

BIM at the Government Buildings Department in Japan

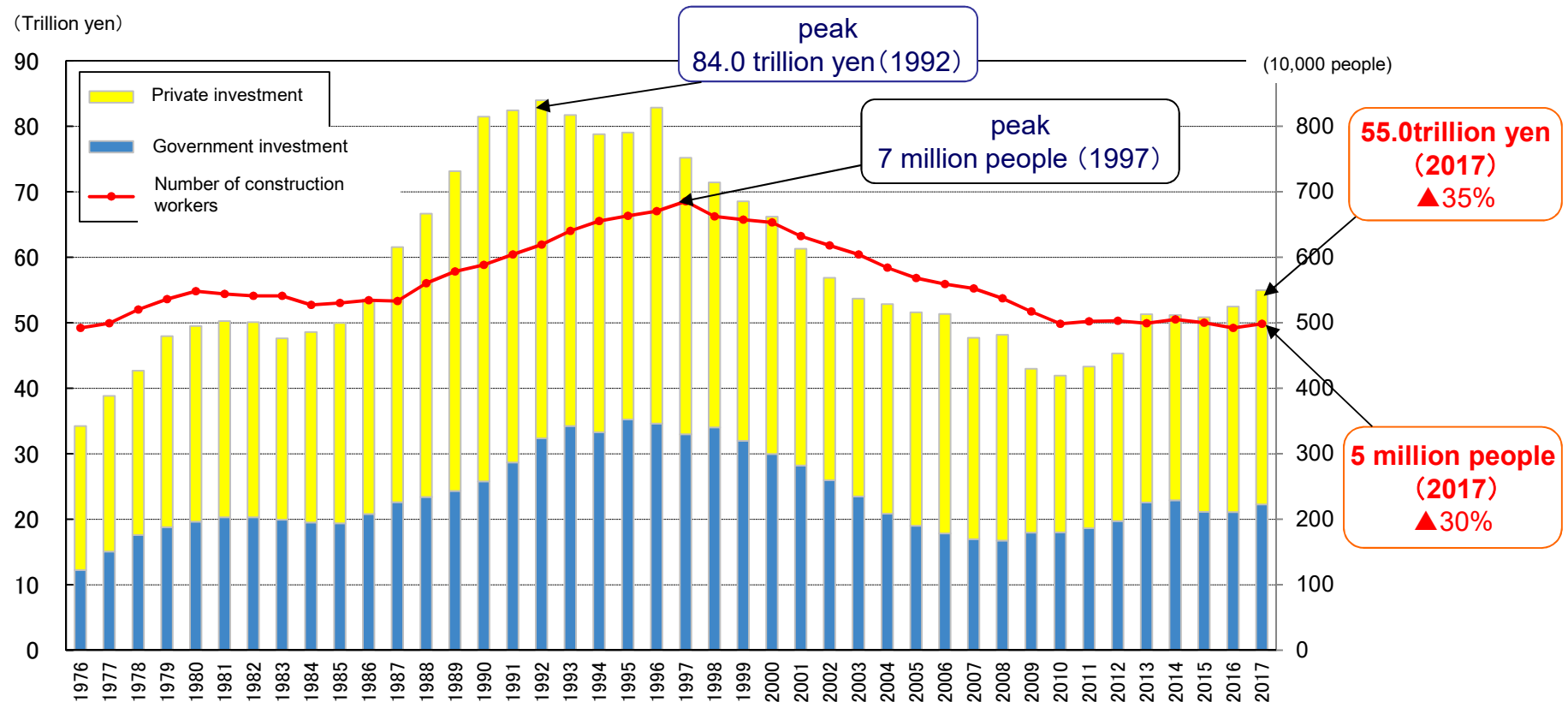
Norimasa Yanagi

June 5, 2019

Government **B**uildings **D**epartment,
Ministry of **L**and, **I**nfrastructure, **T**ransport
and **T**ourism of JAPAN
member of ICIS committee / IIBH

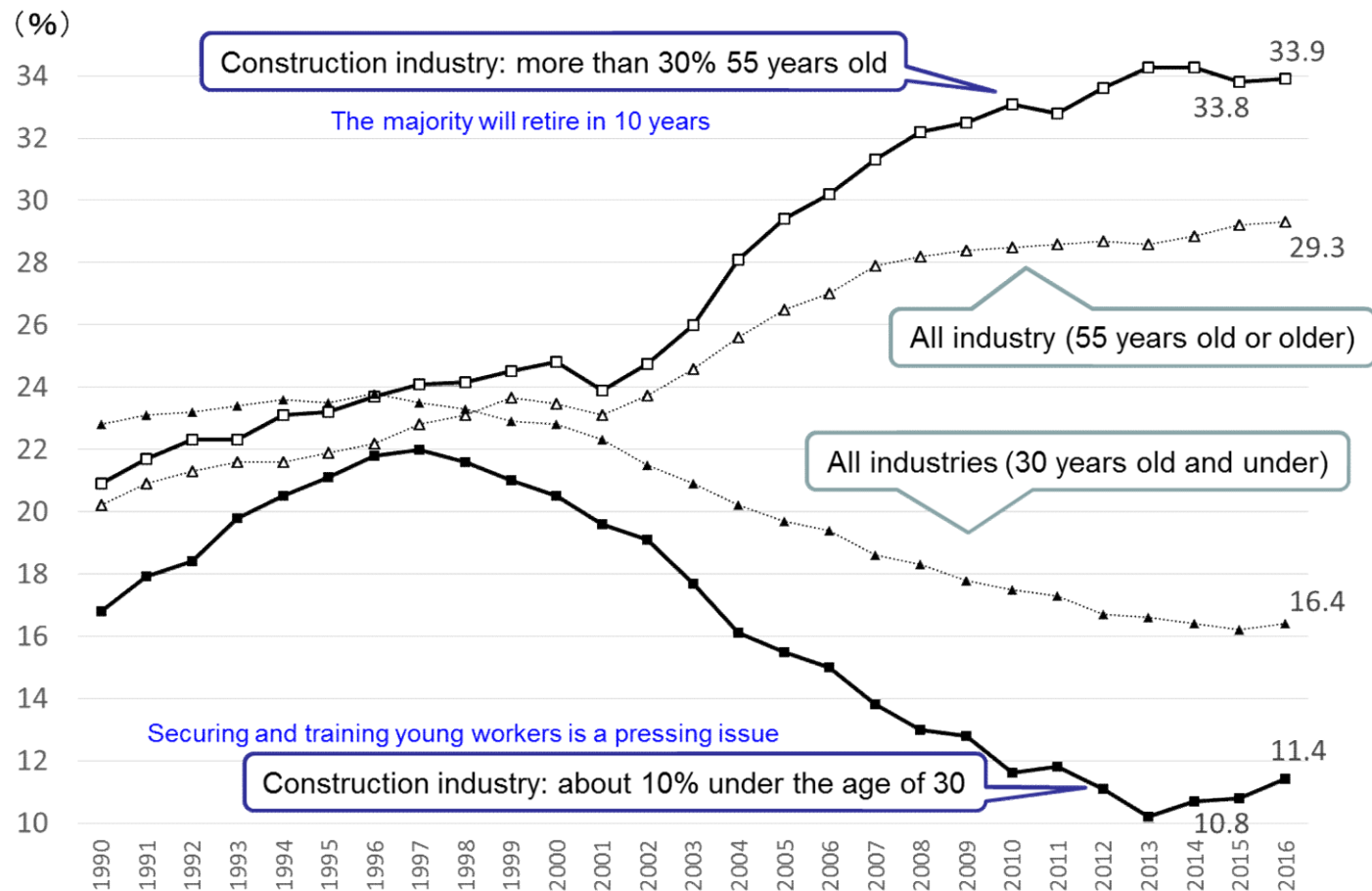
Changes in construction investment and construction workers

- The amount of construction investment has fallen by about 35% from the peak, however, it has been on the rise in recent years.
 - The number of construction workers employed in 2017 was 5 million workers, down about 30% from the peak.
- The number of construction workers employed has been flat in recent years, and there is a shortage of labor in the country.



Trends by age of construction workers

In the construction industry, workers aged 55 and older account for around a third of the about 3,000,000 skilled workers at construction sites.



So Japan needs to create innovation, and incorporate the innovations created throughout the world, so as to increase productivity.

「Growth Strategy」 June 30, 2018 Cabinet Decision

[KPI] 20% increase in productivity of construction sites by 2025.

Expand the scope to all processes including bridge, tunnel, dam construction, and maintenance by the next fiscal year, in order to further promote i-Construction *1 that aims for the full use of ICT in the construction process.

For construction projects of government offices, the adoption of construction optimization technology including BIM will be designated.

Collaboration with private enterprises to promote the use of BIM throughout the entire construction industry including private orders. Possible issues arising from the application of BIM at each stage of construction, and open-source information of models will be examined and measures to promote the widespread use of BIM will be discussed.

*1 to integrate ICT technologies into construction sites in order to increase productivity.

Since 2010

Three BIM pilot projects



Shinjuku Government Building
for Ministry of Labor



Fujieda Government Building for
Ministry of Justice



Maebashi Common Building for
the government offices

**We established “The guidelines for development and use of BIM models
for government projects” in March 2014.**

→ **The guideline contain the basic principles and notes in BIM models.**

**For Design-Bid-Build method. (major method in GBD projects)
To follow and use the existing standards.**

Before 2018

We must provide equal opportunities for participating in public works projects to most companies. But, there are few architects and constructors that can use BIM in Japan.



Therefore, it is still difficult to make the use of BIM mandatory in the public procurement.

The guideline is applied only if architects or constructors propose the use of BIM.

2018

We revised “The guidelines for development and use of BIM models for government projects” to allow the orderer to designate the use of BIM.



We mandated trial use of construction BIM for new large-scale construction project.
(in 2018, 3 government office and International Center of Japan Coast Guard academy)

Takayama Common Building for the government offices

Construction period 2018 to 2020

Build of reinforced concrete 4 stories 1 basement

Total area about 5,800 sqm



Japan Coast Guard Academy international exchange center

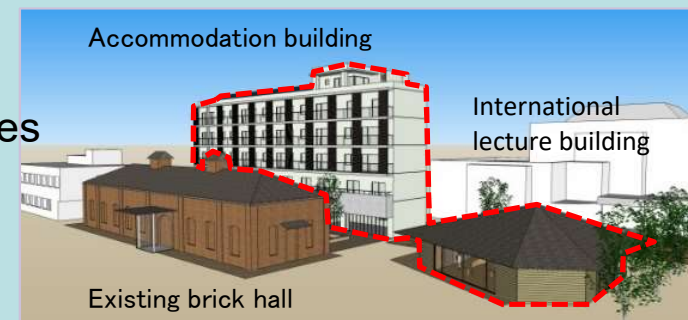
Construction period 2018 to 2019

Accommodation building; Build of reinforced concrete 6 stories

Total area 2,200 sqm

International lecture building; Build of wood 1 story

Total area 160 sqm



Before 2019 (in Japan)

Number of government buildings projects that use of BIM.

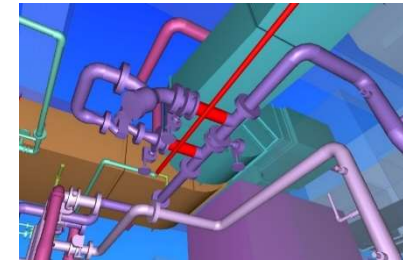
Fiscal Year	BIM in design	BIM in construction
2014	5	0
2015	6	3
2016	7	1
2017	4	2
2018	8	9 (constructors proposal:5 Orderers designation:4)
Total	29	15

◆ Since 2019 We use BIM more than ever.

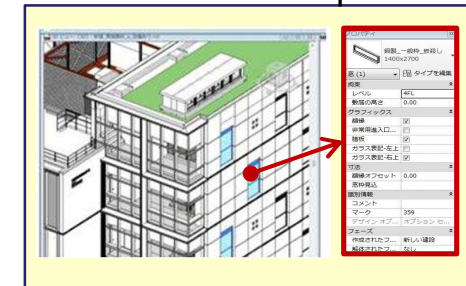
2019

We plan to expand the scope of the trial.

- We will mandate trial use of construction BIM for large-scale repair work.
(large-scale air conditioning repair work, etc.)
- We will mandate trial use of BIM in design work.
(large-scale new construction project.)



construction BIM for repair work



Submission of BIM products in design works

We will start “Building BIM promotion roundtable in MLIT”

This round table aims to build a mechanism that BIM will be used consistently in the construction process.

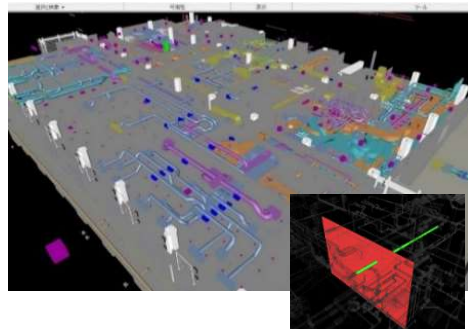


To increase productivity in Government Buildings Department in Japan 国土交通省

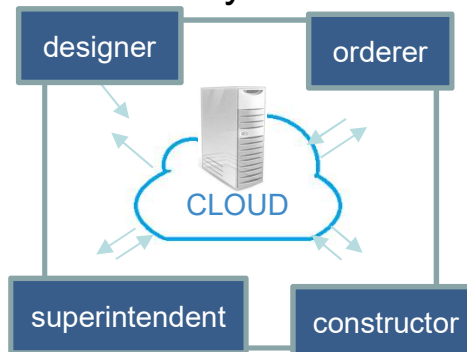
- We will order construction on condition of using efforts to increase productivity.
- We evaluate technical proposals to increase productivity in bidding.

Efforts to do

- We will order construction on condition of using following;
(1) BIM in construction (2) information sharing system (3) ICT earthworks Auto Pilot



trial



use



trial

- (4) Electronic blackboard



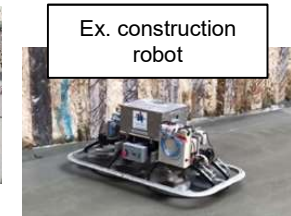
use

Evaluation at bidding

- We evaluate technical proposals to increase productivity in bidding.



Ex. PREFABRICATED REINFORCEMENT UNIT



Ex. construction robot

Thank you for your attention

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