability before actual site construction, one of the prospective benefits of BIM

application is to achieve a Common Data Environment (CDE) for drawing designs as well.

According to Ho (2022), the CDE concept in the construction industry has been developed and explored for years since the 1980s. It aims to enhance accuracy and efficiency by sharing information and facilitating collaboration. In traditional project management, information transmissions are mainly manual in which the large and complex communication matrix makes the exchange of information among team members difficult and error-prone.

In Hong Kong, the Construction Industry Council (CIC) has held several CDE webinars since 2020 covering CDE standards, data visualisation, cloud collaboration, digital twins, etc. Later in 2022, the Development Bureau (DEVB) and the CIC co-organised the first 'Hong Kong Construction Common Data Environment Award'. Hong Kong's construction industry has been making good efforts in digitalisation. Most of the first 10-year Hospital Development Plan projects (since 2016) including Kai Tak Hospital, and many landmark projects like Kai Tak Sports Park and the Lyric Theatre Complex of West Kowloon Cultural District, etc. have adopted CDE.

The implementation of CDE is not easy. As practical experience grows, problems come to light. However, with knowledge sharing and cross-disciplinary experience, the road to innovation, creativity, and problem resolution never stops. This proposed integrated smart platform aims to enhance efficiency, cost savings, and boosted safety on construction sites.

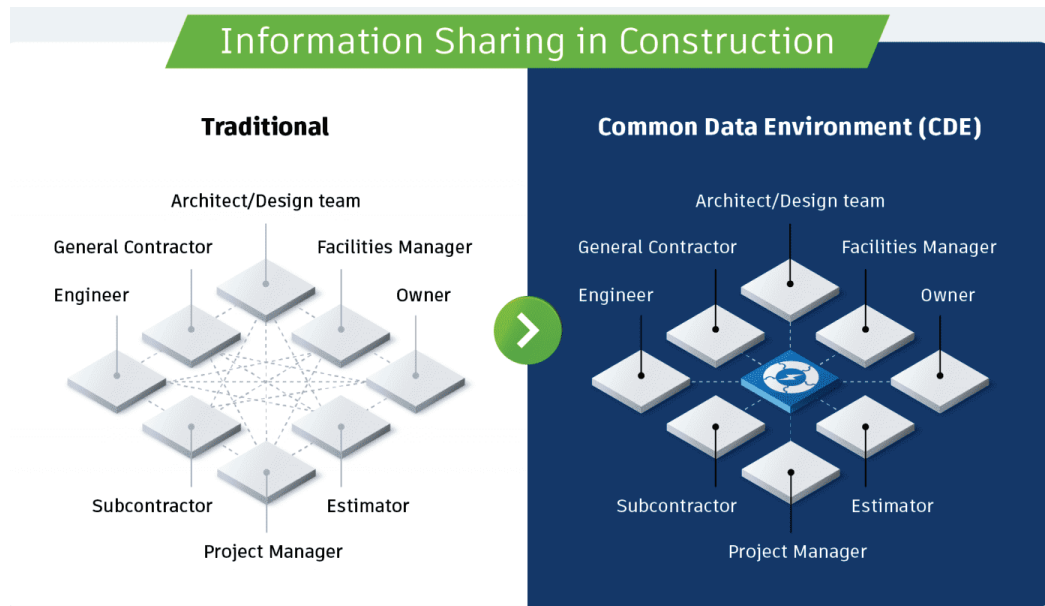


Figure 1. Traditional information flow versus a common data environment (Autodesk, 2025).

Unlike traditional project management flow, the 'single source of truth' in CDE is developed with a centralised information digital platform which allows all team members to download and modify the document from the same source. This mechanism can keep the information up to date and accurate without extra workforce for consolidation and integration.

When all submissions and responses are digitalised, the simple search browser of CDE allows professionals to find and filter the required information quickly and easily. Since the source is unique, the time spent on verifying the accuracy and transmission of information is largely reduced.

Nowadays, some CDE platforms allow smart tools to be utilised to handle such tasks as creating flexible and automated workflows. For example, the client can create a workflow on the CDE platform to track the statutory submission approval. When the workflow is created, a tracking line is set up via the platform, and the system will send notifications to the respondents via email regarding the actions to be taken. The originators can set up permits for different parties to review or modify the status and documents of the workflow via permission control as well.

The possibility of CDE in building construction is unlimited. In this era, in which technology is developing rapidly, if there is a powerful algorithm to learn project management for an integrated CDE smart platform, the site progress could speed up and even provide an open lessons-learned platform for all building professionals in the future.

In building construction, professionals need to oversee not only technical issues with its professional aspects, but also deal with many administrative and documentary work such as regular updates on submission lists including shop drawings, material submissions, Request for Information (RFI) forms, technical submissions, Testing and Commissioning forms, Statutory submission list, etc. The lack of tracking of any submissions may lead to overlooking critical paths and result in project delay.

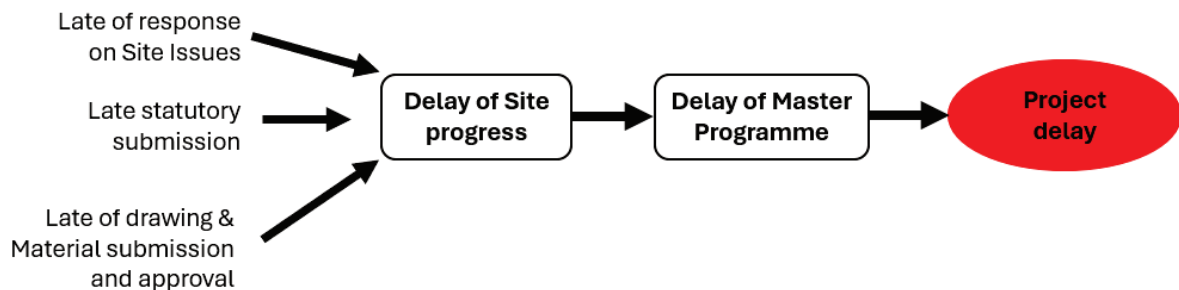
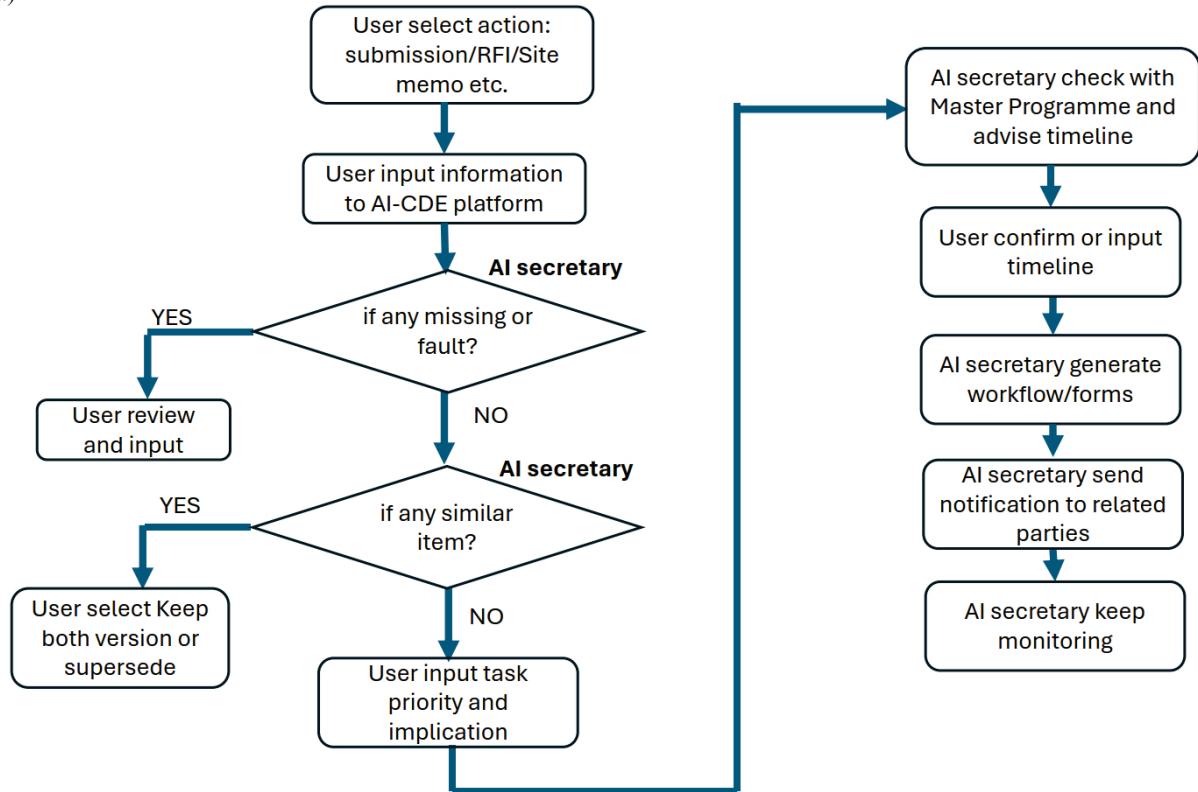


Figure 2. Late submissions and response resulting in project delay.

The management and monitoring of submission lists are fundamental in project management. An AI-integrated CDE (AI-CDE) platform acts as a secretary to monitor the kinds of schedules for meetings, statutory submissions,

drawings and material submissions, variation orders, site inspection, RFI, etc. which could be a step of AI analysis and monitoring of the master programme.

(a)



(b)

	CDE	AI-CDE integration smart platform
Shop drawing management (Remark: similar for material submissions)	- Contractor create traditional excel drawing list. - Contractor create new submission reference number for each drawing revision and upload the files to the platform one by one. - Users input the file name and submission description in each upload. - Consultant download the drawings to comment. Observation: One submission includes various drawings which drawing status hard to trace.	- Set up agreed drawing list in the platform. - Create unique item number/file name (same as the drawing number) for each drawing in the platform. - Contractor upload drawings with unique file names to the platform - The A.I. secretary update the drawing list and send notification to consultants. - Consultant mark comments on the drawings via the platform (integrate with PDF markup tools, create legend symbols in PDF tools). - A.I. secretary update the drawings status. - Up-to-date drawing submission list with reply status can be viewed in the platform. - Each drawing status can be easily checked in the platform. Improvement: Reduce time for drawing/material submission list management, enhance document filing speed.

(c)

	CDE	AI-CDE integration smart platform
Request For Information (RFI) management (Remark: similar for site work application management)	- Contractors create RFI and upload the PDF to the platform. - Consultant download the file and reply RFI. - Consultant upload the replied RFI to the platform. - Consultant review RFI status in the platform by sorting dates, open/responded status. Observation: <i>Hard to trace RFI contents and monitor the time and cost implication.</i>	- Set-up rules of RFI standard in the platform. - Contractor input compulsory information and copy related drawings link in the platform for each request information. - The A.I. secretary generate standard RFI form and send notification to consultants. - The A.I. secretary generate and update RFI summary list with reply status, cost and time implication category. - A.I. secretary to alert project team if any delay on Master Programme. Improvement: <i>Improve RFI content quality, reduce time of RFI management, enhance time and cost implication management.</i>

(d)

	CDE	AI-CDE integration smart platform
Statutory submission management	- Consultant /contractor create workflow for each statutory submission in the platform. - Contractor prepare documents/drawings for consultant review. - After consultant's review, contractor submit the statutory submission to Authorities. - Authorities return comments/approval. - Contractor upload the Authorities' response letter to the platform. Observation: <i>Not easy to manage the gap between the Authorities, clients, consultants and contractors.</i>	- Consultant/Contractor create statutory submission list with target dates in the platform. - Consultant/Contractor setup each statutory submission requirement in the platform - A.I. secretary send early notification to consultant/contractor. - Consultant/contractor input compulsory information in the platform. - A.I. secretary generate standard statutory submission. - Consultant/contractor sign-off and delivery to the Authorities. - A.I. secretary monitor the timeline of the submissions and send notification to the Authorities' officers. - A.I. secretary to alert project team if any delay on Master Programme. Improvement: <i>Improve submission quality and enhance management on statutory submission flow.</i>

(e)

	CDE	AI-CDE integration smart platform
Site progress management	1. All contractors prepare monthly site progress report for each trade. 2. Contractor check each submission status via the platform and then update the submission list. 3. Contractor check RFI response status via platform and then update the RFI list. 4. Contractor submit the site progress report for consultant and RSS review 5. Consultant/RSS check if the input record consistent with actual. Observation: <i>Very time consuming for contractors/consultant/RSS to prepare or review the site progress report and verify the truth of information.</i>	1. Contractor input site progress reporting period in the platform. 2. A.I. secretary generate all submission status and RFI responded status. Improvement: <i>Reduce time for site progress report production and easy manage the truth of information.</i>

(f)

	CDE	AI-CDE integration smart platform
Master Programme management	1. Contractor submit Master Programme in PDF. 2. RSS monitor site work with the approved Master Programme. 3. RSS issue site memo on site work observation and raise if any potential delay to the project. 4. Project team review the site progress and Master Programme with contractor in regular meeting Observation: <i>Delay factors are hard to justify and incur many disputes.</i>	1. Consultant/Contractor setup Master Programme standard in the platform. 2. Contractor input compulsory information in the platform. 3. A.I. secretary generate standard Master Programme. 4. Contractor to review and submit to consultant for approval. 5. Consultant comment and approve the Master Programme in the platform. 6. A.I. secretary base on the approved Master Programme to monitor and manage the submission status. Improvement: <i>Reduce time for Master Programme management, enhance on identifying delay factors and critical path.</i>

Figure 3. (a) Workflow of the AI-CDE platform for building construction management; (b) comparison table of CDE and AI-CDE (Submission Management); (c) comparison table of CDE and AI-CDE (RFI Management); (d) comparison table of CDE and AI-CDE (Statutory Submission); (e) comparison table of CDE and AI-CDE (Site Progress Management); and (f) comparison table of CDE and AI-CDE (Master Programme Management)

When all submission records and site progress are digitalised, a database is created and capable of AI monitoring on the master programme. Imagine if the Construction Master Programme software is integrated into the smart platform by adding tracking items identified

by the contractor and consultant; this digital link-up between the programme and submission records will make the monitoring much easier, and more effective and accurate.

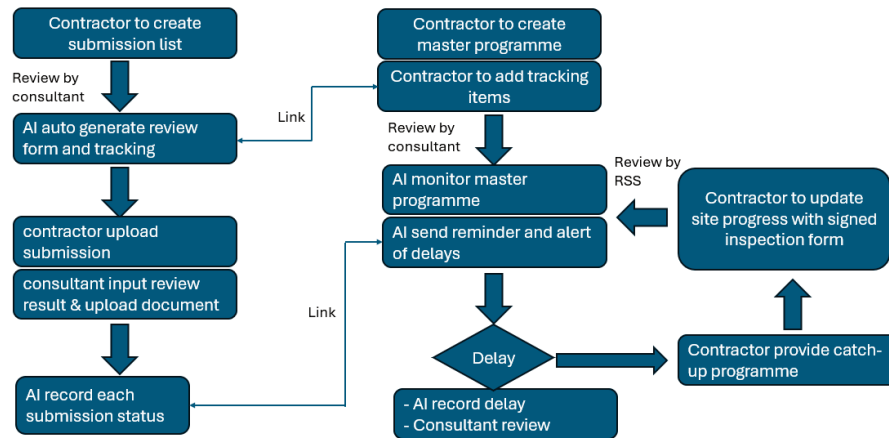


Figure 4. Brainstorm of flowchart of the AI Monitor Master Programme.

2. Smart shop drawing list management

At the beginning of the construction period, the contractor is required to submit drawing and material submission lists for the consultant's review. Some critical shop drawing submissions (Transformer Room, FS plant room, Chiller Plant, DG Store, etc.) and long-lead items which may easily hinder site progress will be highlighted and reflected in the master programme for close monitoring. However, in the traditional way, due to plenty of submissions and re-submissions, it is always difficult and time consuming to keep good and consistent records from contractors, consultants, and clients where all deliveries are via email and hard copies.

In recent years, the application of EDMS with indexing and search capabilities has largely helped users locate documents quickly and easily, but it still needs users to check the records manually. If smart submission lists are set up on the CDE platform with each item allocated a unique index, taking drawing submissions as an example, every time the contractor uploads drawings to the CDE platform, the system will upload the drawing status by recognising the file name input by the contractor. When the drawings are successfully uploaded, the AI secretary could send a notice and summary of submissions to the consultant for their further action.

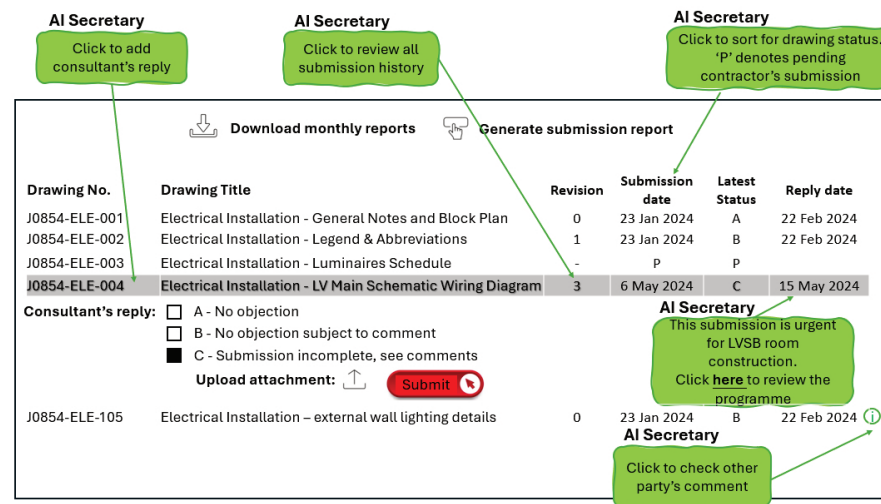


Figure 5. Brainstorm of smart drawing submission list.

If this item is critical for review and is added in master programme tracking items, the AI secretary will send an alert to the consultant base on the programme and site progress. With the consultant's input of the review result on the reply form generated by the smart platform, the system can properly record the results. Sometimes a

submission may need architects, consultants, and engineers' review, with the digitalised submissions in CDE applications nowadays, but it is no longer a requirement to have additional consolidation since the destination of reply from each party is the same.

3. Smart RFI forms management

The increased pre-project planning effort has been implemented for years while Building Information Modelling (BIM) is replacing traditional layout plan designs in Hong Kong's construction industry. However, there are always unexpected situations and site issues especially in relation to alteration and renovation works. Request for Information (RFI) is a way for contractors to ask for instructions and technical advice from consultants and architects during the construction period. However, the RFI content is hard to control. Sometimes details determine success or failure.

For example, after demolishing a false ceiling and existing building services, the contractor found that the existing structural beams would clash with new riser ducts and toilets which may affect the installation of new

electrical cables, exhaust ducts, plumbing, and drainage. The Main Contractor then instructed the sub-contractors to issue an RFI to seek the consultant's advice.

In this case, four trades were involved which were Electrical, Plumbing and Drainage, MVAC, and builder's work for sanitary fitments. Ideally, the Main Contractor would consolidate all information and queries from all trades of sub-contractors and builder's work, and then issue one single RFI. However, due to time constraints, consultants generally will receive five different RFIs from the Main Contractor and even on different dates. This will easily cause double handling of work since the information is co-related and would affect the consultant's decision making concerning design changes.

Request of Information (RFI-1223)

Issue date: _____

Subject: Existing Beam clash with sink & toilets Expect reply date: _____

Discipline: Builder's work ☐ Façade ☐ Furniture ☐ RCP ☐ Doors ☒ Sanitary Fitments
 Building Services ☐ MVAC ☐ Electrical ☐ ELV ☐ FS ☒ PL/DR/Town Gas
☐ Medical Gas ☐ Gondola ☐ Lift & Escalator

Affected floor: 6F Location: GL 10-16

Initiatives: ☐ Scope of work ☒ Existing Services ☒ Design ☐ Statutory ☐ Others

Implication: ☒ Time ☒ Cost

Descriptions: Existing structure beam is found at 6F which will clash with the sinks and toilets as marked in the attachment, please advise and provide update design for sink and toilet locations. Time and cost implication may be incurred.

Attachments: 6F sink and toilet clash with existing beam markup.pdf

Response (RFI-1223) by Architect or Engineer _____

Attachments: _____

Name: _____ Signature: _____ Position: _____ Date: _____

AI Secretary
 "this RFI-1223 will forward for QS's review"

AI Secretary
 "similar content in RFI-1219 and RFI-1221, you may want to click to review"

Figure 6. Brainstorm of smart RFI form.

If the RFI is also digitalised, all information is input via the platform and saved in the system, and the AI Secretary can be created to help to sort out the correlated RFIs by comparing keywords like 'Beam', 'Clash', '6F', such that the consultants can review the whole picture once rather than piece by piece which will enhance the efficiency.

In addition, the records of RFI are very important for both site progress and extension of time and cost judgement. In every case, contractors consider whether it may have time and cost implications, and they should raise their concerns and notify the Quantity Surveyer (QS) for cost control. The digitalisation of RFI on the platform

allows the AI secretary to auto summarise the issued RFI by category in list format, pie chart, and table at anytime. Time and cost control will become quite a lot easier so that the project team can generate a list of RFIs with time and cost implications for their review and monitoring during any construction period.

With the pie chart and table generated by the AI secretary, the Client and project team can have a holistic review of potential Extension of Time (EOT), claims by the contractor, and potential disputes. Moreover, Architects and Engineers can easily catch up with the outstanding items and the QS can provide much more realistic budget control and estimation.

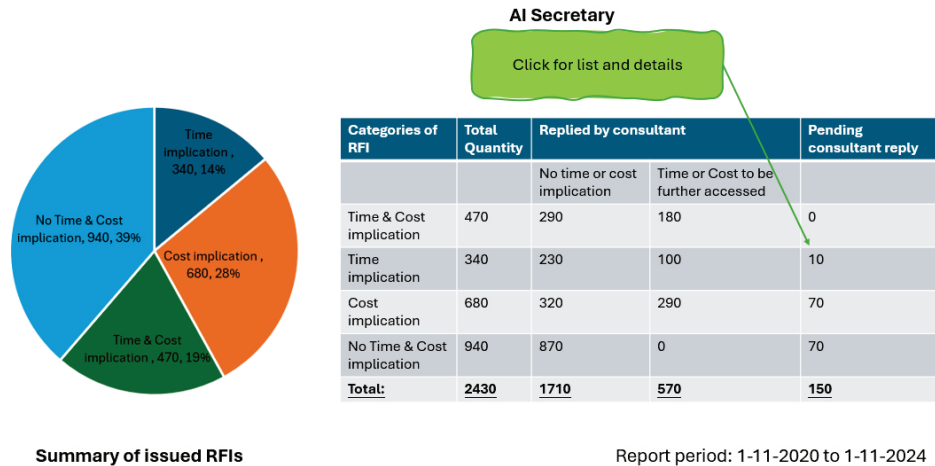


Figure 7. Brainstorm of Smart RFI summary report.

4. Smart work application forms management

There are many benefits to digitalising the submissions and application forms such as having better records of submissions/applications and approval history, searching ease, no need for extra manpower to regularly update the submission status, and also quality control of the submissions and applications.

Apart from RFIs, the contractors also need to submit many other forms including Work Application forms, Request Site Inspection (RSI) forms, T&C forms, Material on Site Inspection forms, and Inspection of Defects forms. It can be imagined how complicated and complex it is for RSS to manage these forms from various contractors. The quality control of these forms is very important for working efficiency and this can be achieved by the AI secretary.

For example, if the contractor wants to apply existing cable diversion work for a hospital, in good practice, this contractor shall sign-off a work application form with all necessary information including emergency contacts, registered electrical workers, responsible supervisors, and identify implications for existing hospital services, etc. The contractor shall also provide comprehensive site survey reports and method statements with the consultant's approval as well. If some documents are missing, such as the consultant's approval not having been obtained on the exact work date, the hospital may reject the work arrangement. Re-arrangement is required for the diversion work. Furthermore, sometimes the work can only be carried out on weekends and need hospitals' advance liaison with different parties. The time cost for re-arrangement may be large.

Work Application Form (WA-112)

Subject: Existing Power Cable Diversion at BF

Issue date: _____ Expect reply date: _____

Discipline: Builder's work ☐ Façade ☐ Furniture ☐ RCP ☐ Doors ☐ Sanitary Fitments
 Building Services ☐ MVAC ☒ Electrical ☐ ELV ☐ FS ☐ PL/DR/Town Gas
☐ Medical Gas ☐ Gondola ☐ Lift & Escalator

Working floor: BF Location: EL room

Working Duration: 15 hours Working schedule: 8 Feb 2025 18:00 to 9 Feb 09:00

Affected Services: Existing laundry washing machine No. 102 power will be suspended for 2 hours

Attachments: Please upload site survey report TS-121 Site survey for EAF at BF.pdf
 Please upload Method Statement MSS-178 power cable diversion at BF.pdf

Emergency Contact: NAME Tel: _____
 Registered Electrical Worker: NAME Tel: _____
 Responsible Work Supervisor: NAME Tel: _____

To be completed by RSS

Work application: ☐ Rejected ☐ Accepted Working schedule: _____
 Remarks if any: _____

Name: _____ Signature: _____ Position: _____ Date: _____

AI Secretary

"this TS-121 may not match with your work application subject, please review"

AI Secretary

"Please seek consultant's approval for this MSS-178"

Figure 8. Brainstorm of smart work application form.

If the work application form is digitalised on the CDE platform, contents and necessary documents can be tracked by the AI secretary before the Main Contractor arranges site work with RSS and the users.

5. Auto generated monthly site progress reports

With the smart forms and digitalised lists mentioned above, AI-generated monthly site progress reports will not be difficult. In the traditional way, each trade sub-contractor needs to print out one set of site progress reports for each project manager, consultants, Residential Site Staff (RSS), and the Main Contractor. There are various trade sub-contractors like FS, Plumbing, Drainage, Electrical, ELV, MVAC, Lift, Gondola, Medical Gas, Towngas, etc. Each month's progress report is too thick and heavy to read and find information. Generally, the BS progress report includes shop drawings and materail status, statutotry submission status, request for information (RFI) status, and meeting minutes. It is very hard for consultants to verify the figures and status of the submissions at the meeting. Sometimes there are arguments about whether a document has been submitted or not.

Since all submissions, technical forms, and RFIs are submitted and approved via the smart platform, the AI secretary can generate these reports automatically which totally avoids consuming the resources required to update

these documents. It also provides accurate data for the Project Manager's review and supervision. Also taking attendance online and recording the absence, input, and distribution of the meeting minutes and circulation thereof to all parties for review with endorsement via the platform will allow team members to easily follow up and track the action items. This proper recording of meeting minutes will greatly help newly joined members to pick up the project easily and quickly as well.

6. Smart site progress supervision and master programme management

The framework of the Master Programme for each project is quite similar. However, there are many relationships among each building construction step and thus many delay factors making the Master Programme complicated. In the traditional way, it is very hard for clients to verify and monitor the true programme. However, the delay factors have been identified and can be mitigated in light of past years of construction experience. If such experience can be recorded in a digitalised and simple format, the project management will become much easier.

Setup Master Programme AI Monitoring

	Tracking items	Planning			Actual		
		Duration	Start	Finish	Duration	Start	Finish
1	GBP and drainage plan 1st approval (IC/BD)						Y
2	FSD GBP 1st approval (FSD)						Y
3	Electricity supply submission 1st Approval (CLP/HKE)						Y
4	Plumbing water submission 1st Approval (WSD)						Y
5	FS water submission 1st approval (WSD)						Y
6	FTNS invitation						Y
7	Generator submission 1st approval (EPD)						Y
8	Commencement	0	10-Sep-25	10-Sep-25			
9	Completion date	0	10-Sep-27	10-Sep-27			
10	Project duration	731	10-Sep-25	10-Sep-27			
11	Temporary power supply						
12	Temporary water supply						
13	Temporary Site office						
14	underground works commencement						
15	(a) lead-in services construction drawings approval						
	(i) electricity (CLP/HKE)						
	(ii) water supply (WSD)						
	(iii) Towngas						
	(iv) FTNS						
	(b) Excavation Permit (Highway)						
	(c) Road Excavation						
	(d) backfill						
	(e) Highway Inspection and Acceptance						
16	underground utilities						
	(a) drawings submission						
	(b) drawings approval						
	(c) material submission						
	(d) material approval						
	(e) material approval (long-lead items)						
	(f) footing and ground beam construction						
	(g) sump-pit construction						
	(h) manholes/drawpits construction						
	(i) pipe ducts /cable ducts construction						
	(k) inspection						
	(n) backfill						
17	Ground Floor slab						
	(a) drawings submission						
	(b) drawings approval						
	(c) material submission						

AI Secretary

"this item cannot be found in the link, please upload for sharing"

AI Secretary

Insert the drawing numbers, the system will track the submission records and auto update the actual submission and approval date

AI Secretary

The finish of site work need RSS's online approval

Figure 9. Brainstorm of setup of the AI monitoring master programme.

For example, power energisation is one of the milestones of project running. If power energisation is delayed, a series of Testing and Commissioning schedules for Air Conditioning equipment, pump equipment for plumbing water supply, and FS water supply will be delayed, so then a series of statutory certificates for Project Completion will be delayed. According to experience, it is noted that delay factors concerning power energisation include approval of drawings, material ordering, and handover of plantroom (walls and slabs, waterproofing tests, etc.). While these factors can be listed and inserted into the Master Programme tracking rows with expected completion dates on the CDE smart platform, the overall picture and critical path of the Master Programme can be easily identified for stakeholders in monthly site progress reports.

There are so many lessons to be learnt from experience. The experience from different building professionals is absolutely valuable for sharing with young engineers and also the industry. However, the dissemination of experience in the traditional way like holding lectures, talks, and seminars is slow.

When centralised and digitalised Master Programme and Submissions Management are adopted, a big database for professionals' experience from all CDE projects can be created, and the AI secretary can provide its advice by comparing thousands of projects in the future even with more predictable figures on delays and advise on mitigation measures.

7. Build up project hierarchy

The project hierarchy depends on the construction contract and building type.

There are two types of construction contracts in Hong Kong which are Design and Build (D&B) and Design-Bid-Build (DBB). For D&B projects, the Design Builder/Main Contractor is directly employed by the Client while the Main Contractor will employ architects and consultants for design input.

Different contract types will result in different project management hierarchies. When a project is created in the system, the corresponding project management model will be applied based on the client's selection of contract type. As a summary, there will be three models of project management as shown below (D&B Type A, D&B Type B and DBB).

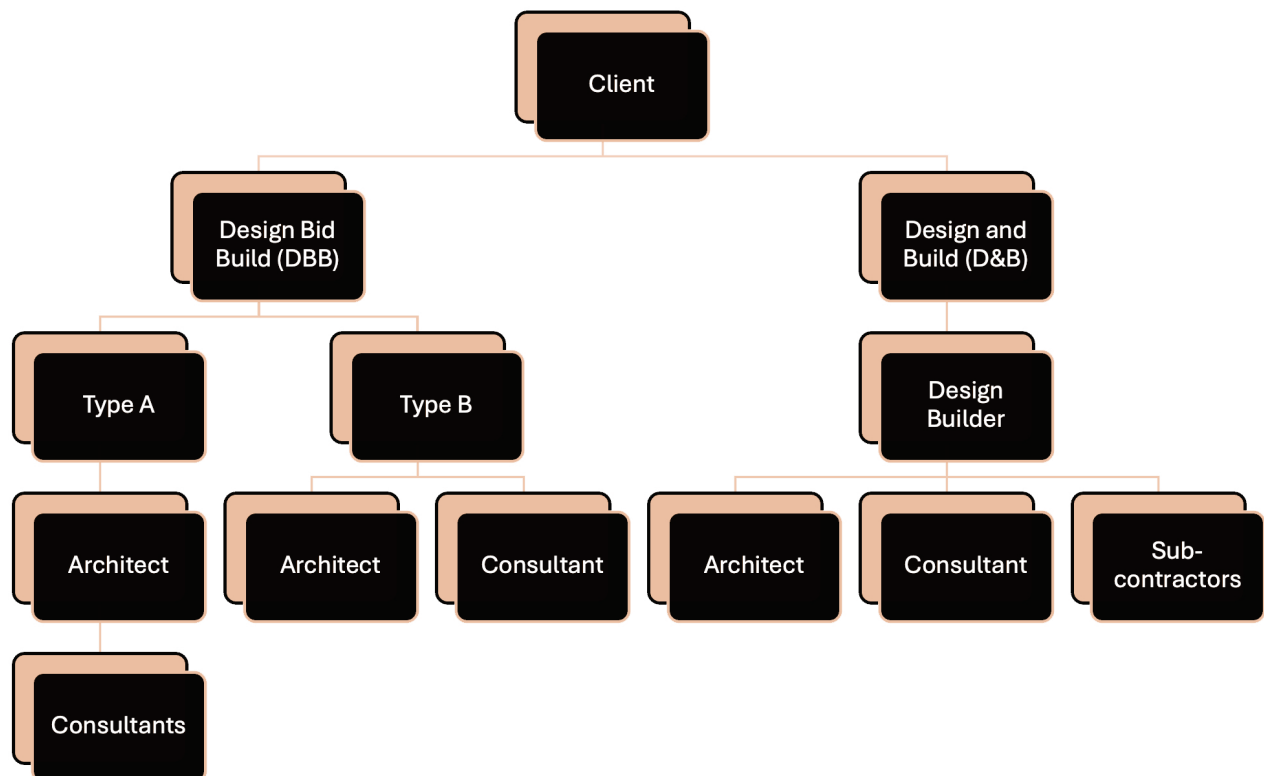


Figure 10. Design and Build (D&B) and Design-Bid-Build (DBB).

In the traditional way, Clients will circulate the tables with Consultants and Contractor for benchmarking after project completion for their future planning reference. If the project key information is digitalised and input via the smart CDE platform for both the design stage and actual completion, a big database for future learning can be created and will break the limitation of company boundaries. The project information includes building name, project commencement date, anticipated and actual project completion date, anticipated and actual project duration, building type, building height, Construction Floor Area (CFA), Gross Floor Area (GFA), plant room area, number of floors, size of major plants (transformers, chillers, water boilers, district cooling, etc.), application of renewable energy, loading estimation, construction methods (traditional in-situ construction method or MiMEP construction), etc.

With these parameters, the AI estimation on the Master Programme and resources arrangement will be more accurate and reliable. The workflow will be changed under which professionals can work with the AI secretary on the Master Programme planning, manpower and labour resources review, and more predictable project completion date.

8. Conclusion

Though CDE platforms nowadays achieve centralised document management, personnel workflow tracking, and summarising of tasks in regard to the technology aspect, time is still needed for the industry to change the traditional workflow.

Historically, humans have found that redundant and heavy physical work can be replaced by machines, so assembly line productions are commonly used today. AI is not replacing professionals, but assists the engineers and other professionals with its unique advantages of gathering information in a factual and effective way such that engineers or professionals can make decisions in a smart and effective way.

It is the age of Digitalisation and AI, which represents a transition from the old generation to the new generation. There are unlimited possibilities and innovations in the construction industry awaiting professionals and engineers' exploration. This paper presents a preliminary concept of an AI-integrated CDE platform for building construction management. In the near future, this platform will become more powerful through integration with digital twin technology, evolving into a predictive system for building services systems, builder's works, equipment, and devices.

Notes on contributors



Ir Lily Lee-yi Lau has over 10 years of experience in feasibility studies, investigation studies, project planning, design, coordination, tendering, contract administration and supervision in various kinds of projects with technical expertise in building services design and

installation. She has a degree in Electrical Engineering and a master's degree in Sustainable Urban Development from the Hong Kong Polytechnic University. She is a Member of the Hong Kong Institution of Engineers. She is also a Chartered Engineer of the Engineering Council and a member of the Institution of Engineering and Technology. Lily has experience in Institutional buildings such as Extension of Operating Theatre Block of Tuen Mun Hospital and the Design and Build of Kowloon East Regional Headquarters and Police Station. She also has experience in school, hotel, and residential development projects.

References

- [1] Research Office Research and Information Division Legislative Council Secretariat (2024). Shortage of construction workforce in Hong Kong. [online report]. Available at: https://app7.legco.gov.hk/rpdb/en/uploads/2024/ISSH/ISSH34_2024_20241212_en.pdf. [Accessed on 12 January 2025].
- [2] Larsen J.K., Shen G.Q.P., Lindhard S.M. and Brunoe T.D. (2015). Factors Affecting Schedule Delay, Cost Overrun, and Quality Level in Public Construction Projects. *Journal of Management in Engineering*, [online]. Available at: https://ira.lib.polyu.edu.hk/bitstream/10397/62462/1/Larsen_Jesper_Kranker_2015.pdf [Accessed on 4 February 2025].
- [3] Ir Prof. HO On-sing, Thomas (2022). Construction Industry Council Embrace Common Data Environment for New Opportunities [Blog]. Available at: <https://www.cic.hk/eng/main/aboutcic/leadership/ChairmanBlog/blog-142.html> [Accessed on 12 January 2025].
- [4] Autodesk, Inc. (2025). ISO 19650, the Common Data Environment, and Autodesk Construction Cloud. [online]. Available at: <https://www.autodesk.com/autodesk-university/article/ISO-19650-Common-Data-Environment-and-Autodesk-Construction-Cloud>. [Accessed on 12 January 2025].