

What is STEP-CDS? Contents



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Reasons for the Initiative



- ◆ The topic “high quality data exchange” was extensively discussed in the working group “CAD for factory design and facility management” of VDA
- ◆ Almost all factory design is currently done based on 2D-CAD
- ◆ 2D-CAD data represent the legal document to be delivered, i. e. the drawing.
- ◆ High priority to achieve high quality 2D-CAD data exchange.
- ◆ STEP is strategic technology for data exchange/sharing
- ◆ Considerable savings by exchange of administrative data
- ◆ Future migration to model based design using STEP technology (strategic goal)

Approach



- ◆ Memorandum of understanding signed by high level management (Sept. 1997)
- ◆ „Kick off“ presentation to construction industry and system vendors (Oct. 7 at Daimler Benz)
- ◆ Results: Current CAD data exchange is unsatisfactory, users make clear statements of requirement of better 2D-CAD data exchange
- ◆ Invitation to sign a letter of intend to purchase STEP-CDS translators when available

Embedding in ISO 10303



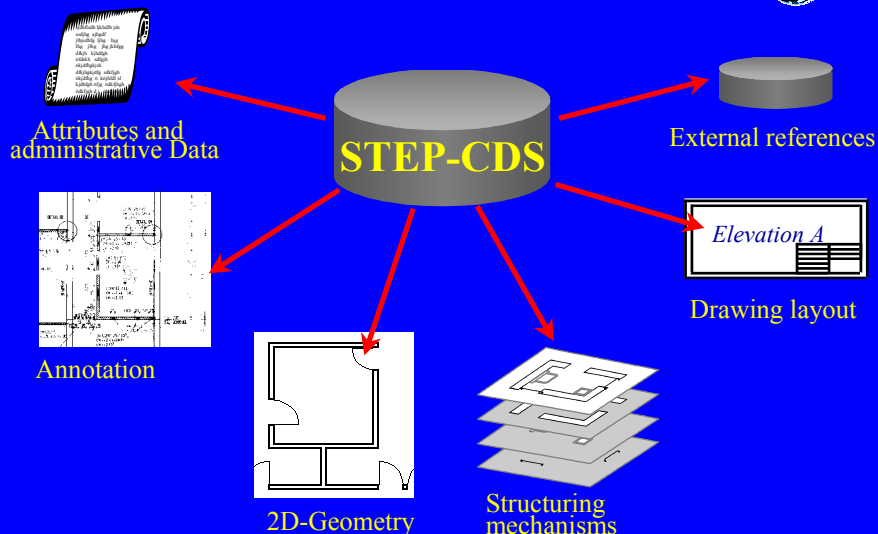
- ◆ STEP-CDS corresponds to an ISO Standard
- ◆ Is identical with Conformance Class 2 of ISO 10303-202
- ◆ Is identical with a subset of Conformance Class 4 of ISO 10303-214
- ◆ Own name “Construction Drawing Subset” was chosen to indicate usage

Datastructures of CAD-Systems



- ◆ 2D-Geometry model in actual dimensions, with alphanumeric attributes and administrative data
- ◆ Highly structured (layers, symbols, groups, etc.)
- ◆ Scaled views
- ◆ Annotation (dimensions, text, fill area)
- ◆ Drawing layout
- ◆ Sheet dependent annotation (title block drawing frame etc.)

Types of data of STEP-CDS

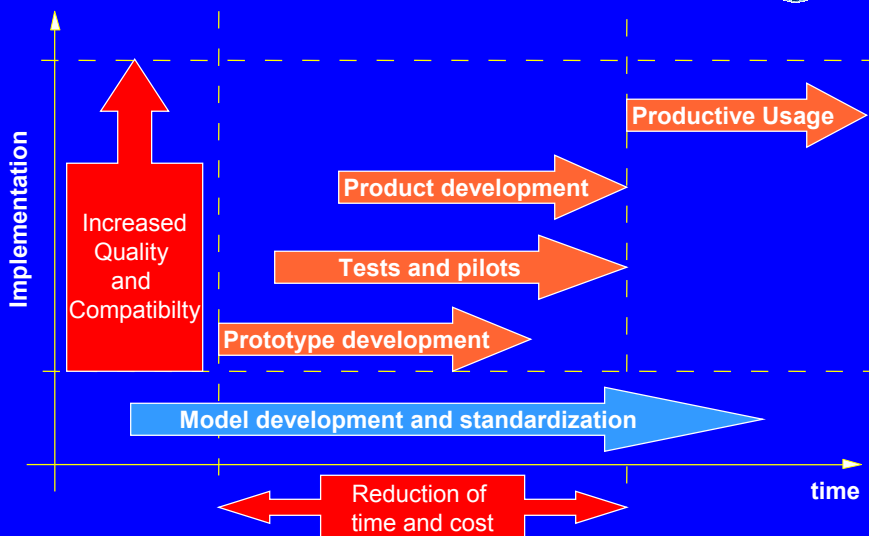


Advantages of STEP standards

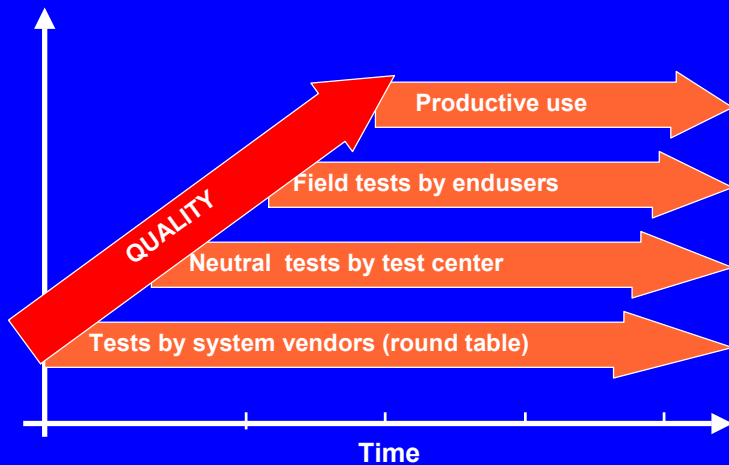


- ◆ Embedding in international standardization for all kinds of industries
- ◆ Developed by industry
- ◆ Validated architecture and development methods
- ◆ Synergy in development of standards
- ◆ Synergy in implementation
- ◆ Standards for conformance testing and validation

Developing and Implementing STEP Standards



Quality Assurance Approach



Round table of implementers



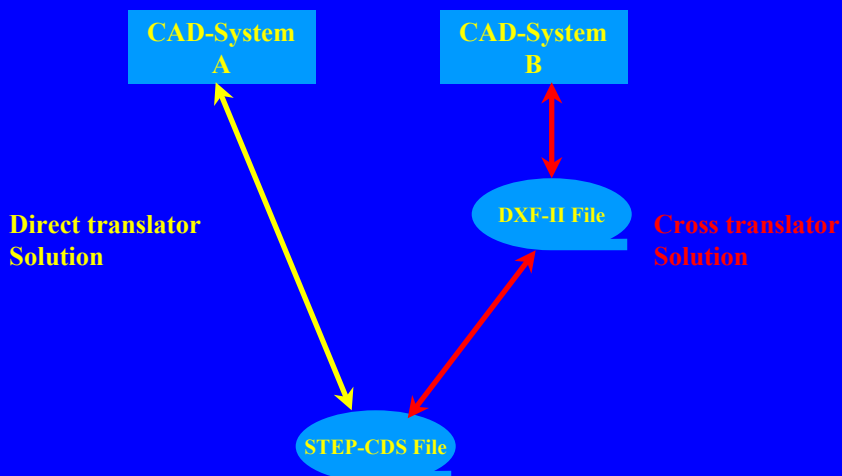
- ◆ **Members of VDA and other users:** Daimler Benz, Volkswagen, Ingenieurbüro Schneider+Partner (representing VBI), Coplan, Planungsgruppe M+M
- ◆ **System vendors:** Autodesk, Bentley, Graphisoft, IEZ, Muigg Computeranwendungen, Nemetschek, pit-cup, RIB
- ◆ **Software support, toolbox:** Concad
- ◆ **Organizer:** ProSTEP
- ◆ **Moderation:** Haas+Partner

Results of the first two meetings of Round table of implementers and schedule



- ◆ **First meeting Jan. 22, 1998:** System vendors raise concerns about acceptance by the market, time schedule and return of investment.
- ◆ **Second meeting March 31, 1998:** System vendors accept requirement for improved 2D-CAD data exchange and propose a solution. Target for availability of translators: ACS 98. .

Scenarios for data exchange based on the agreement of March 31, 1998



Meeting March 31, 1998: Arguments pro and contra STEP-CDS/DXF-II



Contra

- ◆ There is an established exchange format (DXF)
- ◆ Development and marketing of STEP-CDS translators will be expensive, time consuming and difficult.
- ◆ DXF is no longer a proprietary format but openly available and well documented

Pro

- ◆ Some DXF implementation do not have a good reputation
- ◆ It is the right time to come up with a new and better specification
- ◆ The same basic technology (EXPRESS, STEP resource parts etc.) will be used for 2D-CAD data exchange and building models

Round Table Meeting May 28, 1998: Agreement with system vendors



- ◆ All system vendors will support STEP-CDS format
- ◆ Some system vendors will develop the DXF-II specification which covers the requirements as specified in STEP-CDS.
- ◆ Some system vendors will develop DXF-II translators, others STEP-CDS translators .
- ◆ Cross translators from DXF-II to STEP-CDS will be developed in both directions.
- ◆ Since there is a match between the functionality of DXF-II and of STEP-CDS, no major loss of data should be related to this cross translation.

Implementations by system vendors



System Vendor	CDS	CDS via DXF-II and cross translator
Autodesk		X
BENTLEY	X	
Catia (debis)	X	
Graphisoft		X
IEZ	X	X
Muigg Computeranw.		X
Nemetschek		X
RIB		(X)

(X) = probably not available at ACS Nov. 98

Round table meetings, time schedule and results



May 28, 1998	Detailed presentation of STEP-CDS, start discussion of mapping to DXF-II
July 14, 1998	Discussion of mapping of CDS to DXF-II, first issues detected
August 19, 1998	Almost complete mapping of CDS to DXF-II completed, discussion of issues, set up of an issue log
Sept. 29, 1998	Discussion and resolution of remaining issues
Oct. 12/13, 1998	Test rally, preparation of the ACS demo
Nov. 12, 1998	Demo event at ACS
April/May 1999	Start marketing/sales of implementations, joint PR event