

26 July 2024: Session 3 City of Cape Town's evolution towards BIM integration

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What does BIM mean to the City of Cape Town?

Mercedes Benz, East London W205 Bodyshop

R200 million employer design Extension of Bodyshop to manufacture the W205 C-class sedan

2011-2012

West Bank Golf Club

Booking com - Hotels

Molteno Dr-

Client Numbers Professional

East London

EAST LONDON

Google

Mercedes Benz, East London F16 Bodyshop

R1 billion turnkey project Construction of 44 000m² facility to

manufacture the new W206 C-class sedan

2018-2019

Team Budgets Stop Clas

What are the key drivers for BIM adoption?

- + Asset information for asset management systems Avoid manual loading;
- + Effective engagement with stakeholders Better design visualisation;
- -- Cost saving in design and construction Better design coordination;
- Time and quality control in construction Effective construction monitoring;
- + Reproducibility Standard models and families to enable reproduction of designs.
- + Provide leadership in BIM adoption.



What are the risks of not adopting BIM in CCT?

- Inability to utilise technology and data analytics to improve asset creation and management – data limitations;
- + Increased manual data handling in an ever-digitalising world;
- Being "out-of-sync" with the construction industry players;
- + Increased building lifecycle costs;
- + Missing the IR4 bus.



What is the history of BIM adoption in CCT?



Who are the key internal and external stakeholders?

- + Internal Departments;
- + City leadership;
- + Consultants;
- + Contractors;
- + Provincial and National Government.

Directorate	Department		
Community Services and Health	Planning Development and PMO		
Corporate Services	IS&T and Telecom Information and Knowledge Management Facilities Management		
Economic Growth	Strategic Assets		
Energy	Electricity Generation and Distribution Sustainable Energy Markets		
Finance	Supply Chain Management		
Human Settlements	Public Housing Housing Development Informal Settlements		
Spatial Planning and Environment	Environmental Management Planning and Building Development Management Urban Planning and Design		
Urban Mobility	Transport Infrastructure Implementation Roads Infrastructure Management Transport Planning & Network Management Public Transport Transport Shared Services		
Urban Waste Management	Integrated Planning Waste Services		
Water and Sanitation	Bulk Water Distribution Services Technical Services		

Are there any key external drivers for change?

Integrated Development	National Development Plan	Integrated Urban Development
Plan (IDP)	(NDP)	Framework (IUDF)
Objective 16: A capable and collaborative City government	Chapter 9: Improving education, training and innovation Chapter 13: Building a capable and developmental state	Policy lever 1: Integrated urban planning and management Policy lever 6: Inclusive economic development Policy lever 9: Sustainable finances

- --- Open Data Policy 2020;
- + Data Strategy 2023;
- + ISO 55000 Asset management standards;
- -- ISO 19650 Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM);
- + National BIM policy in progress.



Global BIM mandate projects. It is required for all national

Denmark BIM is mandatory for all public

Norway

The country has an open BIM mandate for all projects since 2009.

Finland

An IFC is required for public projects since 2007.

Since 2016, BIM has been mandatory for all public projects.

projects greater than \$0.7 million (Kr.

than \$2.9 million (Kr. 20 million).

5 million) and regional projects greater

US Since 2003, BIM has been mandatory for public projects worth \$5 million and above.

> Open BIM standards and mandate BIM mandate for public sector projects

Active BIM programs and set goals for future mandate

IFC: Industry Foundation Classes

UK

The country does not have a BIM mandate, but its use in all projects is encouraged.

> UAE Since 2015, BIM has been mandatory for all projects that are 40 stories and higher or 300,000 sq. ft.

China

Germany

France

Since 2017, BIM has

public projects.

been mandatory for all

Phased introduction from 2015 to 2020; since 2022, BIM has been mandatory for all public infrastructure projects.

Russia Since 2022, BIM has been mandatory for all government-

funded projects.

Hong Kong Since 2017, BIM has been mandatory for government projects greater than \$30 million.

Singapore

Since 2015, BIM has been mandatory for all new buildings greater than 5,000 sg. m.

Australia

BIM is mandatory for all public projects greater than \$33 million (A\$50 million).

Source: Siemens; Frost & Sullivan



Roadmap zoomed in

Timeline	2024	2025	2026	2027	2028	
Standards and protocols	B1.1 BIM Standards and Guidelines Ver 1.0 B3.3 mar	Construction data agement protocol	B1.2 BIM Standards and Guidelines Ver 2.0		B1.3 BIM Standards and Guidelines Ver 3.0	
	B3.2 EIR template B3.1 BIM execution plan te	mplate E	33.4 Asset data management protocol			
	C1.2 Integration of GIS Platform C1.3 Integration with SCM					
Technology and enablement	C1.1 Assessment of current data infrastructure for BIM integration	C3.1 Capture existing key assets via scanning	C2.1 Review systems integration and need for new technology	C1.5 Building Permit Approval Integration	C2.2 Review systems integration and need for new technology	
	C1.4 Procure and set up C					



Implementation Framework





BIM IMPLEMENTATION FRAMEWORK Engineering Management Branch

4 DATA AND TECHNOLOGY

4.1 Assessment of current data infrastructure for BIM integration

Assessing the current data infrastructure for BIM integration involves evaluating the existing systems, tools, and processes in place to manage and exchange project data. Here are the steps to assess the current data infrastructure for BIM integration:

- Identify Stakeholders: Identify the key stakeholders involved in data management and BIM integration within CCT or project. This may include project managers, IT personnel, BIM coordinators, data managers, and relevant team members.
- Define Assessment Goals: Clearly define the goals and objectives of the assessment. Determine what the CCT aim to achieve by evaluating the current data infrastructure for BIM integration. Common goals may include identifying gaps, assessing compatibility with BIM processes, and identifying areas for improvement.
- Review Existing Documentation: Gather and review existing documentation related to data management and BIM integration. This may include data management plans, BIM execution plans, project contracts, software licenses, and any other relevant documentation. Understand the current processes and procedures in place.
- 4. Evaluate Data Management Systems: Assess the data management systems currently used within the organization. This includes reviewing the software applications, databases, file storage systems, and collaboration platforms utilized for managing project data. Evaluate their capabilities, compatibility with BIM software, and integration options.
- Assess Data Exchange Processes: Evaluate how data is exchanged and shared between different stakeholders throughout the project lifecycle. Identify the methods and protocols used for data exchange, such as file formats, naming conventions, and data validation procedures. Assess the efficiency, accuracy, and security of these processes.



BIM Harambee

Africa





BIM workshop key areas

- + Facilitator was Catapult rollout of BIM across 27 countries;
- Key drivers for BIM adoption asking "why?" to achieve organisational outcome or "so what?" to get to the root of the problem;
- + Key issues data collaboration and sharing;
- Impact vs difficulty of action graph we should try to aim for high impact, easier action pilot projects;
- + Framework for change (diamond graph) Communicate vision, public leadership, collaborative framework, to grow industry capacity.



A framework for change (diamond graph)

Grow industry capacity

Early wins, pilot projects, training Increasing use of strategic lever to grow capacity Measure and monitor, case studies, embed change

Communicate vision and foster communities Engage industry stakeholders Create regional and focus networks Events, media, web and social



Build a collaborative framework

Legal and regulatory framework Data and process standards Skills, tools, guidance



Does information work for you? Why?"





Why should we adopt BIM?

BIM = More water

Water treatment plant

Shelved project

KPIs less budget

7 clinics for the price of 5

BIM = more water

Less rework

Primary driver: Better design

The price of anything is the amount of life you exchange for it.

- Henry David Thoreau

