Standardization Activity of JACIC in Construction IT Fields in Japan
The 3rd 3-year Plan

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## History of Construction Information Standardization

### History of CALS/EC Program

- 1996: Basic Concept for Construction CALS/EC Program
- 1997: Action Program for Construction CALS/EC
- 2002: Action Program for MLIT CALS/EC

### History of Standardization Committee for Construction Information

- 2000: Vision for Construction Information Standardization
- 2000: Establishment of the Standardization Committee for Construction Information
- 2001: The 1st 3-year Plan Launched
- 2004: The 2nd 3-year Plan Launched
- 2007: The 3rd 3-year Plan Launched
Vision for Construction Information Standardization

Increase Productivity and Service Quality of Construction Industry

Realize Smooth Circulation of Digital Data
Realize Integrated Use of Digital Data

Standardization in Construction Fields

National Government
Local Government
Supplier
Contractor
Consultant
Standardization Committee for Construction Information

Established in October 2000
Secretariat: JACIC

- Composed of Industry, Academia and Government
- Coordination among Standards
- Develop new Standard
- Promotion of Standards

Organization of the Committee for 3rd 3-year Program (2007-2009)
Standardization activities in 1st and 2nd plan

- Survey/Plan
- Design
- Construction
- Maintenance

- e-delivery manual
- e-delivered data use
- DM-CAD transform
- CAD-GIS transform
- JCCS
- Model data exchange
- CAD data exchange
- Info share standard
- Construction info DB
- Standard expression of position in e-delivery

SC for use of e-delivered data
1st plan
2nd plan

SC for DM and construction info
1st plan
2nd plan

SC for CAD data exchange
1st plan
2nd plan

SC for common codes and JCCS
1st plan
2nd plan
Results from SC for use of e-delivered data

Part of standardized survey and geological data became available in design phase.

CAD data exchange standard make design data available in construction phase.

Road completion chart standard make attributes with CAD data available in road maintenance GIS.

Road alignment data exchange standard make design data available throughout construction and maintenance.

Info sharing during construction phase.
Results from SC for DM and construction info.
Rule to describe position data in e-delivery manual

e-delivered data can be retrieved and viewable from a GIS

e-delivery manual determined a way to describe position of the works
Results from SC for DM and construction info.

Extended DM – SXF conversion

- **DM file**
  - Extended DM file includes DM file
  - Information on position, shape and code of each entity

- **Data conversion**
  - Conversion from extended DM file to SXF and XML

- **Main part**
  - Applied to conversion to SXF Ver. 2.0

- **Property set part**
  - Applied to SXF Ver. 3.0

- **Extended DM-SXF conversion**

**XML data**

**SXF data**
Results from SC for CAD data exchange

**SXF (SCADEC data eXchange Format)**

**Level 1**
To satisfy that drawing image is reproduced accurately on screen (and paper).

**Level 2**
To satisfy that 2-dimensional CAD data is completely exchanged among various CAD software, thus satisfies the requirements for e-Delivery.

**Level 3**
To satisfy that 3-dimensional geometric feature is completely exchanged.

**Level 4**
To satisfy that product model data is exchanged among CAD and related software including GIS and construction cost estimation.

Completed by SXF Ver.3.1
Results from SC for codes and JCCS

JCCS (Construction information Classification System in Japan)

JCCS Ver.2.0

Structure of JCCS

- JCCS table
- JCCS schema
- Thesaurus
- Relation
- Recommended Classification

Application of JCCS

Covered by Ver.2.0
The Construction Information Standardization 3-year plan

2nd plan (2004 – 2006)
future (2010 – )

- Data exchange within each phase
- Data exchange between neighboring phases
- Data exchange throughout lifecycle
- Data exchange within whole construction industry
- Data exchange in data value level
- Data exchange in semantic level
Committee Organization of the 3rd Plan

Construction Information Standardization Committee

Managing Board

Secretariat

Sub-Committee for use of e-delivered data

Sub-Committee for chart and model data exchange

Sub-Committee for net centric environment
Concept of Net-Centric environment

Survey / Plan
Design
Construction
Maintenance

JCCS
Meta data registry
Web Map Service
API
Clearing house

Portal
Gazetteer

Distributed Construction Information DBs

Maintenance GIS
Toward soft standards

• Hard (strict) standards
  – difficult to change often
  – difficult to include new technological advancement
  – difficult to apply wide variety of systems

• What is soft standard
  – Independent to individual application, database structure
    • Object oriented data model
    • Described in XML
    • Standard application interface
  – High transparency and accessibility
    • Metadata registry
    • Clearing house
    • One stop portal
Toward open/consensus standard

• De jure standard
  – Strict authorization process
  – Take long time to standardize

• De facto standard
  – Specification details are not necessarily accessible
  – Maintenance of the standard is not insured

• Open/consensus standard
  – Accessible to everyone
  – Transparent (fully documented and open)
  – Determined and maintained through consensus
  – Simple authorization process
For more Information
Please refer to the following URL
http://www.jacic.or.jp/hyojun/