

# OBAYASHI

UT-ETH-UZH Symposium | Company Talk  
Zurich | October 16, 2023

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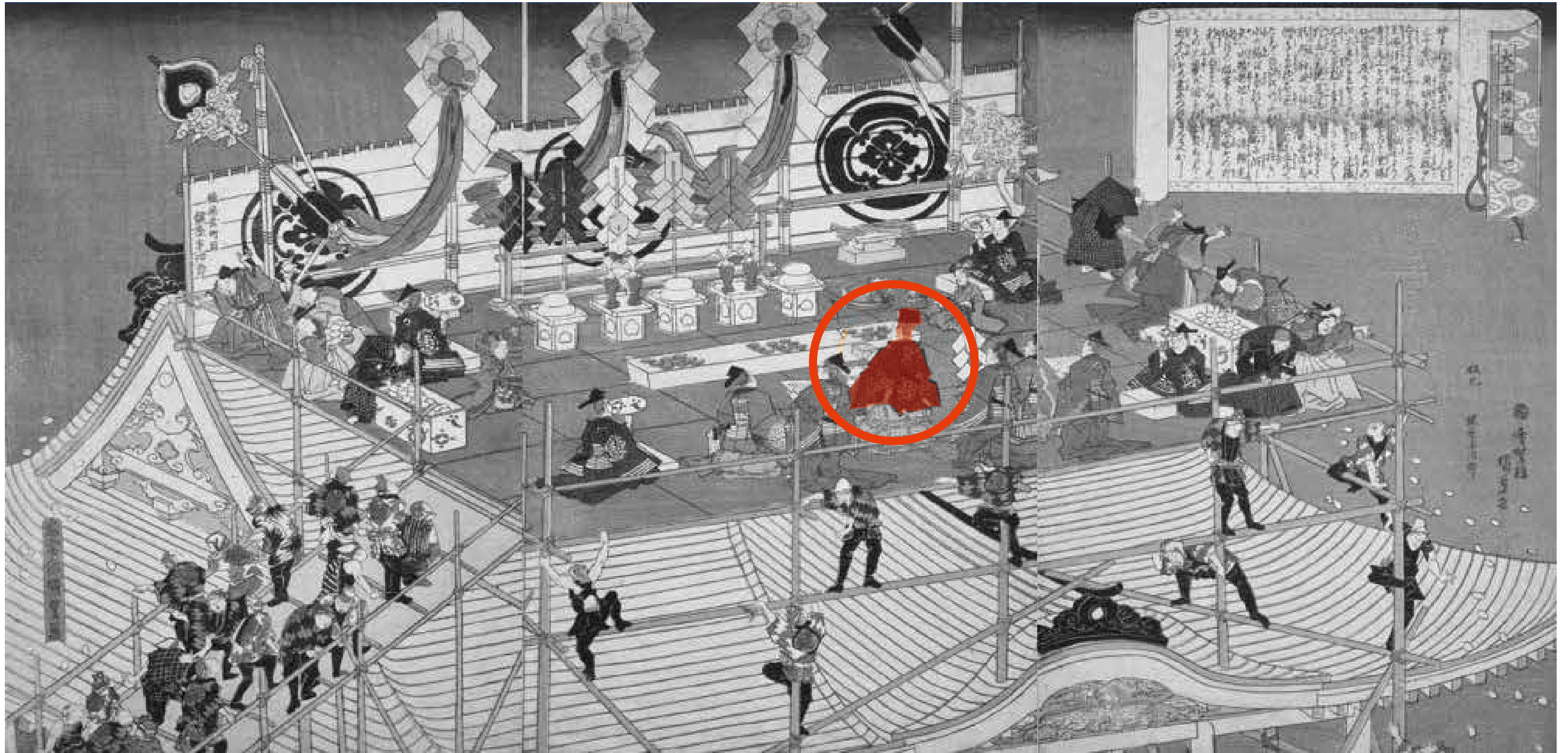
# JAPANESE CONSTRUCTION: FROM TRADITION TO ZENECON

# THE TORYO (MASTER CARPENTER)



Research | Design | Build | Procure | Maintain | Communicate | Manage<sub>4</sub>

# THE TORYO (MASTER CARPENTER)





# GC AS TORYO = COORDINATION

Morning meeting at  
construction site:  
1,500 workers on this day,  
but **650,000** total site entries

Hokkaido Ballpark F Village  
Sapporo, 2022





# GC AS TORYO = COORDINATION

Morning meeting at construction site:  
1,500 workers on this day,  
but **650,000** total site entries

People in **ORANGE** coats  
are OBAYASHI staff

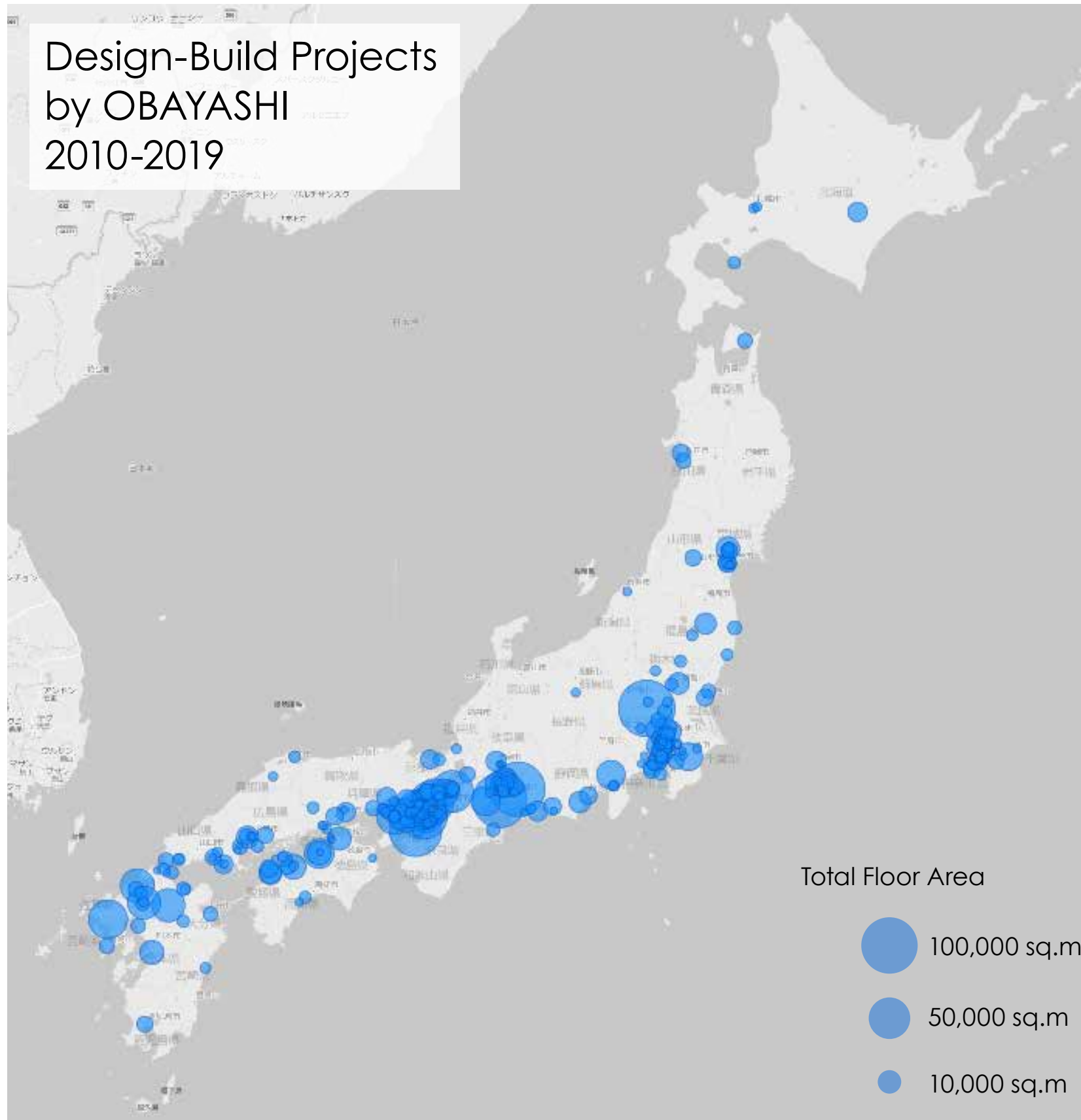
**OBAYASHI'S TORYO**

Hokkaido Ballpark F Village  
Sapporo, 2022

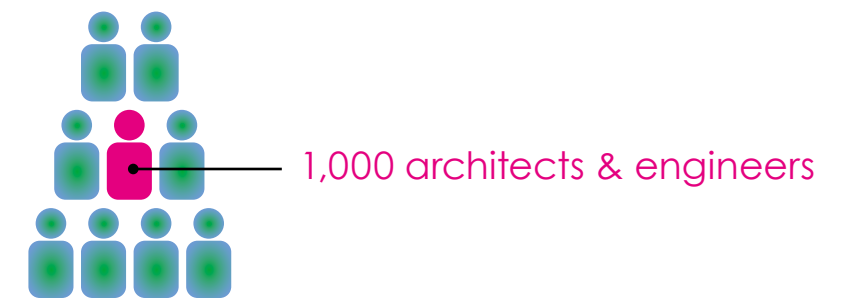




# SCALE MATTERS



- One of the largest ZENECON in Japan
- Founded in 1892
- 17 group companies around the world
- 9,000 employees

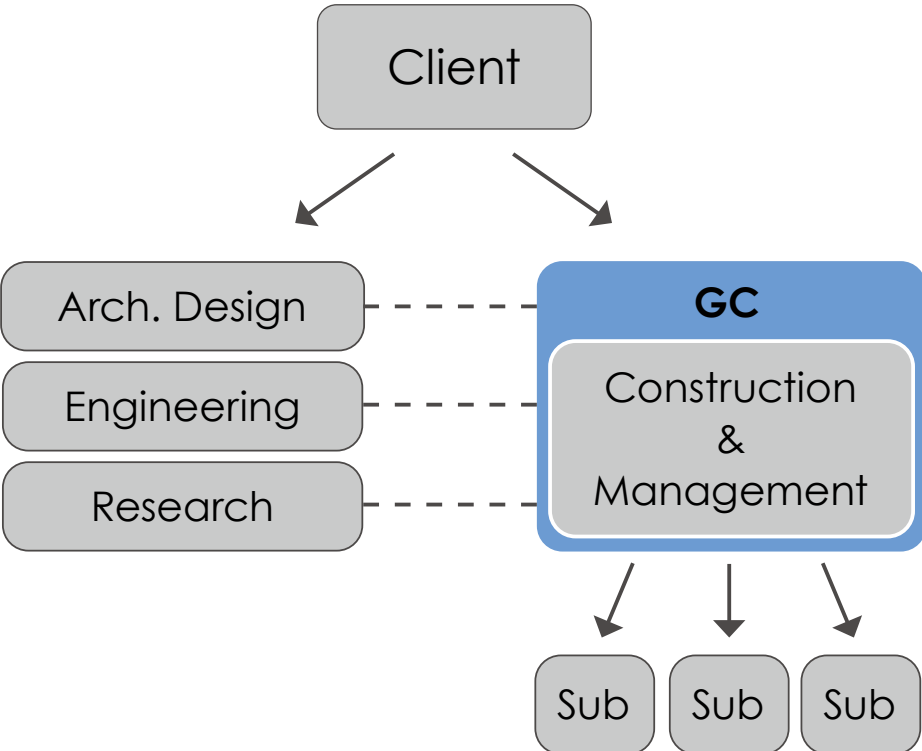


- Construction sites started in 2022:  
**217**
- Estim. Construction Cost  
**USD 8.27 billion**
- Total Floor Area  
**5.74 mil. sq.m**



# CONSTRUCTION BUSINESS MODELS

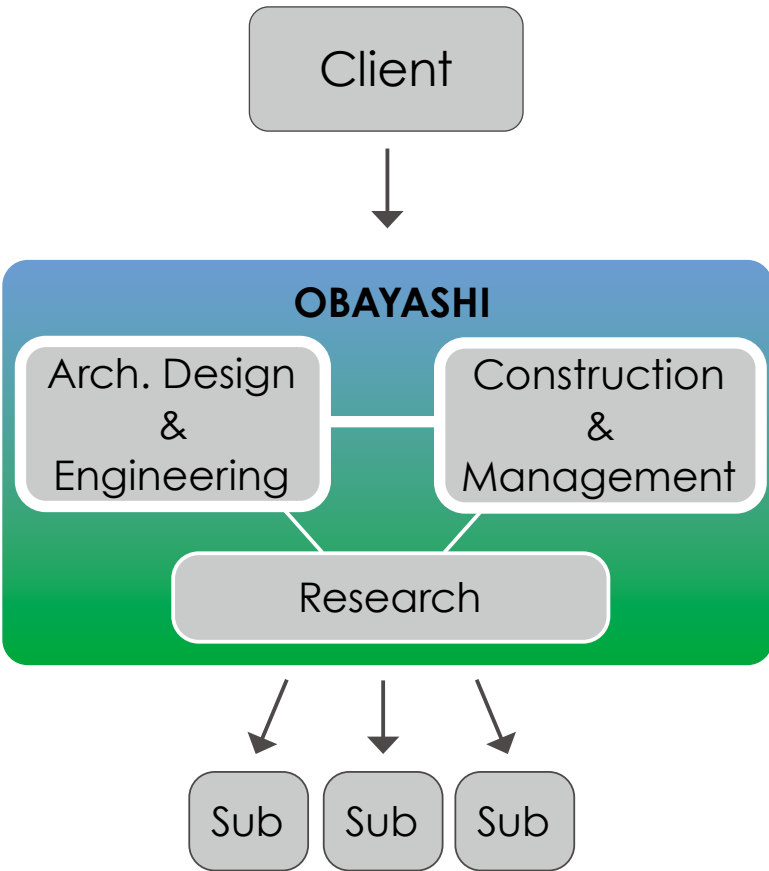
## Typical GC



## Toryo



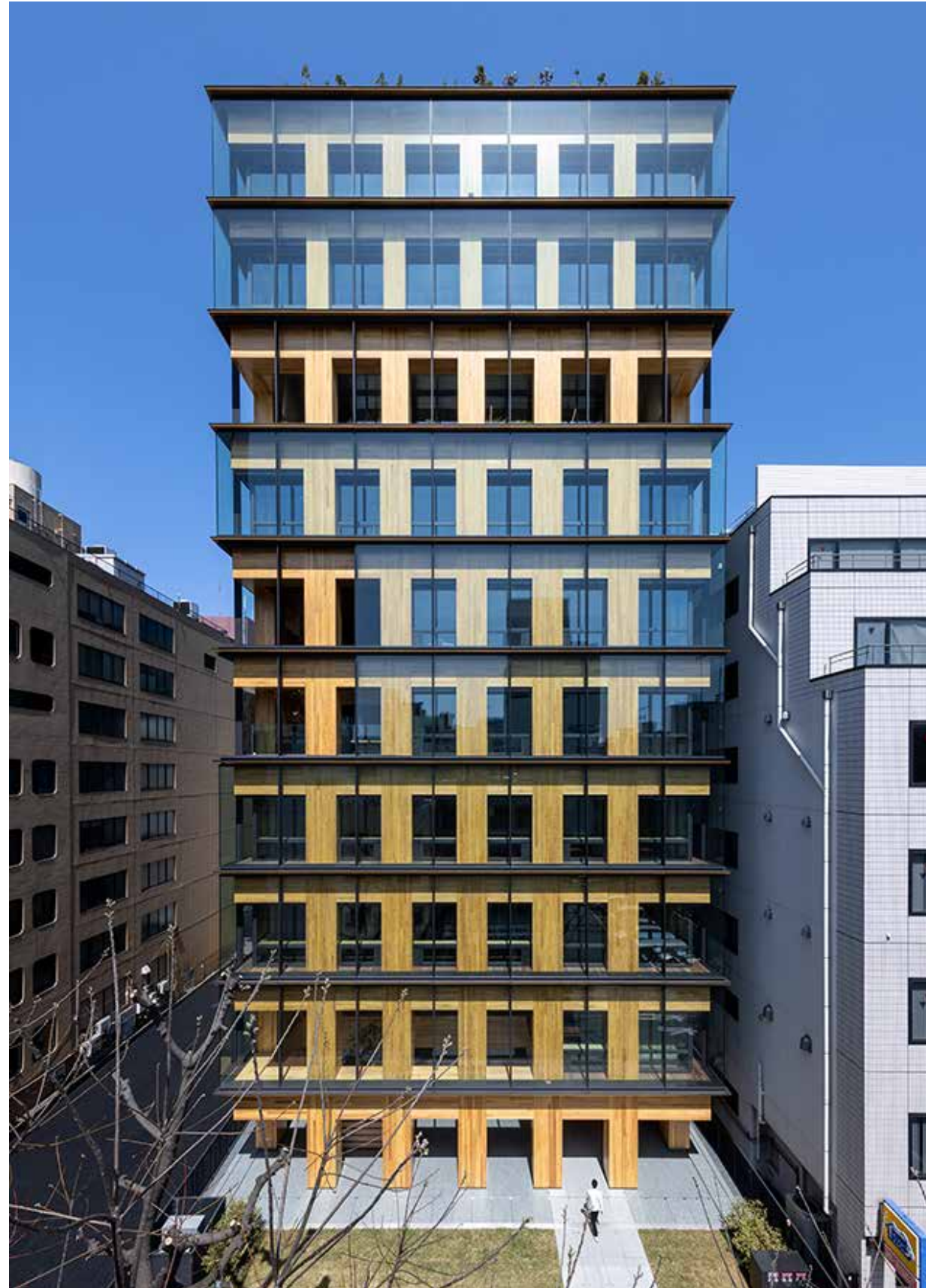
## Zenecon



# PORT PLUS

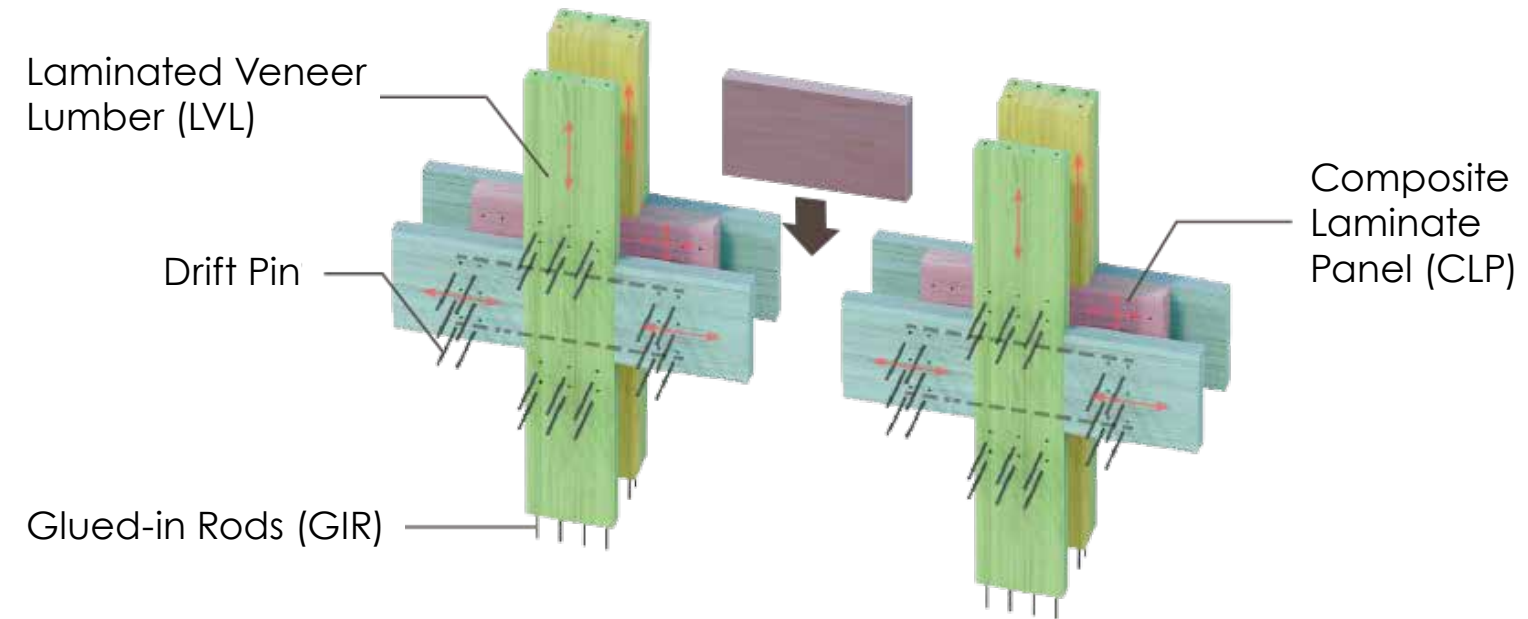
- Yokohama, JP
- 2022
- Japan's first fully-wooden fire-resistant high rise

Design-Build





# PORT PLUS





# 3dpod

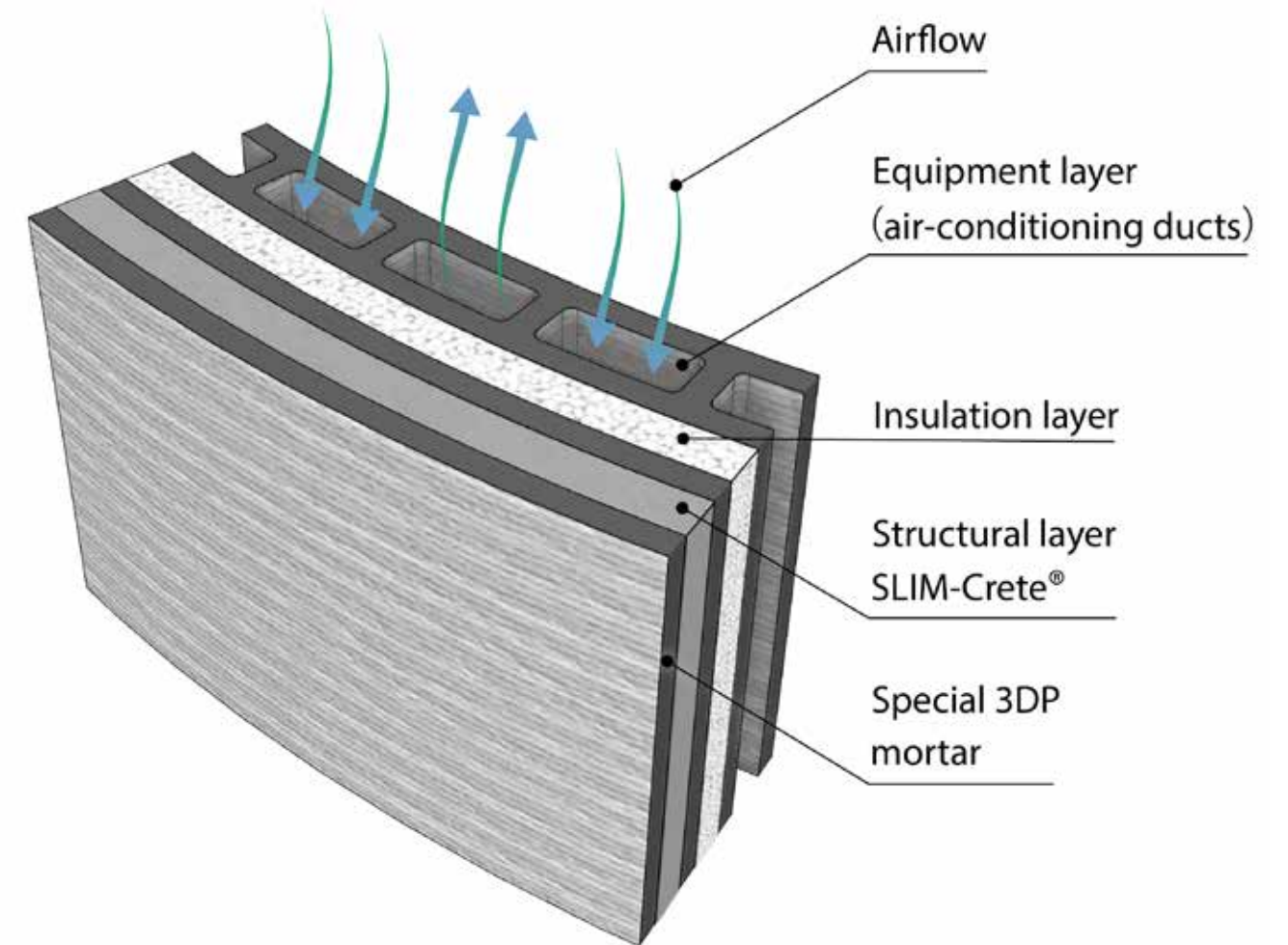
- Kiyose (Tokyo), JP
- 2023
- Earthquake-proof  
3D-printed building

Design-Build





# 3dpod



# HOKKAIDO BALLPARK F VILLAGE

- Sapporo, JP
- 2022
- Baseball stadium with retractable roof in heavy-snow area

Design-Build

- **3,264** subcontractors
- **11,785** people on site

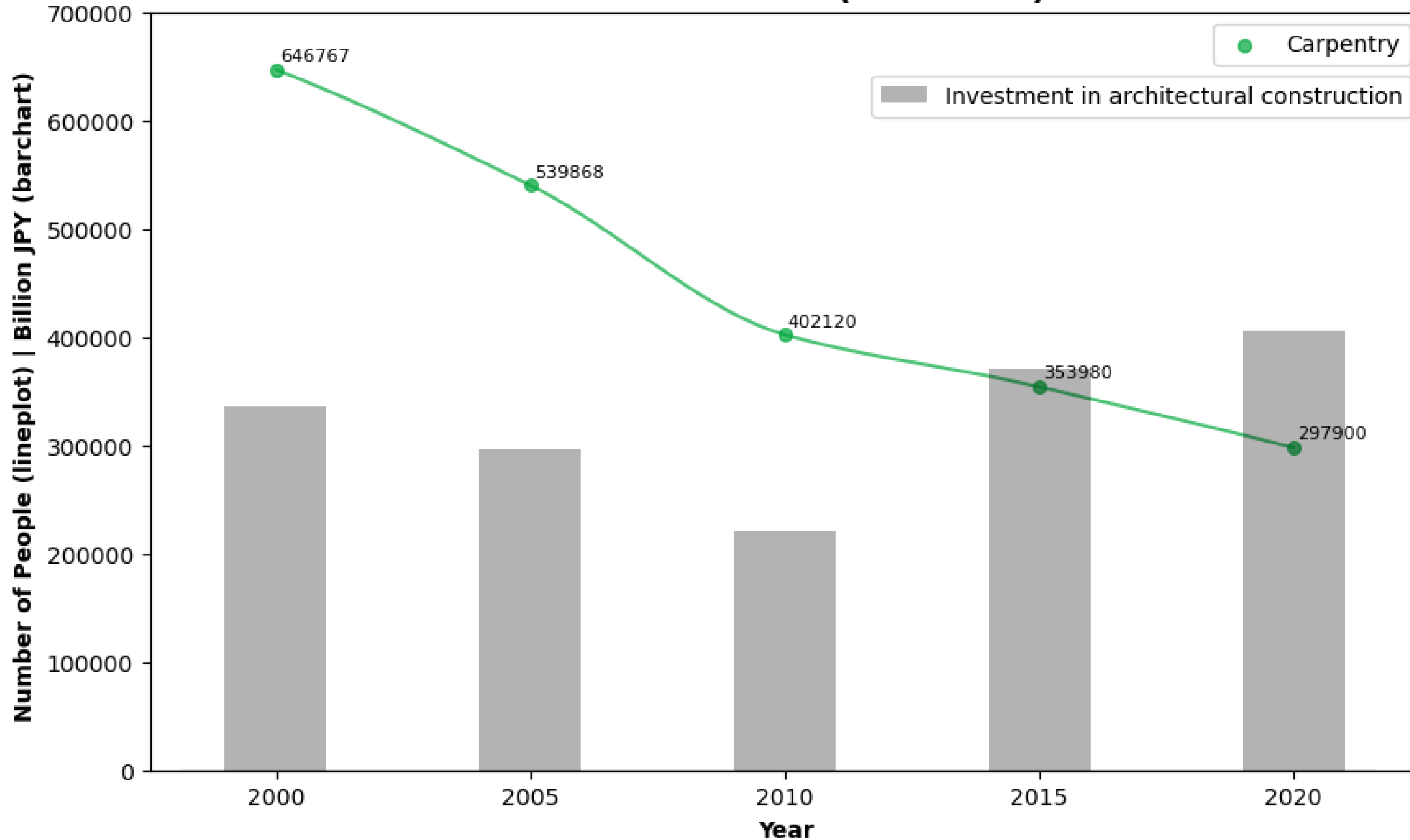




# THE AEC INDUSTRY IN JAPAN: CHALLENGES & OPPORTUNITIES

# 1) DWINDLING NUMBER OF SKILLED CRAFTSPEOPLE

Historical Trends (2020 data)



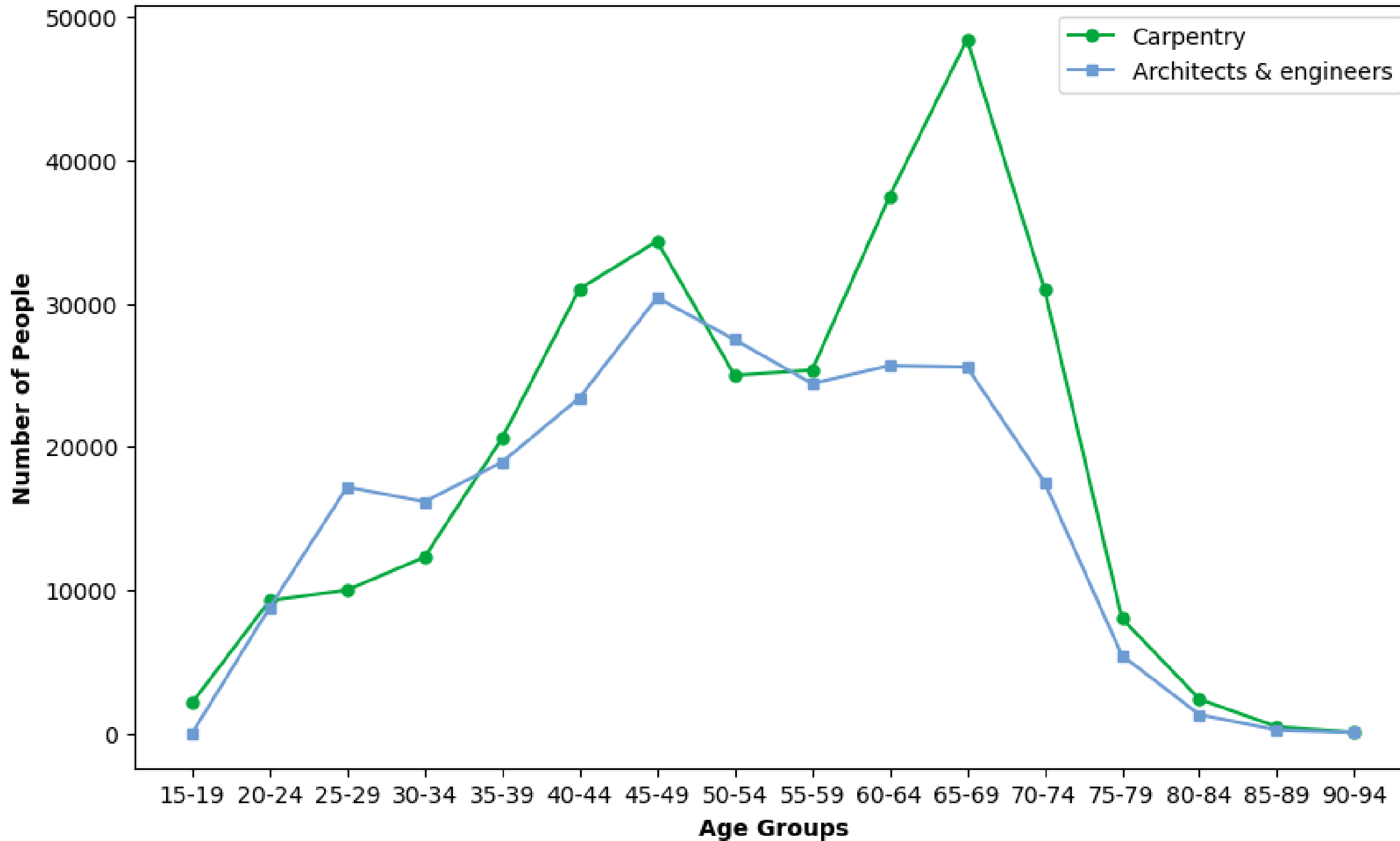
source:  
Japan National  
Census 2020

**-53.9%**



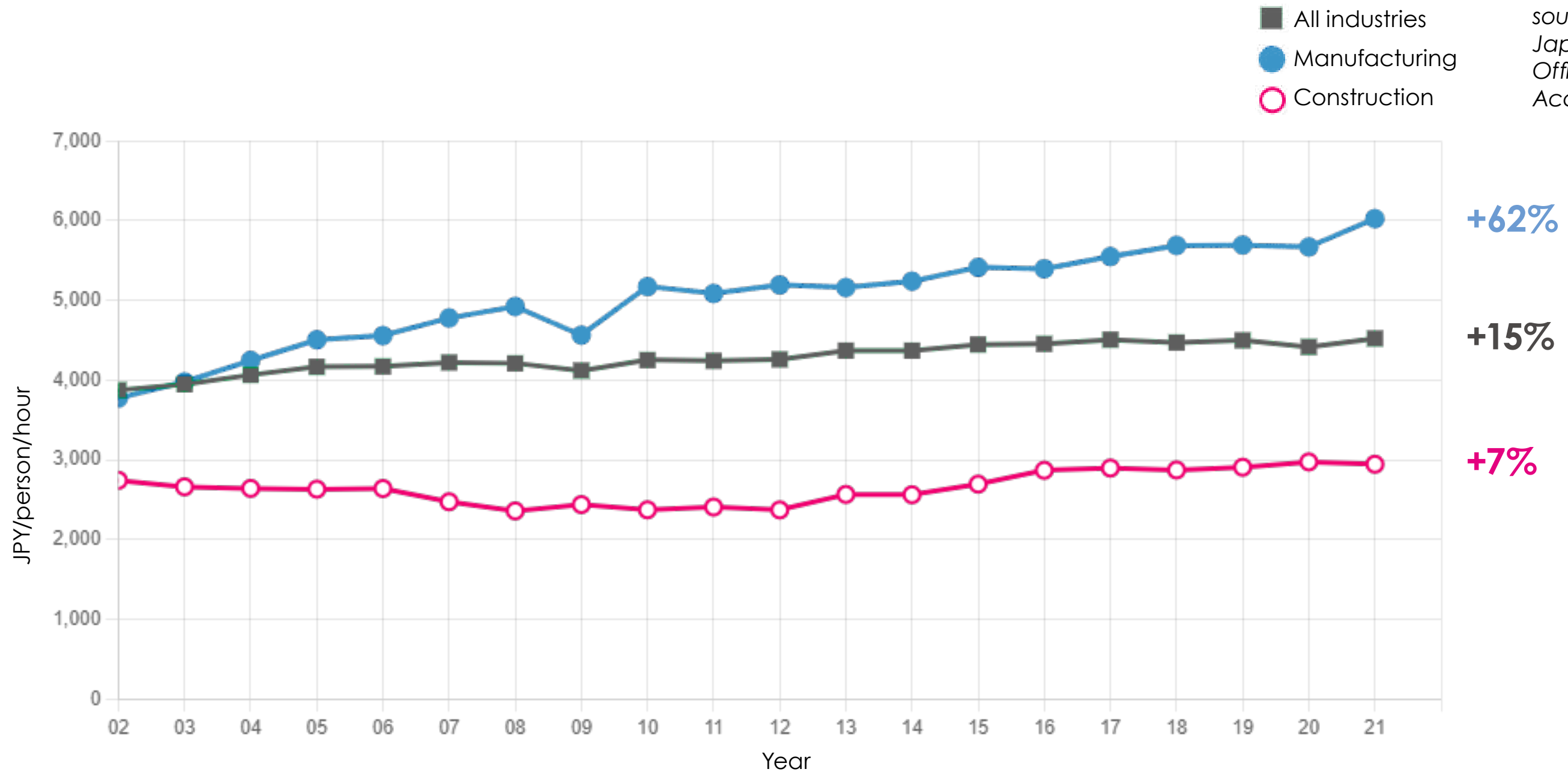
# 1) DWINDLING NUMBER OF SKILLED CRAFTSPEOPLE

**Employment by Age Group and Industry (2020 data)**



source:  
Japan National  
Census 2020

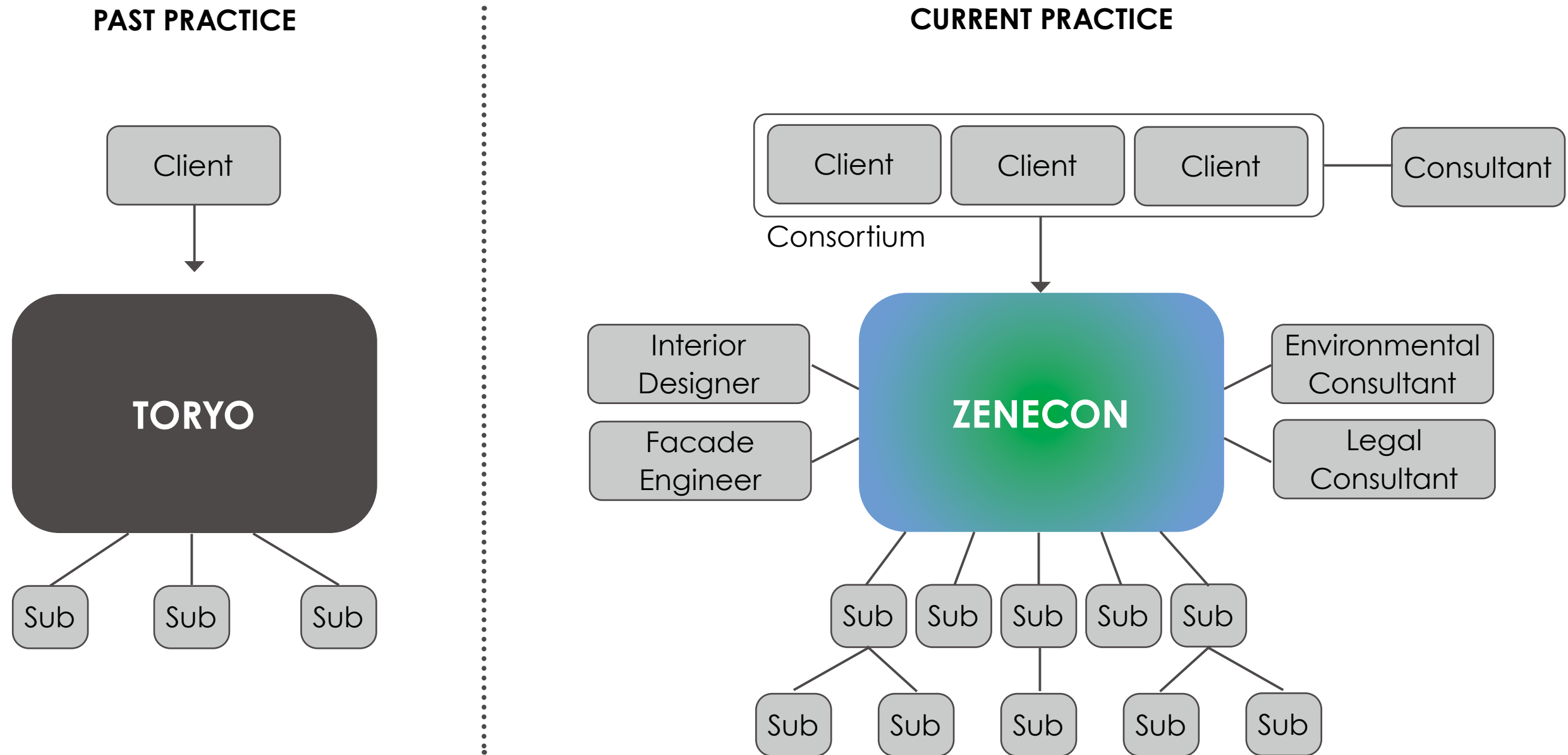
## 2) STAGNANT PRODUCTIVITY



In 20 years the gap with average productivity across industries has widened



# 3) NEW COMPLEXITY

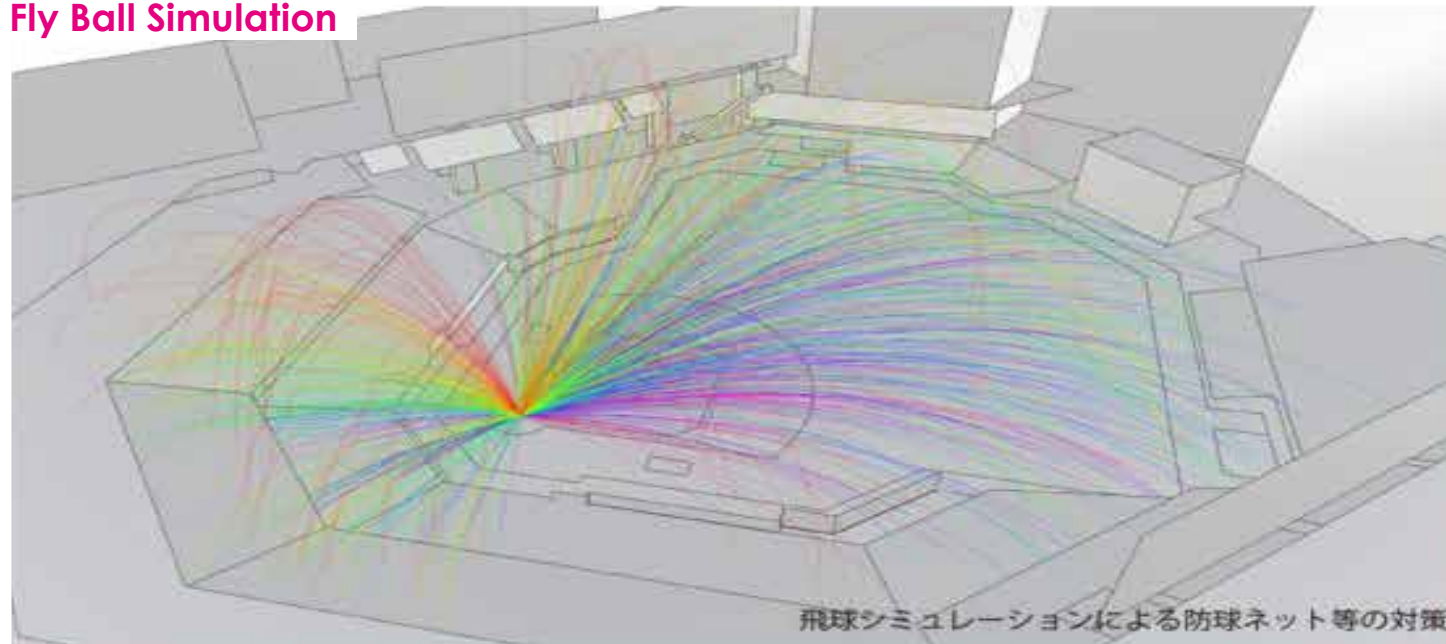


Compounded with **shortened design time, increase of data**

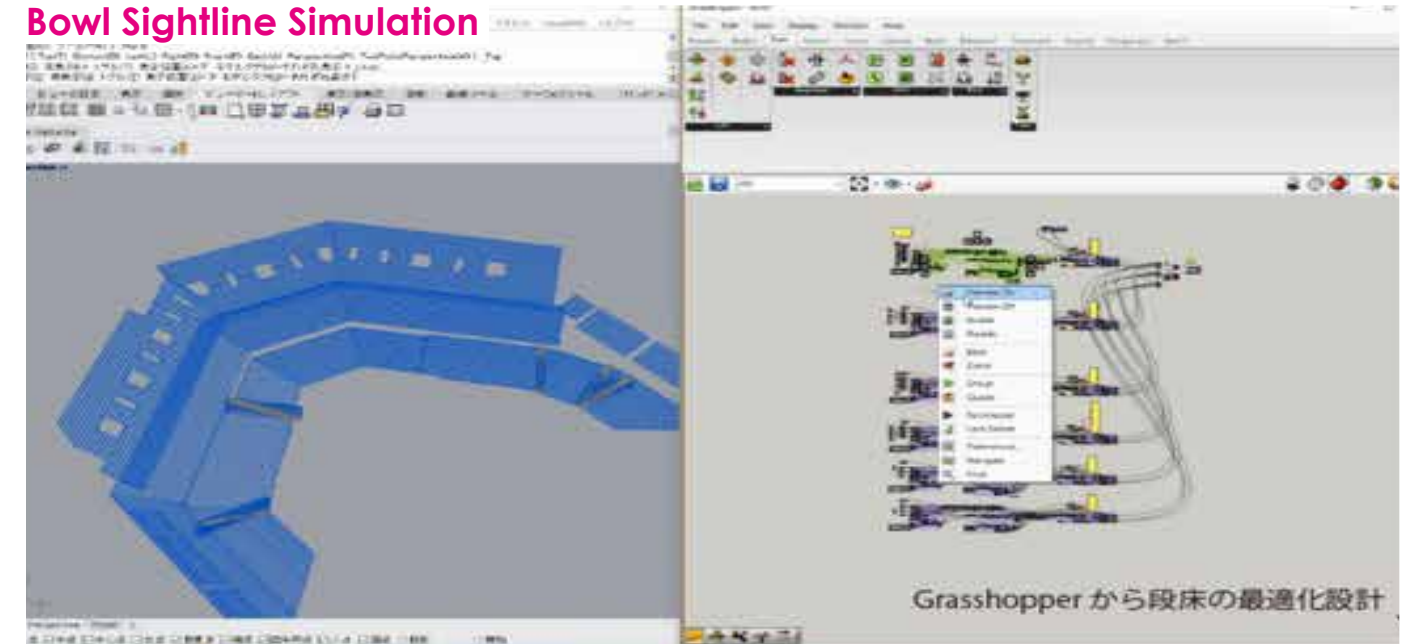
Collaboration & management are crucial

# HOKKAIDO BALLPARK F VILLAGE

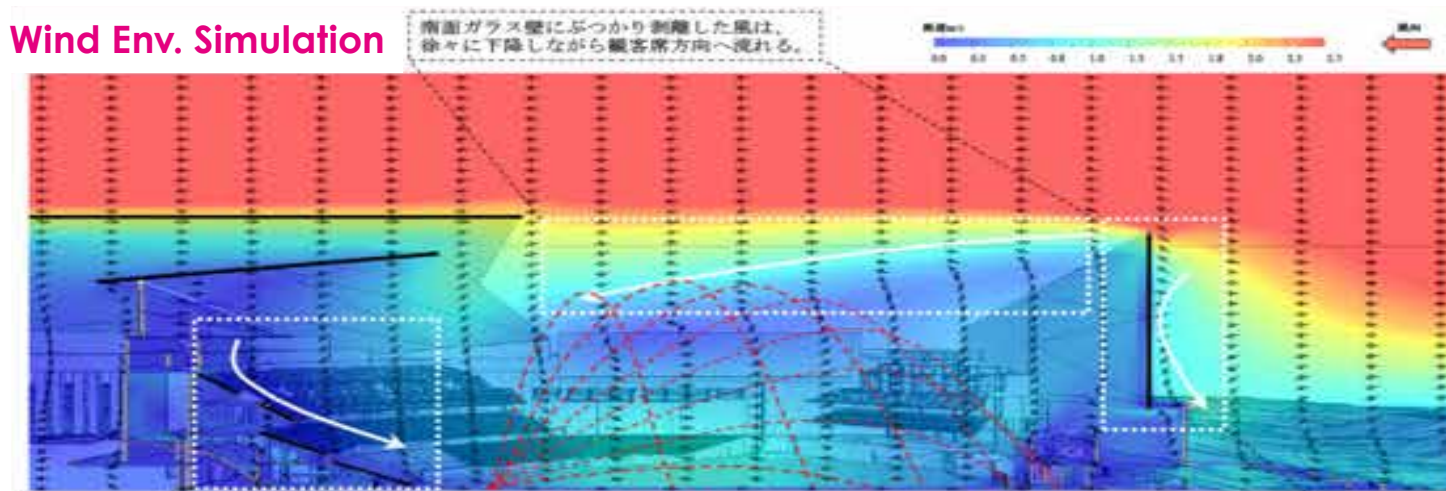
Fly Ball Simulation



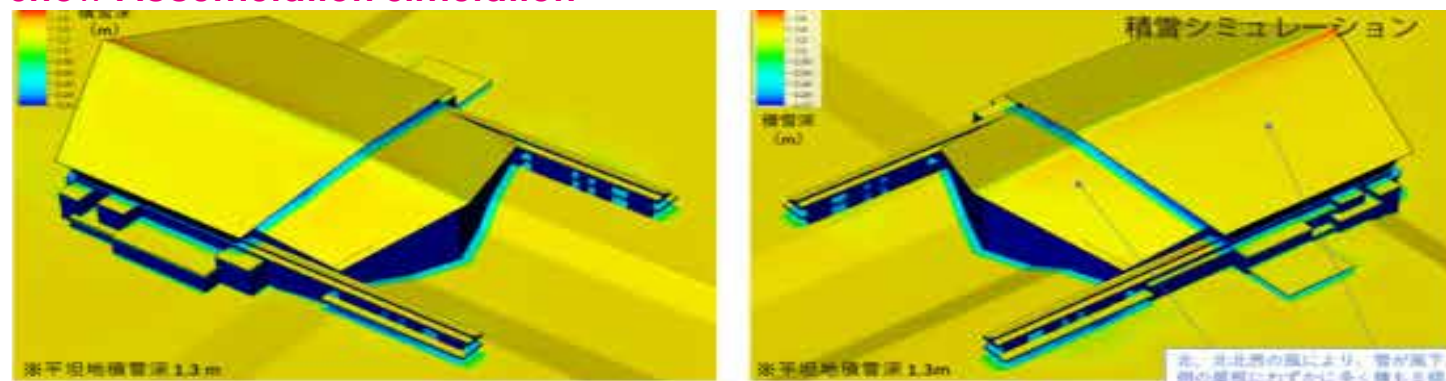
Bowl Sightline Simulation



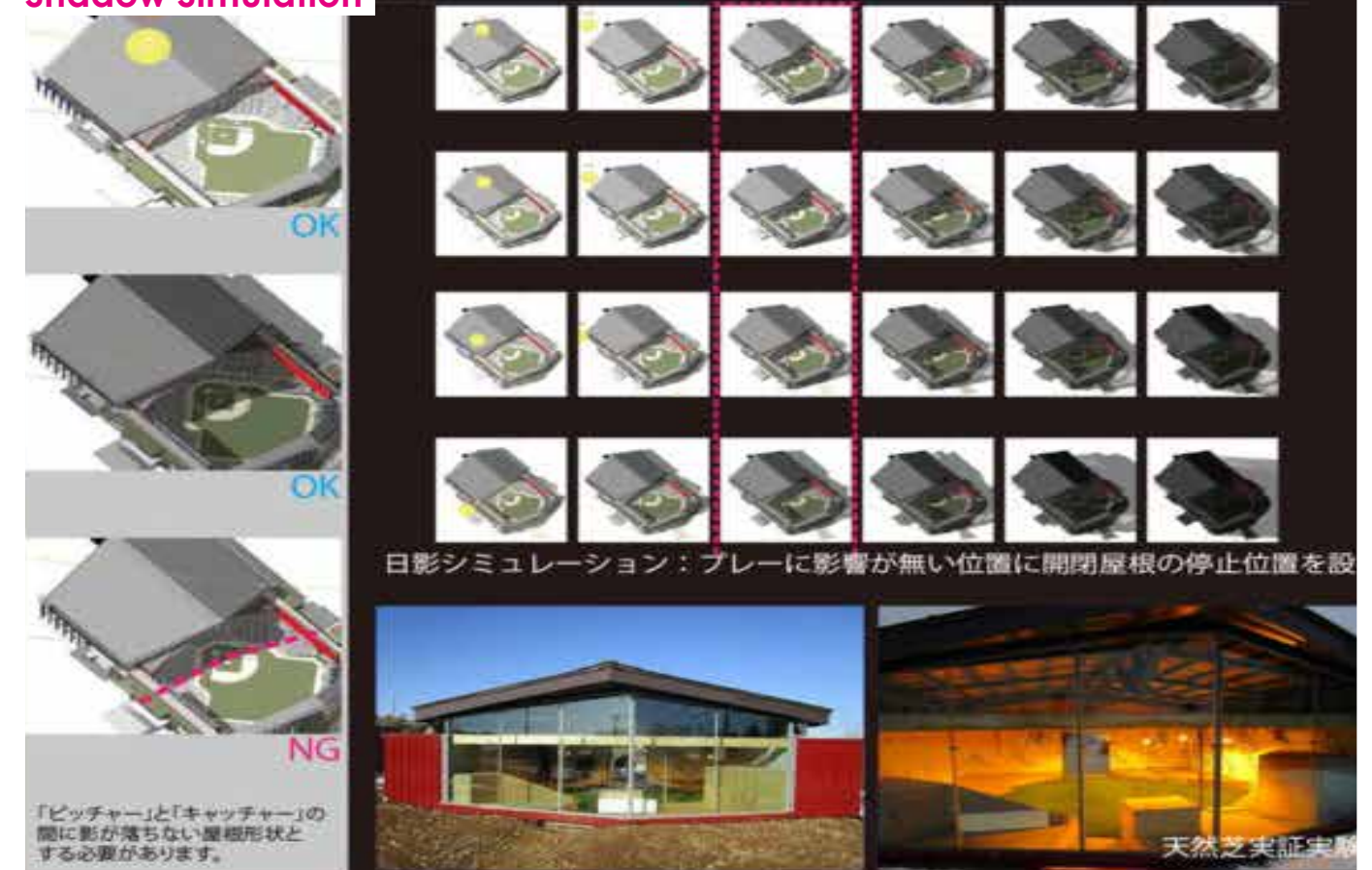
Wind Env. Simulation



Snow Accumulation Simulation



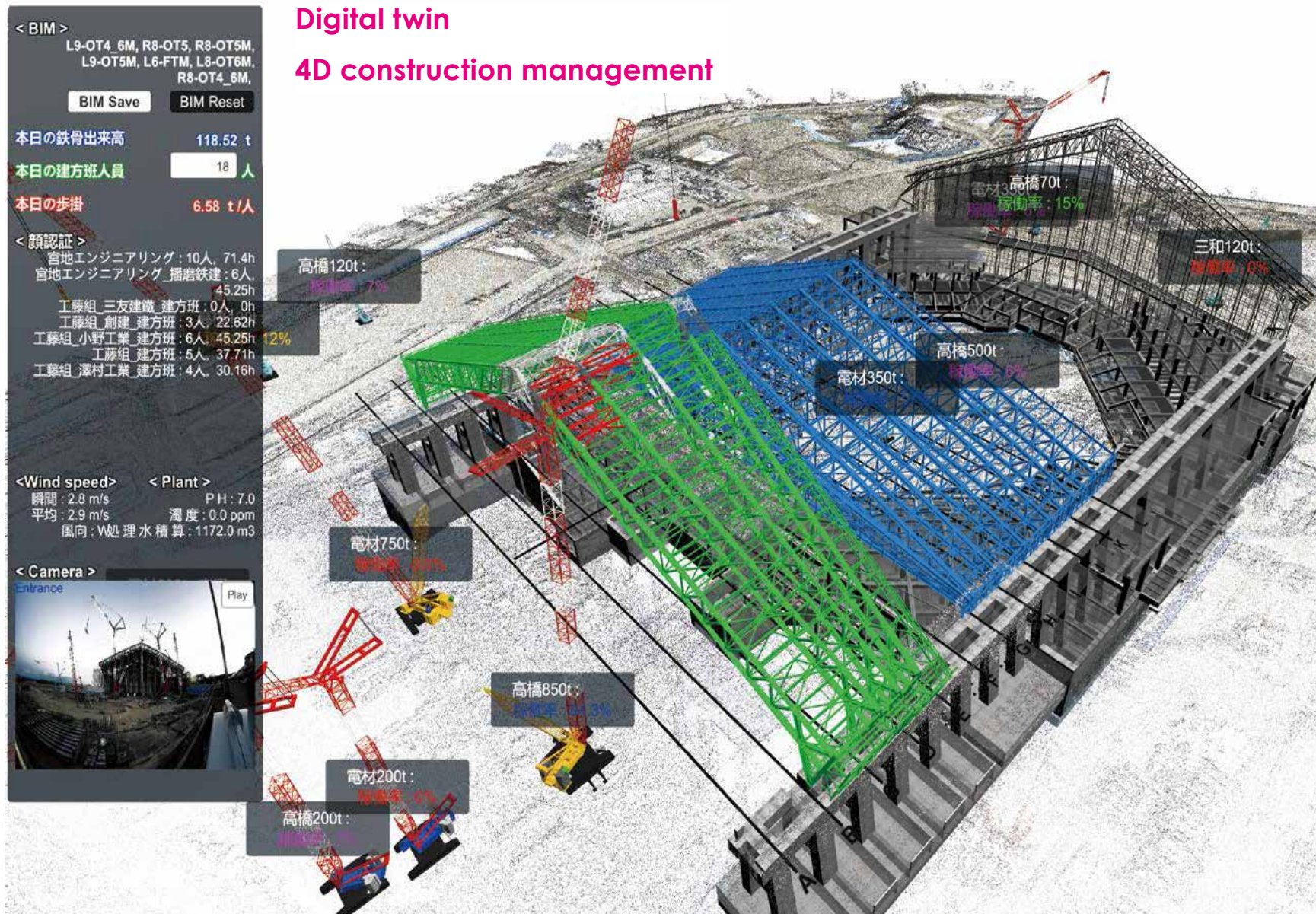
Shadow Simulation



Computational craft on the **design** side



# HOKKAIDO BALLPARK F VILLAGE



Digital upskill on the **construction** site



# HOKKAIDO BALLPARK F VILLAGE



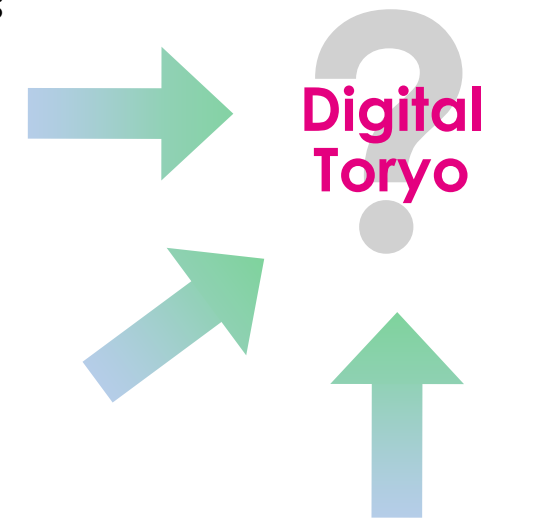
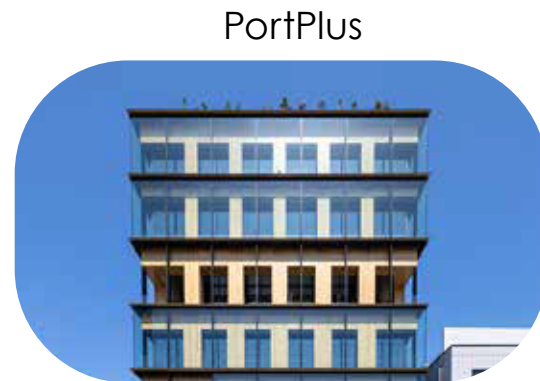
Yet, **skilled manual work** is still key...



# 3 DISCUSSION POINTS

# WHAT LIES AHEAD

**Digital  
Craftsmanship**



**Conventional  
Craftsmanship**

## **Modular**

basic units can produce  
different outcomes

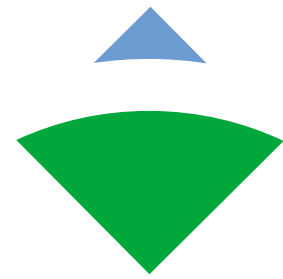
## **Adaptive**

specific adjustments  
to local conditions

Could a project as large & complex  
as Hokkaido Ballpark be built  
decades from now?

The technical/digital gap  
between design & construction  
has to be bridged...





**MAKE BEYOND**

つくるを拓く