



INDOCHINE
ENGINEERING



TOKYU CONSTRUCTION

FUTURE IN VIETNAM

FUTURE IN VIETNAM

WE WANT TO ACHIEVE

ZERO



BREAKFAST INVITATION

Indochine Engineering
Tokyu Construction
FUTURE IN VIETNAM

THURSDAY
4th August 2022.
Park Hyatt Saigon,
From 7:30 am - 9 am
RSVP: Phone + 84 28 3512 4100
Email cangnguyen@indoeng.com

ZERO CARBON • ZERO WASTE • RESILIENCE

PEOPLE & DIGITAL TRANSFORMATION

MEGATRENDS courtesy of CSIRO



TOKYU GROUP

Tokyu Group's Core Businesses



TOKYU LAND CORPORATION

Real Estate Business

- TOKYU LAND CORPORATION (*2)
- TOKYU COMMUNITY CORP. (*2)
- TOKYU FACILITY SERVICE CO., LTD. (*1)
- TOKYU LIVABLE, INC. (*2)
- TOKYU CONSTRUCTION CO., LTD. (*2)
- SEIKITOKYU KOKYU CO., LTD. (*2)
- Tokyu Fudosan Holdings Corporation (*2)
- TOKYU GEOX CO., LTD. (*1)



TOKYU RAILWAYS CO., LTD.

Transportation Business

- TOKYU RAILWAYS Co., Ltd. (*1)
- IZUKYU CORPORATION (*1)
- UEDA DENYETSU COMPANY (*1)
- TOKYU BUS CORPORATION (*1)
- JOTETSU CORPORATION (*1)
- Sentai International Airport Co., Ltd. (*1)
- TOKYU TECH-NOSYSTEM CO., LTD. (*1)



TOKYU CORPORATION

Hotels and Resorts Business

- TOKYU HOTELS CO., LTD. (*1)
- THREE HUNDRED CLUB CO., LTD. (*1)
- Tokyu Resorts & Stays Co., Ltd. (*2) (established July 1, 2020)
- TOKYU RESORT CORPORATION (*2)
- Tokyu Sharing Co., LTD (*1)



TOKYU HOTELS CO., LTD.

Lifestyle and Services Business

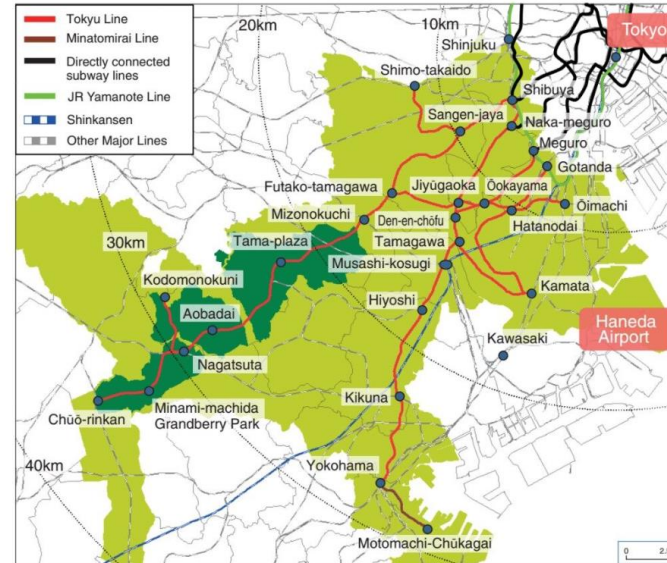
- TOKYU DEPARTMENT STORE CO., LTD. (*1)
- HAGANO TOKYU DEPARTMENT STORE CO., LTD. (*1)
- TOKYU STORE CHAIN CO., LTD. (*1)
- Tokyu Malls Development Corporation (*1)
- TOKYU CARD, INC. (*1)
- TOKYU RECREATION CO., LTD. (*1)
- its communications inc. (*1)
- Tokyu Kidsbasecamp Co., Ltd. (*1)
- TOKYU SECURITY CO., LTD. (*1)
- TOKYU AGENCY INC. (*1)



TOKYU DEPARTMENT STORE CO., LTD.

Companies in bold are publicly listed companies
 *1: Subsidiary
 *2: Related companies and companies affiliated to them

About Tokyu Area



Areas served by Tokyu's railway lines (defined as the 17 cities and wards with Tokyu's railway lines)

- Area: 492 km²
- Population: 5.46 million (including foreign residents) 5.31 million (Japanese only) Both of the above account for 15% of the total for Tokyo and three prefectures in the Tokyo metropolitan area (Source: Basic Resident Register as of Jan 1, 2019)
- Taxable income per person: 1.5 times higher than the national average
- Number of households with household income of 10 million yen or more: 340,000 23% of the total in Tokyo and three prefectures in the Tokyo metropolitan area (Source: Housing and Land Survey 2018)
- Amount of consumer spending in the areas: Estimated to be 8.7513 trillion yen*

Tokyu Tama Den-en-toshi

- Area: 50 km²
- Population: 630,000 people (as of March 31, 2020)

Tokyu Group is well known for its private railway network, SW of Tokyo, encompassing 8 lines and some 67 stations. Also as a owner developer, with interests in real estate, hospitality and lifestyle.

TOKYU CONSTRUCTION



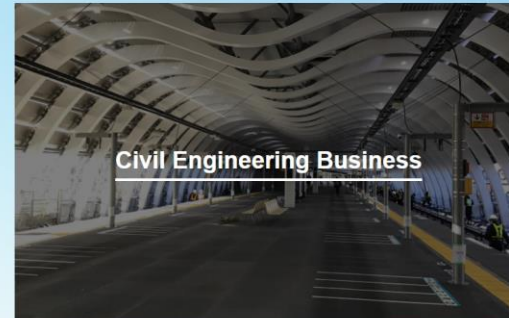
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Corporate Profile Projects Technology & Services Investor Relations Sustainability

Business Overview

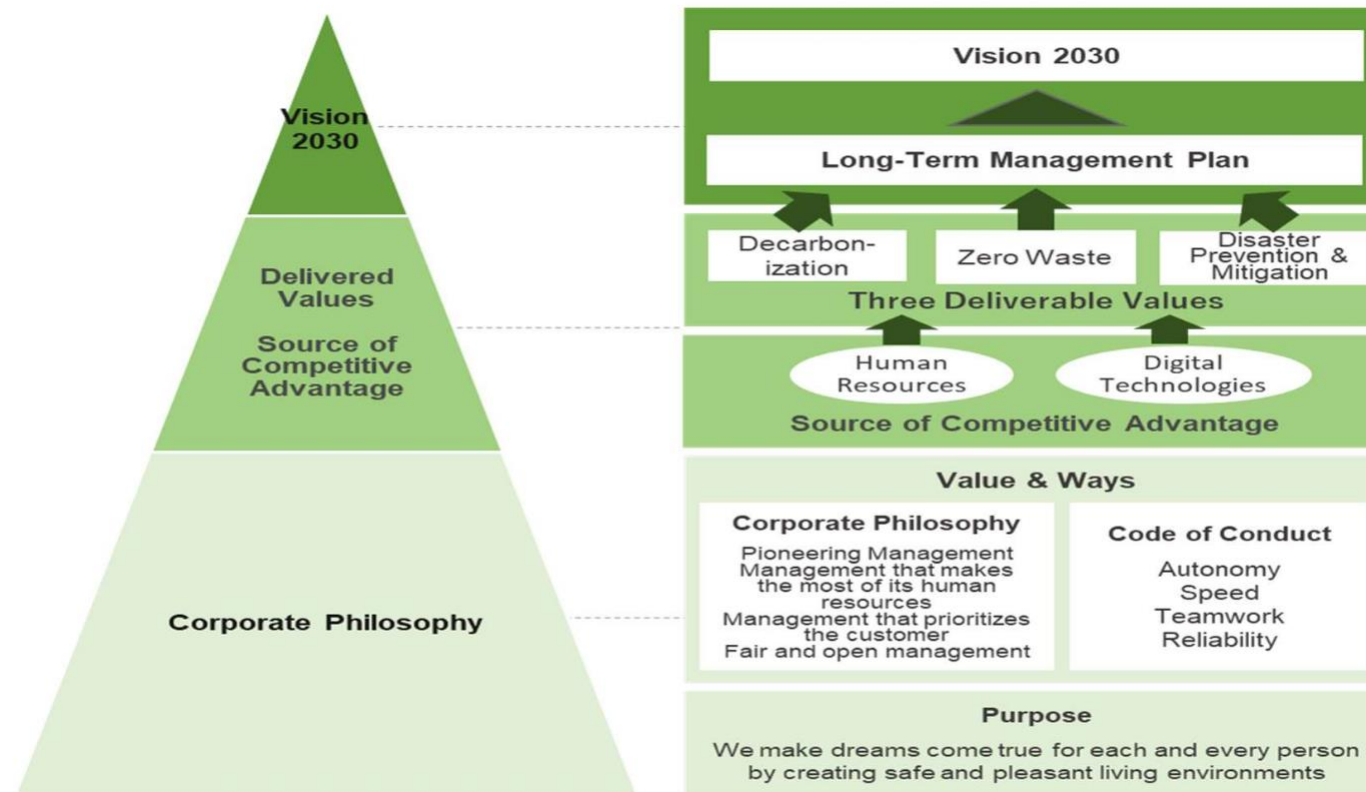
Our Group focuses on civil engineering and building construction as core businesses. We are also working including real estate and international businesses to increase competitiveness and diversify revenue sources.

Business Field



Tokyu Construction is a separately listed, relative of the Tokyu Group, construction company, with experience in horizontal and vertical projects; railways, metros, stations, commercial.

TOKYU CONSTRUCTION



Tokyu Construction has a 2030 vision with 3 core deliverable values, and 2 sources of competitive advantage. Which align with Indochine Engineering's trajectory.

INDOCHINE ENGINEERING



Indochine Engineering offers traditional multidisciplinary engineering consultancy services in Vietnam & SE Asia, plus offshoring capabilities via remote working in Australia, UK, US and Japan.

OUR EXPERIENCE



OFFICES



MINING & INDUSTRY



INFRASTRUCTURE



EDUCATION



HEALTHCARE



SUSTAINABILITY



HOSPITALITY & LEISURE



RESIDENTIAL



RETAIL



FITOUT

Our experience covers most sectors, commercial & industrial. Over recent years pre CV, we experienced a lot of hospitality work ... currently returning focus back to industrial, and hopefully infrastructure in time.

ZERO CARBON, ZERO WASTE, RESILIENCE

Advancing Net Zero
A World Green Building Council global project

WorldGBC definition:
A net zero carbon building is highly energy efficient with all remaining energy from on-site and/or off-site renewable sources

100% of buildings must operate at net zero carbon by 2050

All new buildings must operate at net zero carbon by 2030

Key Principles

- 1. Measure and disclose**
Carbon is the ultimate metric to track, and buildings must achieve an operational net zero carbon emissions balance based on measurement.
- 2. Reduce energy**
Prioritise energy efficiency to ensure that buildings are performing as efficiently as possible, and not wasting energy.
- 3. Generate balance from renewables**
Supply remaining demand from renewable energy, preferably on-site followed by off-site, or from a renewable energy source.
- 4. Improve verification and reporting**
Over time, progress to include embodied carbon and other impact areas such as zero water and zero waste.

GOVERNMENT ENGAGEMENT
TRAINING & EDUCATION
CORPORATE ENGAGEMENT
CERTIFICATION



Zero carbon is the vision, using onsite or offsite resources. Zero waste similarly reflects our desire for more efficient delivery processes. Resilience is our reinterpretation of disaster prevention & mitigation.

PEOPLE & CULTURE



At the heart of it all, is the people. We have improved our diversity, and have learnt to apply our experiences with cultural challenges.

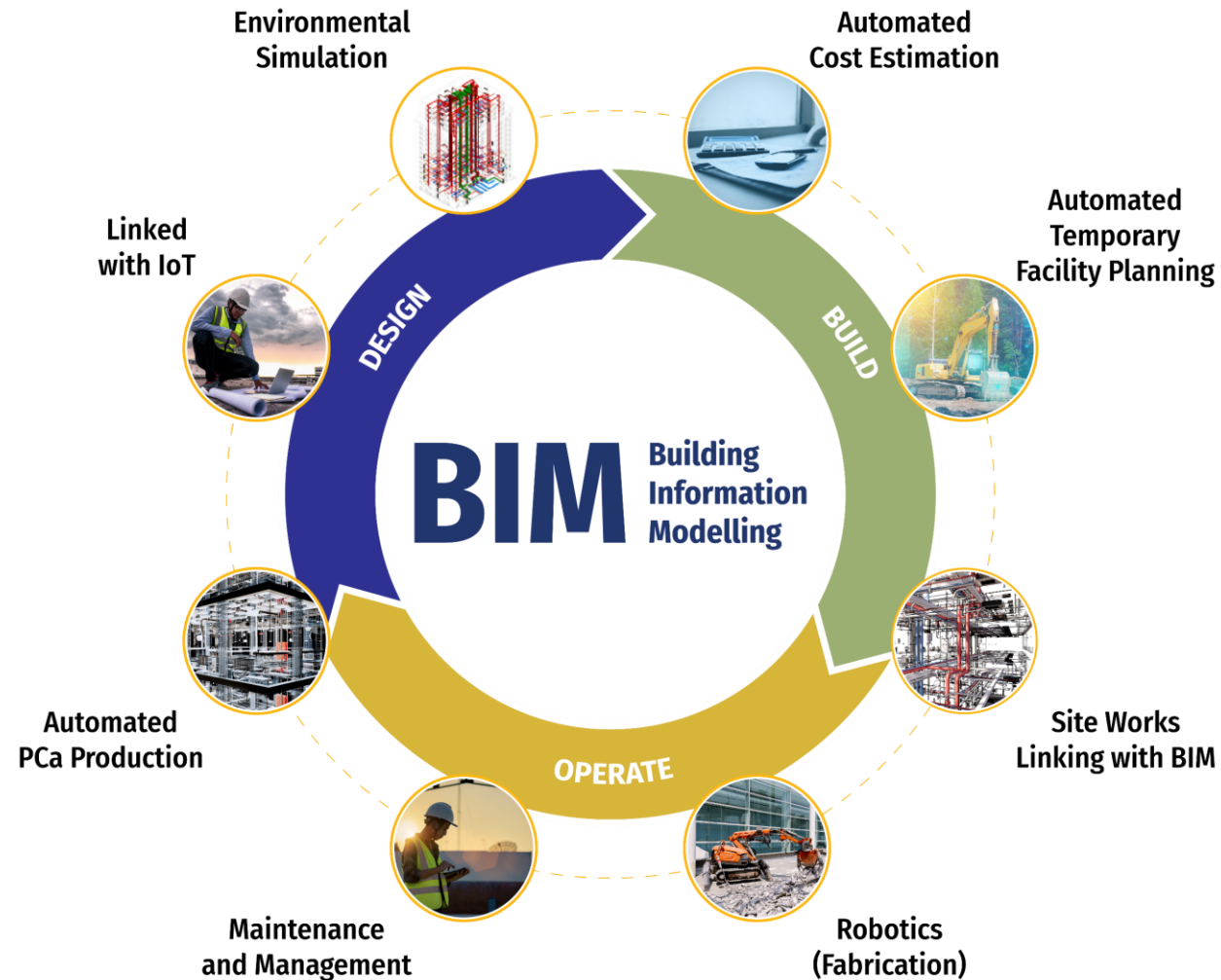
DIGITAL TRANSFORMATION OF CONSTRUCTION



Data management internal and external seems to be the key to it all, and whilst digital twins can be setup with other data sets eg document collections, or as built drone scans, having a good BIM model with geometry and data seems to be the core trend.

Strategic commitment, standardising the platform & data and teamwork key considerations.

DX BIM FOR CONSTRUCTION



CONSTRUCTION DELIVERY – RESOURCES FOR EVOLUTION

Digital shift in construction business.

Learn together eg dig twins, offsite manuf requires BIM4D.

Data management innovation ... costs, carbon ...

Develop progressive model, for design, estimating, procurement, construction, FM ... > asset value.

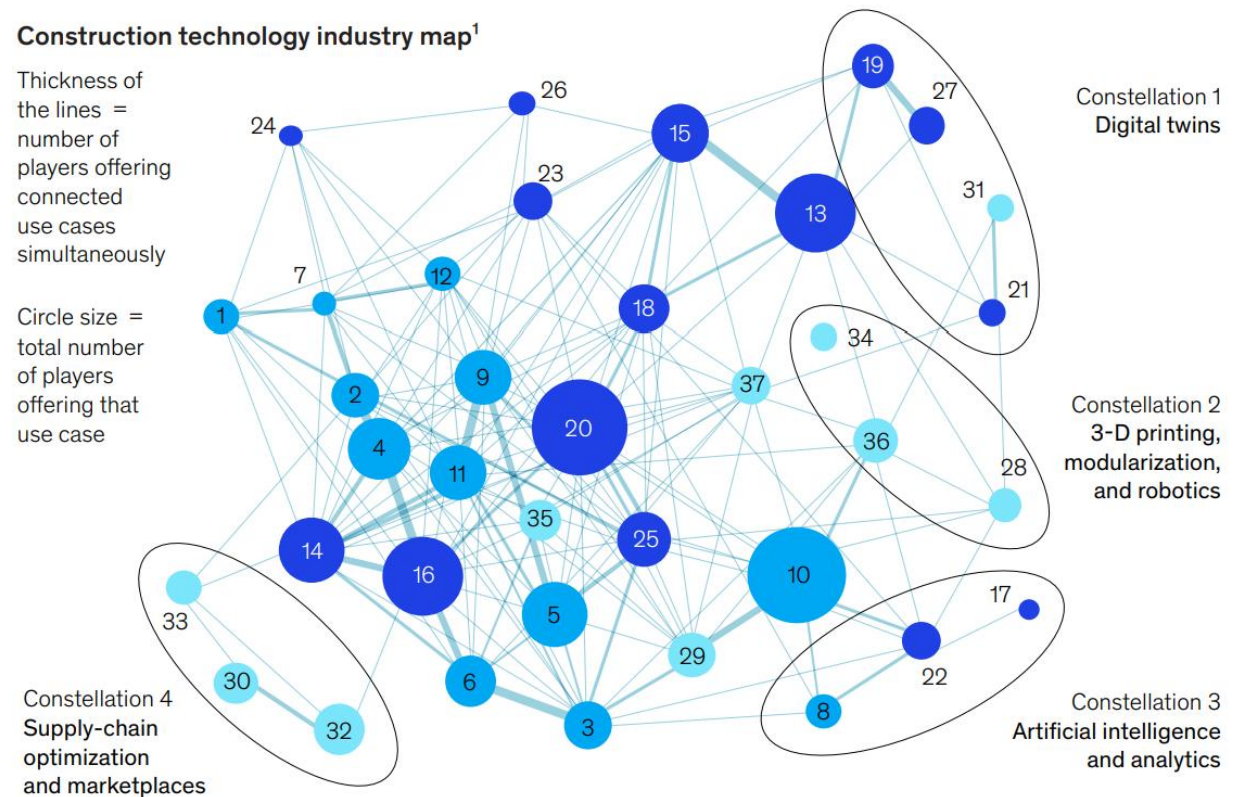
Exhibit 1

The largest construction industry clusters of use cases include 3-D printing, modularization, and robotics.

Construction technology industry map¹

Thickness of the lines = number of players offering connected use cases simultaneously

Circle size = total number of players offering that use case



SUSTAINABILITY – THE ECONOMICS

Construction costs

- LEED Gold/ Grade A \$1200/m²
50,000 m² - \$60M
- LEED Platinum A+ \$1,400/m²
50,000 m² - \$70M

Tenants

- Higher quality, longer agreements, maybe a premium
- 30,000 m² lettable @ \$40/m²
\$14.4M return excl service



Asset values

- \$14.4M @ 8% yield \$180M
- \$14.4M @ 7% yield \$205M
- LEED improves yields/asset values

Sustainability, eg LEED certification of office towers, leads to higher quality and more valuable assets.

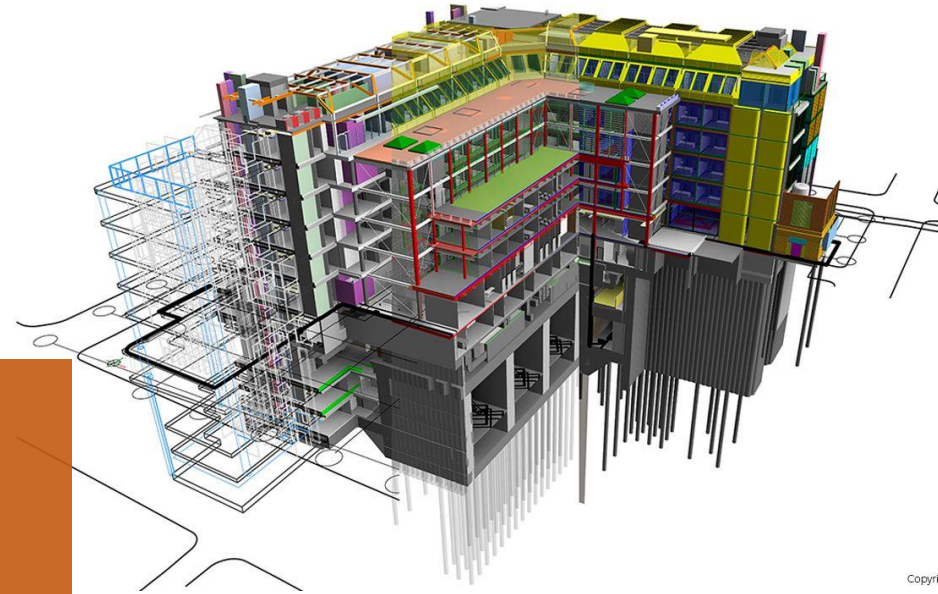
DIGITAL TRANSFORMATION – THE ECONOMICS

Construction costs

- Customised designs
- Improved procurement
- Reduced labour, lower costs

Operations

- Flexible working WFH
- IoT data
- Link office & virtual



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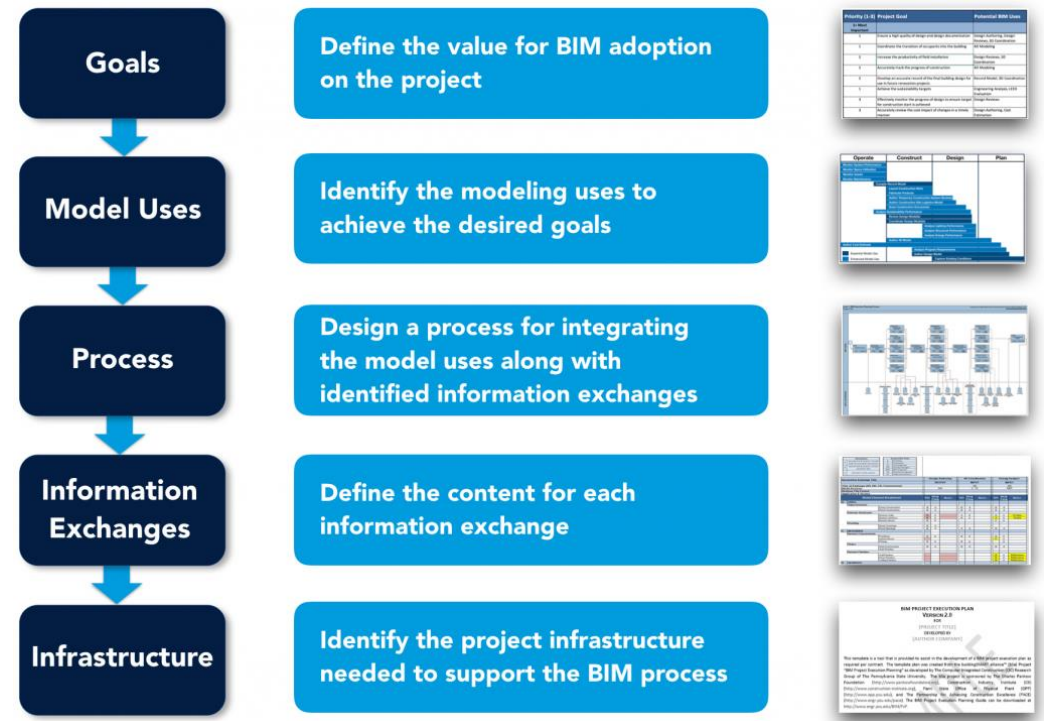
Asset values

- Yield compression for the best
- Higher asset values
- Network effects for early movers
- DX could be a new class?

Digital transformation, as with other industries, offers the potential to reduce costs, improve usage, and similarly to sustainability improve asset values.

DX BIM PLAN FOR DEVELOPERS IN GENERAL

1. **Adopt a DX strategy**, and then plan, do, check, act.
2. **Standardise data framework**, especially for multiple projects, and limit size, for arch, structure, MEP.
3. **Standardise geometry framework**, use standardise BIM families, for arch, structure, MEP.
4. **Encourage use internally**, with a range of tools to access cloud models.
5. **Formalise use externally**, to allow procurement for example.
6. Allow, encourage or **specify contractors to use**, modify and update.
7. **Connect to deliverables** such as submissions to allow later access for facilities management.
8. **Prepare for future post construction use**, eg for IoT (Google and Apple data now available in Vietnam), integration with building management systems, or for post occupancy tasks like energy management.



TOKYU CONSTRUCTION – SHARED VALUES & VISION



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