STEP Architecture와 개요

KAIST 기계공학과
한순흥
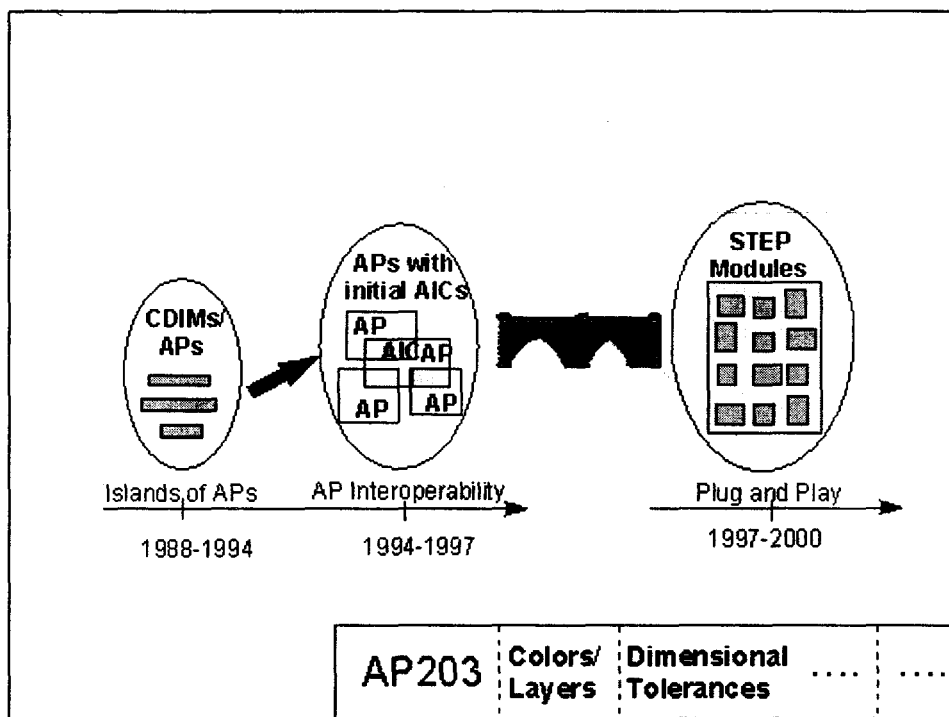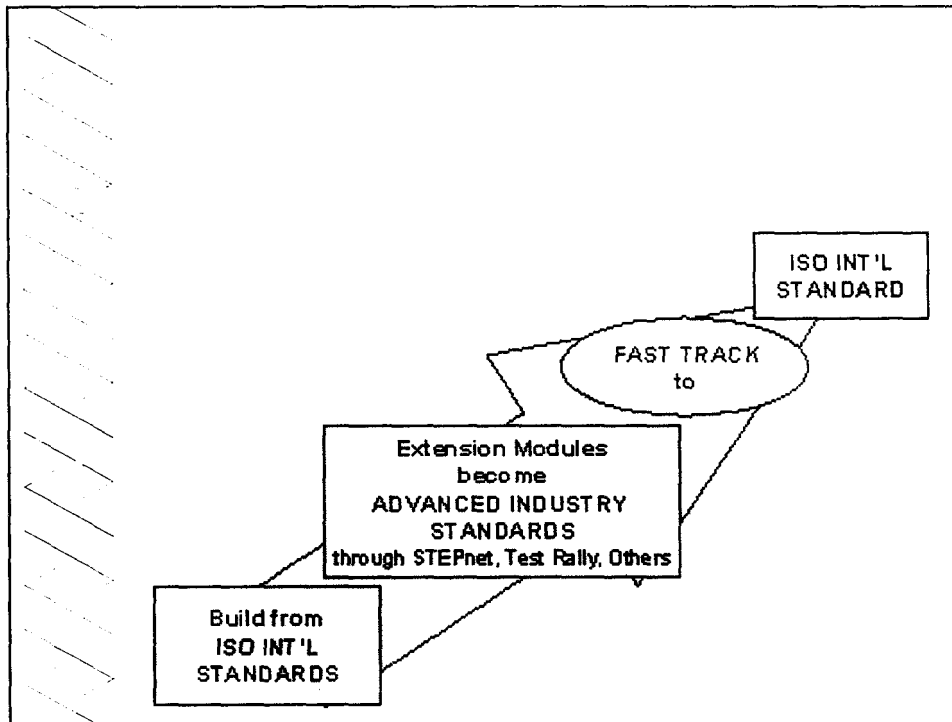http://graphics.kaist.ac.kr

AP Interpretation

- ARM mapping to AIM: Interpretation
- AIC are templates from IRs: Pre-interpreted schemas
- IR (integrated resources): 40s

AP Modularization

⚬ PDES

⚬ Modular extension to AP203: plug & play schema subsets

⚬ AM (appl. module) is an interpreted model

⚬ Similar to AIC

⚬ Use Express-X instead of mapping table

⚬ Building Blocks

⚬ Physical analogy: Sub-assembly

AP203	Colors/ Layers	Dimensional Tolerances	....	....

Build from ISO INT'L STANDARDS → Extension Modules become ADVANCED INDUSTRY STANDARDS through STEPnet, Test Rally, Others → FAST TRACK to ISO INT'L STANDARD

Upward Compatibility

- Update plan of IRs (40s)
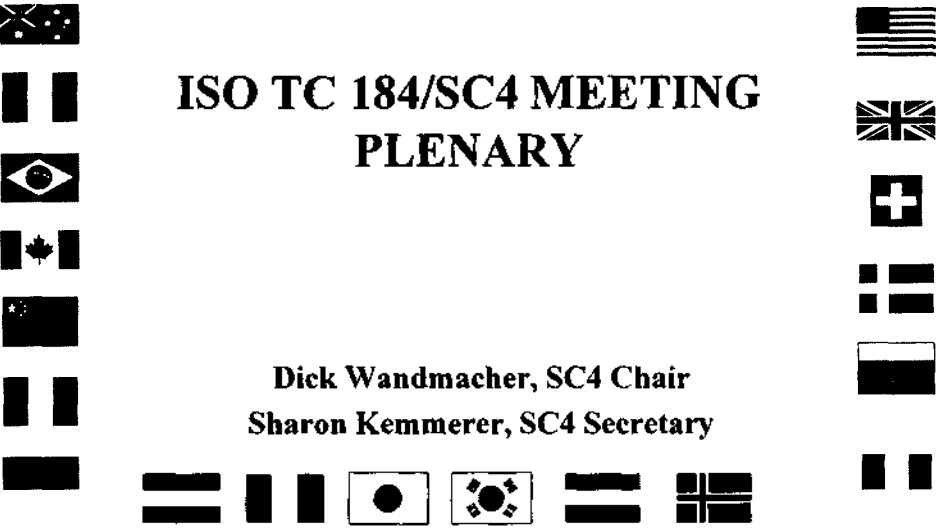- Requirements from AP Interpretation like as AP214 (automotive)
- Existing users of STEP

SGML

- HyTime
- Hyperlinks separated from text whereas HTML includes hyperlinks inside.
- Grove: view of data ~ schema of STEP: actually a tree
- 700 pages of HyTime: version 2
- Lifecycle: Doc -> Data -> Doc
  - ●   Spec.   Prod. Data   Maintenance manual

1997년 10월 플로렌스 회의

- 참석자 총 264명

- 미국 66, 일본 54, 독일 32, 영국 29, 이태리 21, 프랑스 17, 스웨덴 12, 한국 7, 네덜란드 6, 노르웨이 5, 중국 4, 핀란드 3, 벨기에 2, 스위스 2, 호주, 캐나다, 덴마크, 스페인 1

ISO TC 184/SC4 MEETING PLENARY

Dick Wandmacher, SC4 Chair

Sharon Kemmerer, SC4 Secretary

SC4 SCOPE OF WORK

- **ISO 10303--Standard for Exchange of Product model data (STEP)**
- **ISO 13584--Parts Library**
- **ISO 14959--Parametrics (사용 안할 예정)**
- **ISO 15531--Manufacturing Management Data**
- **ISO 15926--Life Cycle Data for Oil & Gas Production Facilities**

INTEGRATE WITH EMERGING STANDARDS

- **EDI**
- **SGML**
- **ISO & IEC**
    - ISO TC 184 - Industrial Automation
    - ISO TC 213 - Geometric Product Specifications
    - IEC Sector Board 3-Industrial Automation
- **...**

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Status Update

ISO/TR 10303-12 PUBLISHED!

- ISO/TR 10303-12, *Description method: The EXPRESS-I language reference manual*, published as Technical Report Type II 1997-07-15
- Has up to 3 years to be:
    - re-introduced into standards' process
    - reconfirmed as Technical Report
    - cancelled
- WG11 has action to resolve conflicts between 10303-12 with 10303-20s and 10303-30s
- Available as normative reference in current state

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Status Update

WG/QC EXPERTS
(as of 1997-10-01)

	WG2	WG3	WG8	JWG9	WG10	WG11	WG12	QC
Experts	37	131	14	25	20	47	48	24
P-Member	8	9	7	6	8	9	8	6

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News You Should Use

SECRETARIAT WEB SITES OF INTEREST TO SC4

- http://www.nist.gov/sc4/
  - SC4 documents, parts, meeting announcements
- http://www.nist.gov/apde/snr/
  - for SC4 short name generation
- http://www.nist.gov/apde/uofs/
  - for reviewing Units of Functionality Repository
- http://www.mel.nist.gov/apde/
  - building blocks for developing 10303-200s from existing 10303-40s, 100s, 200s
- http://www.mel.nist.gov/msidstaff/sauder/SCL.htm
  - starting point for building applications based on 10303-11

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News You Should Use

http://www.nssn.org/

- **NSSN: A National Resource for Global Standards**
- **Sponsored, by USA ANSI**
- **Free "basic" service (or for fee, extended service)**
- **Offers**
  - topical or standards' number search
  - Ordering information
  - General description of the standard
- **More than 600 standards' development organizations covered**
- **Secretary interested to learn of other such services**
- **Good way to start a project: See what is already available!**

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SC4 News Brief

Technical Management Board resolution 94/1997

CALS

The Technical Management Board,

- endorses the report of the High-level Steering Group on CALS,
- recommends to Council to review the current Memorandum of Understanding on ISO, IEC and UN/ECE cooperation in the field of electronic data interchange with the intention to include and give greater emphasis to electronic commerce with representation from the International CALS Congress,
- requests the TMB secretariat to prepare proposals for assignment of responsibility within existing standards bodies for follow-up to individual HLSGC recommendations.

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SC4 News Brief

SC4 Secretariat Status on Authoring Applications

- SC4 Secretary provided status to project leaders and editors on acceptable receipt of authoring applications for standards' development
- Provided position statements on:
  - WordPerfect 5.2 (or older) - no support now
  - Postscript - not acceptable since not editable
  - LaTex - no technical support now
  - WordPerfect 6.0 and 7 - minimal support for future
  - Word 6.0 and 7 - midterm support appears stronger
  - PDF - still under review
  - SGML - direction for present and future
- SC4 Secretariat under software shift to MS Windows NT, Version 4

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SC4 News Brief

CURRENT PWIs in SC4
(as of 1997-10-01)

- Java programming language binding to the Standard Data Access Interface specification
- Application protocol: Building services: Heating, ventilation, and air conditioning
- Abstract test suite: Process planning, manufacture, and assembly of layered electronic products
- Abstract test suite: Building services: Heating, ventilation, and air conditioning
- SC4 Data Architecture
- SGML and Industrial Data
- Amendment 1 to ISO 10303-1: Overview and fundamental principles
- Engineering Analysis AP Planning Project
- Building
- Integration of life-cycle data for oil and gas production facilities

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SC4 News Brief

CURRENT PWIs in SC4
(continued)

- **EXPRESS-X mapping language**
- **Extension of capabilities of ISO 10303-21**
- **Product life cycle**
- **High Level Information Planning Model for Product Life Cycle Support**
- **Application protocol: Process planning, manufacture, and assembly of layered electronic products**
- **Electric/Electronic**
- **Manufacturing process plans**
- **Process plant**
- **Design and configuration of manufacturing systems**
- **Shipbuilding**
- **Application protocol: Neutral optical data interchange format (NODIF)**

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UPCOMING MEETINGS

Those SC4 and SC4 WG Meetings Currently Anticipated:

1998-02-02/06	WGs	Orlando, USA
1998-06-07/12	WGs & SC4	Bad Aibling, Germany
1998-10-05/09	WGs & SC4	Beijing, China
1999-01/03	WGs	USA
1999-05/06	WGs	Norway
1999-09/10	WGs	USA
2000-02-2nd/3rd wk	WGs	Australia
2000-05/06	WGs	France
2000-09/10	WGs	USA
2001-02/03	WGs	TBD
2001-05/06	WGs	TBD
2001-10	WGs	Japan

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P-MEMBERS:
INPUT for OPENING
UPDATE for CLOSING

- Australia	- Korea, Republic of
- Belgium	- Netherlands
- Brazil	- Norway
- Canada	- Romania
- China	- Russia
- France	- Sweden
- Germany	- Switzerland
- Hungary	- United Kingdom
- Italy	- United States
- Japan	

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CONVENER REPORTS

- **WG2-Part Library**
  - Gerd Ehinger
- **WG3-Product Modeling**
  - Barbara Warthen
- **WG8-Manufacturing Management Data**
  - Jean-Jacques Michel
- **JWG9-Electrical/Electronic Applications**
  - Reinhard Nerke

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CONVENER REPORTS

- **WG10-Technical Architecture**
  - Bernd Wenzel
- **WG11-EXPRESS, Implementation Methods and Conformance Methods**
  - Christophe Viel
- **WG12-SC4 Common Resources**
  - Greg Paul
- **Quality Committee**
  - Allison Barnard Feeney

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COMMITTEE REPORTS

- **PPC**
  - Meinolf Groepper
- **STEP Implementors' Forum**
  - Larry McKee

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SC4 LIAISON PLENARY

- **Presenters, Association Liaisons**
  - PDES, Inc.   **Robert G. Kiggans**
  - ProSTEP   **Andre Radon**
  - POSC   **Nils Sandsmark**
  - EPISTLE   **Julian Fowler or Stuart Lord**
  - IAI   **Jeff Wix**
- **Presenters, ISO or IEC Liaisons**
  - ISO TC 172/SC1   **Timothy Wise**
  - ISO TC 211   **Bernd Wenzel**
  - ISO TC 184/SC1/WG1   **Nils Brouer**
  - ISO TC 184/SC5   **Meinolf Groepper**

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A-LIAISONS:
INPUT for OPENING
UPDATE for CLOSING

- ISO or IEC Technical Committees or Subcommittees
  - ISO TC8: Ships and marine technology
  - ISO TC10/SC1: Technical drawings, product definition, and related documentation/Basic conventions
  - ISO TC 29/WG34:
  - ISO TC172/SC1: Optics and optical instruments/Fundamental standards
  - ISO TC 211: Geographic information/Geomatics
  - ISO TC 213: Dimensional and geometrical product specifications and verification
  - IEC TC3B: Documentation and Graphic Symbols
  - ISO/IEC JTC1 SC7/WG11: Information technology/Software engineering/Software engineering data definition and representation
  - ISO/IEC JTC1 SC24: Information technology/Computer graphics and image processing

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A-LIAISONS (continued)

- **Organizations**
  - AECMA: The European Association of Aerospace Industries
  - CAM-I: Consortium for Advanced Manufacturing - International
  - EPISTLE: European Process Industries STEP Technical Liaison Executive
  - IAI: **Industry Alliance for Interoperability**
  - PDES, Inc.: Product Data Exchange using STEP, Inc.
  - POSC: Petrotechnical Open Software Corporation
  - ProSTEP Association
  - UN/ECE: United Nations/Economic Commission for Europe

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