

# Guidebook for **Site Management Platforms**



**Part B**  
For Industry Stakeholders  
Version 1.0 (May 2026)

**Build**SG



# Disclaimer

This Guide is a summary of practices and recommendations that may be adopted for the application of the Site Management Platforms (SMPs) and does not purport to be exhaustive or applicable to all situations.

The Building and Construction Authority (BCA) disclaims any liability (including liability arising from negligence) in respect of any matter, and for the consequences of any act done or omitted by any person in reliance on anything in, or omitted from, this Guide.

This Guide may be amended from time to time. Please refer to the **BCA website** for the latest version.

# Feedback

We welcome your comments about this Guide to help us continue to develop and improve it. Please provide your inputs **here** (<https://go.gov.sg/smpguidefeedback>) or scan the QR code below.



<https://go.gov.sg/smpguidefeedback>

## ©Copyright

We extend our special thanks to the solution providers below for their valuable contribution of photos and materials in this publication. Their collaboration has significantly enriched the content. The photos and infographics in this publication are protected by copyright law. Any unauthorised use, reproduction, or distribution of the photograph is strictly prohibited.

# Acknowledgements

BCA would like to acknowledge the contributions of the following organisations which had provided their valuable inputs in the development of the guidebook.

- Boustead Projects Limited
- China Communications Construction Company Limited (Singapore Branch)
- China Construction (South Pacific) Development Co Pte Ltd
- DEX
- Intercorp Solutions Pte Ltd
- LeapThought Asia
- Novade Solutions Pte Ltd
- Real Estate Developers' Association of Singapore (REDAS)
- Rich Construction Company Pte Ltd
- Takenaka Singapore Pte Ltd
- Wee Hur Construction Pte Ltd

# Table of Contents

|                                                                                     |    |
|-------------------------------------------------------------------------------------|----|
| Acknowledgements                                                                    | 3  |
| <hr/>                                                                               |    |
| 1 Introduction                                                                      | 6  |
| 1.1 Definition of Site Management Platforms                                         |    |
| 1.2 Overview of SMP Use Cases                                                       |    |
| <hr/>                                                                               |    |
| 2 Data Exchange Platform                                                            | 12 |
| 2.1 Introduction and Objectives of the Data Exchange Platform                       |    |
| 2.2 Connections Between SMPs and the Data Exchange Platform                         |    |
| 2.3 Showcase of the SGBuildex Proof of Concept (POC)                                |    |
| <hr/>                                                                               |    |
| 3 Introduction to Dataset Digitalisation in SMPs                                    | 16 |
| 3.1 Introduction to the Levels of Site Document Digitalisation                      |    |
| 3.2 Workflow for Conducting Audit Checks on Regulatory Data                         |    |
| 3.3 Differences in Audit Processes Based on Firm's Levels of Digitalisation         |    |
| <hr/>                                                                               |    |
| 4 Useful Use Cases of SMP                                                           | 23 |
| 4.1 SMP Use Case 1: Wee Hur Construction Pte Ltd and Novade                         |    |
| 4.2 SMP Use Case 2: Rich Construction Company Pte Ltd and LeapThought               |    |
| 4.3 SMP Use Case 3: Takenaka Singapore Pte Ltd and SGBuildex Data Exchange Platform |    |
| <hr/>                                                                               |    |
| 5 Recommended Steps for the Adoption of SMPs                                        | 37 |



1

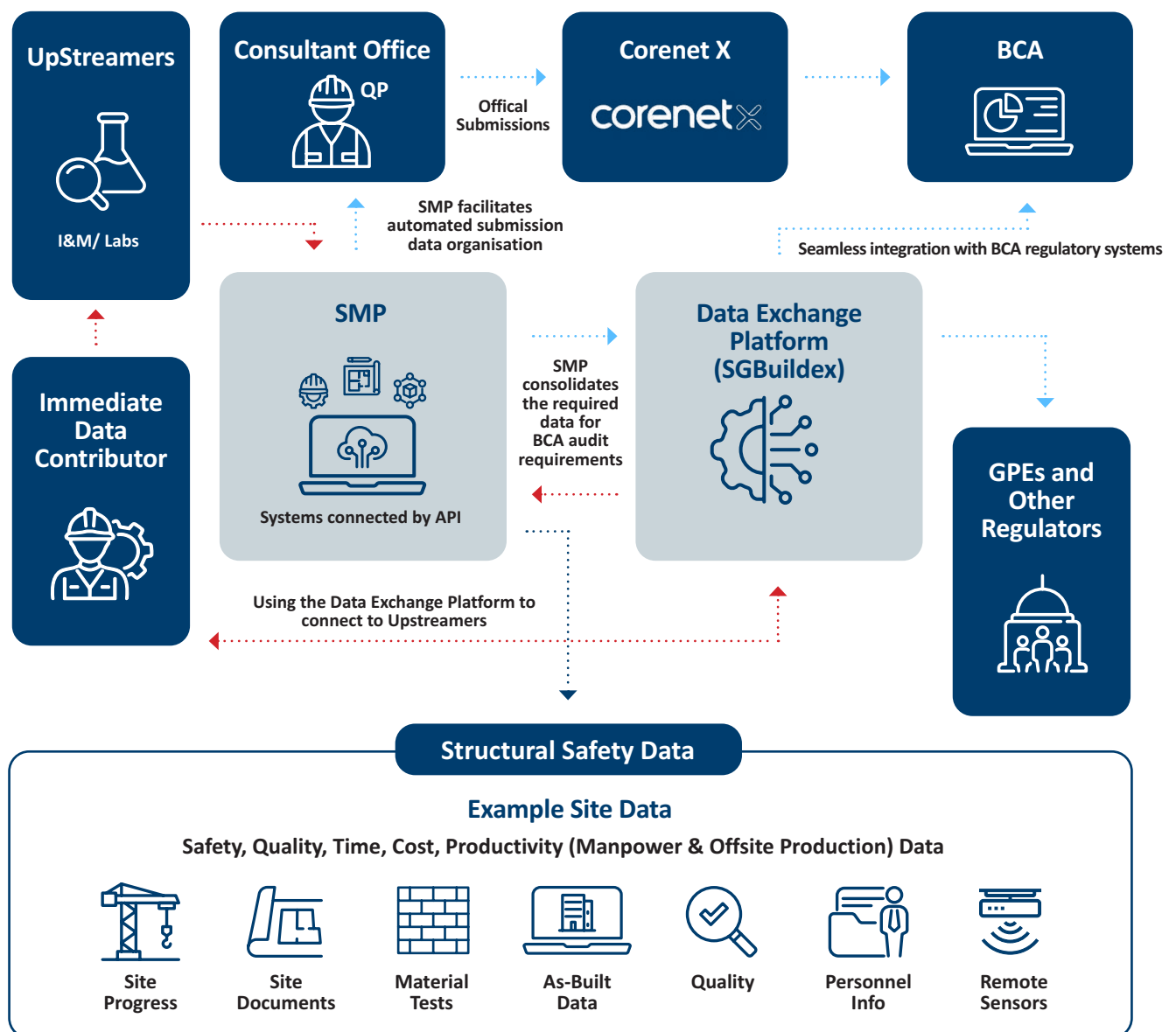
# Introduction

# Introduction

## 1.1 Definition of Site Management Platforms

Construction projects involve complex processes that generate continuous streams of data, requiring systematic collection and management. Site Management Platforms (SMPs) are centralised digital systems that capture and manage construction site data, turning it into a strategic decision-making tool for project stakeholders to enhance efficiency, productivity, progress, safety, and quality performance at the construction stage.

**Figure 1. Overview of SMP's workflow and data management processes throughout the construction phase**

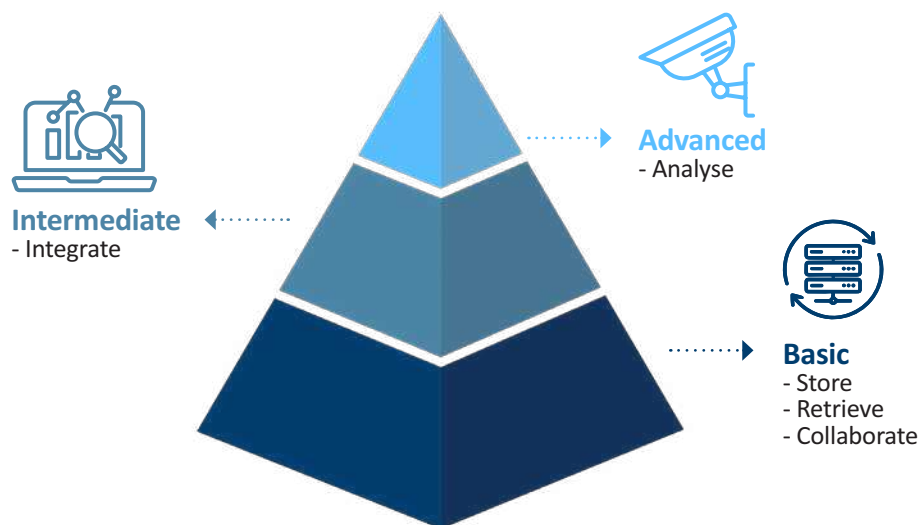


SMPs are comprehensive digital solutions that revolutionise construction project management by centralising data collection, automating workflows, and enabling stakeholder collaboration, thereby enhancing productivity, safety, and quality outcomes. These platforms require robust data management capabilities to handle both structured and unstructured information, as well as standardised formats to ensure consistency across the industry. Core functionalities include automated workflows, notification systems, role-based access controls, and integration with smart site technologies such as 360-degree cameras and AI-enabled CCTVs.

SMPs should be accessible via mobile devices to support real-time operations, while maintaining stringent cybersecurity protocols in compliance with the Personal Data Protection Act (PDPA). Companies remain responsible for implementing appropriate security measures and are encouraged to seek specialist consultation where necessary, supported by guidance from the Infocomm Media Development Authority (IMDA) and Cyber Security Agency of Singapore (CSA).

The platforms should also support interoperability and API integration with Data Exchange Platform (SGBuildex), enabling secure data sharing among project stakeholders. In addition, companies must ensure regular system maintenance, timely updates, continuous monitoring, and proper data archiving to facilitate handover to relevant stakeholders, such as developers, upon project completion. Collectively, these capabilities contribute to improved resource allocation, enhanced safety monitoring, stronger supervisory oversight, greater data accuracy, improved quality performance, and robust audit trails that support informed decision-making and timely project delivery.



**Figure 2. Three-tiered model for SMP implementation****Basic – Store, Retrieve, Collaborate**

At the basic level, SMPs support fundamental construction data management by storing project documents, drawings, and reports within centralised repositories. Project teams are able to retrieve daily progress photos, safety checklists and inspection records while collaborating through shared access to project files. Role-based access controls ensure that appropriate stakeholders can view and edit relevant information, from site supervisors accessing safety protocols to architects retrieving updated drawings.

**Intermediate – Integrate**

At the intermediate level, SMPs integrate various construction technologies and data sources into unified workflows. This includes the integration of 360-degree cameras for site documentation, linking Internet of Things (IoT) sensors for environmental monitoring, and the synchronisation of data across different project management tools. The platform standardises data formats across different systems, enabling a seamless flow of information between design software, scheduling tools, and mobile field applications used by different trades and contractors.

**Advanced – Analyse**

At the advanced level, SMPs leverage AI-enabled CCTVs and machine learning to analyse construction patterns, predict potential safety hazards, and optimise resource allocation. These platforms process large amounts of structured data, such as schedules, budgets and specifications, as well as unstructured information, including photos, videos and notes, to generate predictive insights on project delays, quality issues and safety risks. Automated workflows can trigger notifications based on intelligent analysis, such as alerting supervisors when AI detects unsafe working conditions or when progress analytics indicate potential schedule delays.

This progression enables construction projects to advance from basic document management to intelligent, predictive project orchestration.

## 1.2 Overview of SMP Use Cases

SMPs are digital tools designed to support construction sites in managing data and digitalising processes, thereby enabling the adoption of Integrated Digital Delivery (IDD).

### Key SMP-related IDD use cases include:



Digital Request for Information (RFI)



Digital Progress Monitoring



Digital Construction Scheduling and Sequencing



Digital Inspection



Digital Logistics



Digital Defects Management



Digital Safety Planning and Management



Data-driven Project Performance Monitoring



Digital Site Management

SMPs function as centralised digital ecosystems that transform traditional paper-based construction processes into integrated digital workflows. By facilitating systematic data capture, processing, and dissemination across all project phases, SMPs underpin the implementation of IDD. For instance, digital RFI processes are streamlined through structured digital forms and automated routing, reducing reliance on paper-based documentation and accelerating response times. Digital construction scheduling and sequencing capabilities enable real-time management of project timelines, allowing for dynamic updates and optimised resource allocation.

## Core Operational Capabilities

Digital logistics functions streamline material tracking, delivery coordination, and inventory management through technologies such as barcode scanning and Global Positioning System (GPS) integration. These capabilities are complemented by digital safety planning and management modules, which facilitate risk assessments, incident reporting, and compliance monitoring with real-time alerts and corrective action tracking.

## Site Execution and Quality Assurance

Furthermore, SMPs enable comprehensive digital site management through mobile-enabled data entry, document control, and stakeholder communication portals. Digital progress monitoring tools provide greater visibility of project status through photo documentation, milestone tracking and automated reporting. In addition, digital inspection functionalities standardise quality control processes through customisable checklists and automated compliance verification. These work in tandem with digital defects management systems, which track issues from identification to resolution, supported by photographic evidence and accountability trails.

## Strategic Impact

Finally, data-driven project performance monitoring aggregates information from all modules to generate analytics, dashboards and predictive insights. This enables evidence-based decision-making and establishes a seamless digital thread that connects all stakeholders across the project life-cycle and value-chain. Collectively, these capabilities enhance efficiency, reduce errors, improve collaboration, and strengthen overall project transparency and control.

For more details and information of IDD cases, please refer to [Lighthouse Case Studies](#) | [BCA](#).



2

# Data Exchange Platform

# Data Exchange Platform

## 2.1 Introduction and Objectives of the Data Exchange Platform

The Data Exchange Platform facilitates the secure and efficient sharing of data among multiple entities, including government agencies, businesses, research institutions, and other organisations. For instance, government agencies may tap on the data exchange platform for their inspection and enforcement audit operations, drawing on consolidated construction data. Where relevant, such data may also be shared with BCA to support regulatory functions.

## 2.2 Connections Between SMPs and the Data Exchange Platform

SGBuildex acts as the neutral Exchange Platform that aims to simplify and strengthen the exchange of high-quality data through four strategic pillars:



### Unified Connectivity

A single integration with SGBuildex removes the need for multiple bilateral connections. This reduces the time, cost and effort required to manage evolving business relationships.



### Harmonised and Standardised Datasets

By curating datasets, SGBuildex ensures industry alignment through a common data language. The platform enforces schema compliance, allowing only data that conforms to the agreed structures to proceed, thereby ensuring better data quality, consistency, and utility.



### Flexible and Hassle-Free Connectivity Options

To accommodate varying levels of digital maturity, participants can exchange data via a common API or through a simple web portal interface, ensuring accessibility and broad adoption across the sector.



### Robust Data Security and Governance

Data transits through SGBuildex without being stored. Information is encrypted in transit and at rest, and is only accessible to authorised parties based on established digital consent, thereby reinforcing trust and data control.

## 2.3 Showcase of the SGBuildex Proof of Concept (POC)

The SGBuildex POC was a collaborative initiative spearheaded by BCA, Housing Development Board (HDB), and Real Estate Developer's Association of Singapore (REDAS), supported by four solution providers and six main contractors/developers. The group focused on the exchange of manpower, safety, and piling datasets across their systems. The successful POC led to the development and go-live of SGBuildex in May 2025, as well as the completion of BCA datasets and standards in October 2025.

### Performance Metrics

Following extensive tests involving over 100 real-world transactions across 13 participating organisations, the results demonstrated significant industry value:

**92%**

of participants agreed the POC was meaningfully executed.

**100%**

found clear operational value – citing productivity gains, improved workflow efficiency from data harmonisation, and new analytical insights derived from previously unstructured.

**100%**

of solution providers validated the SGBuildex common API as comprehensive.



## Industry Testimonials:

“ The neutral data highway with the availability of data standards, promotes a connected and efficient ecosystem where stakeholders can exchange information seamlessly, make informed decisions, and drive the standardisation of project management workflows. ”

*China Construction  
(South Pacific)*

“ SGBuildex’s goal of establishing a single connection to multiple data sources is an excellent enabler for REDAS’ Real Estate Analytics And Performance Indicators Dashboard (RAPID) initiative, a digital platform aiming to provide business insights for users through quality data. ”

*REDAS*

“ SGBuildex allows organisations such as Boustead Projects to have the ability to manage data across various platforms in a seamless manner, thus delivering a better user experience and accelerating data-driven decisions and transfers to various stakeholders. ”

*Boustead Projects*

“ At Novade, we’re committed to exceeding our clients’ expectations for operational excellence. Our collaboration with SGBuildex ensures that our shared clients have the flexibility and control they need to access their field data anytime, anywhere, maximising the value derived from their data. ”

*Novade Solutions*

“ Through a common connection protocol, CCCC envisions multiple and collective value for the construction sector’s stakeholders through a neutral data exchange. We look forward to project opportunities to collaborate on data sharing with like-minded partners, customers and the regulator. ”

*China Communication  
Construction Company (CCCC)*

“ We are very excited about our collaboration with SGBuildex on their innovative neutral sharing data platform. Security, access rights and permissions are strictly controlled, ensuring trust amongst the community for the exchange and use of important datasets. ”

*Intercorp Solutions*



3

# Introduction to Dataset Digitalisation in SMPs

### 3.1 Introduction to the Levels of Site Document Digitalisation

The digitalisation of site documents can be categorised into a series of defined levels, as outlined below.

Figure 3. The levels of site document digitalisation



For the latest Site Management Data Standards, including updated classifications of structured and unstructured data, please scan the QR code below or refer to [Site Management Data Standards](#) | [BCA](#).



<https://go.gov.sg/datastd>

## 3.2 Workflow for Conducting Audit Checks on Regulatory Data

Under the existing protocols, inspectors must conduct on-site visits to perform document verification at the Registered Engineer (RE) site office and perform on-site inspections. The proposed remote document verification approach would enable virtual documentation reviews to be conducted, optimising the audit process as outlined below:

### A) Level 0 (As-Is Workflow)

For projects at Level 0, officers conduct scheduled on-site audit inspections. The audit is a two-stage process, officers will first review the site documents before proceeding with a site walkthrough.

**Figure 4. A summary of an inspector's workflow for projects at Level 0**



### B) Level 1 and 2

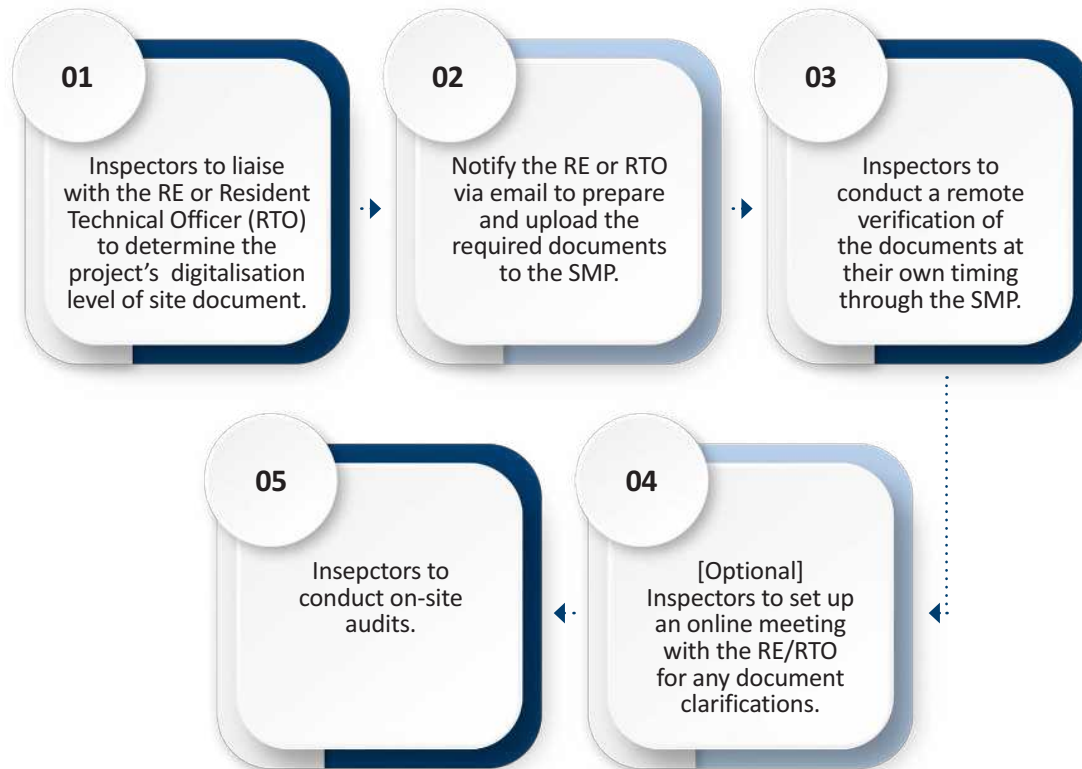
For projects at Levels 1 and 2, officers shall first determine the level of document digitalisation before proceeding to the site visit. Officers will then request the RE to upload the required audit documents to the SMPs.

Upon being granted access, officers may review the relevant documents and data remotely through the SMP at their convenience. Where clarification is required, officers may engage the RE separately or address such queries during the subsequent on-site visit.

This approach allows officers to decouple the administrative audit from the on-site inspection. By completing the documentation review remotely via the SMP, the site visit can remain strictly focused on the physical walkthrough.

With the adoption of SMP, builders can expect faster document retrieval and sharing, streamlined RFI/RFA and approvals workflow. Early industry adopters have shared that SMPs have helped them in their administrative work during the preparation and processing of approvals. In addition, a single source of truth reduces version control issues, minimises rework, and improves traceability of documents and approvals, helping builders avoid costly errors and disputes. Over the long term, this also brings cost savings through reduced paper usage, storage space, and administrative manpower requirements.

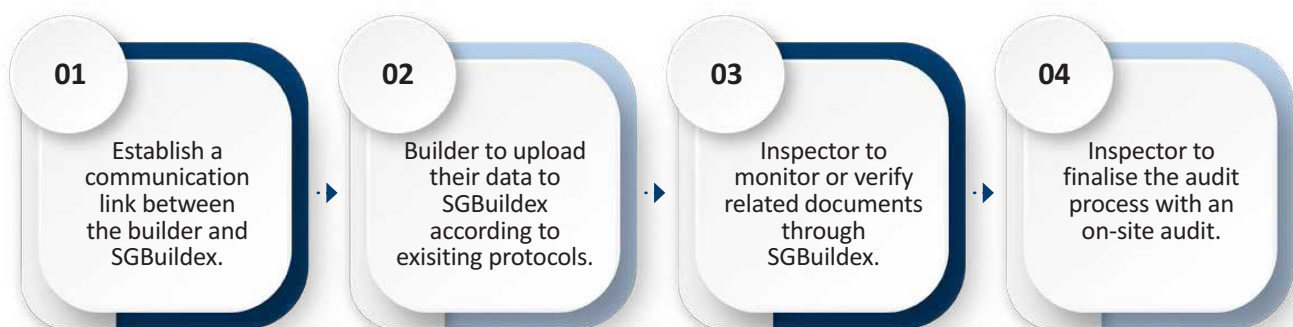
**Figure 5. Workflow of structural audit for projects at Level 1 and 2**



### C) Level 3 (SGBuildex)

At level 3, builders integrate directly with the BCA Data Exchange Platform. This involves carrying out a rigorous System Integration Testing (SIT) and User Acceptance Testing (UAT) before the project goes live.

**Figure 6. A summary of a builder and inspector's workflow for projects at Level 3**



The following steps outline the key phases required for successful SMP onboarding to SGBuildex.



#### Setup Phase

- Onboard to the SGBuildex test environment via the Admin Portal to register for a test account and configure data consent protocols.
- Access the SGBuildex test environment via the Pitstop Portal to configure endpoints and authentication settings.



#### Development Phase

- Implement CONFIG, PUSH and NOTIFY APIs.
- Implement FILES API where attachments are required.



#### Testing Phase

- Perform SIT (using demo data) within the SGBuildex test environment with DEX acting as the counterparty.
  - Perform UAT (using real-world data) within the SGBuildex test environment with BCA.
- This phase focuses on resolving schema validation issues and refining error notifications.



#### Go-Live Phase

- Formally onboard to the SGBuildex production environment via the Admin Portal and Pitstop Portal.
- Commence live operations and perform post go-live monitoring of live transactions.

SGBuildex offers builders a more connected and more efficient data-driven way to manage projects. By harmonising data across platforms, it reduces duplication of effort, streamlines project management workflows, and unlocks new analytical insights from previously unstructured data, enabling more informed and timely decisions. Acting as a neutral data highway, builders, consultants, solution providers, and regulators able to exchange information seamlessly, while strictly controlled access rights ensure sensitive project data remains secured. With the flexibility to access field data anytime and anywhere, builders can maximise the value of their existing digital tools, with overall benefits growing as more stakeholders and platforms come on board.

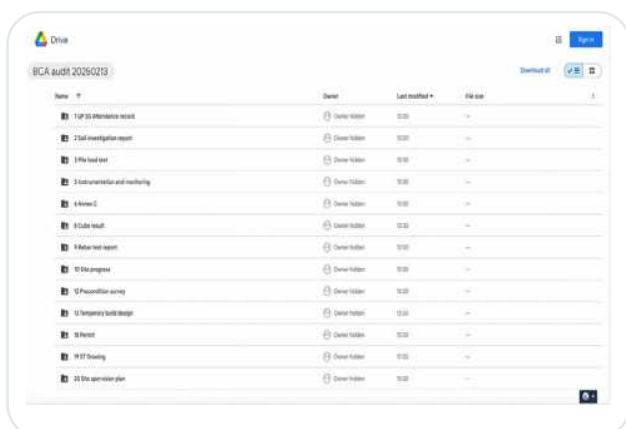
To find out more on the detailed onboarding process, please reach out to the SGBuildex team at: [info@dextech.ai](mailto:info@dextech.ai).

### 3.3 Differences in Audit Processes Based on Firm's Levels of Digitalisation

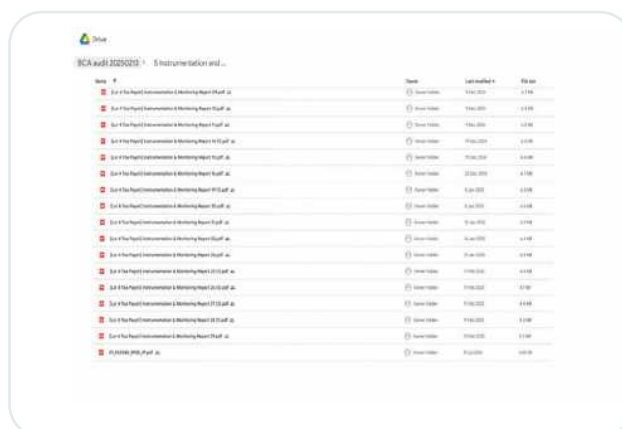
#### A) Level 1A and 1B – PDF-Based Documentation

Firms maintaining site documentation primarily in PDF format, whether fully digitised or in combination with hard copy records, will be classified under Levels 1A and 1B. These firms may upload PDF documents to their SMP following the standardised filing method provided by officers. Upon being granted access, officers will review and audit the site documentation via the SMP.

#### Example of the list of site documents required for audit



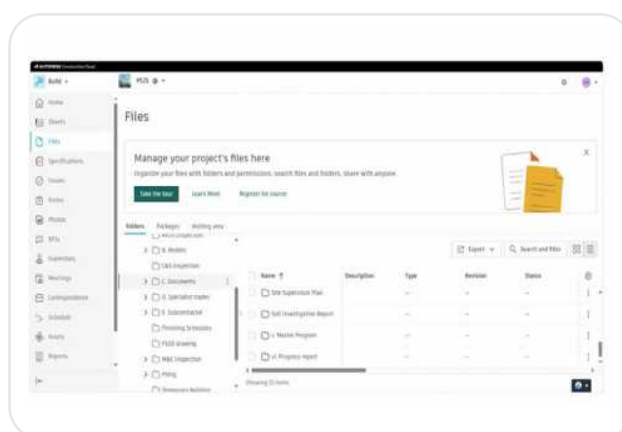
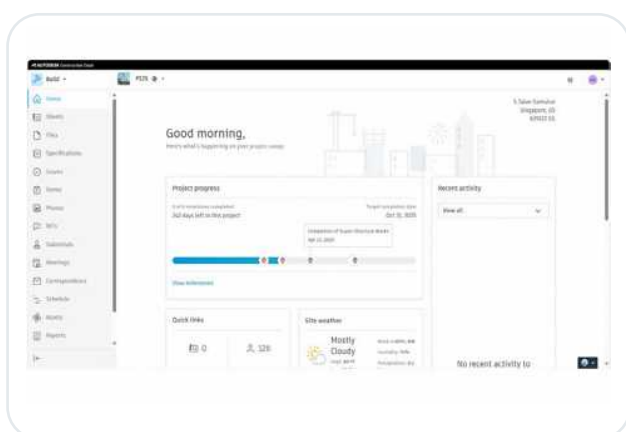
| Name                              | Owner         | Last modified | File size |
|-----------------------------------|---------------|---------------|-----------|
| 1. Top 10 interference record     | Owner: Hublin | 11:00         | 11        |
| 2. Soil investigation report      | Owner: Hublin | 11:00         | 11        |
| 3. Site layout plan               | Owner: Hublin | 11:00         | 11        |
| 4. Instrumentation and monitoring | Owner: Hublin | 11:00         | 11        |
| 5. Access 2                       | Owner: Hublin | 11:00         | 11        |
| 6. Cable layout                   | Owner: Hublin | 11:00         | 11        |
| 7. Motor test report              | Owner: Hublin | 11:00         | 11        |
| 8. Site progress                  | Owner: Hublin | 11:00         | 11        |
| 9. Photomonitoring survey         | Owner: Hublin | 11:00         | 11        |
| 10. Temporary build design        | Owner: Hublin | 11:00         | 11        |
| 11. Permit                        | Owner: Hublin | 11:00         | 11        |
| 12. WIT Drawing                   | Owner: Hublin | 11:00         | 11        |
| 13. Site operation plan           | Owner: Hublin | 11:00         | 11        |



| Name                              | Owner         | Last modified | File size |
|-----------------------------------|---------------|---------------|-----------|
| 1. Top 10 interference record     | Owner: Hublin | 11:00         | 11        |
| 2. Soil investigation report      | Owner: Hublin | 11:00         | 11        |
| 3. Site layout plan               | Owner: Hublin | 11:00         | 11        |
| 4. Instrumentation and monitoring | Owner: Hublin | 11:00         | 11        |
| 5. Access 2                       | Owner: Hublin | 11:00         | 11        |
| 6. Cable layout                   | Owner: Hublin | 11:00         | 11        |
| 7. Motor test report              | Owner: Hublin | 11:00         | 11        |
| 8. Site progress                  | Owner: Hublin | 11:00         | 11        |
| 9. Photomonitoring survey         | Owner: Hublin | 11:00         | 11        |
| 10. Temporary build design        | Owner: Hublin | 11:00         | 11        |
| 11. Permit                        | Owner: Hublin | 11:00         | 11        |
| 12. WIT Drawing                   | Owner: Hublin | 11:00         | 11        |
| 13. Site operation plan           | Owner: Hublin | 11:00         | 11        |

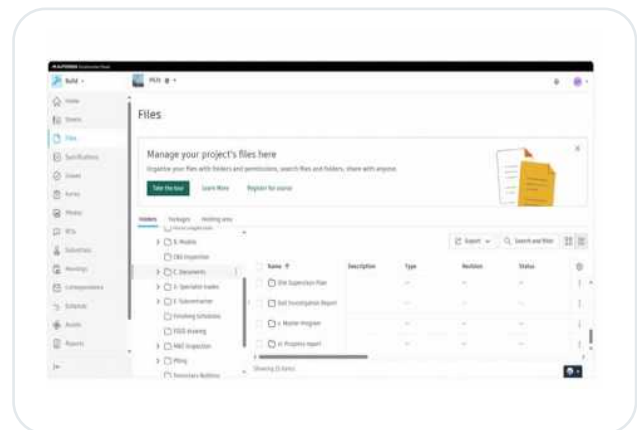
#### B) Level 2 – SMP Dashboard-Based Review

Firms at Level 2 maintain a combination of unstructured PDFs and structured digital data. Officers may access the firm's SMP dashboard to review project progress, status updates and the uploaded PDF documents.



### C) Level 3 – Connected to SGBuildex

Firms at Level 3 are fully connected to the SGBuildex ecosystem. Officers perform audits of project specifics and work progress through the centralised SGBuildex dashboard, facilitating a more data-driven audit process.





4

# Useful Use Cases of SMP

## 4.1 SMP Use Case 1: Wee Hur Construction Pte Ltd and Novade

### Project Overview

Wee Hur Construction Pte Ltd partnered with Novade to implement a SMP for their HDB development project. The pilot focused on the digitalisation of piling installation records, successfully transitioning traditional, paper-based processes into a streamlined digital workflow.

### The Challenge

Construction sites have traditionally relied on manual, paper-based record-keeping for regulatory compliance, particularly for critical activities like piling installation.

Wee Hur identified significant challenges associated with the traditional manual, paper-based record-keeping to meet regulatory requirements, particularly for critical tasks like piling installation.

The manual documentation of piling records increased the likelihood of errors paper and led to operational inefficiencies. Common issues included misplaced documents, illegible handwriting, and delayed data retrieval. The manual process not only hampered productivity but also increased the risk of inaccuracies, with potential implications for project timelines and regulatory compliance.

In addition, the reliance on physical records and lack of real-time data hindered real-time collaboration among stakeholders, underscoring the urgent need for digital transformation in their operations.

Recognising that such practices could lead to inefficiencies, human error, and delays in regulatory submissions, Wee Hur identified the need to digitalise its data collection processes to improve accuracy, compliance, and operational efficiency.





## Implementation Strategy

To ensure successful platform adoption, Wee Hur implemented a robust change management strategy:

- **Hands-on training and capability building**

The vendor provided comprehensive training to articulate the platform's intentions and underlying principles. The system was configured to be a highly intuitive platform, following a structured step-by-step process:



### Initiation

The main contractor creates the form within the SMP.

- a. The relevant quality features of Novade are selected, and a new form is created by clicking the "+" sign.
- b. The BCA piling installation record template is selected and the piling contractor is assigned.



### Notification

The form is submitted to the piling contractor, who is notified to complete the required piling information.



### Validation

Upon completion, the form is submitted back to the main contractor for validation.



### Verification

After validation, the form is sent to the RE or RTO for final review.



### Closing-Out

Once verified, the RTO closes the form, and confirms the accuracy of the information submitted by the main contractor and piling contractor.

This workflow significantly reduces the time engineers spend on preparing forms, documentation, and on-site tracking, as these processes are managed efficiently within the Novade platform.





### **Supporting Resources**

- Video tutorials and quick reference guides were developed to provide ongoing user support.

### **On-Site Support through Digital Champions**

- Wee Hur appointed one digital champion per project, typically a site engineer specialising in structural works. These individuals provide on-site support, assist colleagues in using the platform and ensure that all forms are filled out accurately. They also oversee processes so that workflows are properly followed on-site.

### **Continuous Improvement through Feedback Sessions**

- Regular feedback sessions were established to identify areas of improvement and to maintain high levels of adoption.

## Results and Impact

The implementation delivered measurable improvements in operational efficiency, regulatory compliance, and data management. Wee Hur's Corporate Building Information Modelling (BIM) Manager noted that recording piling data using the digital platform was significantly more efficient than paper-based methods, with the added benefit of being able to access historical records at any time. Similarly, the Senior Project Engineer observed that piling record management had become more efficient and transparent, with faster and more accurate regulatory submissions.

Real-time synchronisation and cloud-based storage mitigated the risk of data loss. By providing a centralised repository for analysis and reporting, the platform significantly bolstered day-to-day operations and compliance processes.

## Feedback and Challenges

This initiative represents a strong foundation for progressing towards Stage 3 of Singapore's Built Environment Industry Digital Plan (IDP). In particular, the automation of data transfer from the digital platform to the authority's exchange platform greatly benefits contractors and consultants.

However, further refinement is required in the design and structure of digital forms. Subcontractors may still need to spend considerable time manually filling in piling data.

## Future Expansion Plans

Building on the success of the pilot, Wee Hur has identified several areas for further development:

- Extension of digitalisation to additional test records, including concrete cube tests
- Integration of site progress tracking capabilities
- Implementation of digital manpower attendance systems
- Exploration of integration opportunities with other digital platforms to support seamless regulatory submissions
- Enhanced project analytics capabilities across all construction activities

**“ We invite all companies in the built environment sector to join us in this initiative for smarter, more efficient construction across Singapore. By adopting digital platforms for site management, we not only enhance compliance and minimise paperwork but also gain valuable real-time insights that benefit the whole project team. This successful pilot sets the stage for a broader digital transformation within Singapore's construction industry, illustrating how technology can improve both regulatory adherence and operational effectiveness. It's a crucial move towards a smarter future, perfectly aligning with Singapore's IDP. ”**

*Wee Hur Construction Pte Ltd's Leadership Team*

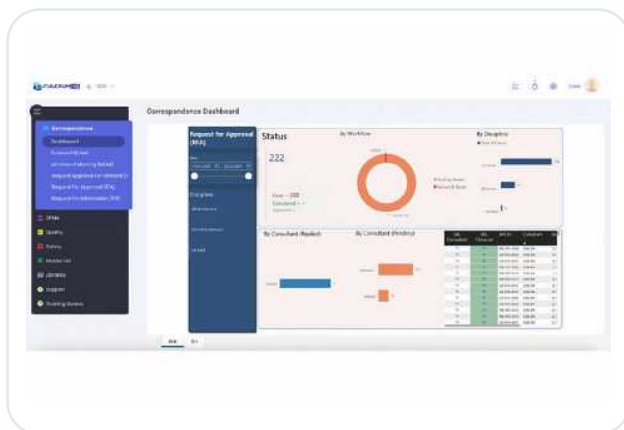
Ultimately, this pilot establishes a scalable model for broader digital transformation within Singapore's construction industry, demonstrating how technology can enhance both regulatory compliance and operational efficiency.

## 4.2 SMP Use Case 2: Rich Construction Company Pte Ltd and LeapThought

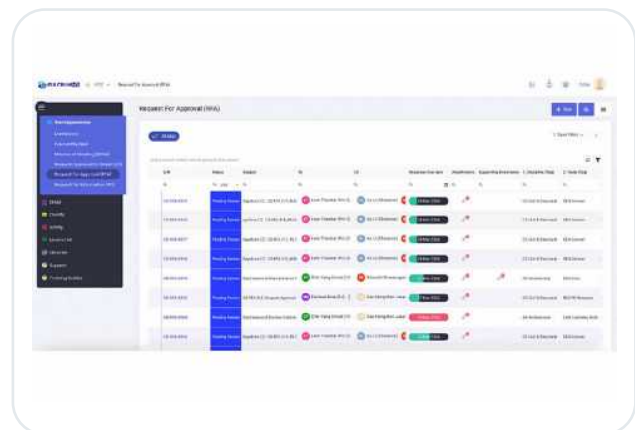
### Project Overview

Rich Construction Company Pte Ltd partnered with LeapThought to implement FulcrumHQ, an SMP, on a HDB development project. The project aimed to digitalise regulatory data collection and transform site management processes from manual workflows into an integrated digital ecosystem.

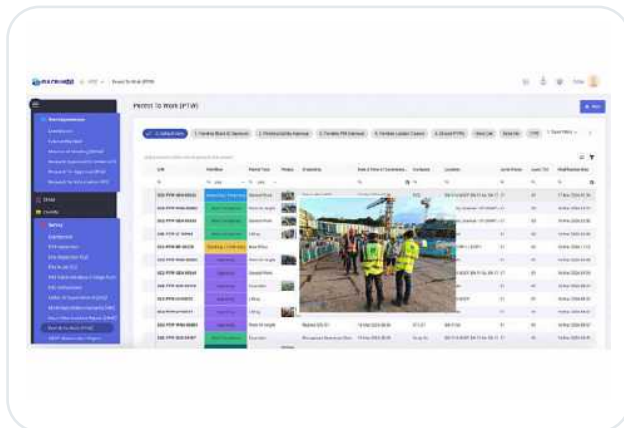
**Figure 7. Correspondence dashboard**



**Figure 8. Request for Approval (RFA) module**



**Figure 9. Permit to Work (PTW) module**



## The Challenge

Before implementing the SMP, Rich Construction Company Pte Ltd relied on manual, paper-based processes to capture site inspection records, material testing results, and progress data. This manual approach resulted in time-intensive compilation and formatting of data for BCA submissions, limited visibility into compliance gaps and quality performance trends, and duplication of effort across multiple data entry points.

## The Solution

LeapThought deployed FulcrumHQ's SMP to enable real-time digital data collection across multiple regulatory datasets, including:



### Piling Records

Installation, working load tests, ultimate load tests



### Instrumentation and Monitoring

Site inspection records and building settlement certification



### Material Testing

Concrete cube tests, steel element and rebar tests



### Project Management

Site progress, Qualified Person (QP) or site supervisor attendance

Data is captured daily through mobile and tablet interfaces, allowing field personnel to input information directly at the source. The platform automatically standardises and formats data in accordance with BCA's Site Management Data Standards, enabling seamless connection to SGBuildex.

**Figure 10. Bored pile installation records**

| Pile Ref No. | Workflow    | Casting Date | Blk No / Location | Pile Size (mm) | Working Load | Platform Level (PLY) | Measured Height of Casting | AutoCalculated Measured | Measured Ground Level (GL) |
|--------------|-------------|--------------|-------------------|----------------|--------------|----------------------|----------------------------|-------------------------|----------------------------|
| G29-7        | A. Approved | 19 Aug 2025  | BLK015A           | 1,100          | 6,900        | 105.6                | 106.82                     | 1.1                     | 105.72                     |
| G29-5        | A. Approved | 19 Aug 2025  | MSGP              | 1,100          | 6,900        | 105.6                | 106.81                     | 0                       | 105.72                     |
| R0-8         | A. Approved | 19 Aug 2025  | MSGP              | 1,100          | 6,900        | 105.6                | 106.84                     | 1.13                    | 105.71                     |
| R0-9         | A. Approved | 19 Aug 2025  | MSGP              | 1,100          | 6,900        | 105.6                | 106.83                     | 1.11                    | 105.71                     |
| G40-9        | A. Approved | 19 Aug 2025  | BLK015A           | 1,100          | 6,900        | 105.6                | 106.89                     | 1.12                    | 105.77                     |
| G29-5        | A. Approved | 19 Aug 2025  | BLK015A           | 1,100          | 6,900        | 105.6                | 106.88                     | 1.11                    | 105.78                     |
| G29-5        | A. Approved | 19 Aug 2025  | MSGP              | 1,100          | 6,900        | 105.6                | 106.82                     | 1.11                    | 105.79                     |
| G42-6        | A. Approved | 19 Aug 2025  | BLK015A           | 1,100          | 6,900        | 105.6                | 106.87                     | 1.16                    | 105.72                     |
| G29-9        | A. Approved | 19 Aug 2025  | BLK015A           | 1,100          | 6,900        | 105.6                | 106.88                     | 1.11                    | 105.77                     |
| R0-10        | A. Approved | 19 Aug 2025  | MSGP              | 1,100          | 6,900        | 105.6                | 106.87                     | 1.12                    | 105.75                     |
| G29-2        | A. Approved | 19 Aug 2025  | MSGP              | 1,100          | 6,900        | 105.6                | 106.85                     | 1.15                    | 105.71                     |

## Implementation Strategy

To ensure successful adoption, LeapThought implemented a comprehensive change management programme:



### Training and capability building

Hands-on training workshops for site and office personnel, covering data input workflows and alignment with regulatory requirements.



### Role-based onboarding

Role-based onboarding sessions tailored for QPs, site supervisors, and quality assurance/quality control (QA/QC) teams.



### Ongoing support mechanisms

Continuous support channels provided through onsite champions and a digital helpdesk to address real-time user feedback. Communication channels, such as a dedicated WhatsApp project group, were established to facilitate timely assistance from product consultants.



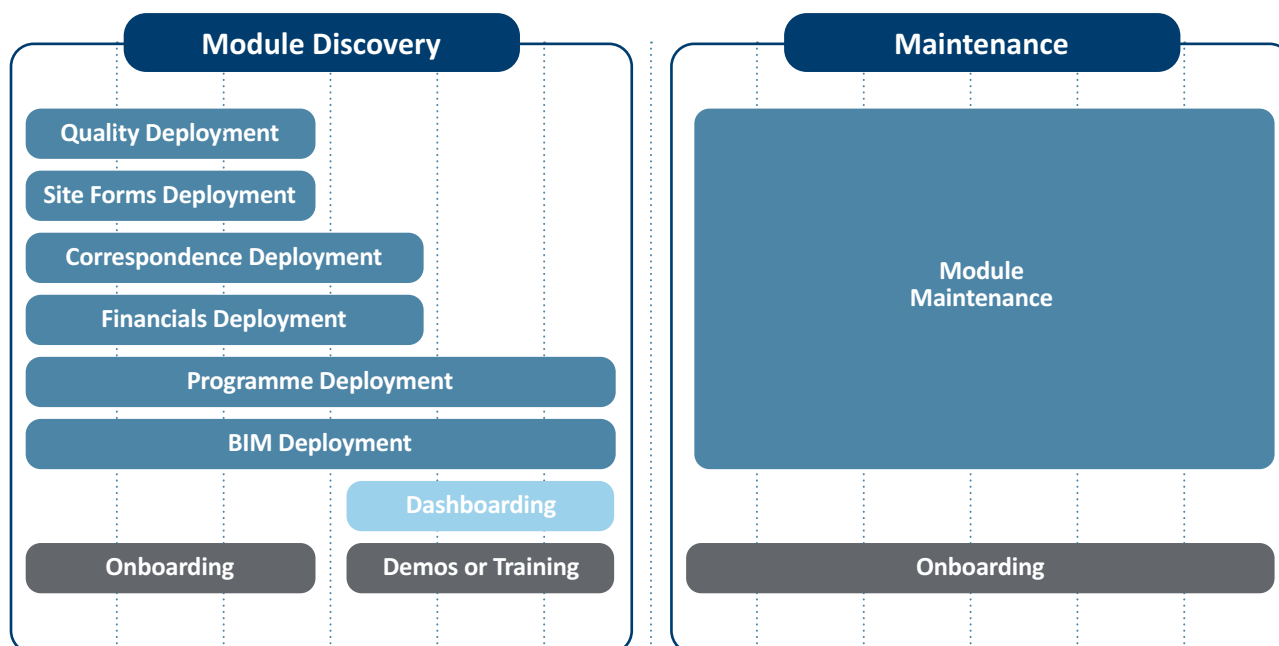
### Phased implementation approach

Implementation was rolled out progressively, starting with pilot zones, before full project-wide deployment.

**On-site training was held at FulcrumHQ for site or safety supervisors**



Figure 11. A typical sequence of implementation



## Results and Impact

The implementation of FulcrumHQ delivered measurable benefits across regulatory compliance and operational performance. By automating the compilation and formatting of data for BCA submissions, the platform significantly reduced time and effort while improving accuracy through standardised data capture.

Beyond compliance, the platform enabled early identification of compliance gaps, provided real-time dashboards for work progress and quality performance, and facilitated trend analysis to reduce material wastage and rework. It also supported data-driven decision-making for QPs, site engineers and management.

## Feedback and Challenges

- Achieving digital adoption remains challenging as it requires alignment across multiple consultants who are accustomed to existing workflows and may be resistant to change.
- Resident Site Staff are typically more resistant to digital workflows, particularly for site inspection processes traditionally carried out using manual methods.
- Main contractors generally derive clearer value in digitisation, particularly through better project insights, real-time status updates, automated notifications for timely follow-up, and improved retention of project data across the lifecycle.
- Subcontractors benefit from a single standardised submission protocol and site-activity process, enhancing consistency and alignment across the project.

## Future Expansion Plans

FulcrumHQ's strategic roadmap includes expanding SMP capabilities beyond current regulatory datasets to encompass:

- Safety and quality management modules, including incident reporting and inspection close-out tracking.
- Design for Manufacturing and Assembly (DfMA) and prefabrication tracking to improve the visibility of offsite manufacturing processes.
- Environmental and sustainability data, such as carbon tracking and waste reporting. Enhanced cross-system integration with Common Data Environment (CDE) platforms, BIM models, and IoT data sources to enable end-to-end digital continuity across the project lifecycle.

**“ By adopting FulcrumHQ's SMP, our company has streamlined compliance workflows, reduced duplication of effort, and built a foundation for data-driven project delivery. It has transformed how we manage regulatory data – from a manual process to an integrated digital ecosystem. ”**

*Rich Construction Company Pte Ltd*

Rich Construction Company Pte Ltd's implementation of FulcrumHQ exemplifies how SMPs can transform regulatory compliance from an administrative burden into a strategic advantage. By digitalising data collection and automating submission processes, the project has streamlined compliance workflows while unlocking valuable operational insights that support improved decision-making and project outcomes across the construction lifecycle.

## 4.3 SMP Use Case 3: Takenaka Singapore Pte Ltd and SGBuildex Data Exchange Platform

### Project Overview

Takenaka Singapore Pte Ltd participated in a pilot implementation of SGBuildex, a digital data exchange platform designed to facilitate data exchange. The pilot focused on streamlining regulatory data audit processes, specifically targeting piling installation records and material testing documentation.



### The Challenge

Construction projects traditionally involve extensive paperwork and manual document submission processes for regulatory compliance. Takenaka faced the challenge of managing multiple data streams, including piling installation records from contractors and material testing reports from laboratories.

For regulatory document audits, the conventional approach required significant time and effort to compile and organise the documentation in preparation for BCA's routine audits.



## The Solution

Takenaka adopted SGBuildex to centralise and manage the site data required for regulatory audits. The pilot focused on two primary data categories:

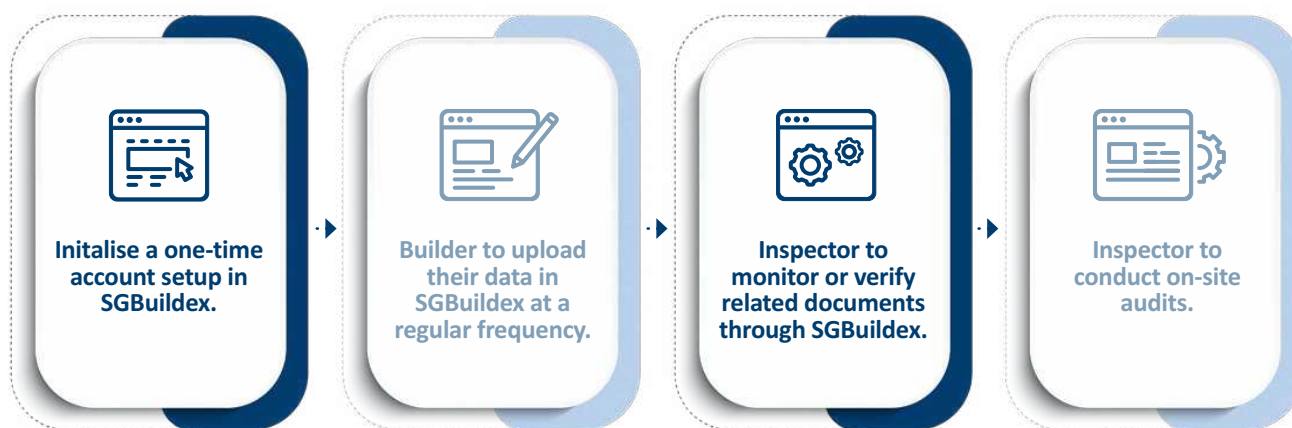
- Piling data (including installation records, Working Load Tests, and Ultimate Load Tests); and
- Material testing data (including concrete cube tests, steel element tests, and steel rebar tests).

These diverse data types – comprising piling installation records, working load tests, ultimate load tests, and various material testing reports – were digitised and uploaded to the SGBuildex Data Exchange Platform in their original unstructured formats.

This approach helps to streamline the document audit process, as BCA officers could easily access uploaded documents through SGBuildex prior to conducting site visits. By establishing data consent through a one-time setup, future audit inspections are simplified as whenever BCA inspectors initiate audits, the required documents can be transmitted directly and securely.

This system maintains a record of all transmissions, eliminating redundancy in having to repeatedly show previous documents to inspectors. Furthermore, when all documents are stored digitally, they become easily retrievable and trackable in an organised manner, saving significant time and enhancing overall audit efficiency.

**Figure 12. A summarised workflow for regulatory site audits**



## Implementation Strategy

Takenaka established a dedicated project team to champion the implementation of SGBuildex and ensure focused attention on successful adoption. The change management approach included comprehensive hands-on training delivered by the DEX team, supplemented by detailed step-by-step user guides distributed to all project team members.

## Results and Impact

The implementation of SGBuildex enabled Takenaka to consolidate and manage multiple data streams, within a single, centralised platform for regulatory audits. Piling installation records and material testing reports were integrated seamlessly into one centralised system. This resulted in improved data accessibility and reduced risks of missing documents, improving the overall audit process, while maintaining full regulatory compliance.

Beyond regulatory compliance benefits, additional benefits included enhanced document version control and traceability of project document. The platform also improved coordination with subcontractors and testing laboratories, leading to more efficient workflows and faster communication.

Importantly, this digital transformation was achieved with minimal disruption to existing workflows, demonstrating that regulatory data management can be significantly improved without compromising operational continuity.

## Feedback and Challenges

Management viewed the initiative as a positive step towards industry-wide digitalisation, expressing a commitment to supporting BCA's digitalisation efforts, recognising the platform's potential to improve productivity and efficiency across project sites. Management also shared an aspiration for SGBuildex to become a widely adopted industry standard, valued for its long-term utility.

Site personnel noted significant time-saving benefits, particularly the time saved from reduced audit document preparation and the elimination of redundant document uploads.

## Future Expansion Plans

Takenaka has expressed interest in expanding the use of SGBuildex by digitalising additional categories of regulatory site data. Future plans include transitioning from unstructured documents to structured data formats that are aligned with BCA data standards, enabling more data-driven operations.

**“ This is a good start towards further digitalisation in the construction industry. ”**

*Takenaka Singapore Pte Ltd*

With site data fully digitalised and connected to SGBuildex as structured data, the industry can move forward to true digital transformation, where connected data exchange is the standard mode of operation, rather than an enhancement to existing processes.



5

# Recommended Steps for the Adoption of SMPs

**Recommended Steps for the Adoption of SMPs****STEP 01 Data Assessment & Planning**

- a) Download the latest Site Management Data Standards by referring to BCA's guide on [Site Management Data Standards](#).
- b) Assess the current dataset used within the firm, and identify opportunities to standardise and align with the latest Site Management Data Standards.

**STEP 02 Platform Selection**

- a) Engage different vendors in the market.
- b) Explore and identify suitable solutions for implementing a feasible SMP for document.

**STEP 03 Platform Implementation and Integration**

- a) Set up the SMP to start documenting information and data relating to the project.
- b) Once the SMP is set up and project data is being actively documented, explore integrating the SMP with SGBuildex to enable seamless, secure data exchange across the different project stakeholders with a consistent industry-wide data standards.

**STEP 04 Change Management**

- a) Assign a document controller to manage data and identify useful areas to perform data analysis.
- b) Conduct training sessions for project team members to build hands-on capabilities in using the SMP.
- c) Implement change management strategies, including ongoing engagement and support to staff, encouraging active usage for site documentation and coordination within the platform.

**STEP 05 Optimisation**

- a) Upon full adoption, SMP brings wide-ranging benefits to projects across document control, monitoring, and resource efficiency.
- b) Set up firm-level Document Control Procedures – where data within the SMP is established as the single source of truth, reducing version control issues, rework, and discrepancies.
- c) Set up the firm's Monitoring Dashboard – where real-time dashboards and reporting capabilities provide greater visibility into project progress, inspections, and site activities, enabling faster and more data-driven decision-making.
- d) Review resource deployment – with the new SMP, processes can be transformed to reduce paper usage, lower storage space requirements, and decrease reliance on administrative manpower.



### Feedback

We welcome your comments about this Guide to help us continue to develop and improve it. Please provide your inputs [here](https://go.gov.sg/smpguidefeedback) (<https://go.gov.sg/smpguidefeedback>) or scan the QR code on the right.



<https://go.gov.sg/smpguidefeedback>