PLM Forum – May 30th 2006

Paperless Product Development

Using ENOVIA, CATIA, SMARTEAM & DELMIA

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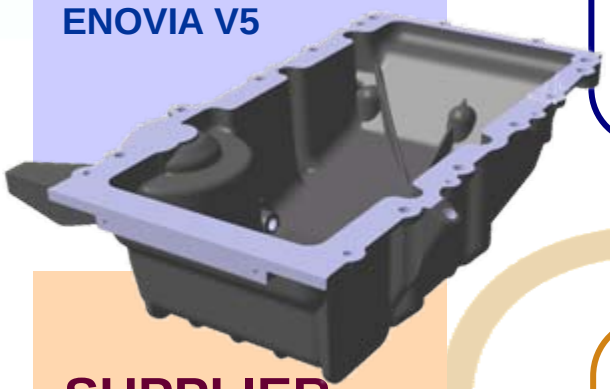
Demo Overall Scenario : Oilpan Design/Manufacturing

OEM

CATIA V5,
ENOVIA V5



SUPPLIER

CATIA V5,
SMARTEAM, DELMIA
3DXML

1. **Design of Oil Pan & Late Specification Change**

2. **3D based dimensioning and tolerancing of the Olipan**

3. **Data is received at Supplier & Design changes have to be Reconciled**

   Edouard Pardieu

4. **Production Preparation based on 3D info**

   Markus Olsson

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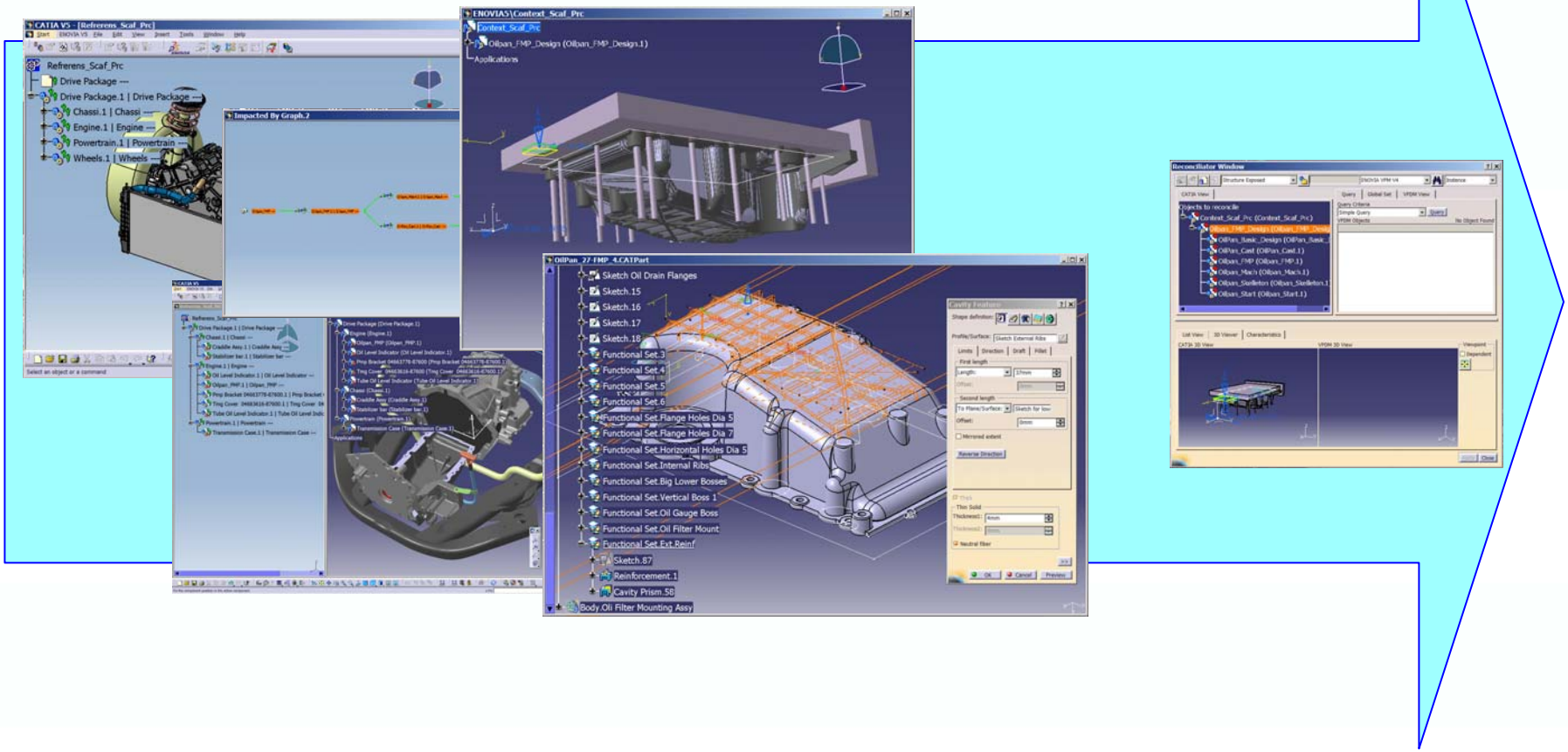
Oilpan

Design….



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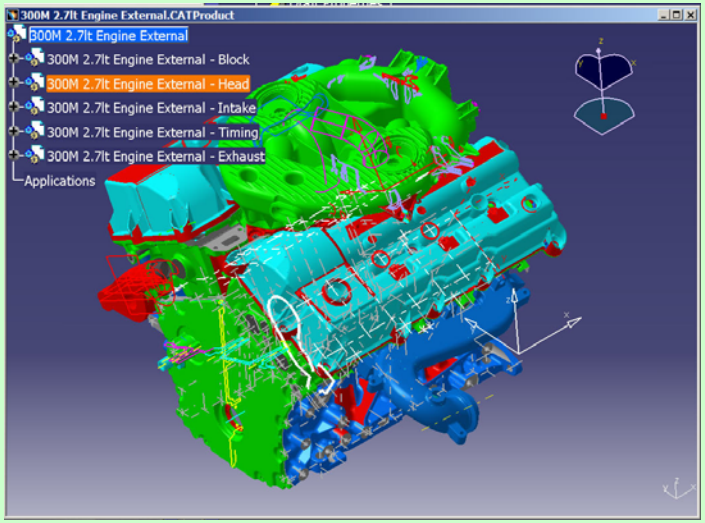
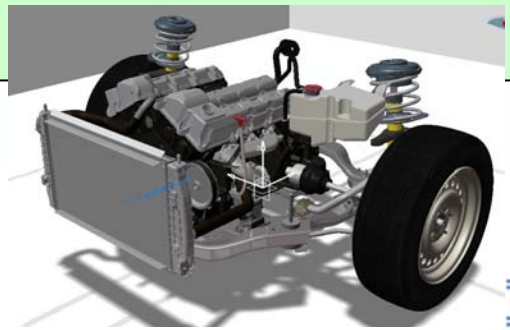
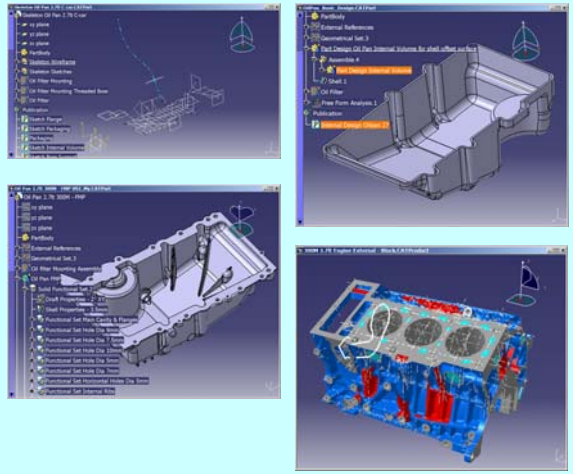
Demo Data (Oil Pan) -1/2

Reference-PRC





Design-PRC



Demo Data : Oil Pan

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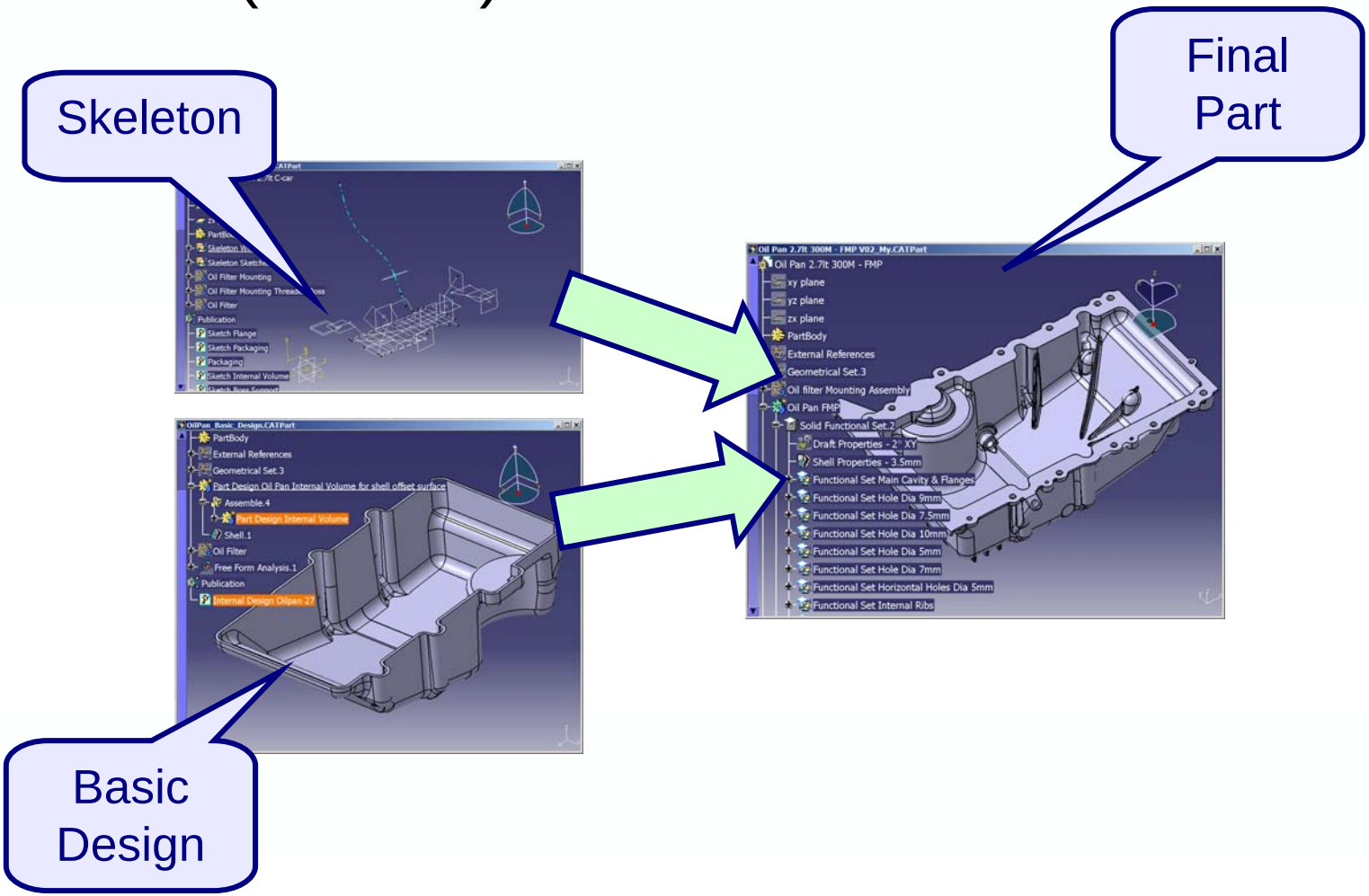
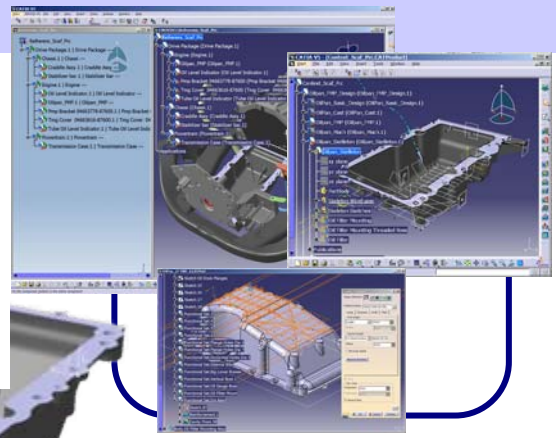
Demo Data (Oil Pan) - 2/2

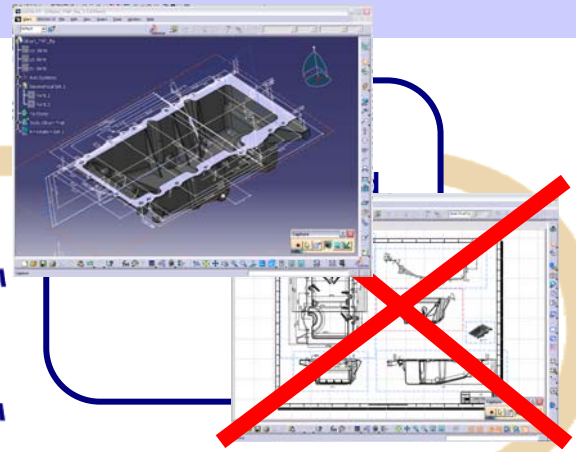


Summary…

OEM

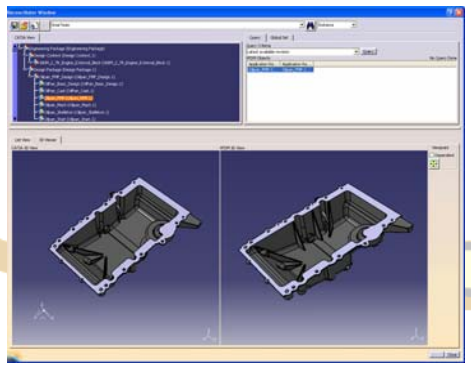
CATIA V5,
ENOVIA V5

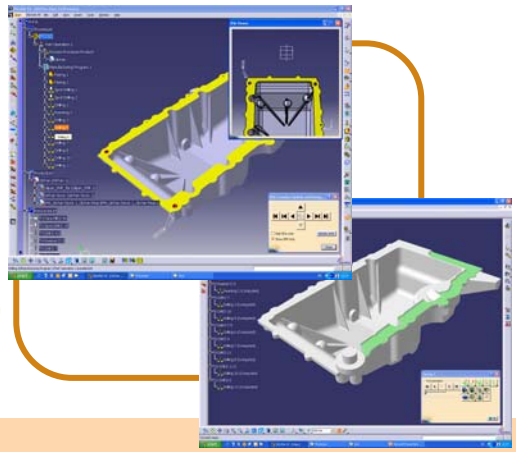




SUPPLIER

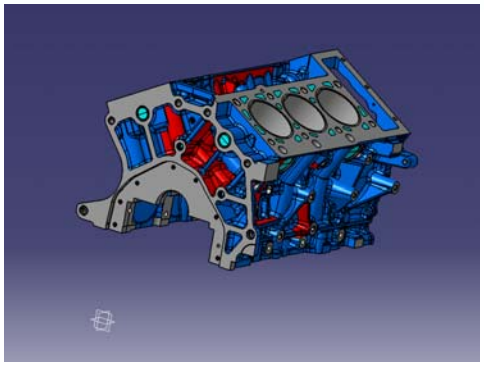
CATIA V5,
SMARTEAM, DI
3DXML





Initial Situation – Process Management with SMARTEAM

- Engineering Package Exchange stored in SMARTEAM that OEM has previously sent :



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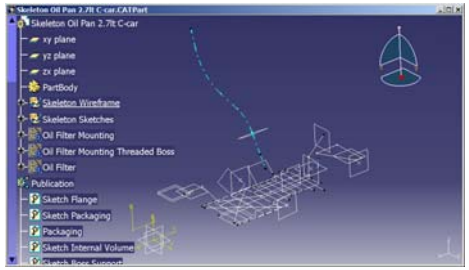

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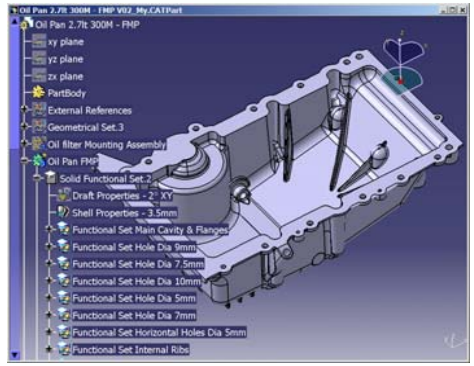
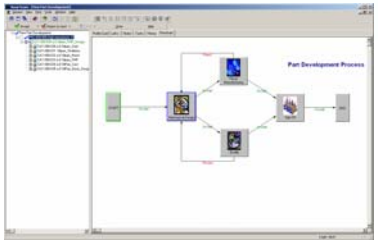


Engine Design Context

Skeleton

Oil Pan with 3 Ribs

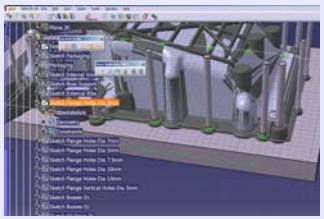


Reconciliator in SMARTEAM : Reconciliation Scenario

1.a

OEM

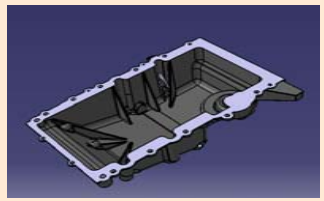
Late Skeleton Change



4.a

SUPPLIER

Addition of 4 Ribs to the Oil Pan

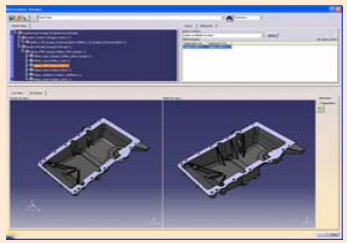


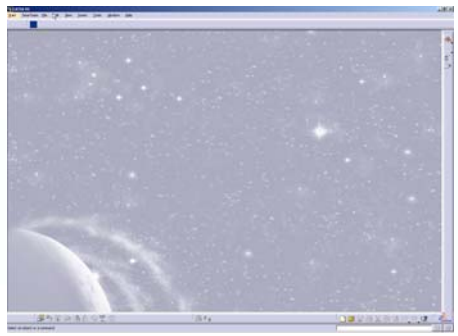
RECONCILE

4.b

SUPPLIER

RECONCILES THE TWO CONCURRENT CHANGES





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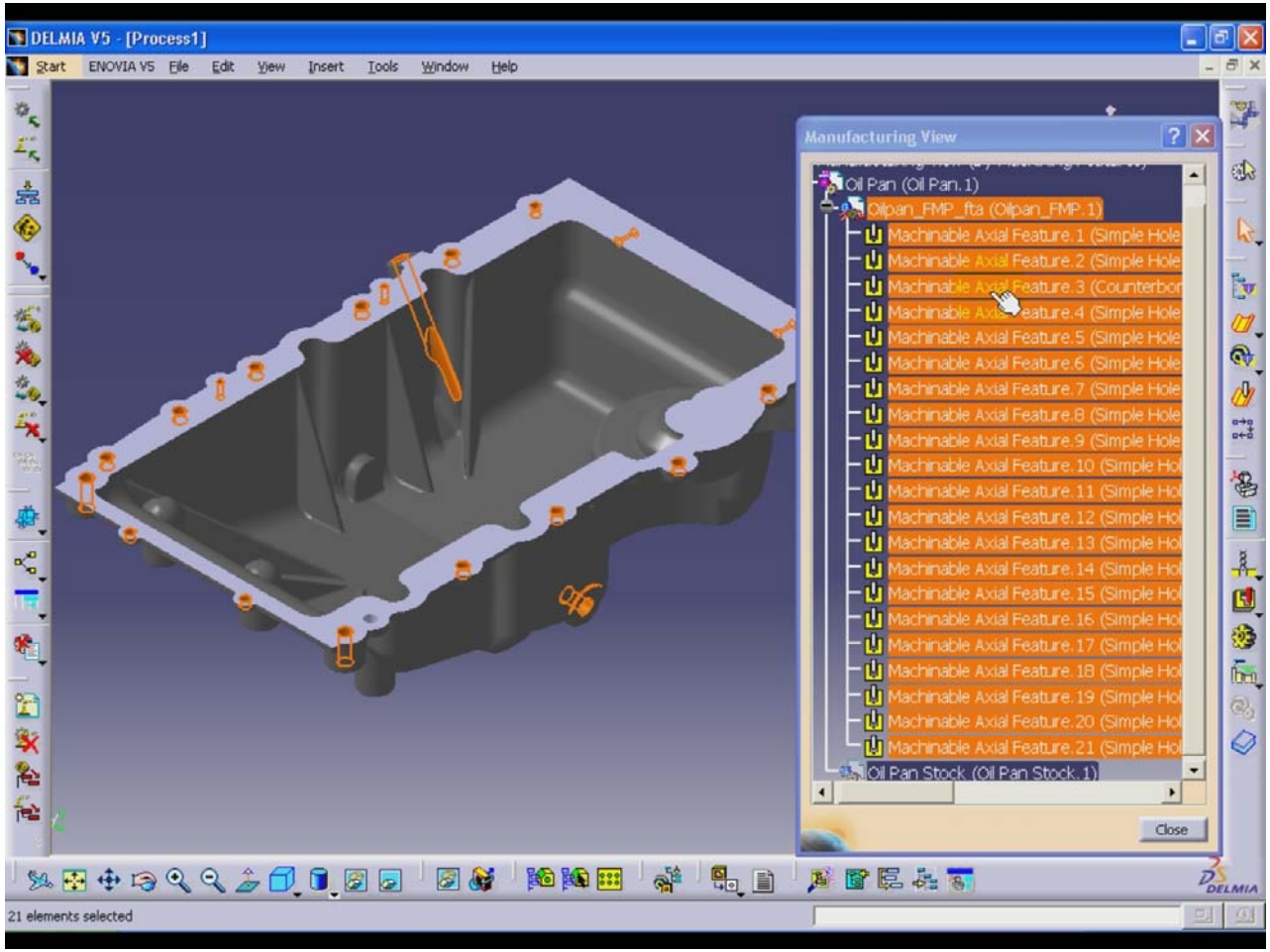
Feature recognition



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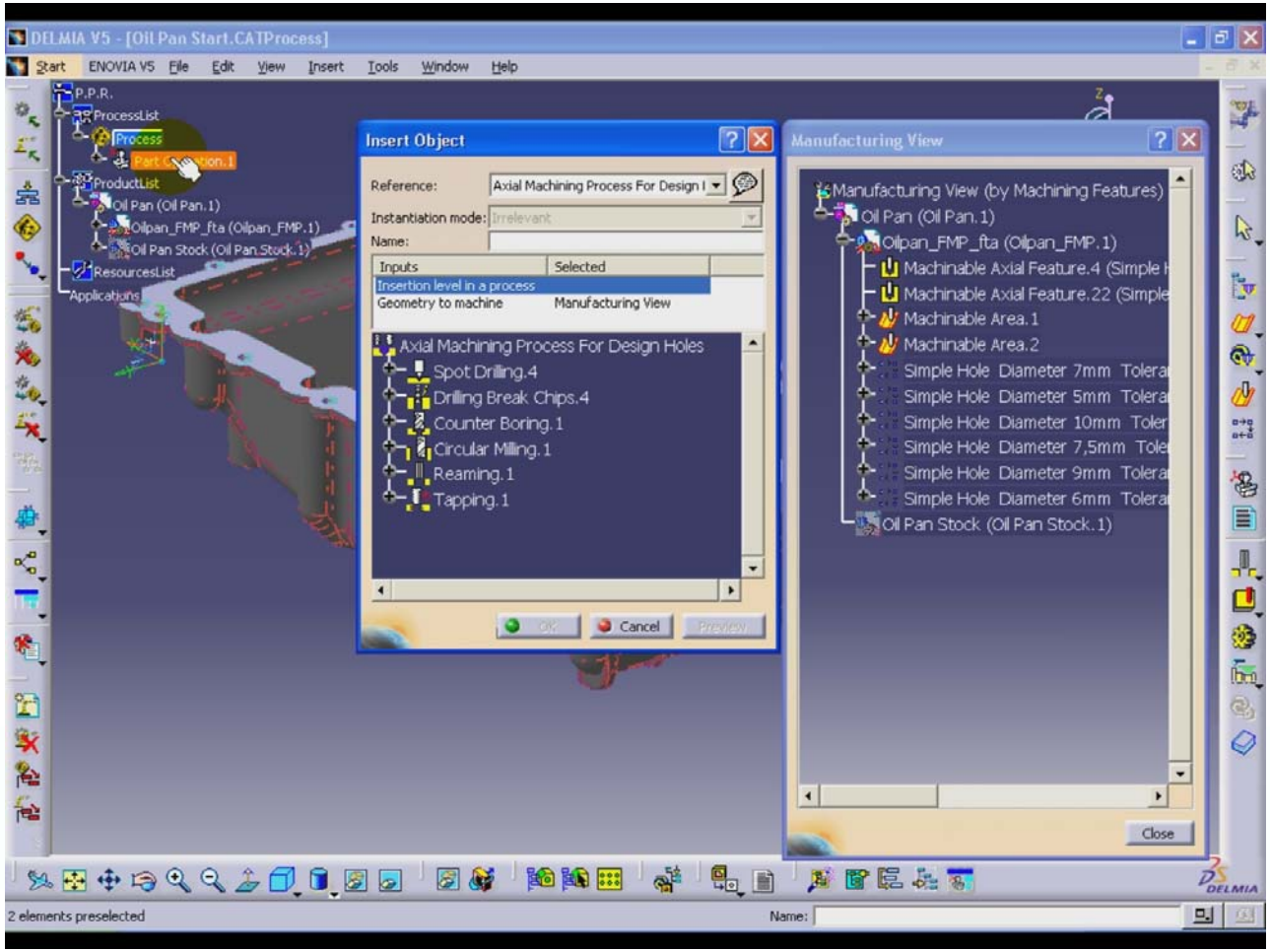
Process mapping



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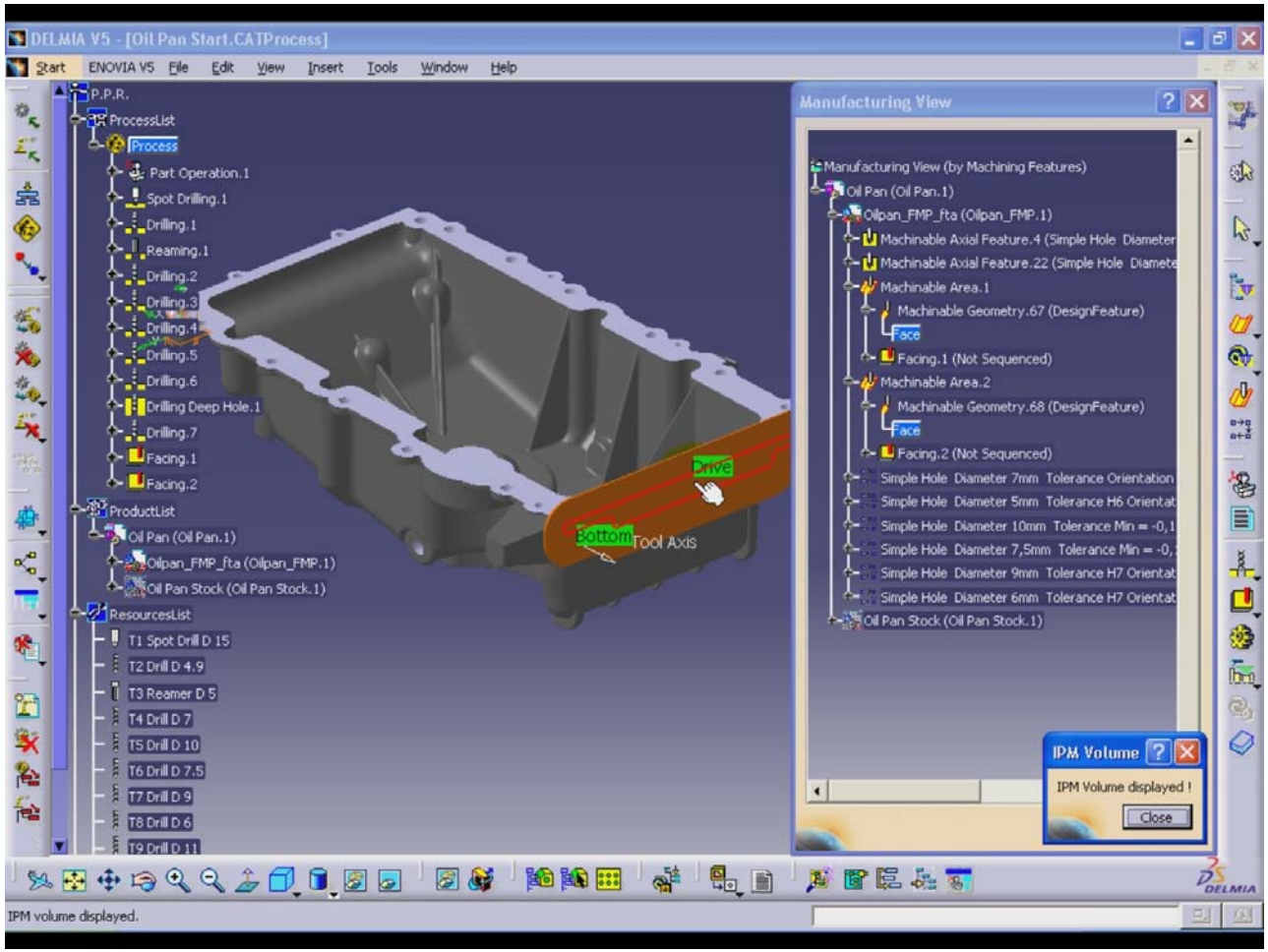
Process definition



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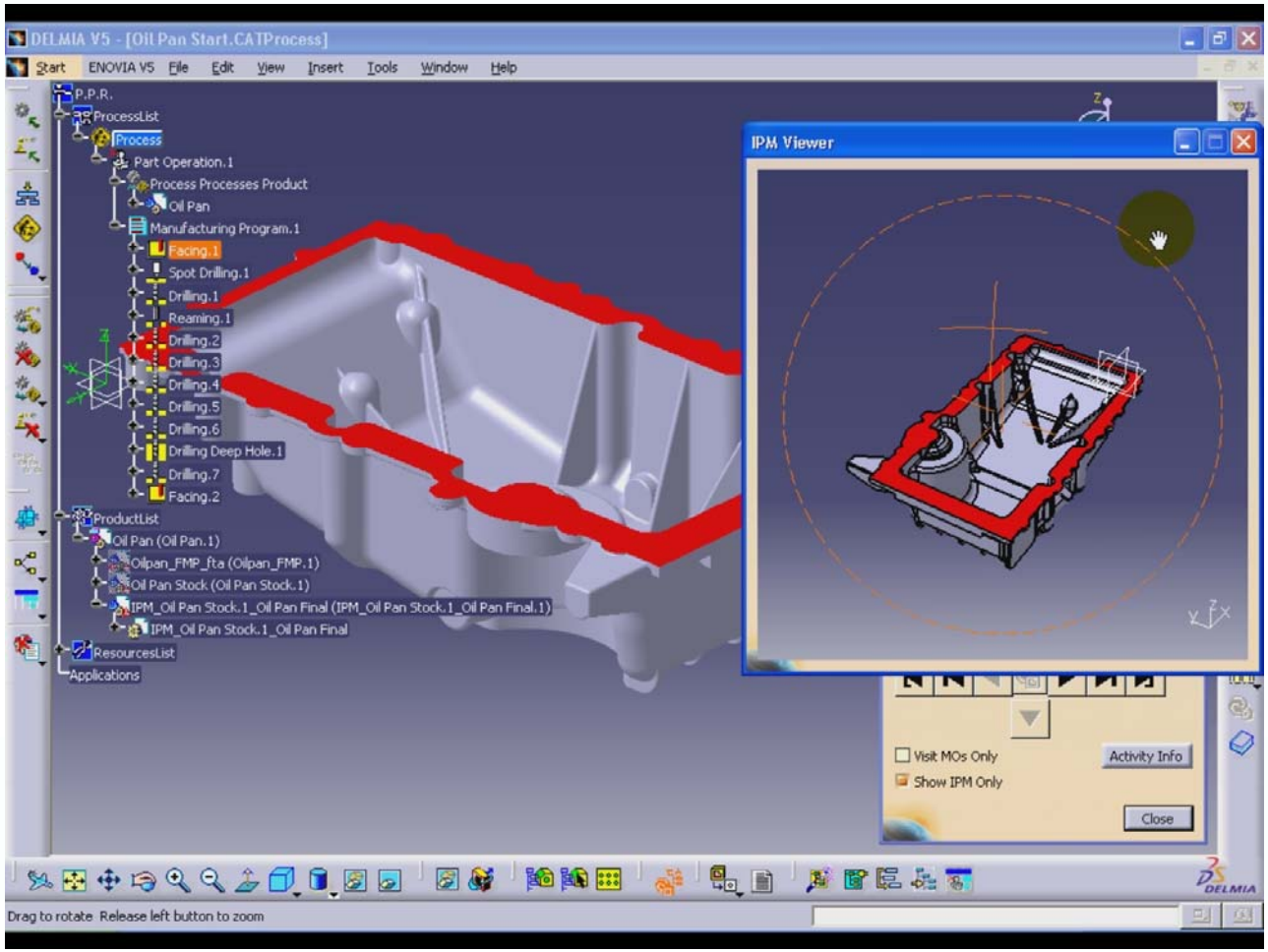
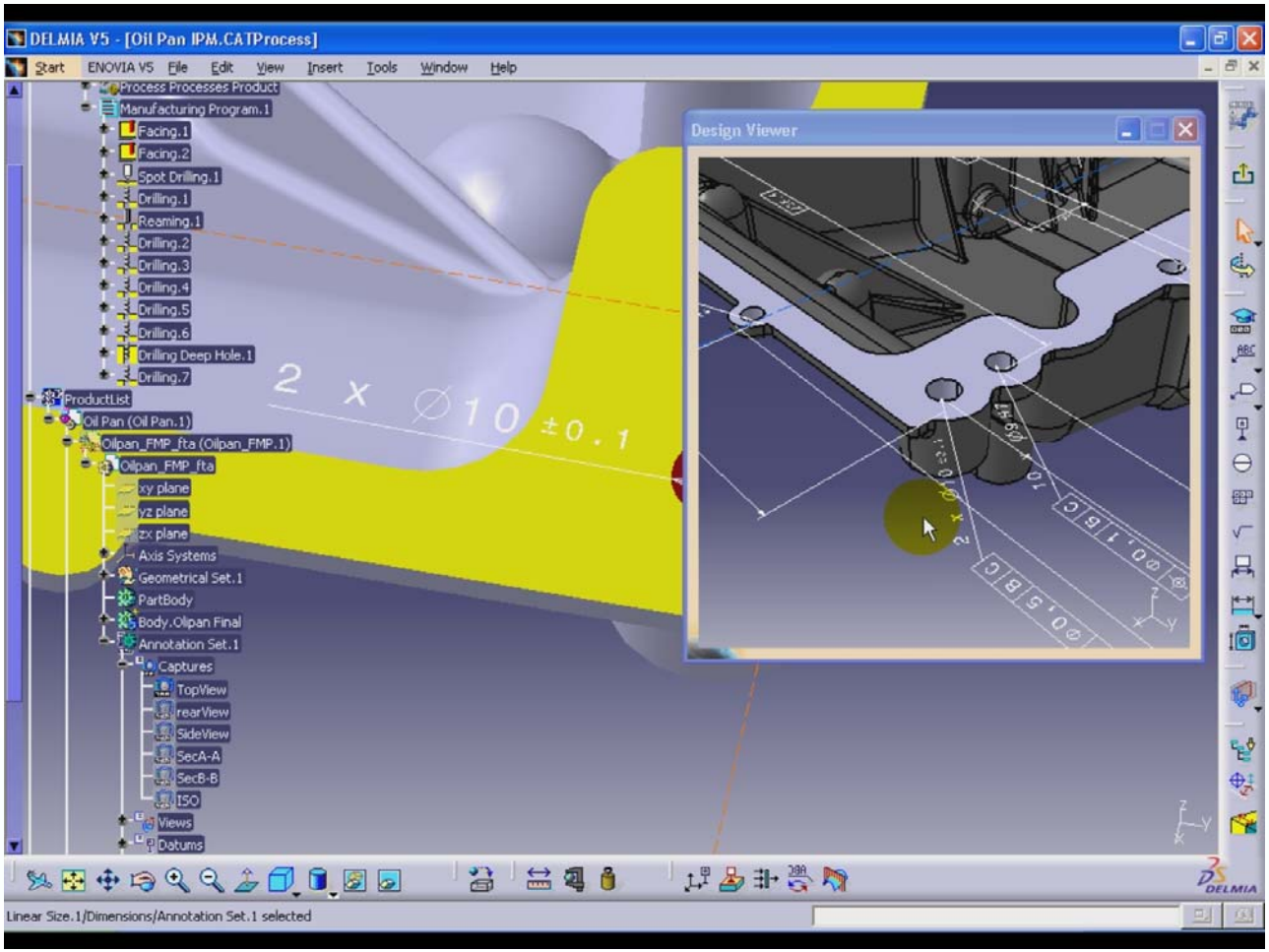
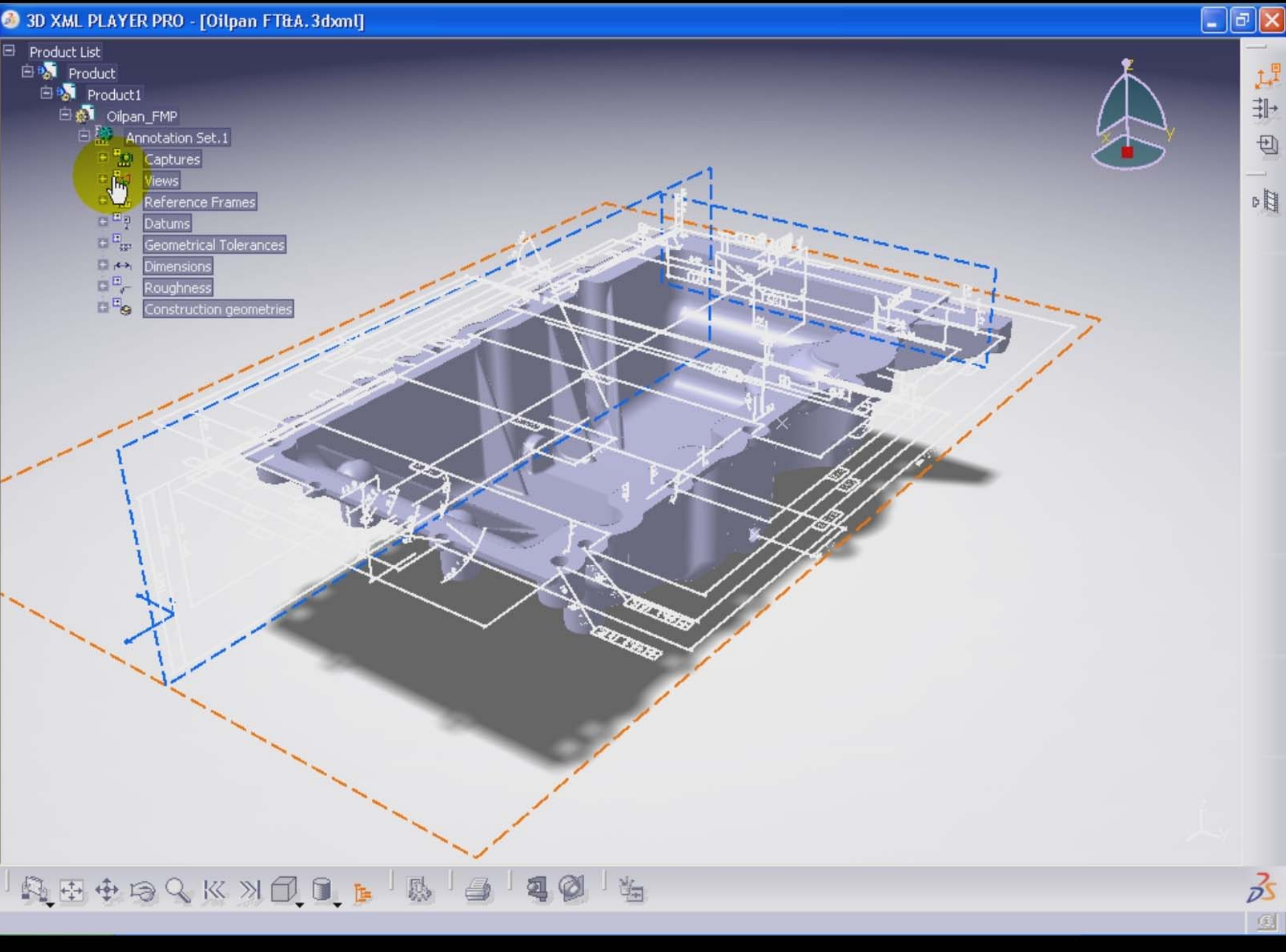
Process sequence



Process tolerances




3D XML PLAYER PRO - [Oilpan FT&A.3dxml]
Product List
Product
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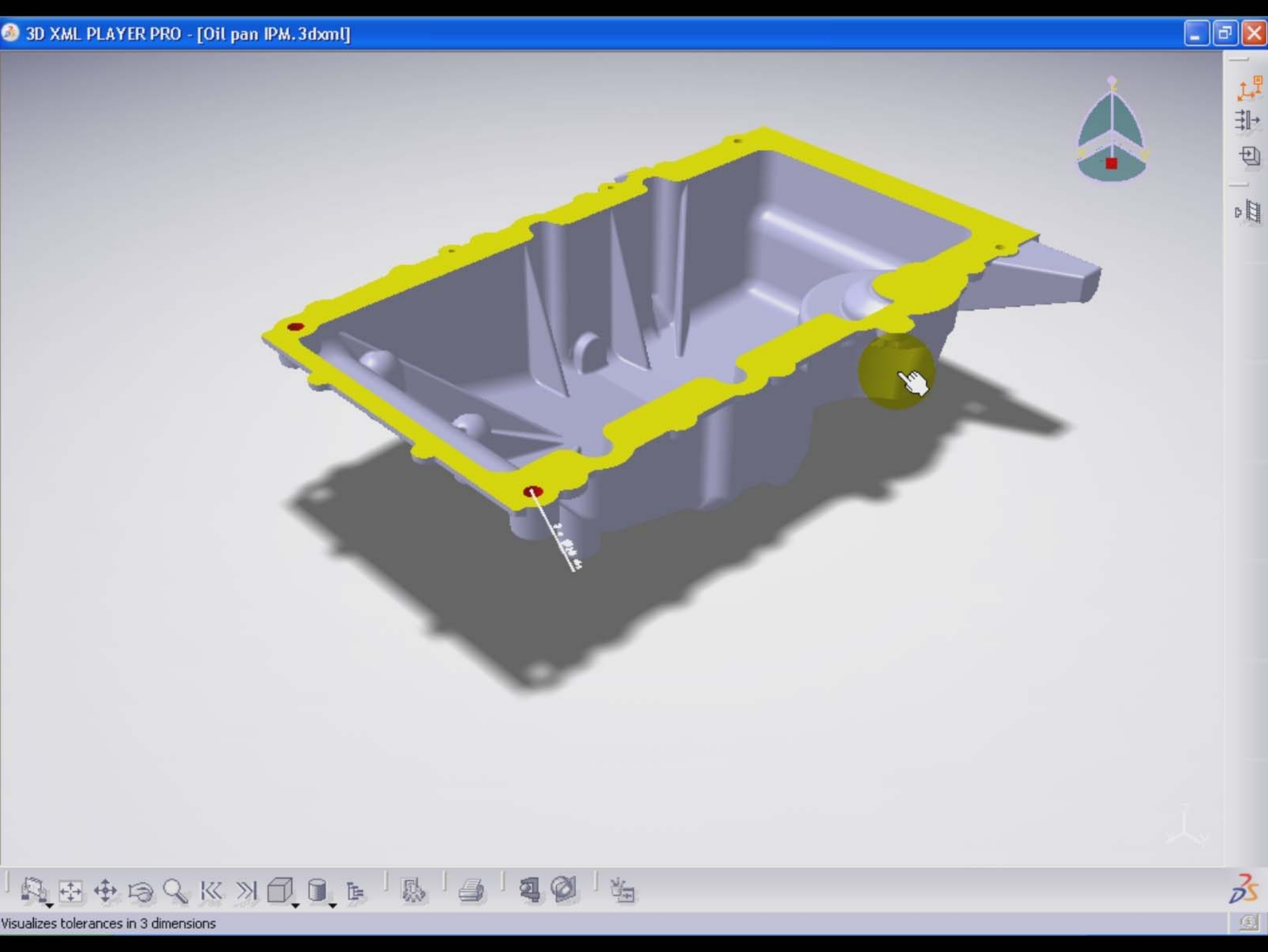
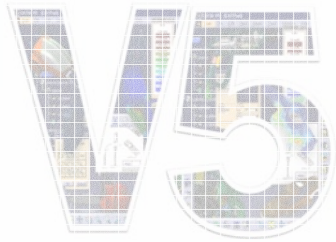
Oilpan_FMP
Annotation Set.1
Captures
Views
Reference Frames
Datums
Geometrical Tolerances
Dimensions
Roughness
Construction geometries


3D XML PLAYER PRO - [Oil pan IPM.3dxml]
Visualizes tolerances in 3 dimensions

3D MASTER



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Thank You !

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Summary

- Automotive Supply Chain Scenario
  - OEM is responsible for the car design
  - Supplier is designing and manufacturing some engine parts: OilPan
  - OEM is imposing Skeleton methodology in order to
    - Separate specifications from design
    - Flexibility and associativity of the relational design
  - OEM is using CATIA & ENOVIA
  - Supplier is using CATIA, DELMIA & SMARTEAM
- The OilPan design consists in
  - Skeleton: Specifications
  - Start Part, Basic Design Part => Persistent along the part life cycle for easy change mgt
  - Cast Part (or stock part): the part where the manufacturing start from
    - Foundry
    - Machining operation (drilling, facing)
  - Machining Part
  - Final Part:
- The Exchange between Supplier and OEM is achieved through
  - SEE Product (Supply Chain Engineering Exchange)
  - EPE Methodology (Engineering Package Exchange)
    - Design Context
    - Design Specification
    - Design Content
- 3D data is the master data along all the scenario
- Process Plan & Machining Specification (In Process Model with tolerances)

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