



Constructing a New India

Digitalization to Shape Outcomes

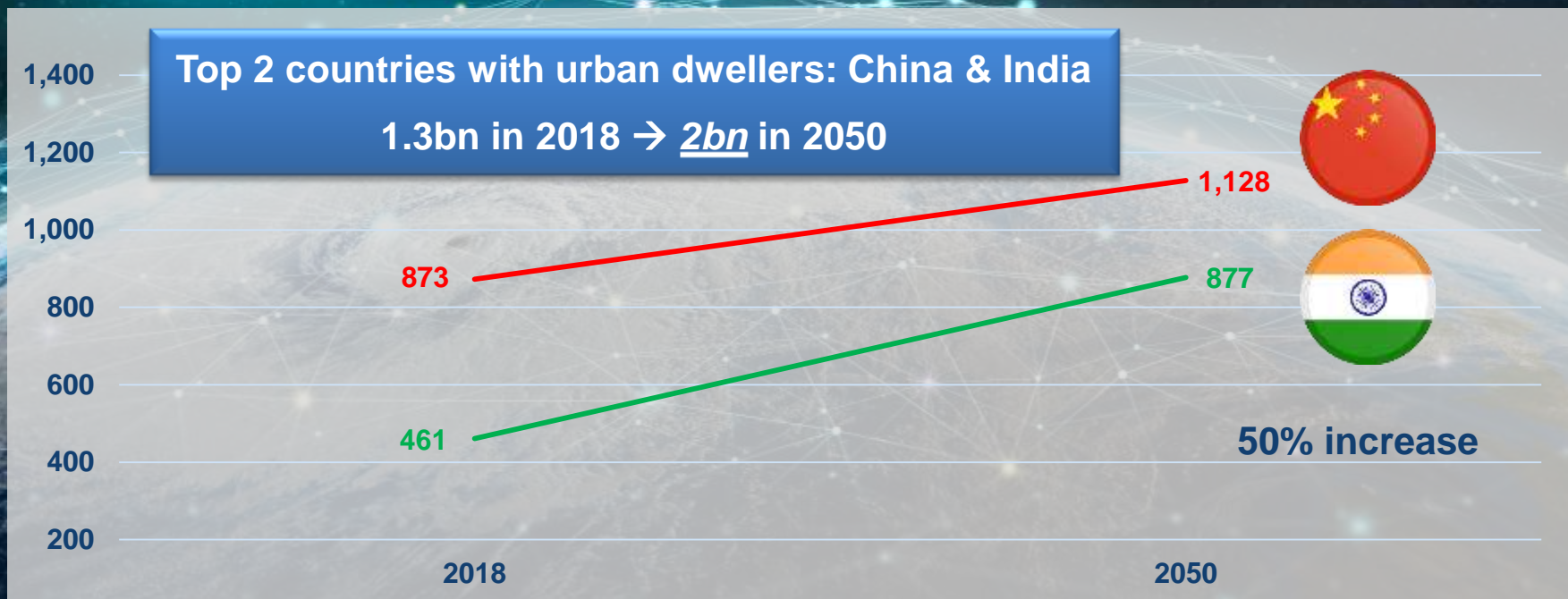
Beng Chieh QUAH
Head of Marketing, Asia Pacific

December 3, 2019

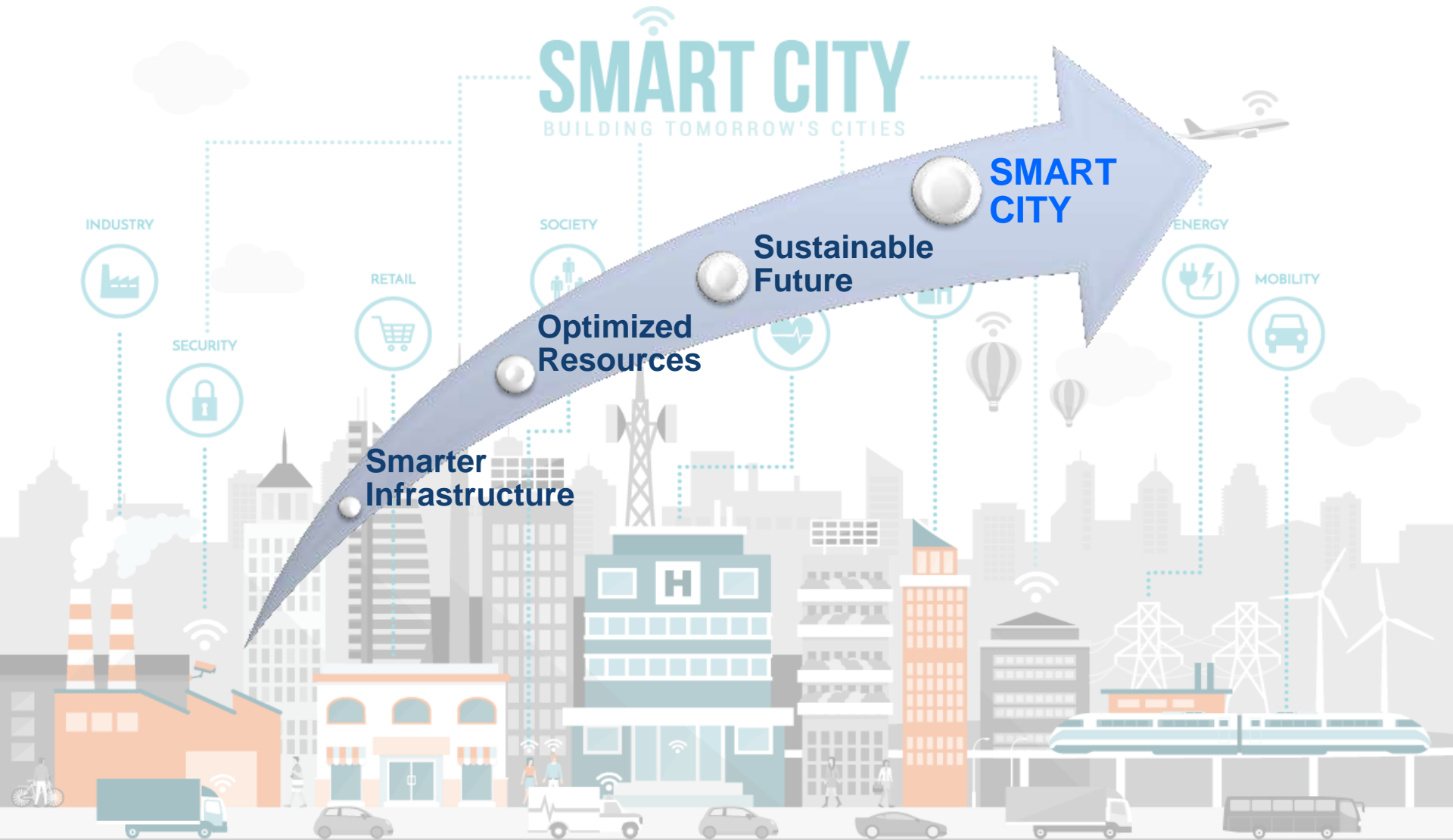
By 2050, 68%* (6.6 billion) of the world population will be living in urban areas



In 2018, 55% (4.2 billion) of the world population lived in urban areas



By 2050, 68%* (6.6 billion) of the world population will be living in urban areas





A digitally connected place where technology and data are employed to enable better decisions and achieve a better quality of life

Digital Ecosystem



Key Components of the Digital Ecosystem

3 Layers to Making a Smart City Hum

The Digital Infrastructure

Business Intelligence

Adoption & usage

Artificial Intelligence

Smart applications, & data analytics capabilities

Internet of Things

Technology base: interconnected physical devices



Seoul Smart Parking System

Utilizes smart apps to seek available parking spaces at desired location, and recommending choice routes to get there

Business
Intelligence



Reservation



Payment

Artificial
Intelligence



Parking
Availability



Navigational
Routes

Internet of Things



Interconnectivity of Parking Spaces

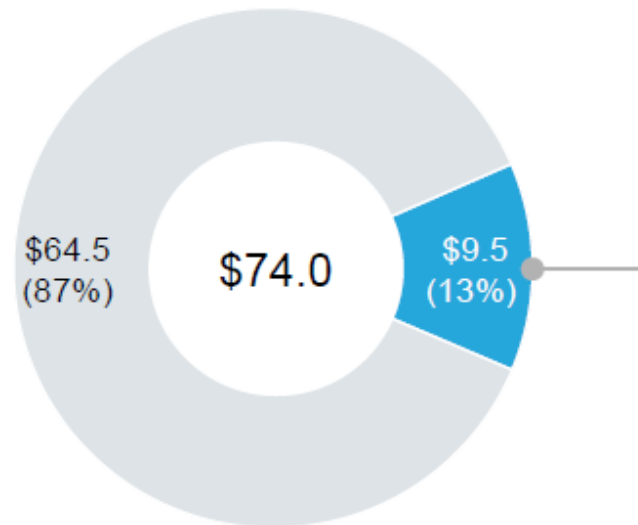
Digitalization for Construction Efficiency

Construction Matters

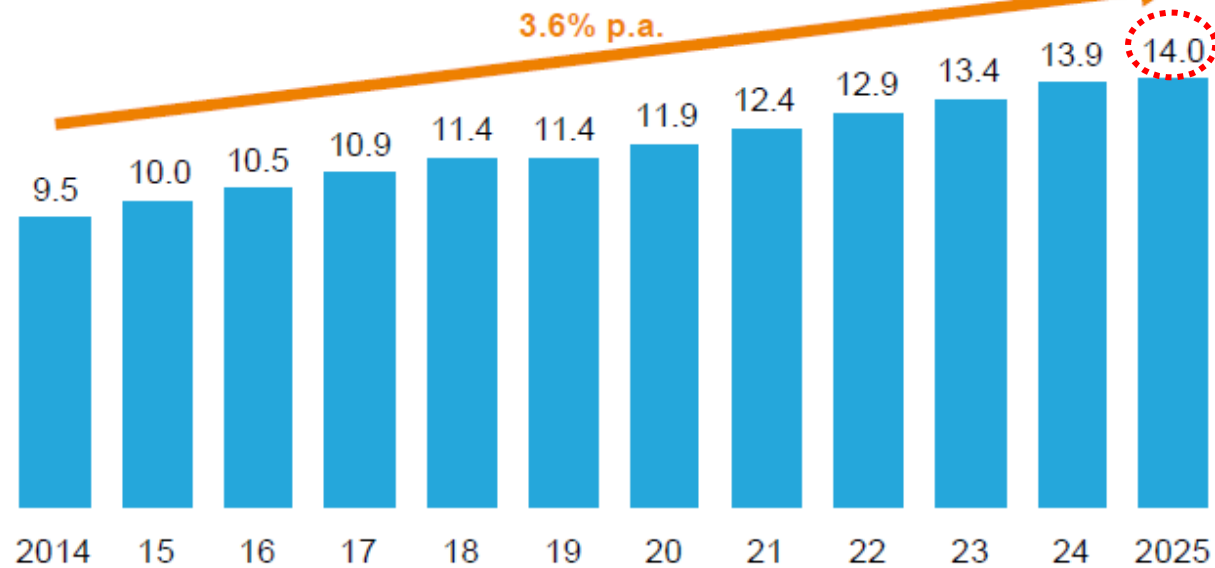
Construction-related spending accounts for **13% of global GDP**, and spending is expected to hit **US\$14 trillion** in 2025

\$ trillion

Global GDP



Construction industry spending



SOURCE: World Bank; IHS; ISSA; McKinsey Global Institute analysis

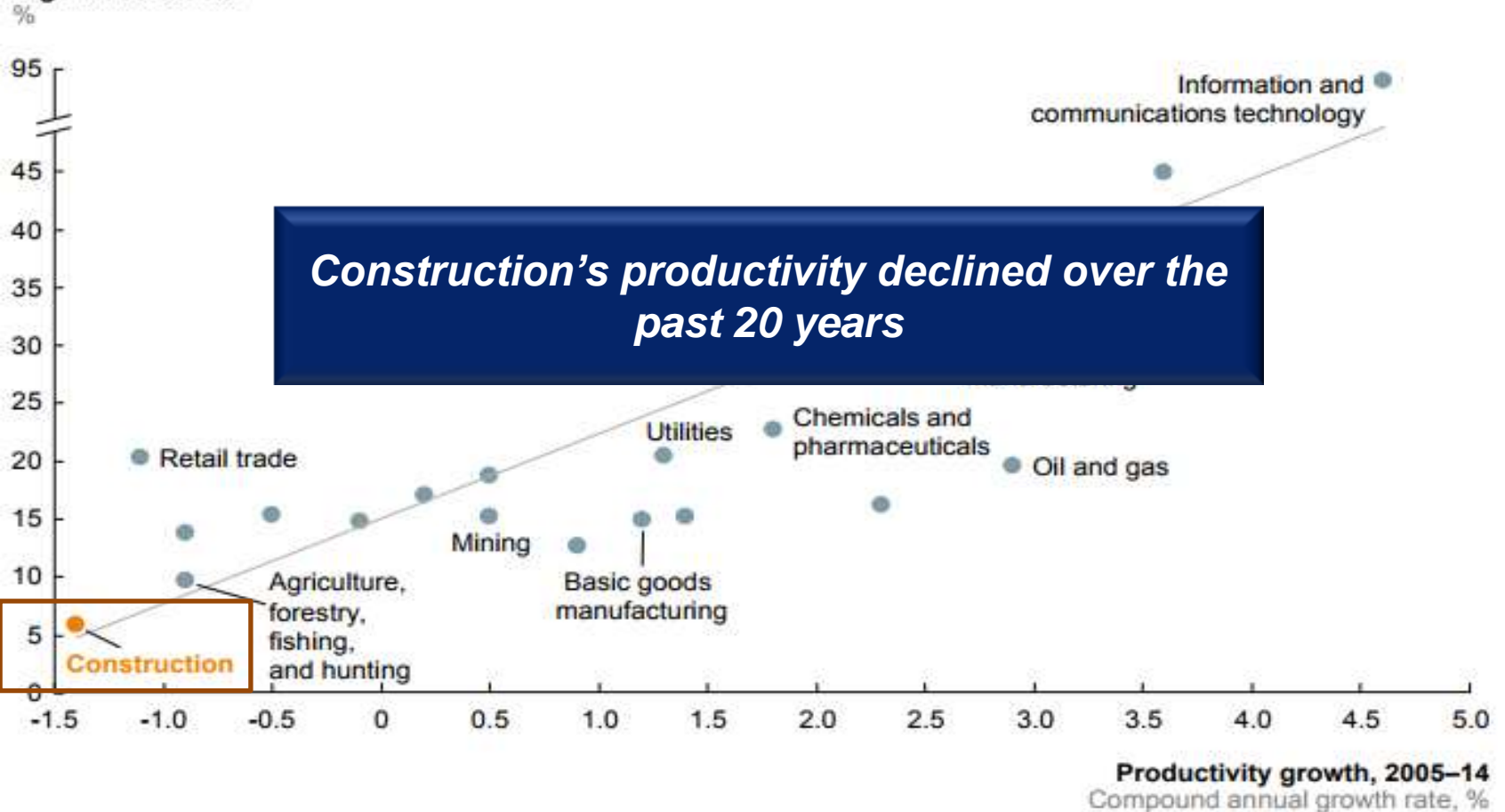
India: construction spending estimated at US\$1 trillion in 2025

*based on IHS projection

Underinvestment in Digitalization

Construction industry underinvests in digitalization and innovation

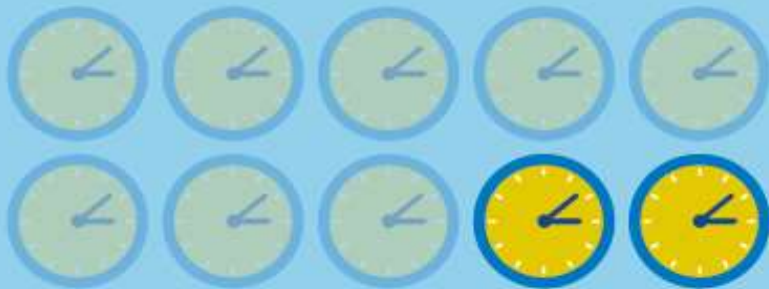
Digitization index¹



1 Based on a set of metrics to assess digitization of assets (8 metrics), usage (11 metrics), and labor (8 metrics); see technical appendix for full list of metrics and explanation of methodology.

Budget & Schedule Over-run are a Constant Occurrence

Large capital projects typically take



★ **20%** longer to finish...

...and are up to



★ **80%** over budget,

Underinvestment in Digitalization

10% of materials are wasted



30% of construction cost is rework



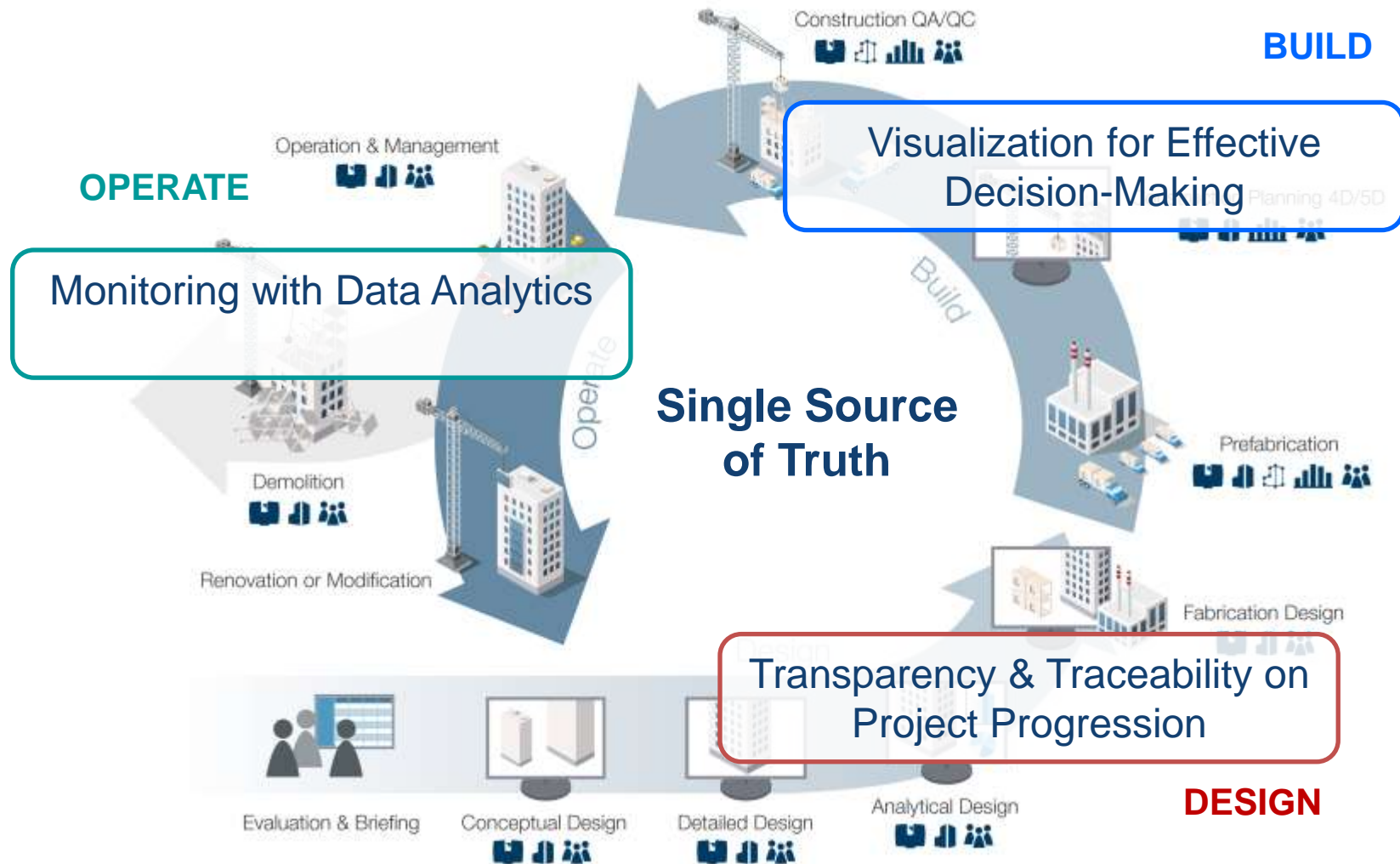
Solution: Full-scale Digitalization → projected annual savings of up to \$1.7 trillion

India: construction spending estimated at US\$1 trillion in 2025

**based on IHS projection*

Benefits of the Digital Construction Life Cycle

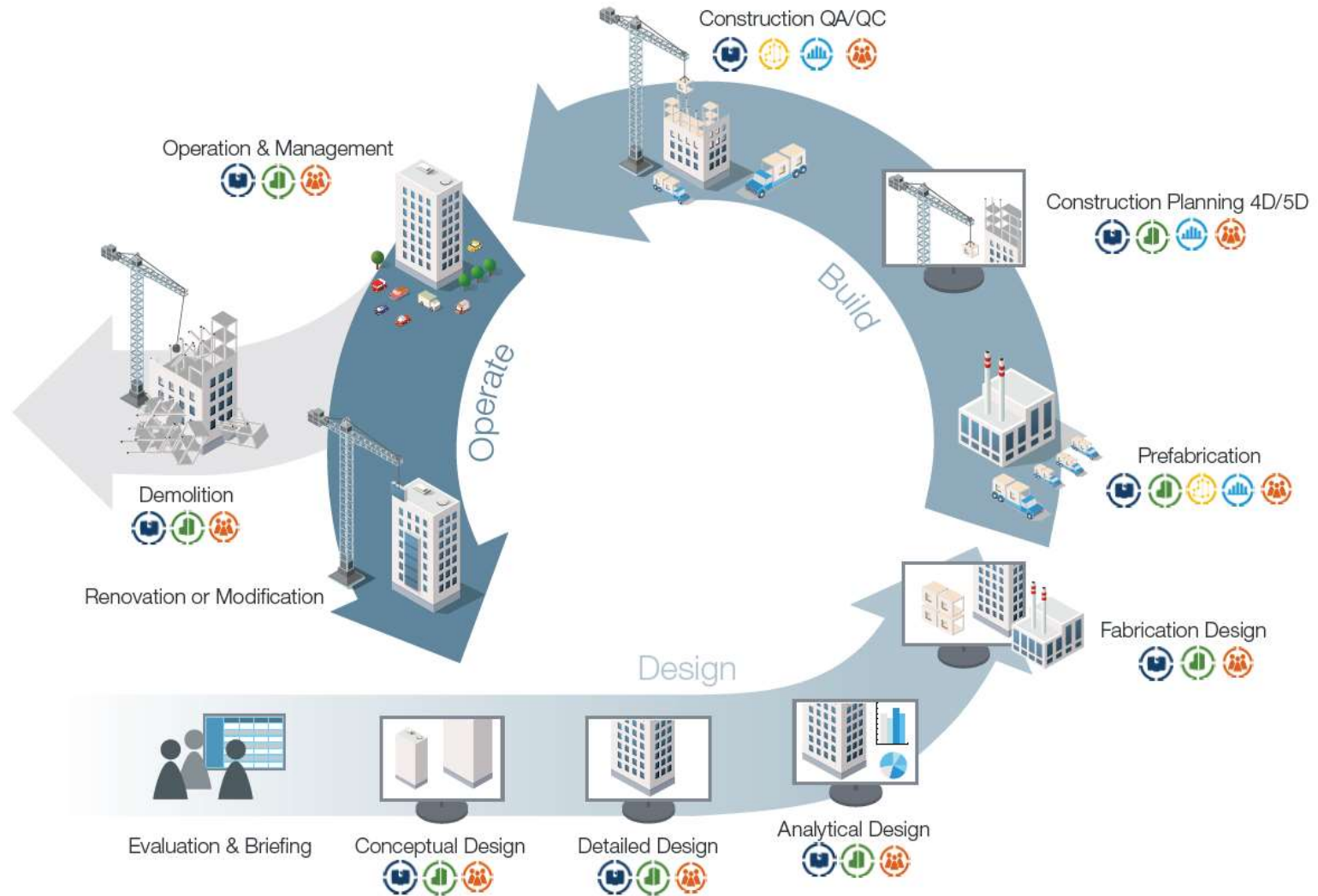
Digital Construction Lifecycle to Enable Effective Building Information Modelling (BIM)



Digitalization: Connect, Automate, Analyze, Decide

FARO Traceable Construction™ Supports the Digital Ecosystem

Traceable Construction™ is the ecosystem of FARO products and solutions falling seamlessly into place along the building lifecycle where reality data is needed



Case Study

Alliance Theatre, Atlanta

**Engineering Challenge:
Precise Pre-Fabrication, Accurate Onsite Installation**

Solution

- **FARO Laser Scanner and FARO Scene: acquire data to build into workflow**
 - Pre-fabrication of components
- **FARO Tracer M and FARO BuildIT Construction: laser projection to show positioning of building components for accurate placement**

Case Study- Alliance Theatre, Atlanta

FEARDO

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