



Technical Research Centre of Finland

- VTT is an impartial expert organization that carries out technical and technoeconomic research and development work.
- VTT develops technologies both to improve the competitiveness of companies and the basic infrastructure of society, and to foster the creation of new businesses.
- Total ~2 700 employees, in Building Research ~400



Towards a Concurrent Engineering Environment in Building and Engineering Structures Industry ESPRIT-IV 20587 ToCEE

Overview



Volume



07/12/2002

ESPRIT 20687 ToCEE

- Duration: 1996-98 (-99)
- Person months allocated: 490
- Total cost: 4.7 MECU
- Total CEC funding: 2.5 MECU
- 10 partners in 6 countries

3

Partners



07/12/2002

ESPRIT 20687 ToCEE

-  VTT - VTT Building Technology - Research institute
-  CU - Kupari Oy- Design office, software house
-  OPB - Obermeyer Planen+Beraten - Design office
-  CIB - TU Dresden - University
-  OTT - Law office
-  BRE - Building Research Establishment - Research institute
-  DAP - D'Appolonia - Consulting engineering company
-  ISE - U Ljubljana - University
-  SOF - Sofistik - Software house
-  GCC - General Construction Company

4

Workpackages



07/12/2002

■ WP A: Design Process	63 PM
■ WP B: Construction Process	60 PM
■ WP C: Facility Management	45 PM
■ WP D: Legal Model	20 PM
■ WP E: Information Logistics	58 PM
■ WP F: PM & Interoperability	65 PM
■ WP G: Document Modeling	55 PM
■ WP H: Conflict Management	42 PM
■ WP I: Modeling of Design Standards	32 PM
■ WP J: Migration	14 PM
■ WP K: Management	36 PM

ESPRIT 20687 ToCEE

5

Time Schedule



07/12/2002

■ Requirements	1/96 - 6/96
■ Concept	7/96 - 6/97
■ Verification I	10/97 - 3/98
■ Implementation&tests	8/97 - 2/99
■ Verification II	11/98 - 2/99
■ Documentation	1/99 - 4/99
■ Demonstration	5/99

ESPRIT 20687 ToCEE

6

Network infrastructure



07/12/2002



- Multiple servers and clients, Internet
- Different OS
 - Win95, WinNT, Unix
- Servers in Dresden
 - information logistics
 - process and product models
- Servers in Ljubljana
 - regulations
- Servers in Munich
 - document model

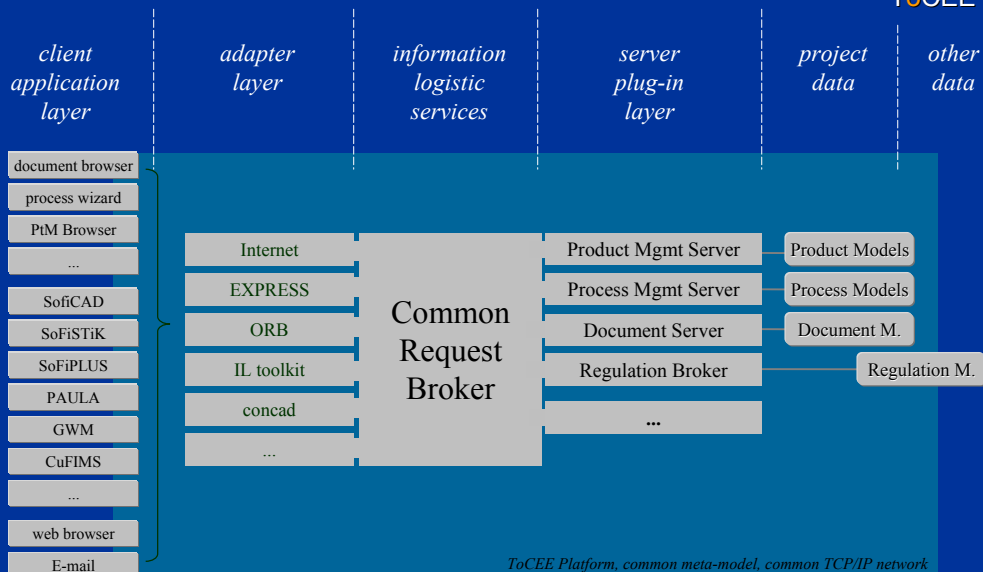
ESPRIT 20687 ToCEE

1

Overview of ToCEE Environment



07/12/2002



ESPRIT 20687 ToCEE

2

The setting:

- **The building:** Hall 20 at Munich fair
- **The roles:** owner, facility manager, project manager, architect, structural engineer, foundation designer, HVAC engineer, contractor ...
- **The job:** re-design the building
- **The highlights:** using ToCEE environment for co-operation and collaboration, exchanging data; **engineer concurrently** ...



07/12/2002

ESPRIT 20687 ToCEE

9

The job



These operations will be presented in 4 parts (acts):

- 1: Owner wants a late change in design
- 2: Engineers do the re-design
- 3: Study of contractual implications
- 4: **Study of facility management implications**

07/12/2002

ESPRIT 20687 ToCEE

10

Act 4: Facility management implications



07/12/2002

“Final cost benefit analysis is required to check if we still make money with the modified facility”.



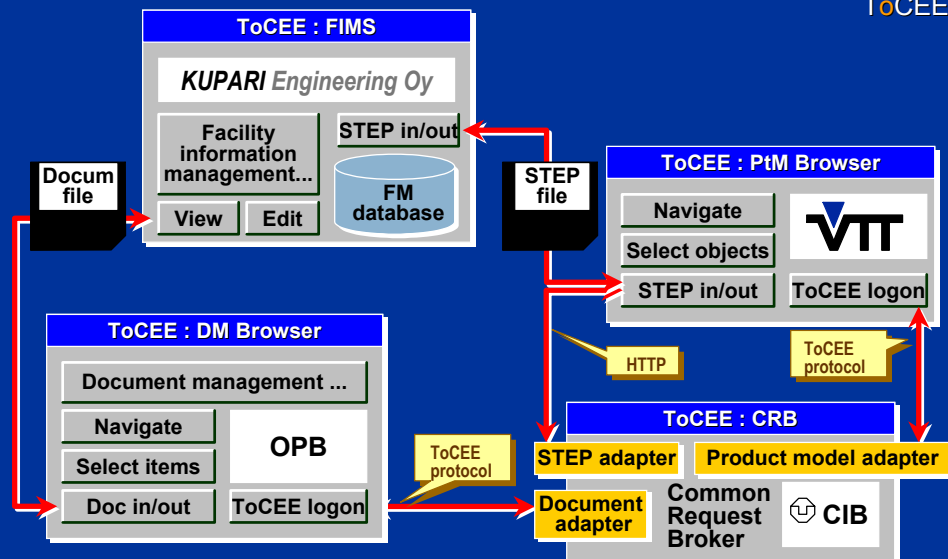
ESPRIT 20687 ToCEE

11

Act 4: FM in ToCEE Environment



07/12/2002



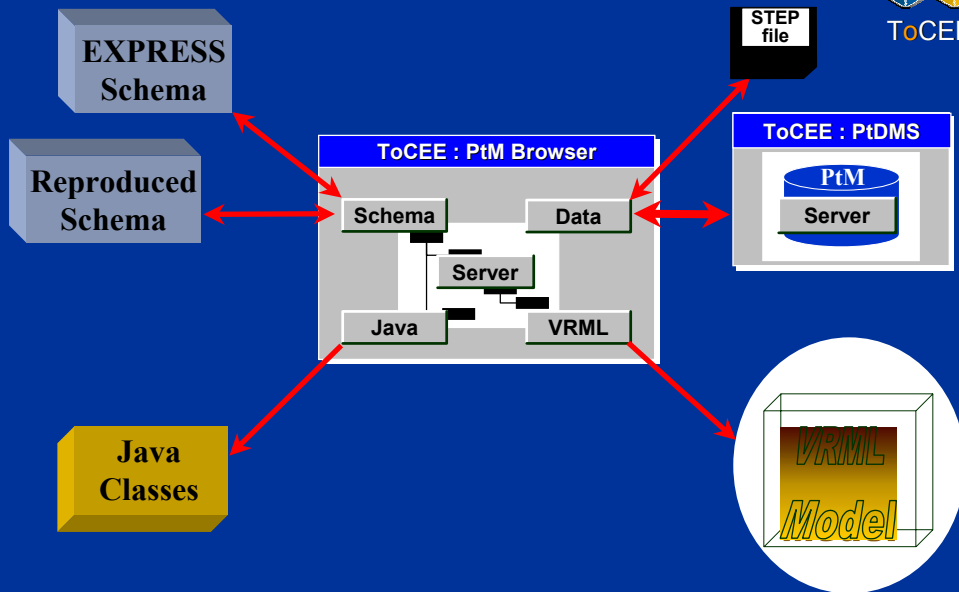
ESPRIT 20687 ToCEE

12

Act 4: PtM browser



07/12/2002



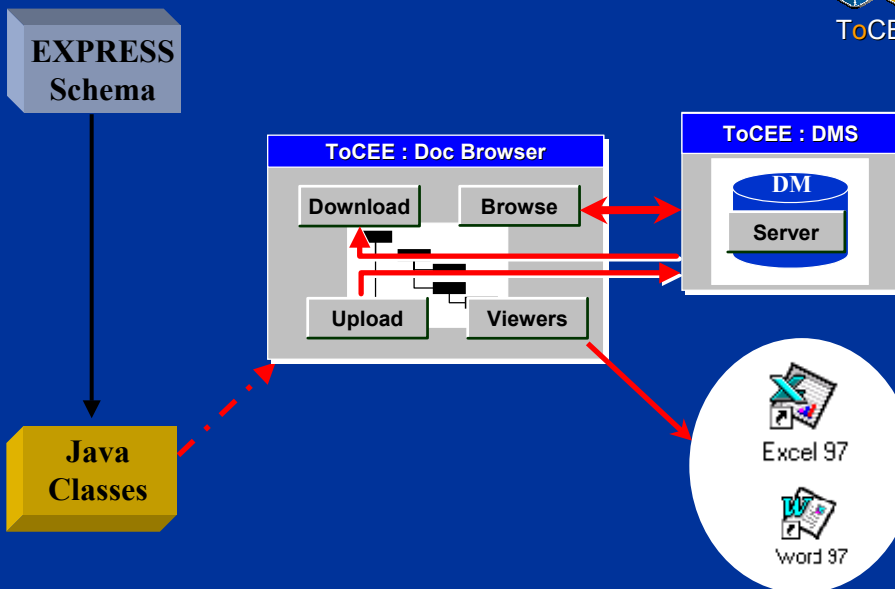
ESPRIT 20687 ToCEE

1.3

Act 4: Document browser



07/12/2002



ESPRIT 20687 ToCEE

1.4

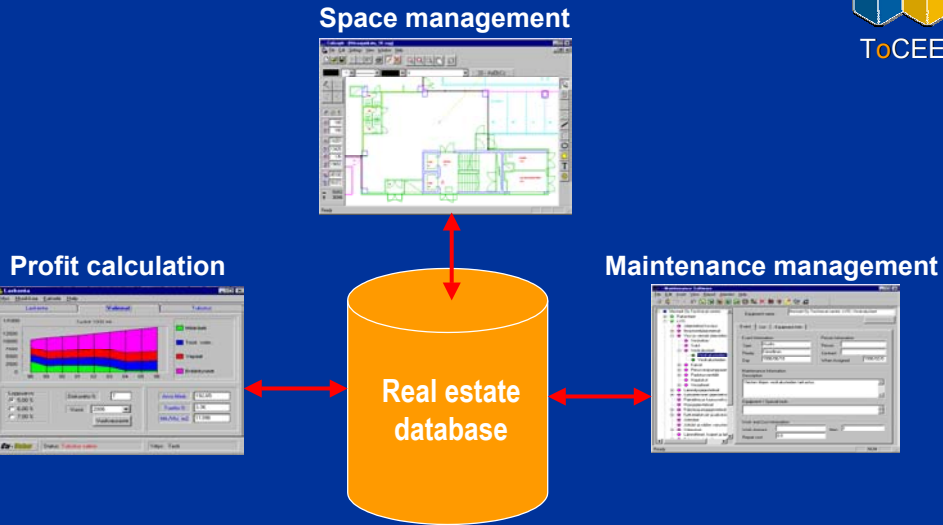
Act 4: Description of FIMS



07/12/2002

ESPRIT 20687 ToCEE

1.5



Act 4: Summary



07/12/2002

ESPRIT 20687 ToCEE

1.6

- Concurrent engineering was shown when design data was imported to FM software for life cycle cost estimation
- Commercial software was connected to ToCEE environment
- PtM and DM browsers were used to provide access to data on ToCEE servers
- IFC objects were imported to FM software
- Integration of distributed applications via Internet



What did we show...



07/12/2002

ESPRIT 20687 ToCEE

17

- synergetic effects of product, process, legal ... services working together
- faster flow of information
- quicker evolution of design alternatives
- ease of integration of existing CAD programs using toolkits, software components and information brokers

Dissemination activities



07/12/2002

ESPRIT 20687 ToCEE

18

<http://wwwcib.bau.tu-dresden.de/tocee/>

2nd European Conference on Product and Process Modelling, BRE, Watford, UK, October 19.-21.

- 63 “Research” papers accepted for first two days
- 10 EC and International projects to be showcased on third day, including:
 - CIMsteel, CONCUR, eLSEwise, funSTEP, GENIAL, IAI-IFC, ISO-STEP, VEGA, WONDA
 - ToCEE is also taking a 90 minute slot
- http://helios.bre.co.uk/conferences/EC_PPM_98/