FCSA

SteelBase -
Implementing product data exchange for constructional steelwork

Kari Karstila
EuroSTEP
Finland

FCSA

FINNSTEEL-PROGRAM & STEELBASE-PROJECT

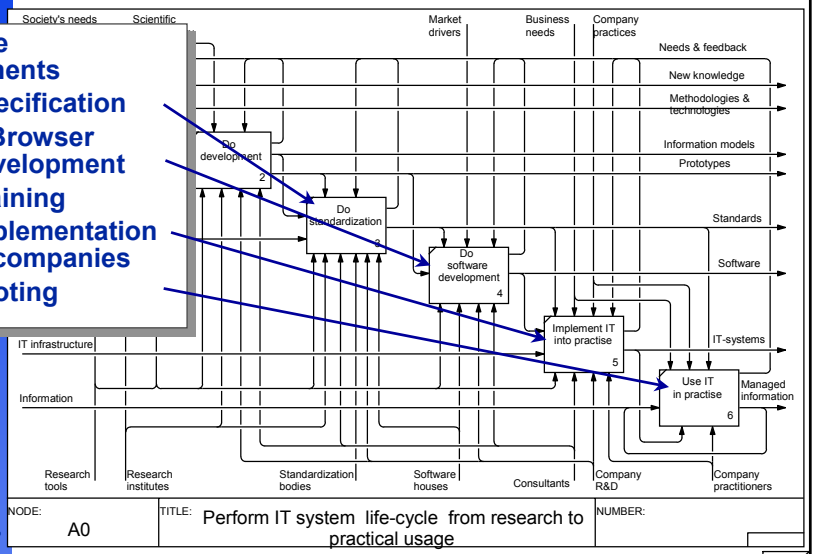
- **FINNSTEEL is a Finnish technology program for the development of steel construction during 1995 - 1999**
- **A framework for a number of R&D projects**
- **Main objectives:**
  - Promotion of constructional steelwork in general, and its export
  - Reducing the building costs
  - Reducing the construction lead time
- **Participants:**
  - TEKES (Technology Development Center)
  - Rautaruukki Ltd, Kvaerner Pulping Ltd
  - FCSA (The Finnish Constructional Steelwork Association) representing number of smaller companies (# ~25)
  - VTT
- **Overall budget 38 million Fim ~ 7 million US$ ~ 1 billion ¥**
- **SteelBase-project:**
  - A project within FINNSTEEL program
  - Objective: Development of the exchange of constructional steelwork product data between designers and manufacturers

FCSA

FROM IT RESEARCH TO PRACTISE

SteelBase developments

- Specification
- StBrowser development
- Training
- Implementation in companies
- Piloting



EuroSTEP

Kari Karstila

FCSA

STEELBASE DATA EXCHANGE COMPONENTS

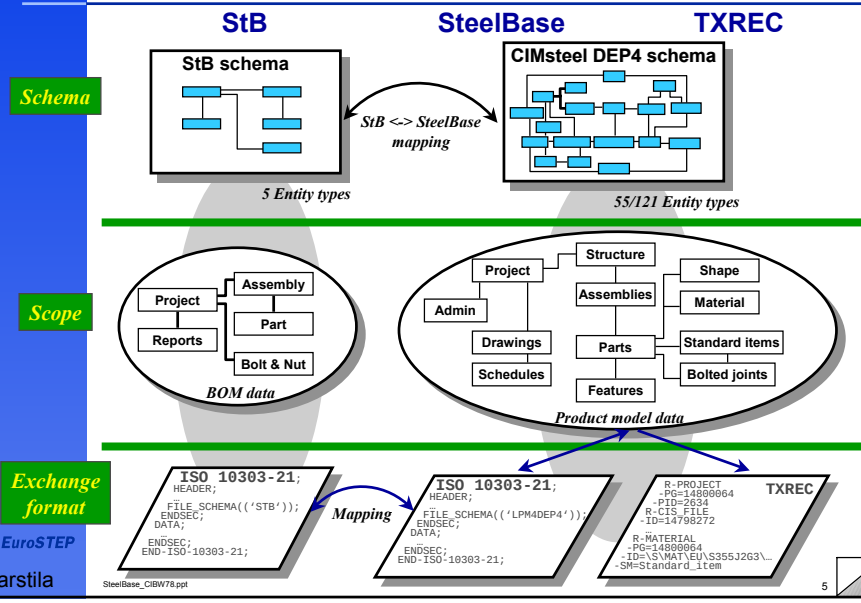
- **Data exchange specification:**
  - Based on CIMsteel Integration Standards CIS Version 1.1, Data Exchange Protocol DEP 4: Detailing
  - Finnish flavouring of CIMsteel DEP4:
    - Section profile, Material & Bolt identification coding
    - Encoded description attributes for additional info requirements
  - Additional product data models & data exchange formats:
    - StB-model & exchange (EXPRESS/STEP P21 -based)
    - TXREC-data exchange format (SteelBase definition)
  - Model usage rules
  - Standard report types
- **StBrowser product model browser for the promotion of SteelBase specification and usage of constructional steelwork product data**
- **CAD applications' pre and post processors (commercial development)**

EuroSTEP

Kari Karstila

FCSA

MODELS AND EXCHANGE FORMATS OF STEELBASE



EuroSTEP

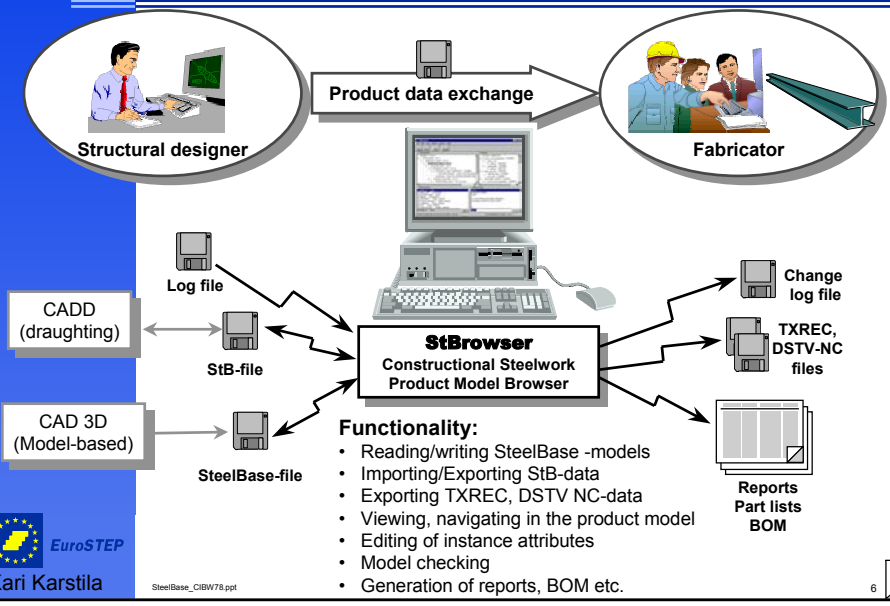
Kari Karstila

SteelBase_CIBW78.ppt

5

FCSA

StBrowser SYSTEM OVERVIEW



Functionality:

- Reading/writing SteelBase -models
- Importing/Exporting StB-data
- Exporting TXREC, DSTV NC-data
- Viewing, navigating in the product model
- Editing of instance attributes
- Model checking
- Generation of reports, BOM etc.

EuroSTEP

Kari Karstila

SteelBase_CIBW78.ppt

6

FCSA

StBrowser *USER INTERFACE*

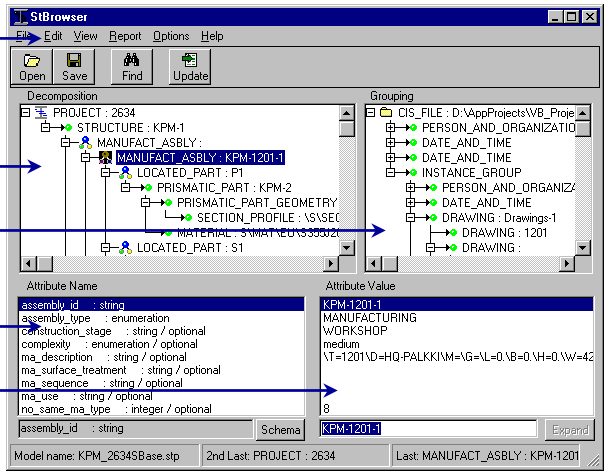
Functions:
- **Model navigation**
- **Model/format conversions**
- **Checking**
- **Editing**
- **Report generation**

Composition

Admin & Grouping

Properties

Property values



EuroSTEP

Kari Karstila

FCSA

IMPLEMENTATION TECHNOLOGIES

Graphical User Interface / *Visual basic*

Product model management / *Visual basic*

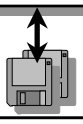
STEP Backend

STEP API *Visual C++*

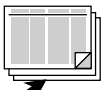
ECCO / *KU RPK*

ST-Developer SDAI / *STEP Tools Inc.*

STEP P21-files



Reports



Queries

Report def.

DBMS / *MS Access*

Library

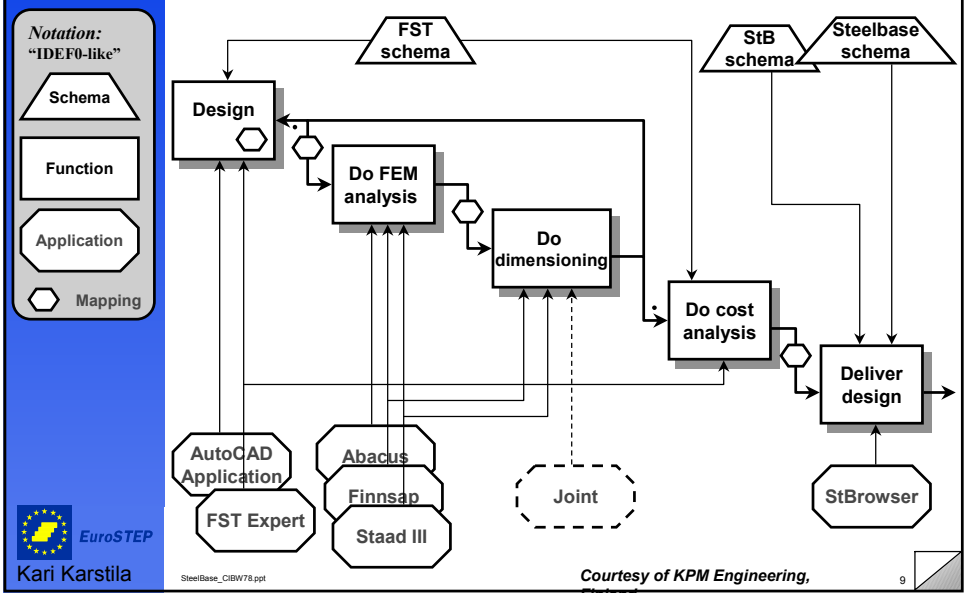
Report Data

EuroSTEP

Kari Karstila

FCSA

INTEGRATION OF STEELWORK DESIGN - A practical example



Courtesy of KPM Engineering,

EuroSTEP
Kari Karstila

FCSA

CONCLUSIONS

- **SteelBase is an example of a development project exploiting PDT and CIMsteel specification, and aiming at practical product data exchange**
- **SteelBase status:**
  - Specification
  - Data exchange support tool (StBrowser)
  - In-house / Commercial implementations
  - Implementation in companies
  - Data exchange pilots
  - Production use

Today

- **Future work:**
  - Suppliers coding
  - Graphical visualization (VRML ?)
  - Participation in interoperability between CIMsteel & IAI/IFC
- **Lessons learned:**
  - *Product data for every desktop is emerging !*
  - Practical implementation of product data exchange requires multiple components to co-exist
  - Product data exchange future: Neutral, multiple specification exchange & (automated) mapping

EuroSTEP
Kari Karstila