

ISO/IEC JTC 1/SC 32 N 1287

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ISO TC184/SC4

Industrial Data

**ISO JTC1/SC32 Meeting
Berlin, Germany
2005-04-18**

**Gerald Radack
Concurrent Technologies Corp.**



SC4 Mission

- The mission of SC4 is to
 - develop and promulgate standards for the representation of scientific, technical and industrial data,
 - to develop methods for assessing conformance to these standards, and
 - to provide technical support to other organizations seeking to deploy such standards in industry



What is Industrial Data?

- Product Definition Data
 - Long life span - 30-50 years
 - Large, complex products, needing configuration management
- Component Libraries
 - Different views - geometry, metadata
 - Different forms of lists - explicit, algorithm, class
- Data Warehousing
 - Simpler model, data driven
- Manufacturing Management Data
 - Factory resource and control
- Process Specification

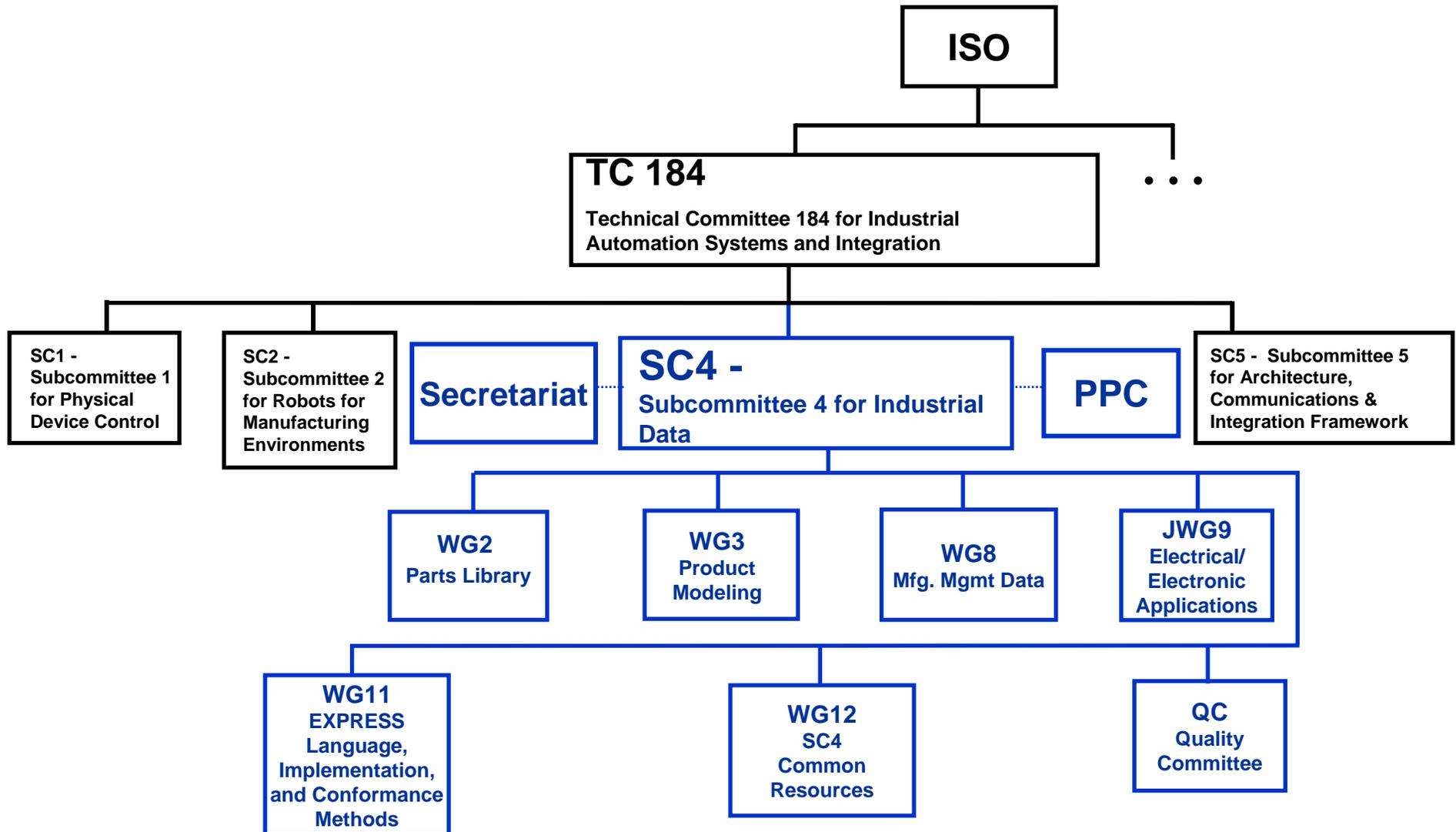


Product Data Exchange/Sharing

- Industry requires complete, accurate and timely data exchange and use
 - Between all the participants in a value chain
 - Throughout the entire life cycle
 - Across all business functions
- Consistent models
- Common vocabulary
- Consistent reference data
- Information quality



ISO TC184/SC4 Organization





Participation

- 20 P-members
- 13 O-members
- 42 A-liaisons

- Approximately 200-250 experts, attending three working meetings a year with average attendance of 120
- Increasing profile in large industry
 - Commitment by US DoD, UK MoD
 - Industrial seminars
 - Links to major initiatives, such as DoD UID



ISO TC184/SC4 Standards

STEP	ISO 10303	Product data representation and exchange Standard for the exchange of product model data
PLIB	ISO 13584	Parts library
MANDATE	ISO 15531	Industrial manufacturing management data exchange
OIL & GAS	ISO 15926	Integration of lifecycle data for process plants including oil and gas production facilities
PSL	ISO 18629	Process specification language
IIDEAS	ISO 18876	Integration of industrial data for exchange, access, and sharing
OTD	ISO 22745	Open technical dictionary



ISO TC184/SC4 Standards

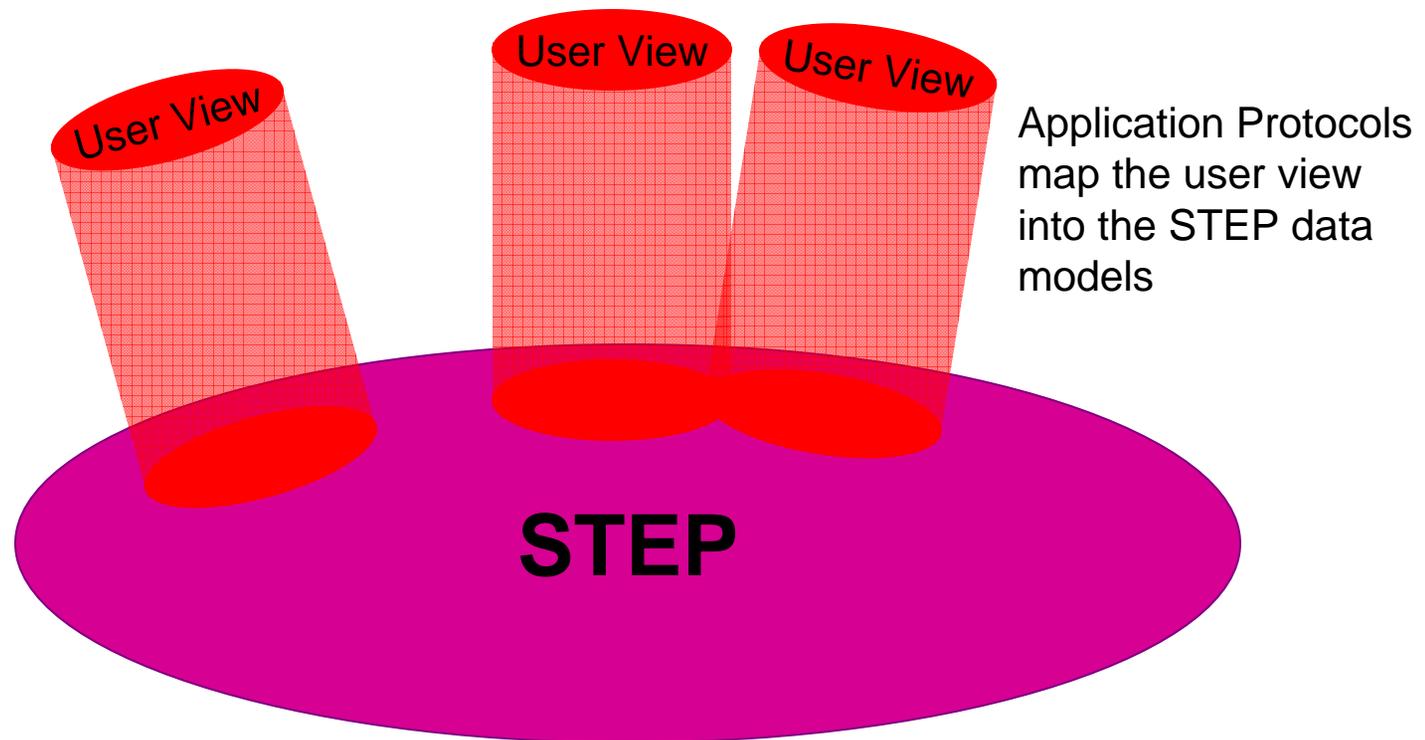
	ISO 20542	Reference model for systems engineering
	ISO 22720	ASAM Open Data Services
IFC	ISO 16739	Industry Foundation Classes



STEP – ISO 10303

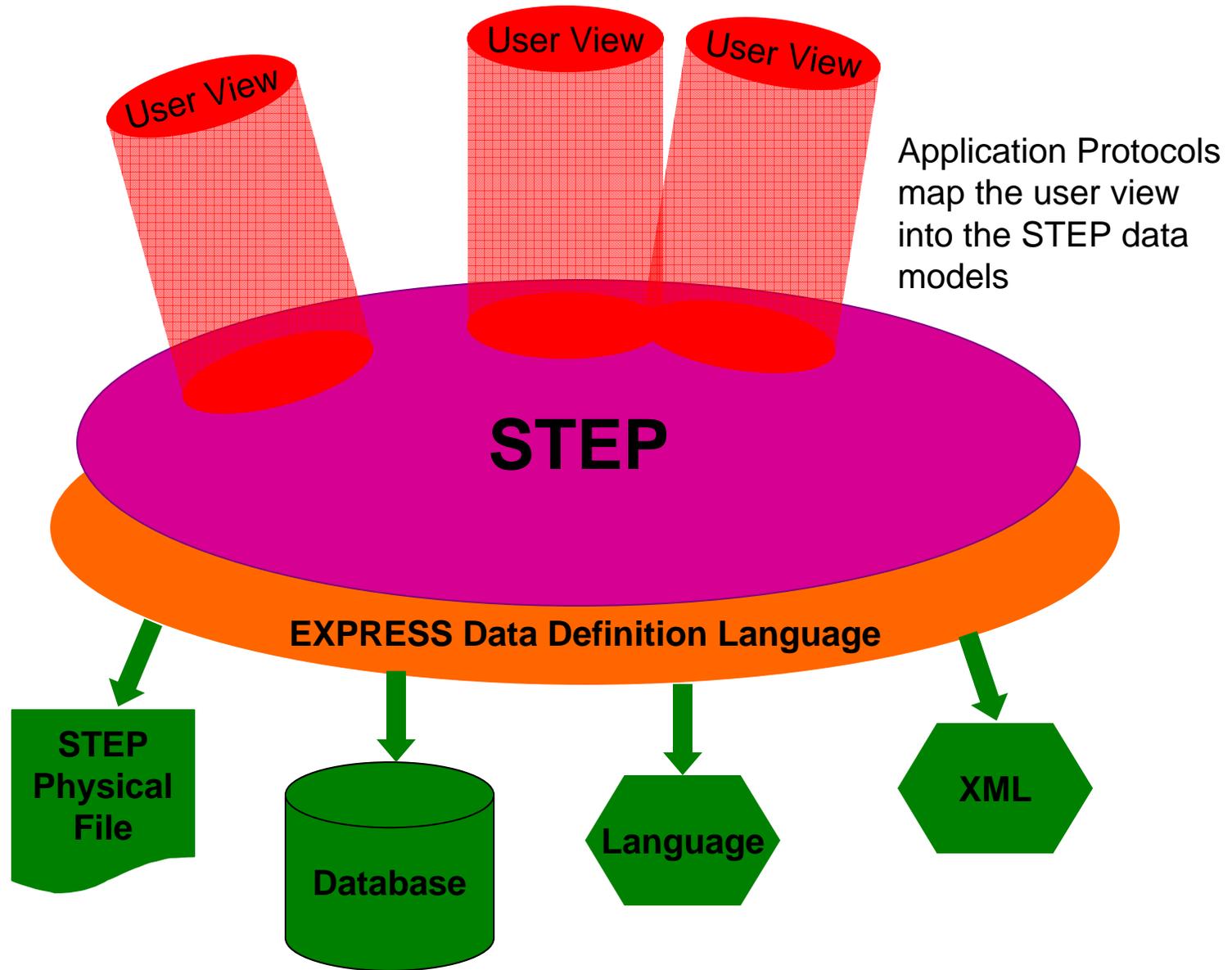
- An International Standard for the computer-interpretable representation and exchange of industrial product data.
- The objective is to provide a mechanism that is capable of describing product data throughout the life cycle of a product, independent from any particular system.

STEP Architecture



- Application protocols provide a standard data definition for a business function, process or application

STEP for the Web





STEP current major thrusts

- Shipbuilding (APs 215, 216, 218)
- Manufacturing - STEP-NC/Process Plans (238,240)
- Materials (AP235)
- Computational Fluid Dynamics (AP237) on hold
- Systems Engineering (AP233)
- Furniture (AP236)
- Printed circuit assemblies (AP210 Modular ed 2)
- Building and construction
- XML Schema support (Part 28 ed 2)



PLIB – ISO 13584

- Covers dictionaries and component libraries
- Dictionaries being developed for
 - Fasteners (ISO 13584-511)
 - Environmental measuring equipment (ISO 13584-501)
 - Cutting tools (ISO 13399)
- Some potential updates to data model identified



OIL & GAS – ISO 15926

- Representation of information associated with engineering, construction and operation of plants, supporting:
 - information requirements in all life-cycle phases
 - sharing and integration of information
- Includes:
 - a generic, conceptual data model
 - a reference data library of common information rules for developing and maintaining additional reference data libraries
 - testing for conformance



MANDATE – ISO 15531

- External communications
 - Basic principles for ordering and controlling manufacturing flows - closely linked to e-commerce
- Manufacturing Resource usage
 - Monitoring the usage of manufacturing resources for planning purposes
- Flow control
 - Data to control and monitor flow of material in an enterprise



PSL – ISO 18629

- Provides a generic language for describing a discrete manufacturing process throughout the entire production process
- Enables the interoperability of manufacturing processes between software applications that utilize different process models and process representations
- Is based on a core which defines axioms for the concepts of activity, activity-occurrence, timepoint, and object which can be shared between two process-related applications
- Under development jointly with TC184/SC5



IIDEAS – ISO/TS 18876

- Integration of industrial data for exchange, access and sharing
- Information integration architecture
 - integration of data from different sources, different data models, and in different modelling languages
 - enable sharing of the same data between different applications
 - resolution of structural conflicts between models developed with different objectives
 - translation of data and data models between different encodings and modelling languages
- Technical Specifications:
 - Architecture overview and description
 - Integration and mapping methodology



OTD – ISO/TS 22745

- Goal is to lower costs and improve quality by enabling cataloging at source
 - Eliminate most manual aspects of cataloging
 - Eliminate data mapping
- Open Technical Dictionary of properties for cataloging
 - Use existing ISO and IEC terminology where available
 - Harmonization process to ensure synchronization with ISO and IEC terminology
 - **Is a metadata registry as defined in ISO/IEC 11179**
- Implementation guide on integration of catalog data in STEP
 - Document guidelines for the use of dictionary elements defined in the OTD as reference data for the incorporation of cataloging information into ISO 10303 product data files
 - Enable automated extraction of catalog descriptions from STEP files
- Current status: NWI accepted but with many comments



Success Stories

- Eurofighter
- Lockheed Martin
- Boeing
- Raytheon
- Rockwell Collins
- IBM
- Ford
- GD Electric Boat
- Pratt & Whitney
- NASA
- Japanese Construction Industry



Key Issues

- Other groups modeling industrial data
 - Forming effective liaisons early enough
- Harmonizing standards
- Making standard publicly available, free of charge
- Links to eTrading Data



Topics with SC32

- Clarification of the relationship between ISO 13584 (PLIB) and ISO/IEC 11179
- Publication of ISO 22745 (OTD) data as an ISO/IEC 11179-compliant metadata registry



Upcoming Meeting Schedule

<http://www.tc184-sc4.org>
select: “meetings”

Spring 2005

Valencia, Spain

Summer 2005

Hangzhou, China

Fall 2005

Brazil



Backup Slides



Links to eTrading Data

- Address overlaps with information content of eTrading standards
- New UN/CEFACT Business Collaboration Framework closely aligned with STEP approach
- CEFACT TBG17 recognised by MoU/MG as focus for XML data element harmonisation
 - resourcing issue
- Need new TC184 link to TC154