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EMALI in CIExpo

Solutions Overview



1

Challenges

- Characteristics of the industry
- Challenges

2

Solutions

- eCPS
- uDWSS
- BIM

3

Future

- Application
- Construction 2.0



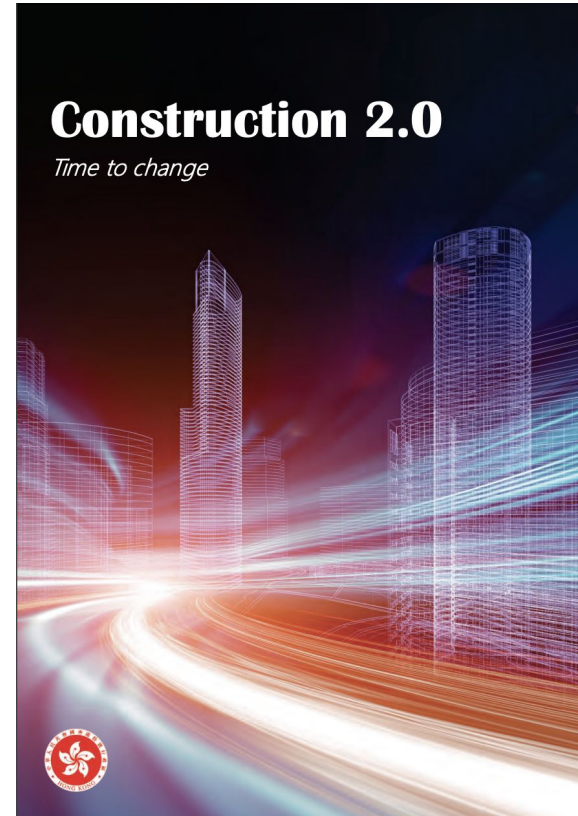
Characteristic of construction industry

Data Complexity

- One construction site involves multitude of organisations and parties
- Attributes of data have a large variation

Data Credibility is the key!

- High cost of trust between parties
- Incomplete record keeping may lead to serious accidents





Challenges

‘insufficient capacity to innovate’ is the most problematic factor in conducting business in HK

(WEF’s Global Competitiveness Report, 2018)



High cost for data verification



Incompatibility of data among parties



Inefficient workplace communication



Loose data storage and access control



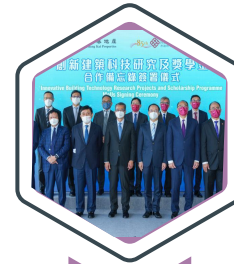
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02 Solutions



Electronic Contract
Procurement System (**eCPS**)

Electronic Contract
Procurement System
(**uDWSS**)

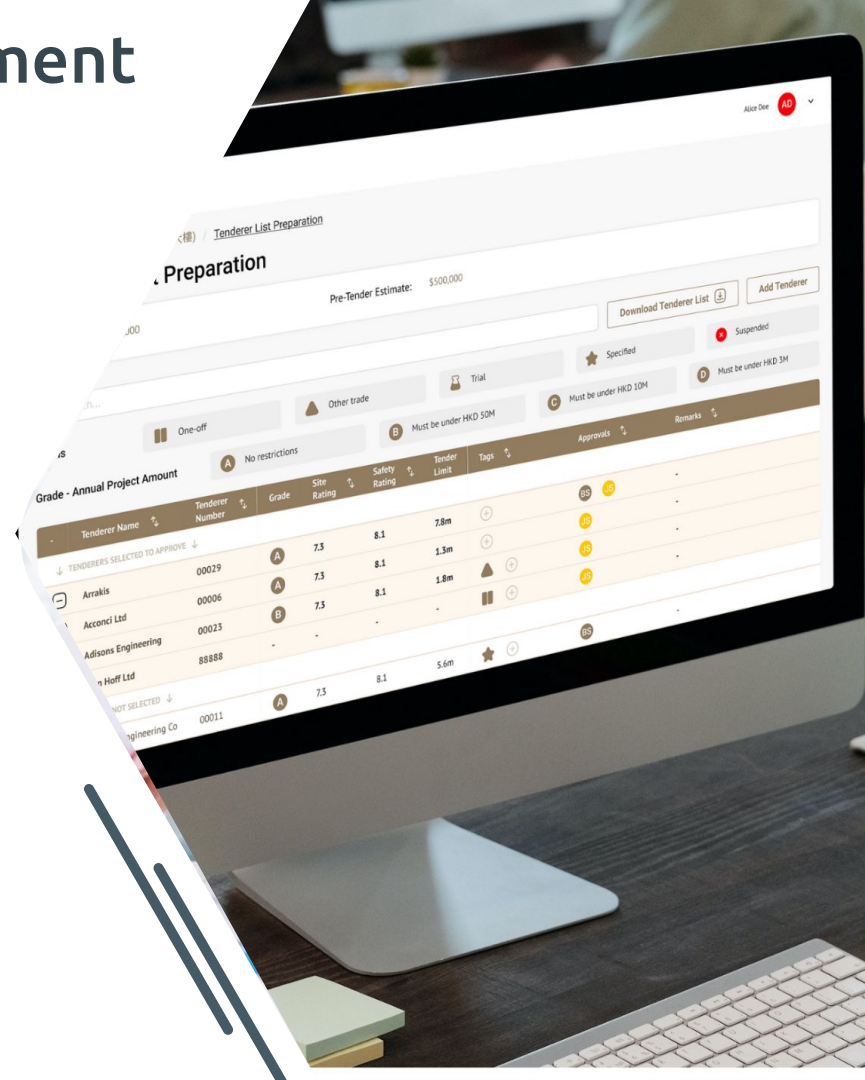


Building Information
Modeling (**BIM**)

Electronic Contract Procurement System (eCPS)

Complete Digitalisation of tendering process

- Advanced digital signing protocols
- Immutable records
- Smart Contract
- Legitimate Digital Signature



Electronic Contract Procurement System (eCPS)



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Advanced digital signing protocols

1. Identity

- Decentralised identifiers (DIDs) used
- An unique identifier for each user
- Traceable record for responsible signers

2. Cryptographic digital signature

- Private key is owned by the user but not by a role or a department
- Additional two-factor authorization (2FA) used
- To ensure the user uses the authorised device to sign

Electronic Contract Procurement System (eCPS)



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Immutable records

1. Blockchain application

- Four Pillar of Blockchain Design
- Date over decentralised ledgers

2. Comprehensive Governance policy

- A balance between Trinity of Digital Trust

Electronic Contract Procurement System (eCPS)



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Digital Signature

1. Cap. 553 Electronic Transactions Ordinance

- Proven legitimacy of digital signature

Smart Contract

2. Auto execution

- Smart Contract Analogy:
Contract can be executed once the condition is fulfilled

Digital Works Supervision System (uDWSS)

Data ecosystem for construction site operation

- Traceable, immutable records
- Keep track of daily logs
- One platform unlimited connections
- Holistic data analytics



Digital Works Supervision System (uDWSS)



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Data trust among parties

1. Blockchain application

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Digital Works Supervision System (uDWSS)



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Holistic data analytics

1. Algorithm enabled

- Full digitalisation of data collection process
- Standardise data source enable collection of big data
- Enable precise forecast and budget estimation

2. Shared data center with self sovereignty

- Users own the authorship over the data
- Freely adjust access control
- Data stored in the chain is mathematically encrypted

Building Information Modeling (BIM)



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A trusted platform for multiple stakeholders

- Data compatibility among different parties
- Pave the way to Digit HK 2.0
- Incorporation of GIS system
- Maintain data provenance

Building Information Modeling (BIM)



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Data compatibility among different parties

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Collaborating with
#1st university in
blockchain industry

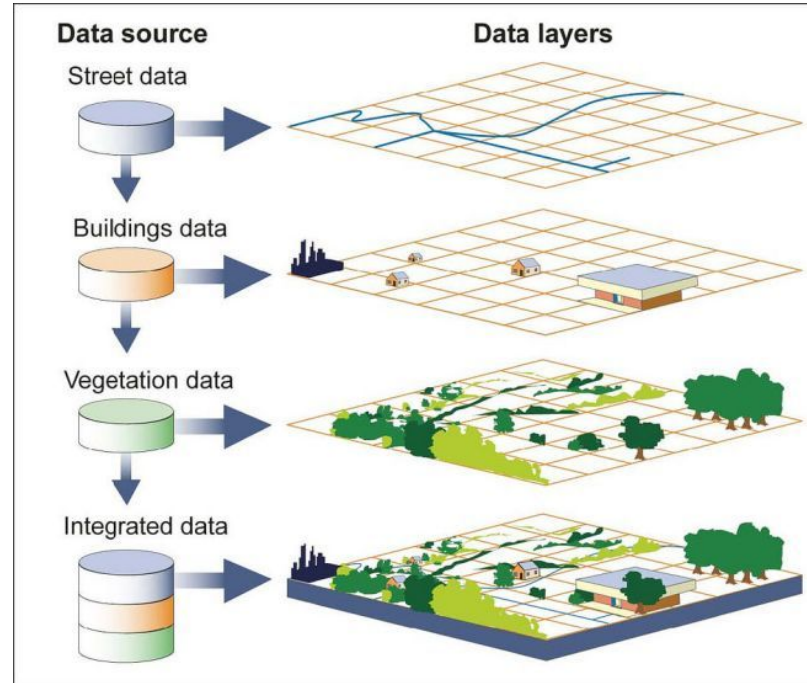
Building Information Modeling (BIM)



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1. Incorporation with GIS

- Data can be contribute to the Geographic Information system (GIS)
- Foster the development of Digital Hong Kong 2.0



Source: GAO.



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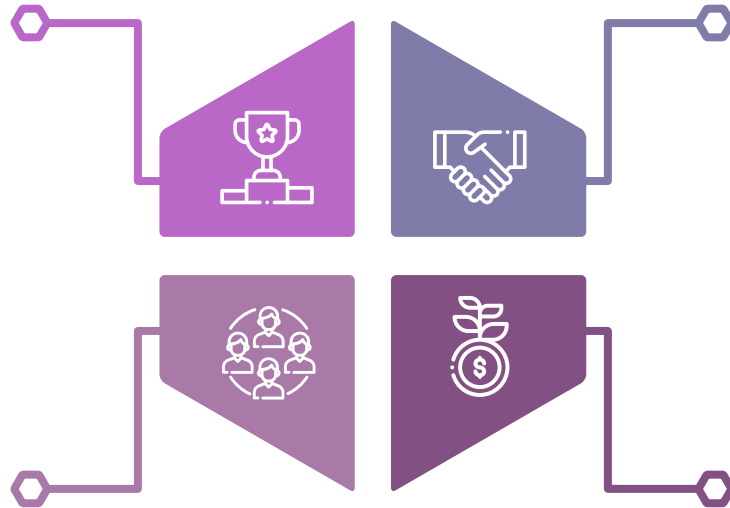
Future

Build up Digital Hong Kong 2.0

With BIM, data in construction industry can be well handled

embrace new era of data exchange

The world is moving to the Web3.0 era



A technology based trust

Erase the inequalities between giants and smaller players

Overall Cost Effectiveness

Synergy among stakeholders



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ABOUT EMALI

EMALI specialised in AI, blockchain, cryptography, security, and privacy technologies.

Emali's latest fintech solution is Hong Kong Monetary Authority's Commercial Data Interchange (CDI).