GEO SMART INDIA 2022

DIGITAL CITIES

New Realities, Evolving Technology, Disruptive Business Model

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“MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE”

What are Digital cities?

A connected community that combines broadband communications infrastructure; a flexible, service-oriented computing infrastructure based on open industry standards; and innovative services to meet the needs of governments and their employees, citizens and businesses.

Need for Digital Cities

By 2030, 5 billion people are projected to live in cities; and by 2050, 70 percent of the world population is predicted to live in urban settlements

By 2031, India's urban population is predicted to increase to 600 million,

By 2030, the urban sector would contribute around 70 percent to the GDP, 85 percent to all tax income, and 70 percent to all new employment produced in the country.

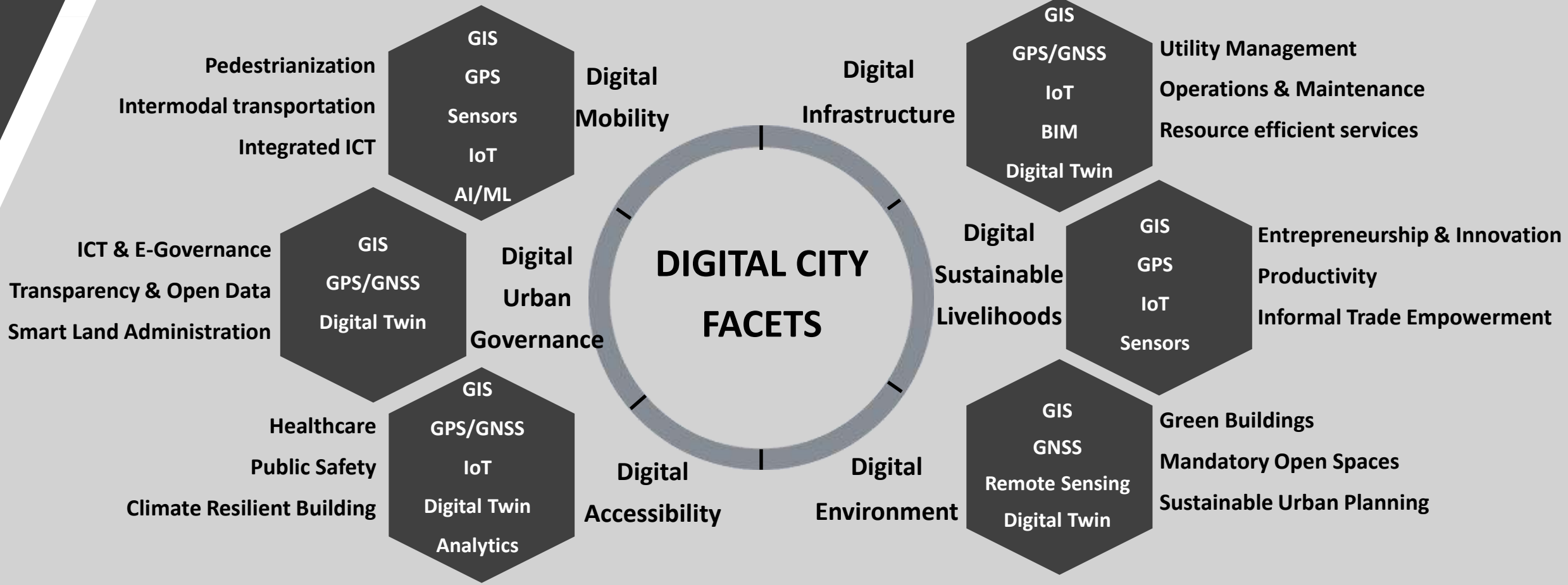
Phases Of Digital Transformation For Cities

Converting information from analogue to digital which can results to changes in existing business model to provide value to stakeholders

Helps cities apply digital technologies to optimise existing urban processes by achieving a more resourceful coordination between smart services, and/or by creating additional citizen value through improving services provided

Impacts both citizens and stakeholders, and city operations and goes beyond digitalisation by changing simple urban processes and tasks

Role of Technologies in Different Facets of Digital Cities



Benefits of Digital Transformation in Cities

More effective, data-driven decision-making

A well-designed data analytics strategy gives city officials the ability to access and analyze a massive amount of information — and easily glean meaningful, actionable insights.

Reduced environmental footprint

Energy-efficient buildings, air quality sensors, and renewable energy sources are providing cities with new tools to shrink their ecological impact.

Efficient public utilities

With a limited supply of natural resources available to meet human demand, smart technologies are giving cities the tools needed to effectively conserve and reduce the inadvertent waste of water and electricity.

Enhanced citizen and government engagement

Expanding digital services in communities make smart cities a more attractive place for residents to live and promote a connected citizen experience.

Improved transportation

Connected transportation systems have some of the greatest potential to drastically enhance efficiencies throughout a city and reduced pollution

Improved infrastructure

Smart technology can provide cities with predictive analytics to identify areas that need to be fixed before there is an infrastructure failure.

GEOSPATIAL AND 4IR TECHNOLOGIES DRIVING DIGITAL TRANSFORMATION

Visual or audio "overlay" on the physical world using a smart display to provide contextualised digital information that augments a user's real-world view

Augmented Reality

Artificial Intelligence

Software algorithms automate complex decision-making tasks to mimic human thought processes and senses

Digital database that uses software algorithms to record and confirm transactions with reliability and anonymity

Blockchain

Drones

Unmanned flying machines controlled remotely using sensors and GPS navigation

Network of devices embedded with sensors that enable them collect, exchange and act on data

Internet of Things

Automation & Robotics

Offers enhanced sensing, control and intelligence to automate, augment or assist human activities

Computer-generated simulated experience that creates an artificial three-dimensional image or environment

Virtual Reality

3-D Printing

Creates three-dimensional objects based on digital models by layering or "printing" successive layers of materials

INTEGRATED GIS AND BIM SOLUTIONS

DIGITAL TWINS FOR CITIES

- Virtual representation by replicating entire cities integrating geospatial technology with interactive three dimensional models.
- Digital counter part of the city – each and every assets and processes.

ELEMENTS OF DIGTIAL TWINS

Intelligent Network Systems

Cloud Computing

Big Data

Sensors and Microchips

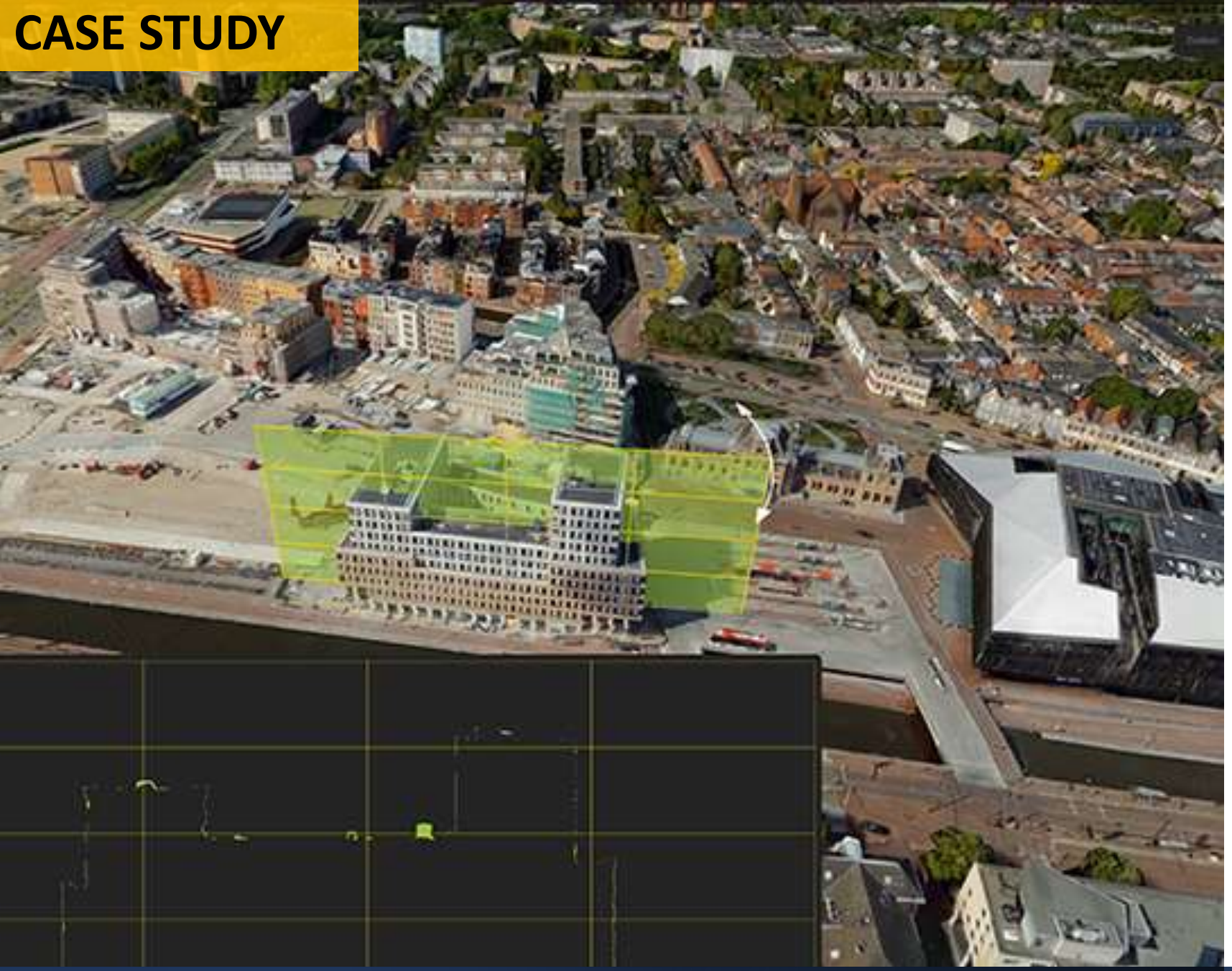
Industrial Internet of Things (IoT)

Geospatial Infrastructure

AI & Machine Learning

XR Technologies

CASE STUDY



Digital Twins solutions to capture nationwide 3D data and used cloud-based visualization and collaboration platform for geospatial data and services

Location
Netherlands

Technology Used
Digital Twin, LiDAR, Cloud

Advantages

- Visualisation of projects for public review, allowing the virtual collaboration
- Improved work processes and planning.

CASE STUDY

The Digital Design for the Establishment of the Kwu Tung North, New Development Area

Location

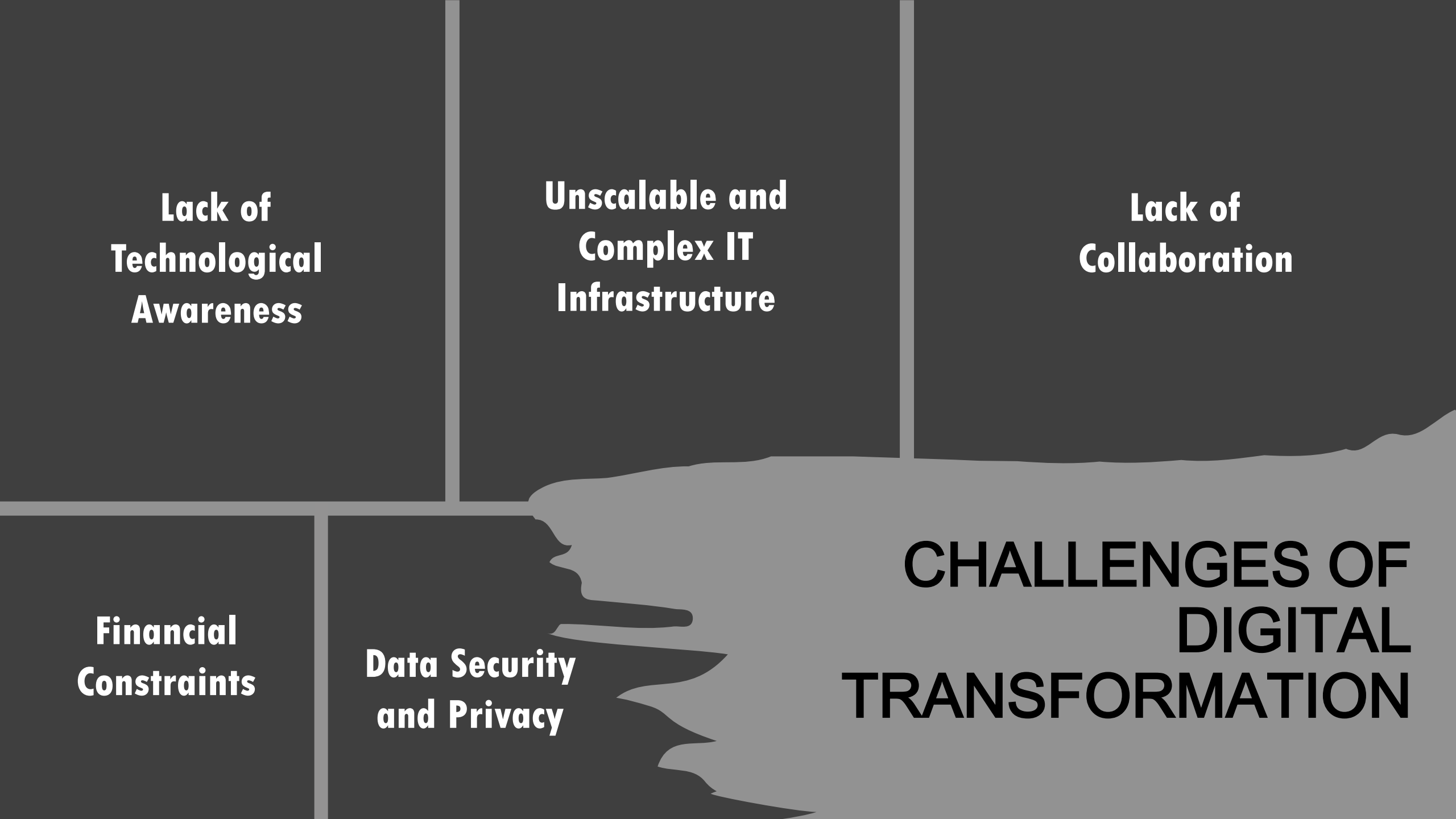
Hong Kong

Technology Used

3D modelling, real-time visualization, BIM, geospatial, Digital Twin

Advantages

- Saved time, cost and labor
- Direct implementation of changes in the model.


Lack of Technological Awareness
Unscalable and Complex IT Infrastructure
Lack of Collaboration
Financial Constraints
Data Security and Privacy
CHALLENGES OF DIGITAL TRANSFORMATION

THANK YOU