

Current Status and Future of CALS/EC by Ministry of Land, Infrastructure and Transport

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Agenda:

- Public Works and CALS/EC of Japan
- Port Facilities Information System
- CAD Data Exchange Standards SXF
- Electronic Bidding
- Overseas Exchange
- Future Evolution (Draft)



Overview of Public Works and Study for Introduction of CALS/EC

Gross Domestic Product and Construction Investments

Amount of Investments

Gross Domestic Product ¥513.7 Trillion



55.7% of Construction Investments 44.3% of Construction Investments

(FY 2000)

Construction Industry

Population of employed:

6.38 million persons

Corporations licensed to engage in construction business:

Approx. 586,000* companies (as of March 31 2001)

* 99% of these corporations are small corporations less than ¥100 million in capital

Source: Policy Bureau, MLIT

Public Works of Japan

FY 2001 National Budget for Public Works in Japan (Not including supplementary budgets)



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Principal Public Facilities Administrated by MLIT

Legend: River National Road Port of High Importance

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Definition of CALS/EC Changes in Naming of CALS and Debut of EC



Why Implementing CALS/EC in Public Works?

Characteristics of Public Works as Viewed from IT

- Frequent information exchange among many entities
 Purchasers, designers, builders, suppliers, etc.
- Diverse information is exchanged in large volumes
 Documents, drawings, photos, calculation sheets, etc.
- Information must be maintained for long time



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CALS/EC Action Program

Schedule Outline	Phase 1	Phase 2	Phase 3	
	FY 1996 to 1998 (FY 1996 to 1999)	FY 1999 to 2001 (FY 2000 to 2002)	FY 2002 to 2004 (FY 2003 to 2004)	By FY 2010
Construction CALS/EC	 Preparing a PC environment for all staff to make use of the Internet Start of verification test 	 Implementation of Electronic Procurement System in small number of construction works projects Start of Electronic Delivery of results 	 Implementation of CALS/EC for all public works projects administrated by MLIT 	Implementation of CALS/EC in all public purchasers including local government agencies
Port CALS	 Preparing a Port CALS environment Start of model project 	 Construction of Integrated Database System Establishment of framework for installing the Electronic Procurement System 		
Airport Facilities CALS	 Settling Airport Facilities CALS Grand Design Start of model project 	Construction of Integrated Database System	 Application of Airport Facilities CALS in public works projects administrated by MLIT 	

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Basic Flow of CALS/EC



Significance of Standardization



Information Standardization

Rules as many as n x (n-1)/2 are needed for information exchange among different organizations (systems) Only n rules are needed for information exchange when exchange standard is established

Evolution of Network Mode



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Final, Ideal Image of CALS/EC

- Shared Integrated Database -



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Port Facilities Information System

Typical Examples of CALS/EC



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(5) Utilization Flow in Disaster

Damage Information Transmission Subsystem Catalogs and transfers damaged photos and other information of port facilities.

Usable/Non-usable Decision Subsystem Decides usable or non-usable of important facilities based on results of local fact-finding.

Damage Amount Calculation Subsystem

Calculates damage amount based on results of local fact-finding.

Emergency Works Support Subsystem Supports entire emergency works by displaying design drawings and facilities exposed to secondary disaster.



Supports entire restoration works by searching restoration examples or similar cross-sections.

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CAD Data Exchange Standards SXF

Typical Examples of Standardization

Problems at Present

* Data Exchange Through Intermediate Format





- Exchange and sharing of drawing information independent of specific CAD software
 - \Rightarrow Utilized in electronic delivery of products beginning 2002
- Exchange quality finer than conventional precision
- Cost reduction through reuse of drawings
- Spreading and expanded use of CAD



Electronic Bidding

Same systems as in previous bidding by paper are carried out on the Internet

Nov. 13 2001 - First Electronic Bid Opening



MLIT

Basic Flow of Electronic Bidding System



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Effects of Electronic Bidding

* Assures Competitiveness, expands opportunities for orders

 Anyone qualified can easily participate in bidding through the Internet

* Reduces construction cost

- Transfers for participating in biddings dramatically reduced

* Improves efficiency in operation work

- Creation and sending of electronic documents

MLIT: approx. ¥26 billion. Throughout Japan: approx. ¥300 billion

(Annual amounts for transfers by suppliers and for document creation only)

Plan for Expansions of Electronic Bidding by MLIT

Fiscal Year	Bidding Project	Basic Policy
From Oct., FY 2001	Approx. 100	 Implemented nationwide Projects selected from large projects administrated by MLIT (construction + construction consultation works) taking IT capability of corporations into consideration
FY 2002	Approx. 2,000	 All works projects above publicly-invited bidding category (¥200 million or higher) All construction consulting projects above simple competitive bidding category (¥50 million)
FY 2003	Approx. 10,000	Moved up one year
FY 2004	Approx. 44,000	 All public works projects administrated by MLIT (construction + construction consultation works)

MLII Yearly Targets for Local Promotion

Targets for Yearly Plan Ministry of Land, Infrastructure and Transport's Targets for Supporting CALS/EC Introduction



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Necessity for Standardizing Electronic Bidding Systems

If each public purchaser develops an original electronic bidding system individually...

Many different systems are

jumbled indiscriminately.

When an Electronic Bidding System using the core system is developed...



The common core is customized for each public purchasers.



Low development cost and confusion among bidders is Avoided

Fligh development cost and confusion among bidders!

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Development of Core System for Electronic Bidding



Members of Electronic Bidding Core System Development Consortium

Full members (10 companies)

 Companies that have the ability to develop an Electronic Bidding System

Supporting members (50 companies)

- Companies that need information related to the Electronic Bidding Core Systems
- Special Members (93 organizations)
 - Public purchasers interested in introducing the Electronic Bidding System

 Ministry of Land, Infrastructure and Transport, Ministry of Agriculture, Forestry and Fisheries, Postal Services Agency, Defense Facilities
 Administration Agency, Japan Highway Public Corporation, Japan Railway
 Construction Public Corporation, Hanshin Expressway Public Corporation, Metropolitan Expressway Public Corporation, Water Resources Development
 Public Corporation, New Tokyo International Airport Authority, etc.

 46 of 47 prefectural authorities, 12 of 12 government-designated cities, and other local government offices

* Participation as of Jan. 22, 2002



Overseas Exchange

Towards International Harmony

MLI Japan's Comprehensive Cooperation Measures on International "Information Divide"

July 2000 at Kyushu Okinawa Summit

* Comprehensive cooperation measures using non-ODA and ODA public funds

Aid of **\$15** billion in next five years

- Intellectual contribution (Dispatch of advisors and other personnel)
- People fostering (Human resource development)
- Improvement and expansion of information communication infrastructure, support of networking projects
- Promotion of IT utilization in aid

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MLIT Compare IT Software to Iceberg



By Mr. TAKEYA, PCI

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IT Software Applications and Supporting Architecture



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Overseas Surveys

	Area	Main Subject	
2000. 7	US West Coast		
2000. 9	Korea	Advanced examples for nationwide CALS/EC	
2001. 1	US East Coast		
2001. 6	USA, Canada	Advanced examples of e-procurement	
2001. 6	USA	Standardization activities	
2001.10	Vietnam, Taiwan and Singapore	Information exchange on construction IT	

Importance of periodical information exchange

International CALS/EC Symposium

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Future Evolution

Gist of Phase 3 and Plan Beyond

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Evaluation of CALS/EC at Present Stage

- Steadily implemented as an IT measures in public works field (assured local promotion)
- Great contribution to awareness reform of construction industry toward IT
- Incentive in improving information literacy among parties concerned
- Both purchasers and suppliers enjoy advantages through preparation of tools for electronic bidding, electronic delivery and other functions
 - Not yet ready to support life cycle of business activities
 - Necessity of improving inter-phase data exchange and other aspects
 - Effective utilization of electronic data in areas other than production processes

New Plan

Missions

- * To provide quality facilities timely at low cost, maintaining fairness
- To provide administrative services of higher quality less costly and faster

Visions

- (1) High-level services through linkage with land management system
- (2) Construction of wide-area linkage systems grouping purchasers into one unit
- (3) Integrated construction and operation linking with other e-government systems
- (4) Creation of new markets related to public IT and services through effective utilization of data
- (5) Reform of work processes by utilizing IT

Final Image to be Achieved by Future Plan (Draft)



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MLIT





Ministry of Land, Infrastructure and Transport

http://www.mlit.go.jp/english/

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