



# Work Improvement by CALS/EC

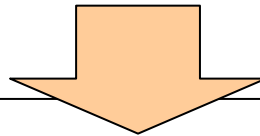
Ministry of Land, Infrastructure, Transport and  
Tourism (MLIT)

National Institute for Land and Infrastructure  
Management

# Purposes of CALS/EC

## Concept of CALS/EC

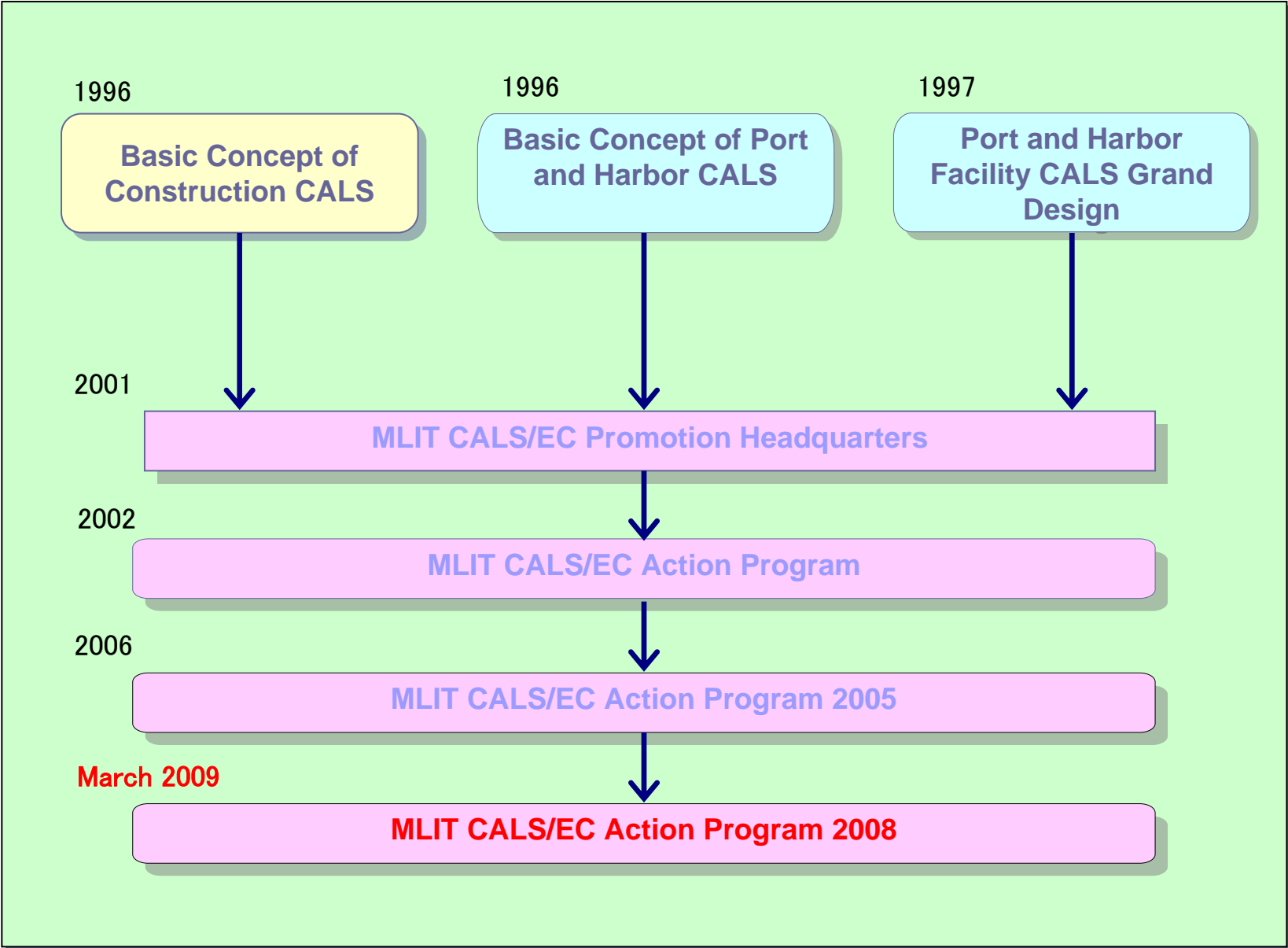
- Electronic use of information through standardization
- Exchange and sharing electronic information
- Use of IT networks



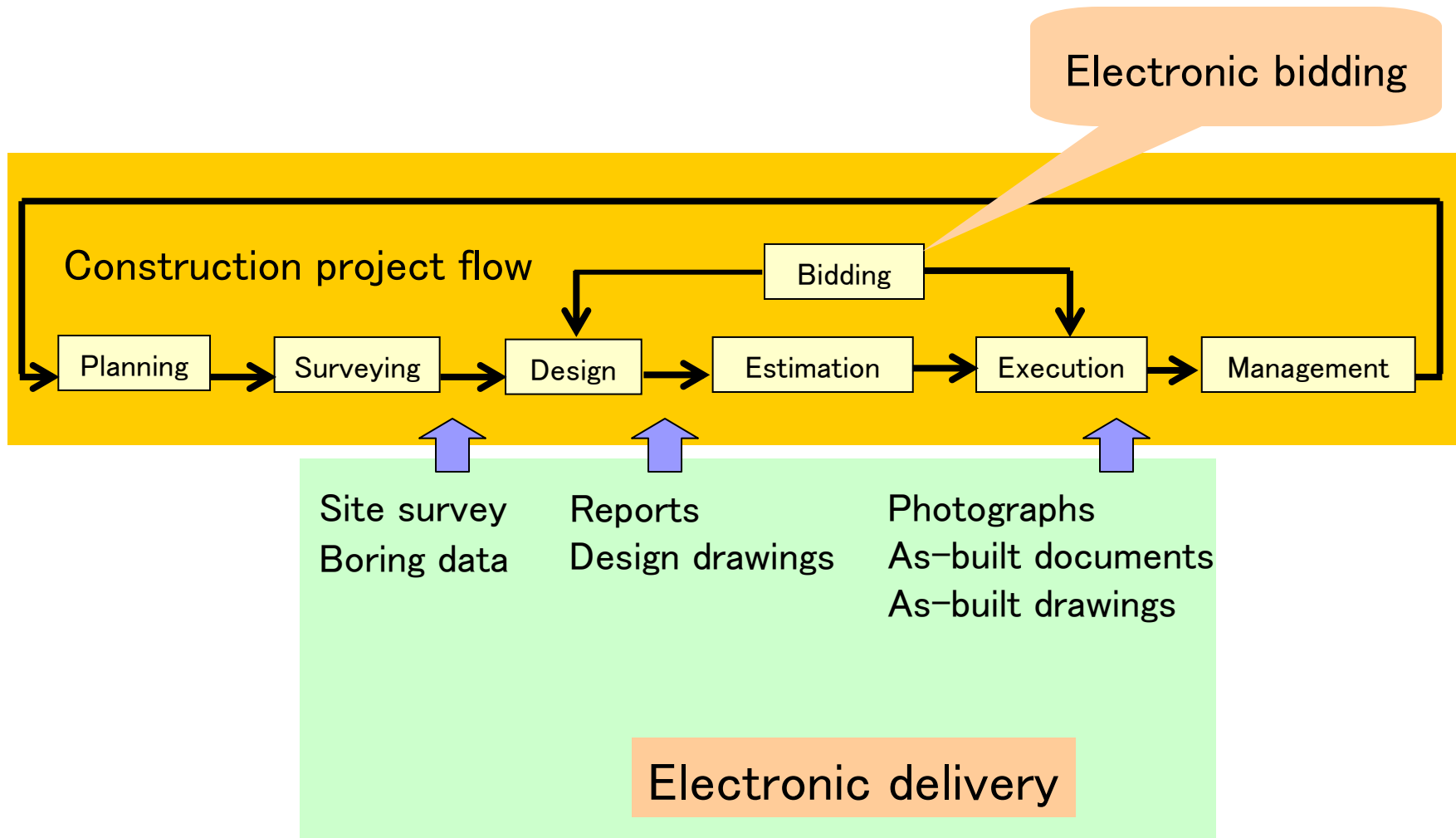
## Purposes of CALS/EC

- **MLIT** → Ensuring quality, lowering construction costs, and speeding up project implementation
- **Contractor** → Improving work process at construction site

# Initiatives by the Ministry of Land, Infrastructure and Transport



# Life-cycle Support

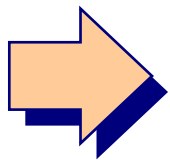


Electronic delivery intends to transfer data to the next phase

## Effects of CALS/EC on Public Works Projects

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- **Characteristics of public works projects from the perspective of computerization**
  - Many concerned parties including customer, designer, contractor, materials suppliers and etc. frequently exchange information.
  - Information includes not only text documents, but many other kinds including drawings, and photographs.
  - Information plays a important role in supporting the maintenance from the long-term perspective.



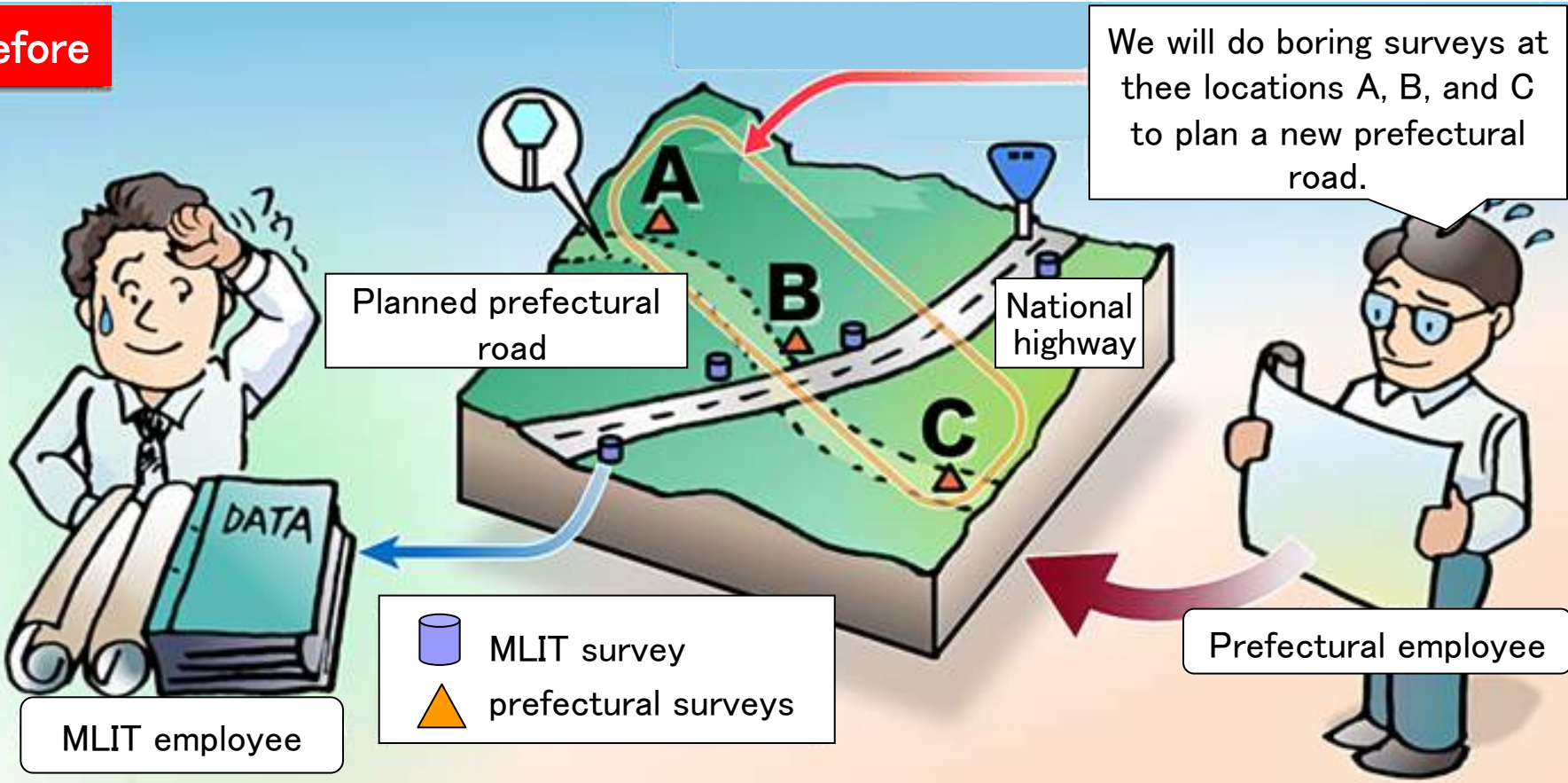
**CALS Introduction is extremely effective.**

**Work improvement  
by CALS/EC  
Before vs After**

# Site Survey Phase

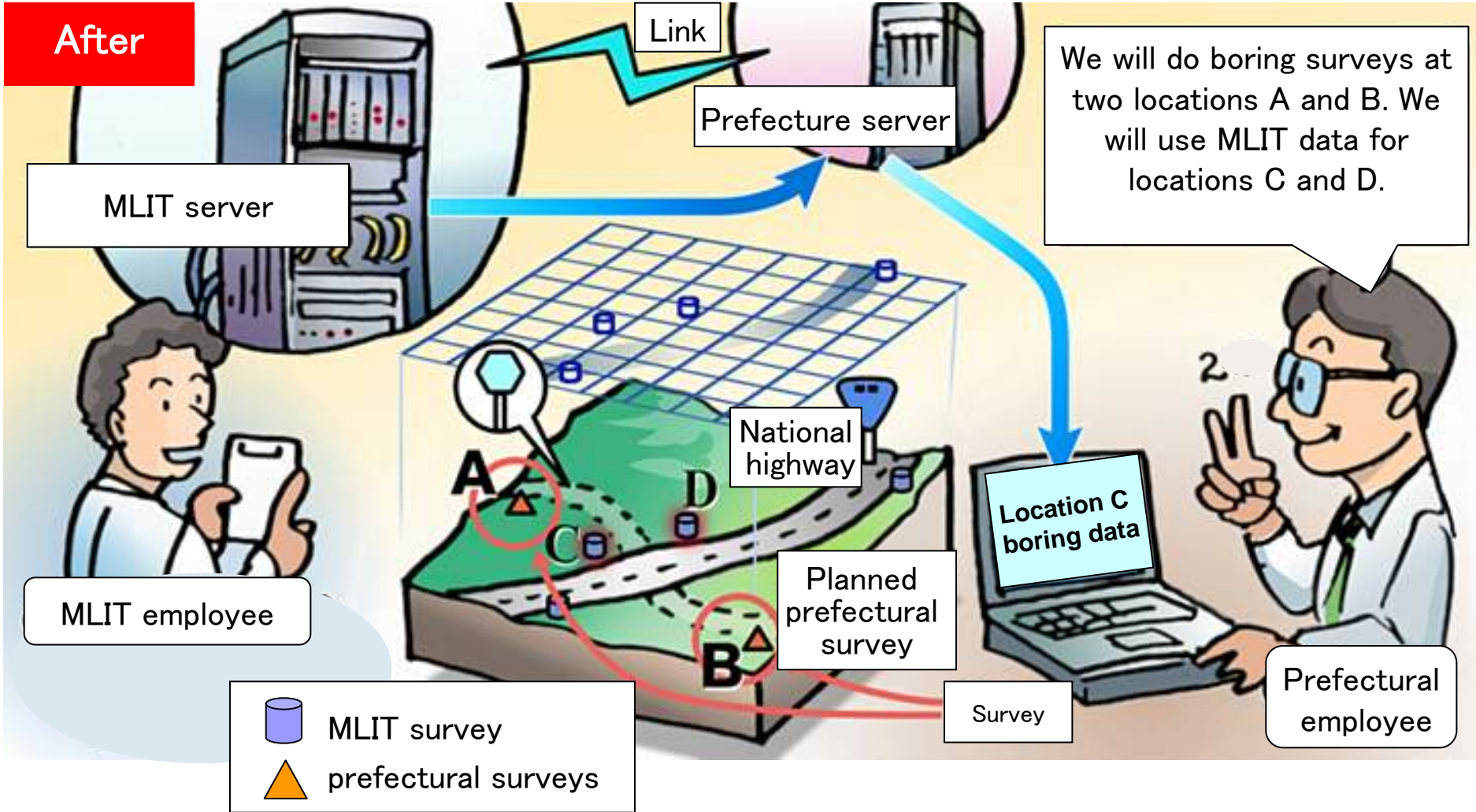
Sharing and reusing boring data

Before



# Plan Survey Phase

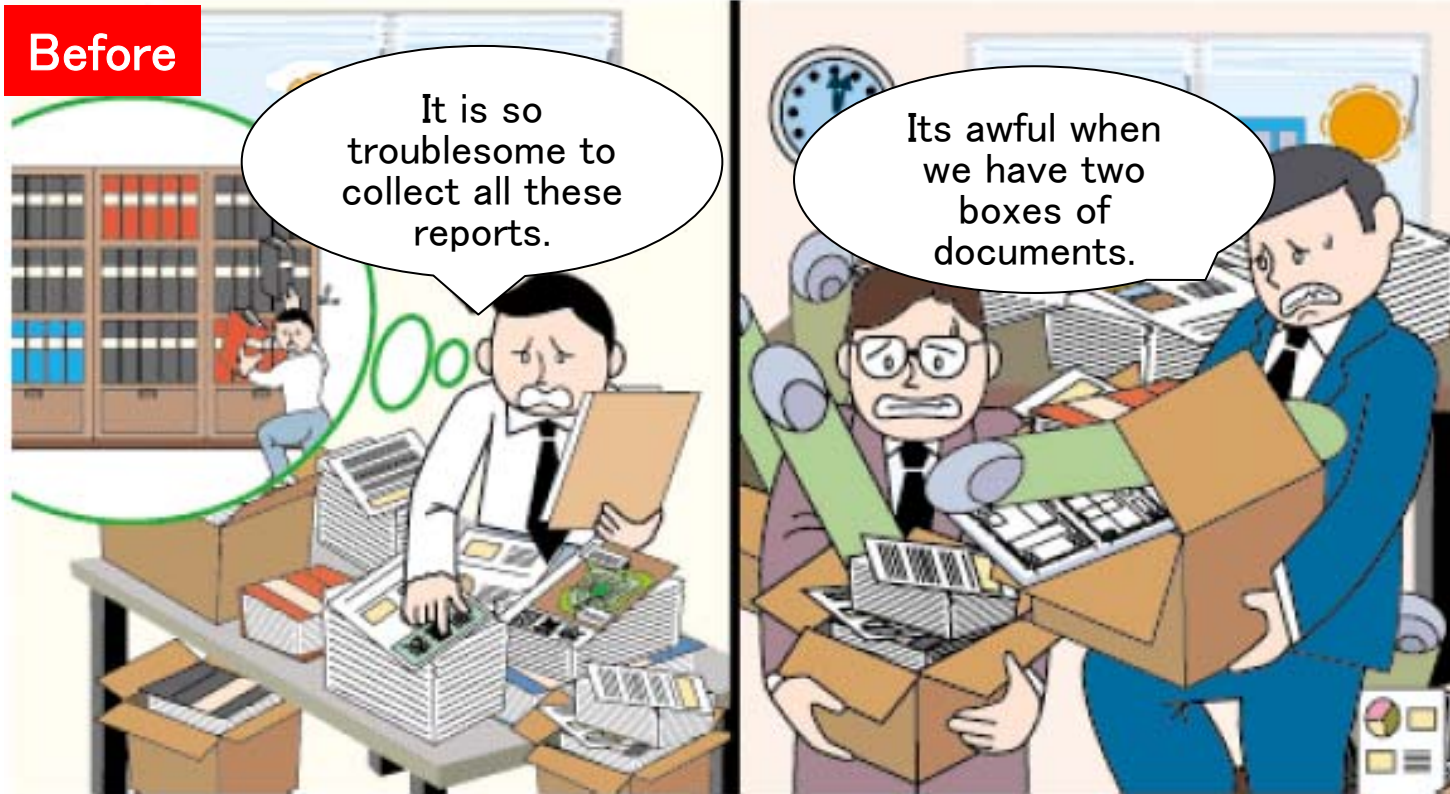
Sharing and reusing boring information





# Design Phase

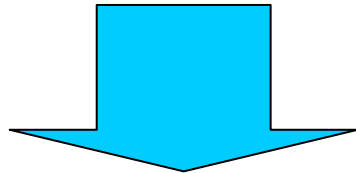
## Lending documents for design to Contractor



Before

MLIT

Contractor

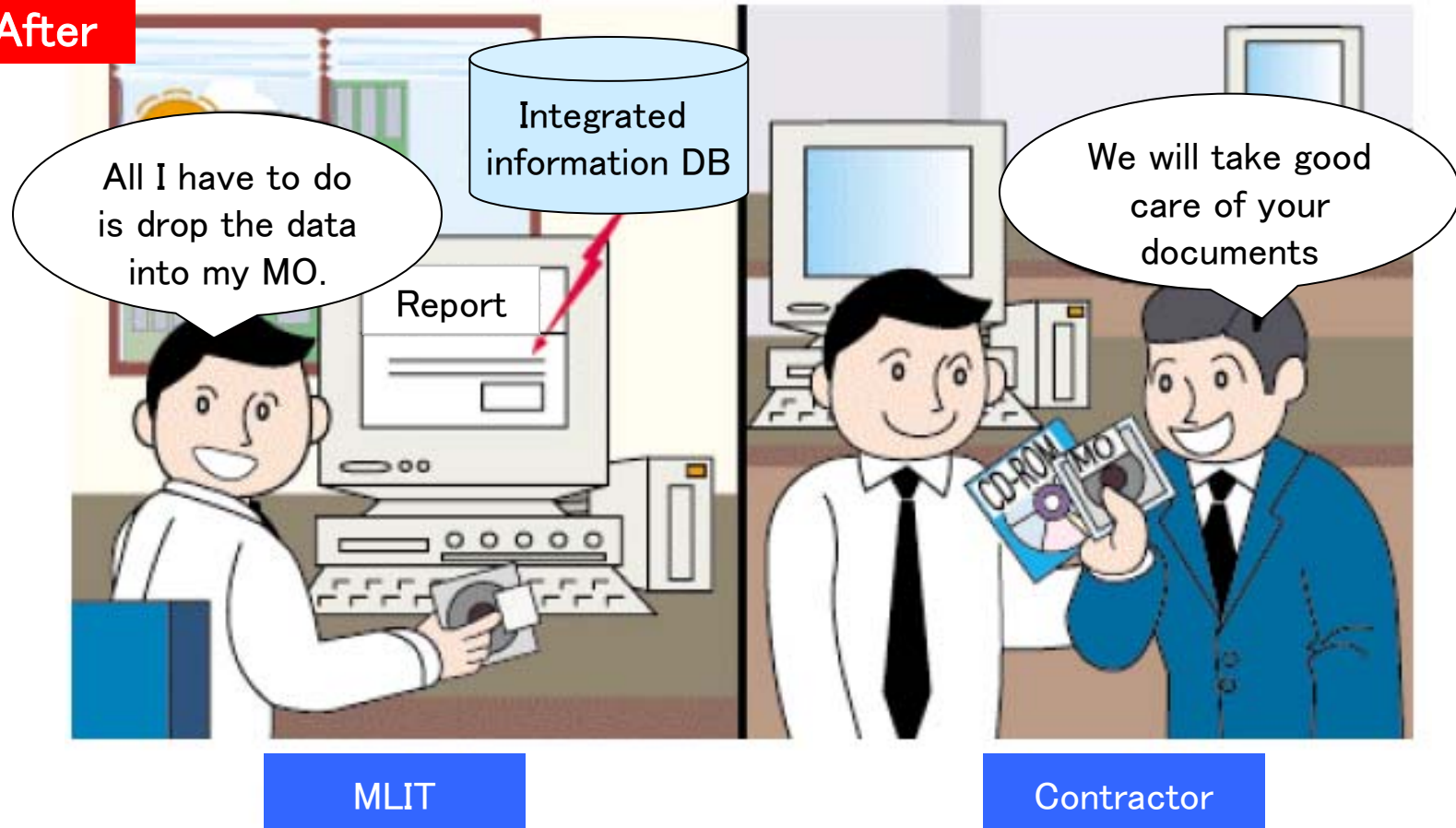


Before: a mountain of paper documents needed for the design were collected, organized, and delivered.

# Design Phase

## Lending documents for design to Contractor

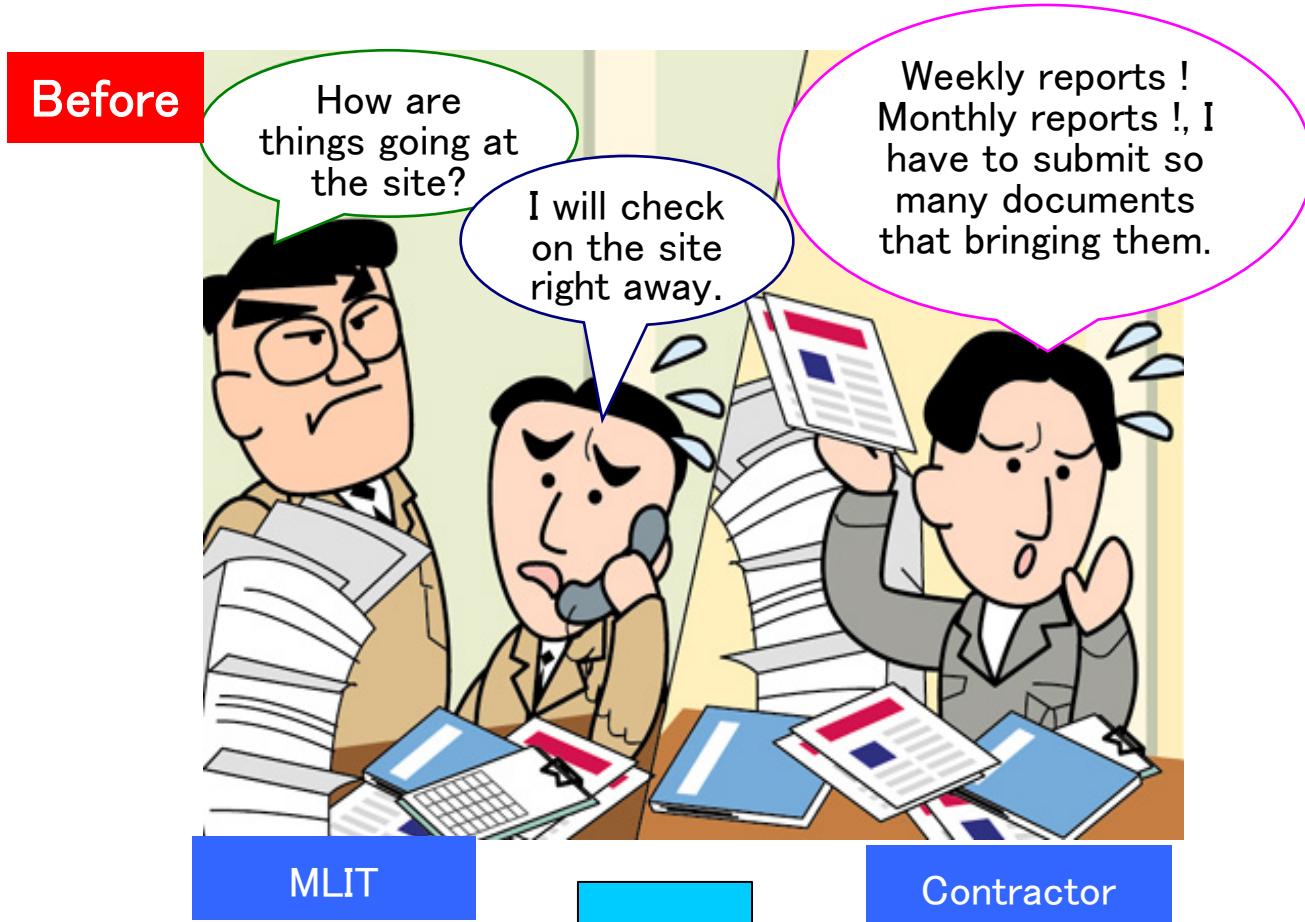
After



After: Designers can search an integrated database for the information they need and reuse the electronic data without processing it.

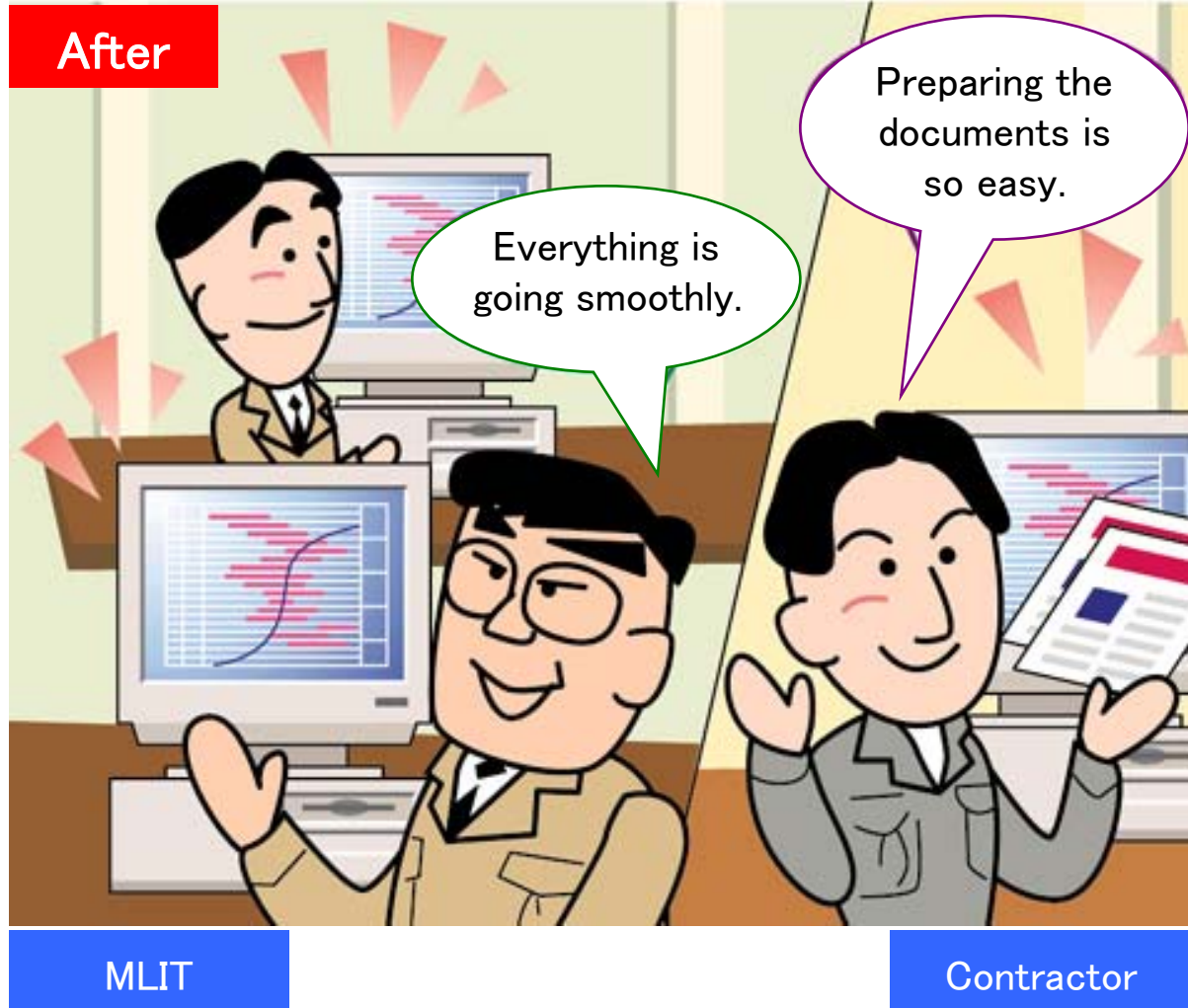
# Construction Phase

Achieving construction management by electronically exchanging and sharing work related information



# Construction Phase

Achieving construction management by electronically exchanging and sharing work related information



# Maintenance Phase

Checking data in a maintenance DB and registering data to the DB

**Before**



Patrol

MLIT

At the office

# Maintenance Phase

Checking data in a maintenance DB and registering data to the DB

After



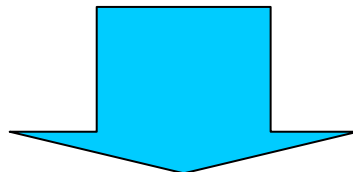
Its broken here.  
Will I send the data  
to the office?

I do not have to go back  
to the office to organize  
the information. I can  
send a report quickly.

MLIT

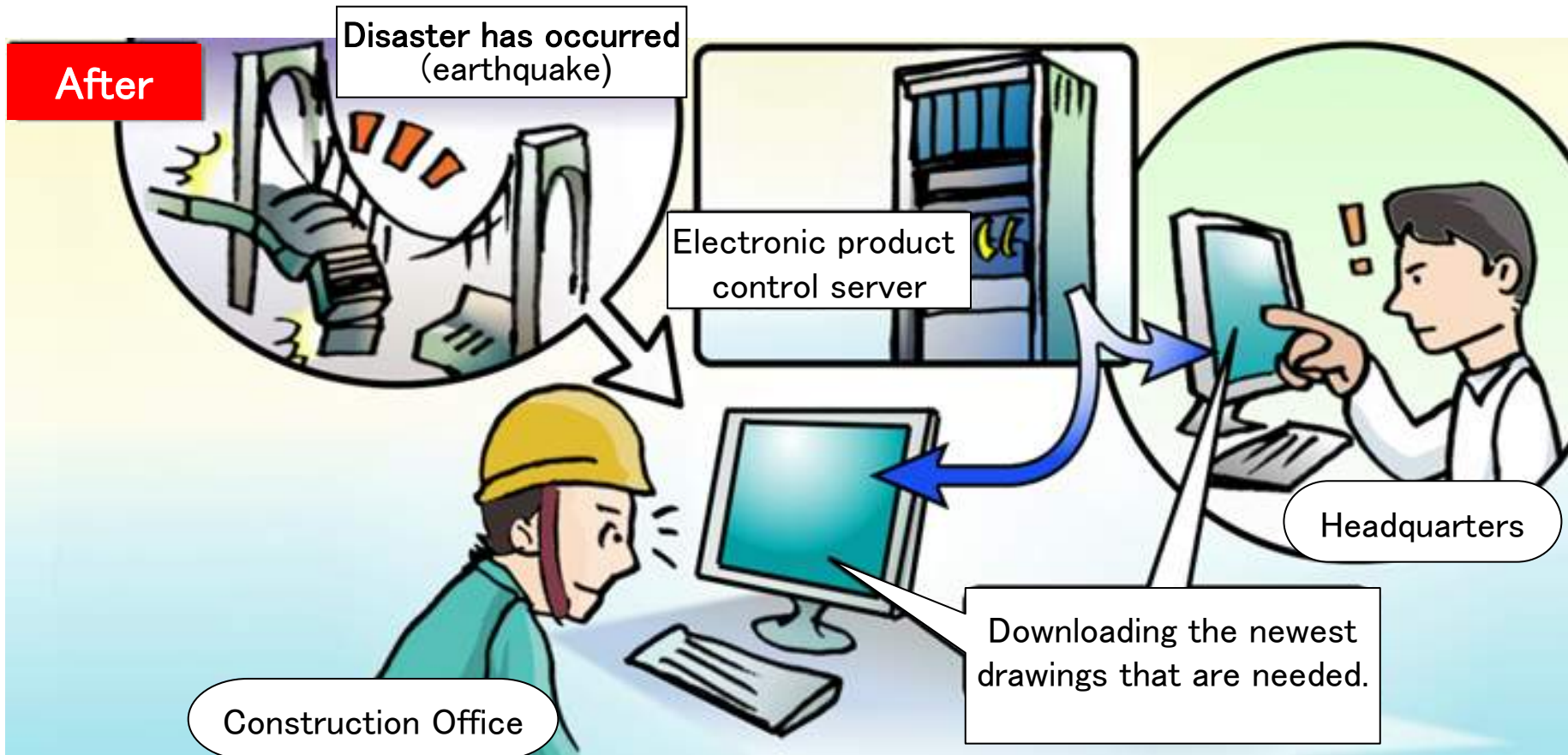
# In Emergency

Rapidly searching drawings after a disaster.



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Rapidly searching drawings after a disaster.





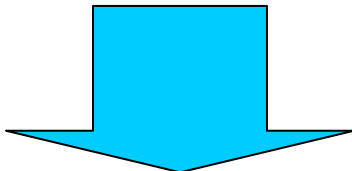
# At all phases

Reuse of CAD drawings and other information.



Before

Contractor

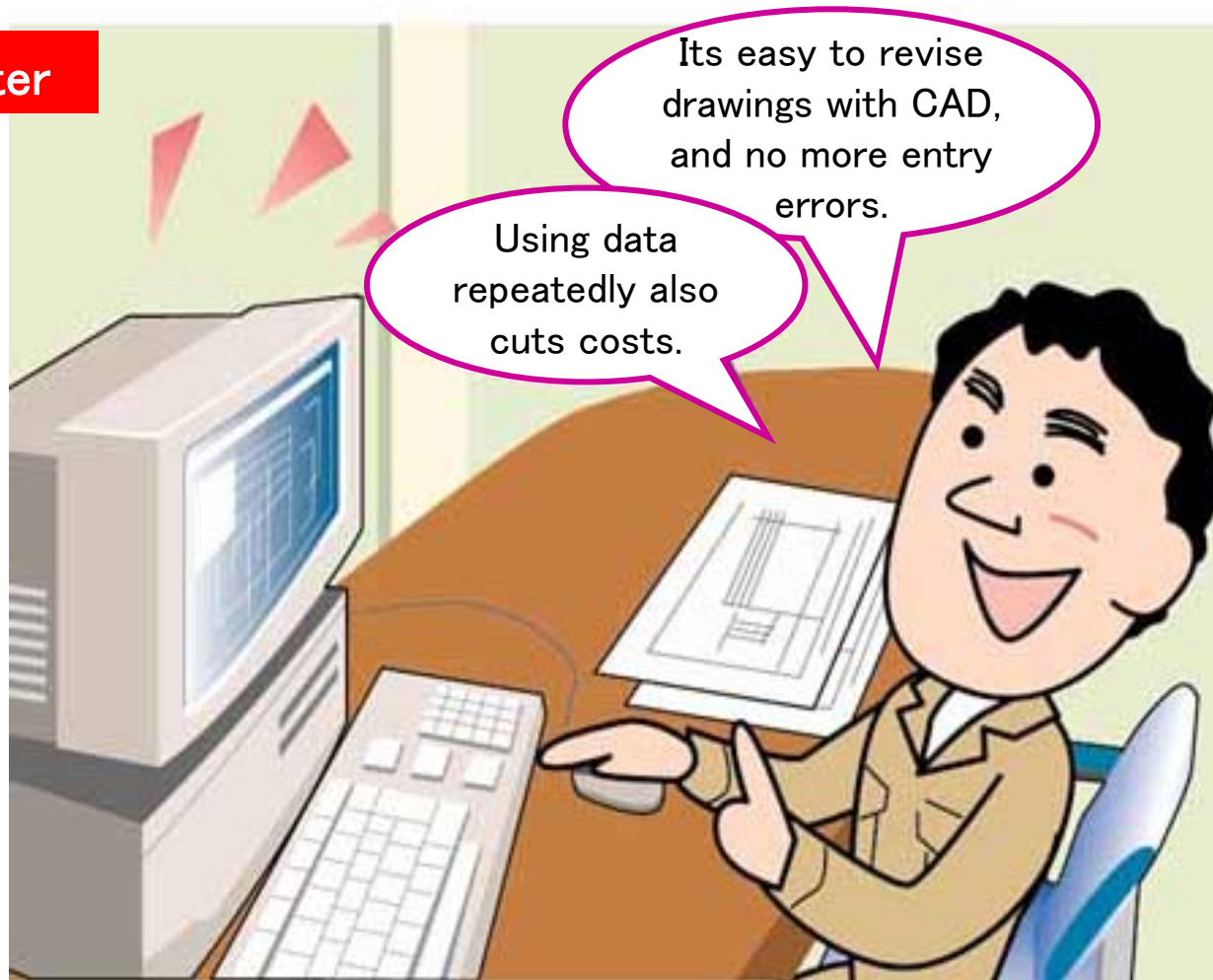


Working drawings and revised design drawings were newly prepared.

# At all phases

Reuse of CAD drawings and other information.

After



Contractor

Drawings are prepared by reusing the design drawings (CAD data).

# Evaluating electronic deliveries

- An important part of CALS/EC  
FY2004: Applied to all works in MLIT
- Start of storage and control of electronic products
- Spread of ISO standardized CAD format (SXF)
- Unresolved problems:
  - Complexity of inspections of final products
  - Submitting both paper and electronic products
  - Insufficient understanding  
(low information literacy)
  - **Inadequate reuse of stored data**

→ Does it result in improved work?



Thank you very much  
for your kind attention.