Digital Project Delivery for Infrastructure in Hong Kong, China

Submitted by: Hong Kong, China
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Infrastructure is the Backbone of a City
Investing in infrastructure

• improve people’s living environment
• support social and economic development
• enhance long-term competitiveness

Government investment in infrastructure

• Projects under Construction: ~HK$600Bn
• Projects in pipeline: ~HK$1000Bn
• Annual Expenditure: ~HK$80Bn
• This year we invest HK$200Bn
2020 Policy Address

Continue to invest in capital works

• Infrastructure investment is conducive to economy and can create a significant number of job opportunities

• Scaling back infrastructure during an economic downturn would have an adverse impact on economy and people’s livelihood.
World Economic Forum
The Global Competitiveness Report

Infrastructure
Ranking top 3 for more than 10 years
Achieving High Quality Infrastructure to support Smart City Development

Infrastructure Works Project Cycle

Planning & Design
- Comprehensive Planning and Design

Construction
- Quality of Works
- Budget and Time Control
- Safety and Sustainability

Operation & Maintenance
- Good Asset Management
- High standard of Operation and Maintenance

Smart City
Major Challenges for the Construction Industry

- Significant future construction volumes
- High costs
- Unsatisfactory mega-project performance
- Unsatisfactory site safety performance
- Declining productivity
- Lack of creativity and innovation
Digitalization is the Key to Achieve High Quality Infrastructure
Digitalization Journey for Public Works

1996
Digital Geographic Data
Set out policies in administration and documentation of GIS data

2002
CAD Standard
Set out CAD Standard for Works Projects for coherent graphical representation of works information

2005
Public Works Programme Information System
A central digital system to manage works data and monitor progress of public works projects

2005
BIM for Capital Works
Require consultants and contractors to use BIM in major capital works projects

2017
Digital Works Supervision System (DWSS)
Standardize and manage inspection workflow and site record to enhance efficiency and performance

2020
Integrated Capital Works Platform (iCWP)
Digitalization of the project cycle of infrastructure
Digitalization of Project Delivery for Infrastructure

Planning & Design
- Digital Planning and Design Management System (DPDMS)

Construction
- Digital Works Supervision System (DWSS)
- Project Surveillance System (PSS)

Operation & Maintenance
- Asset Management System

Building Information Modelling (BIM)

Integrated Capital Works Platform (iCWP)
Digitalization of Project Delivery for Infrastructure

• Digital Planning and Design Management System (DPDMS)
• Building Information Modelling (BIM)
• Construction
  • Digital Works Supervision System (DWSS)
  • Project Surveillance System (PSS)

Integrated Capital Works Platform (iCWP)

Smart City
Integrated Capital Works Platform (iCWP)

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• Construction
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  • Project Surveillance System (PSS)

Enhancing Performance in 4 Major Areas
  - Progress Monitoring (eg. Site Diary)
  - Safety & Environment (eg. Safety Inspection Report)
  - Quality Assurance (eg. Inspection Forms)
  - Productivity (eg. Labour Return Reporting)
Digitalization of Project Delivery for Infrastructure

Planning & Design

- Digital Planning and Design Management System (DPDMS)

Construction

- Digital Works Supervision System (DWSS)
  - Project Surveillance System (PSS)

Project Surveillance System (PSS)

- aim to reduce cost overruns and delays of projects
- a tool to alert project manager to foresee challenges, smell problems and formulate early actions
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Digitalization of Project Delivery achieve High Quality Infrastructure