

What can you expect from IFCs ?

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Current AEC/FM information problems

- Information is:
 - not in usable format
 - not consistent
 - not updated with systematic change and versioning management
- Consequences:
 - non-value adding work
 - reproduction of information in different format
 - manual document comparison and version checking
 - delays
 - errors and rework on site



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2 / 12/7/2002



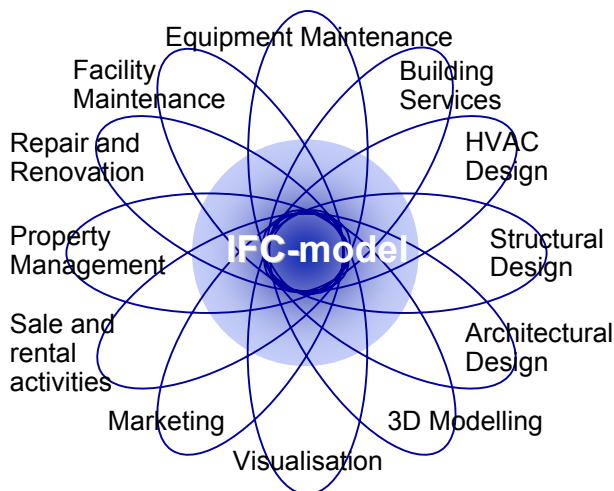
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Does IFC address the issues ?

- Lack of information in usable format:
 - ✓ IFC data can easily be used by downstream applications
- Lack of up-to-date information:
 - ✓ IFC data makes it easier to frequently exchange data
 - ✗ Requires partial model exchange to be efficient
- Lack of consistent information:
 - ✓ Model based IFC data is more consistent than separate, partly overlapping paper drawings or 2D data
 - ✗ Part of the responsibility is functionalities of applications
- Lack of systematic change management and versioning procedures:
 - ✓ IFC can provide slots for version and change management information
 - ✗ Requires additionally version management procedures
 - ✗ Requires also application support and systematic working procedures



Coverage of the IFC model

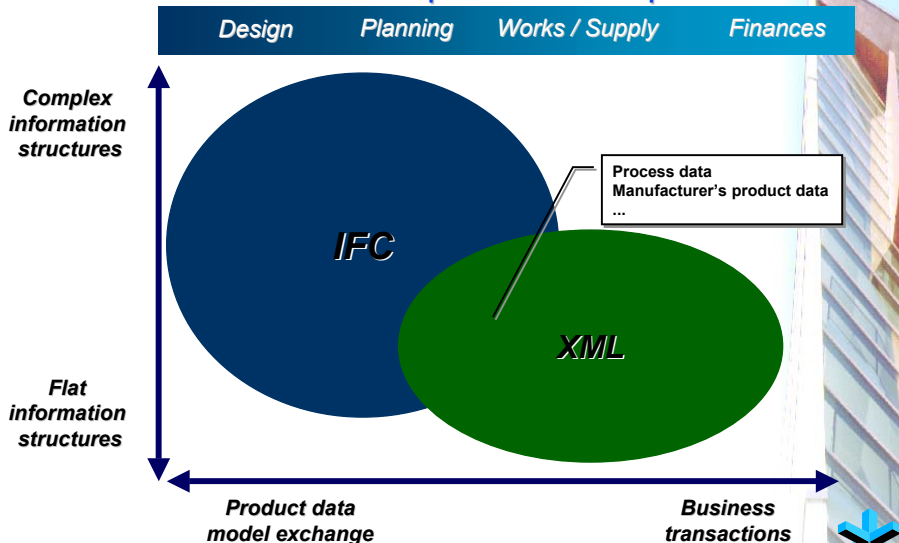


Many AEC/FM activities need at least part of the common basic data

IFC does not try to standardise data structures in software applications, only the shared information



IFC and XML - One possible interpretation



Concepts Supported in the current IFCs

- Cross industry
 - projects, buildings, building storeys, design grids, constraints (design, building codes, budgets), networks (topology), library links over Internet
- Architectural design
 - spaces, walls, doors, windows, columns, beams, floors, roof slabs, curtain walls, roofs, stairs, ramps, restrooms, elevators, escalators, cabinets, counters, accessories
- HVAC design
 - HVAC equipment (all kinds), ducting and piping systems, thermal load calculations
- Construction Management
 - costs & cost schedules (for quantities and cost estimating), work tasks & work groups (for work planning & scheduling)
- Facilities management
 - furniture, office equipment, occupants, panel systems, asset information, work orders & move plans (for occupancy planning / move management)
- Building codes
 - energy code checking, occupant escape from fire, handicapped access to buildings

Some possible IFC use cases

- Exchange of basic building model with 3D shape between CAD systems
- Visualization of building model (converting to VRML)
- Building design ⇨ Time scheduling
- Building design ⇨ Quantity take-off ⇨ Cost estimation
- Building design ⇨ HVAC design ⇨ Thermal load calculations
- HVAC design ⇨ Energy code checking
- Building design ⇨ Basic structural design
- Building design ⇨ FM / Maintenance
- Building design ⇨ FM / Occupancy planning



SPADEX project by YIT Corporation IFC data transfer pilot

Architect

ADT2

- Basic design
- Modifications
- Additions

HVAC design

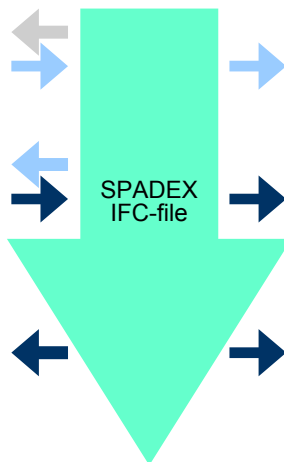
SMOG/RIUSKA

- Spatial data management
- Cooling load calculation
- Heat loss calculation
- Energy simulation
- External database

YIT Corporation

COVE

- Production methods
- Alternatives
- Cost estimation
- Production planning
- External data base



Structural design

ConcreteCAD

- Element catalog
- Material catalog
- Production drawings

Ventilation design

MagiCAD

- Ducting and ventilation system design
- Balancing
- Noise level calculation
- Material schedule

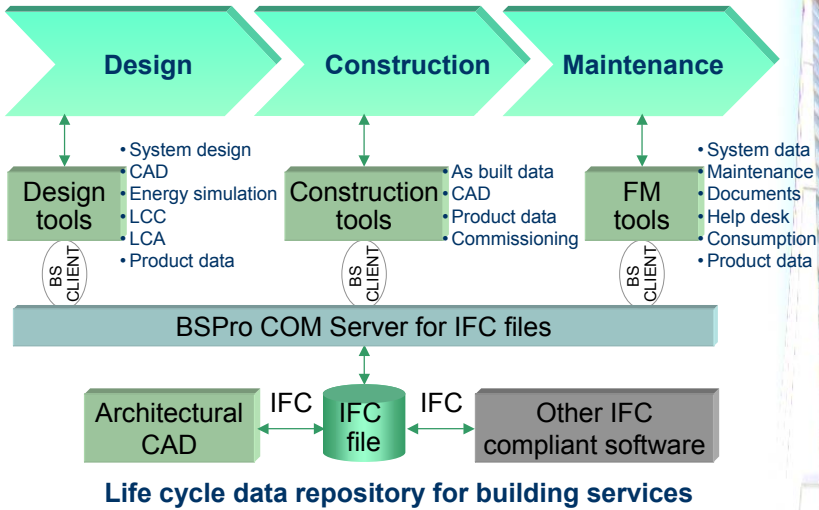
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ProMoTe

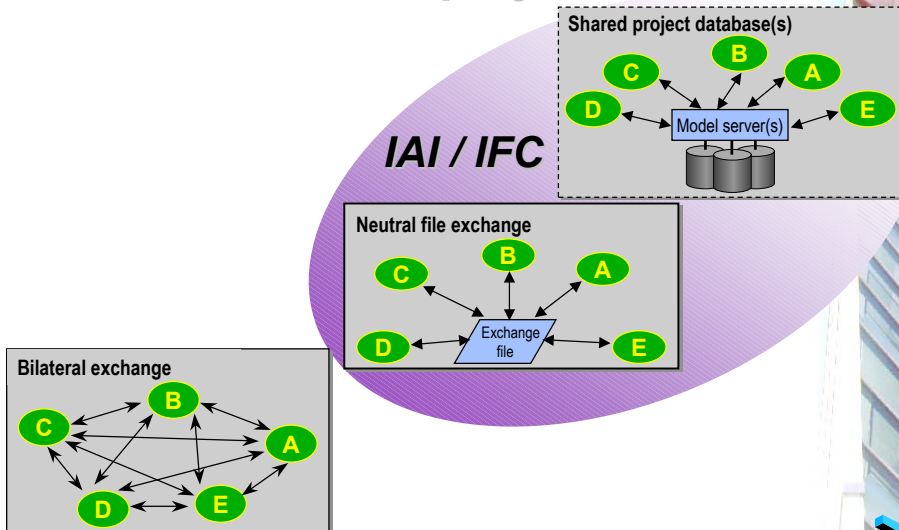
- VR model creation
- Graphical interface to model
- Visualization/Internet



BSPro COM Server by Olof Granlund

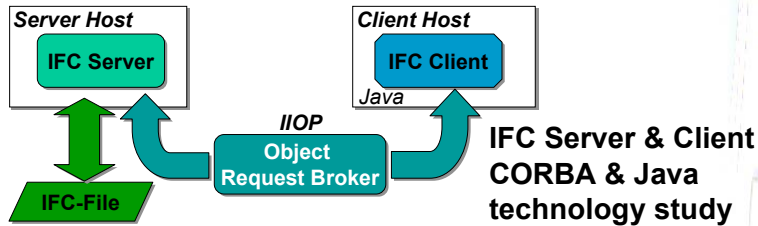


Towards shared project databases

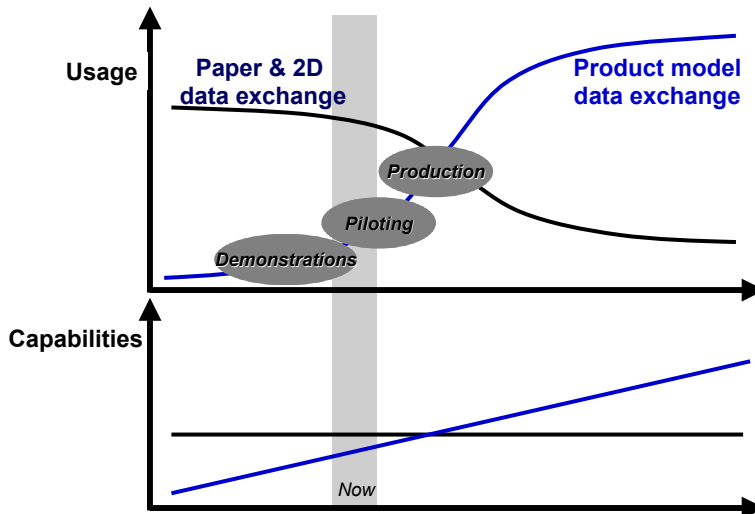


IFC ToolboX-project by Eurostep

- Starting point:
 - No single application will implement the whole IFC model
 - IFC servers can provide repository for complete IFC model
 - Possible services in IFC project servers:
 - General model administration, partial model exchange and model merging
 - Model browsing & extraction facilities
 - Data access interface for applications
 - Mapping between IFC releases...



IFC capabilities and usage



Does IFC solve all the problems ?

- **NO !** IFC is only an enabling specification; a component for solution development and implementation
- Solution components:
 - Enabling technologies } Common ICT
 - ICT infrastructure } development
 - Enabling specifications } IAI/IFC (+ others)
 - Software applications } Software industry
 - Processes } AEC/FM industry
 - People }

Implementation of technological leaps

