



## ***Deliverable D7.1 of Task 7.2***

### ***Project Web Site and Project Presentation***

Circulation:	PU <sup>1</sup>
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Version:	Version 2.0
Date:	October 29, 2011

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## Document History

Vers.	Issue Date	Stage	Content and changes
1.0	October 6, 2011		
2.0	November 4, 2011		Website operative

## Executive Summary

This document describes the deliverable D7.1 of the TERRIFIC FoF STREP Project.

This deliverable concerns the project presentation and the project web-site.

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## Introduction

In TERRIFIC the first deliverable comprises two parts due at the end of project month 1 (End of September 2011):

- A PowerPoint presentation
- The project web-site

## The PowerPoint presentation

By September 30, 2011, the project presentation was ready. In fact, it was already used at the IMS (Intelligent Manufacturing Systems, <http://www.ims.org/>) meeting in Barcelona on September 19, 2011, where TERRIFIC was presented to the IMS community together with a number of other FoF-projects. A pdf version of the project presentation is included as Annex 1 of this document.

### TERRIFIC Towards Enhanced Integration of Design and Production in the Factory of the Future through Isogeometric Technologies

September 1, 2011-August 30, 2014  
[www.terrific-project.eu](http://www.terrific-project.eu)

European Community's Seventh Framework Programme  
Grant Agreement 284981  
Call FP7-2011-NMP-ICT-FoF

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## The project web-site

The project web-site was up and running mid-October, and by the end of October it has been filled with enough material to regard it as an operative web-site. In the future, the site will be continually updated with relevant project material as soon as this becomes available. In particular, the web-site contains a news banner, where events related to the TERRIFIC project will be published.

The web-address of the TERRIFIC project web-site is <http://www.terrific-project.eu>.

## **Annex 1. TERRIFIC Project presentation**

See the slides on the following pages.

# TERRIFIC

## Towards Enhanced Integration of Design and Production in the Factory of the Future through Isogeometric Technologies

September 1, 2011-August 30, 2014

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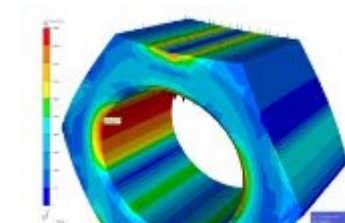
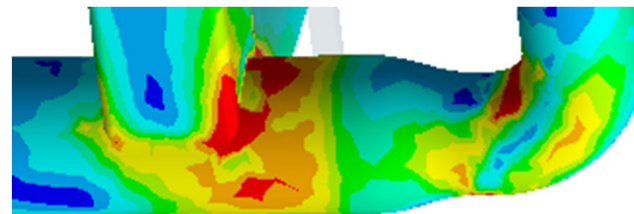
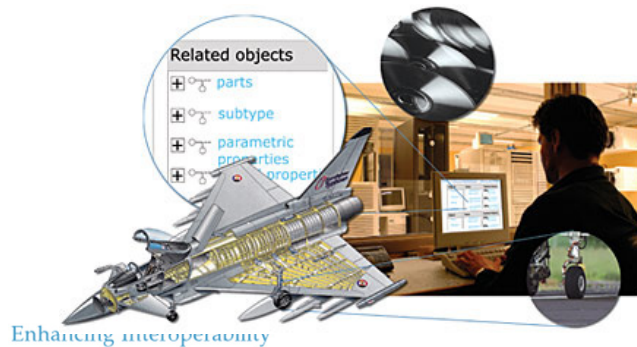
# European collaboration

The partners grouping is a well balanced mix of members coming from the contributing countries



# Our vision is to .....

- provide and disseminate tangible evidence of the performance of the isogeometric approach in comparison to traditional ones in four important application areas as well as addressing interoperability and other issues that necessarily arise in a large-scale industrial introduction of isogeometry.





# From abstract

- The project aims at significant improvement of the interoperability of computational tools for the design, analysis and optimization of functional products.
- An isogeometric approach is applied for selected manufacturing application areas (cars, trains, aircraft) and for computer-aided machining.
- A general uptake of isogeometric approaches in industry can only be expected if there exist convincing technically verified and validated case studies showing real advantages over the current approaches, using both qualitative and quantitative indicators.
- Our vision is to provide and disseminate tangible evidence of the performance of the isogeometric approach in comparison to traditional ones in four important application areas



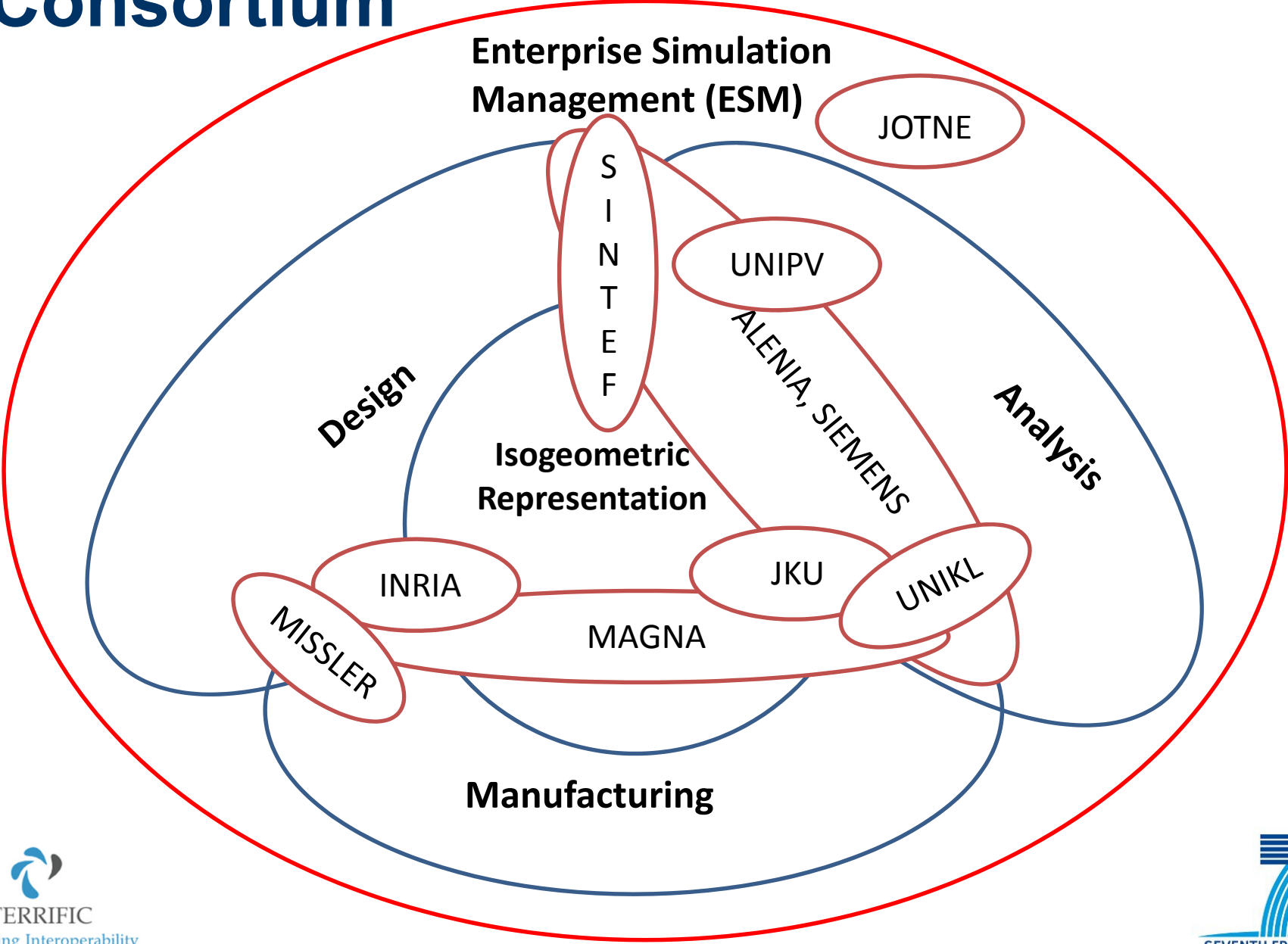
TERRIFIC

Enhancing Interoperability

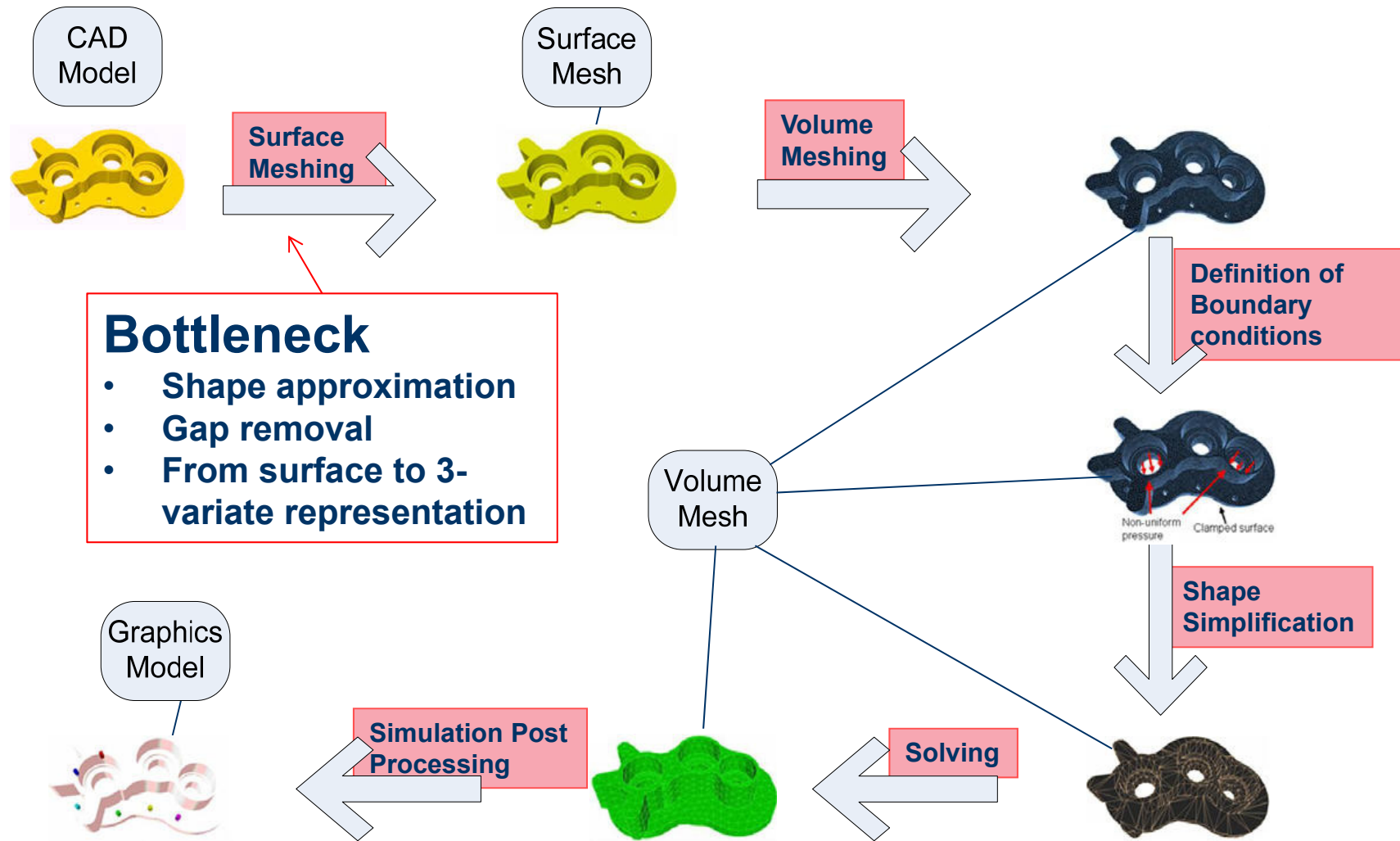


SEVENTH FRAMEWORK  
PROGRAMME

# Consortium

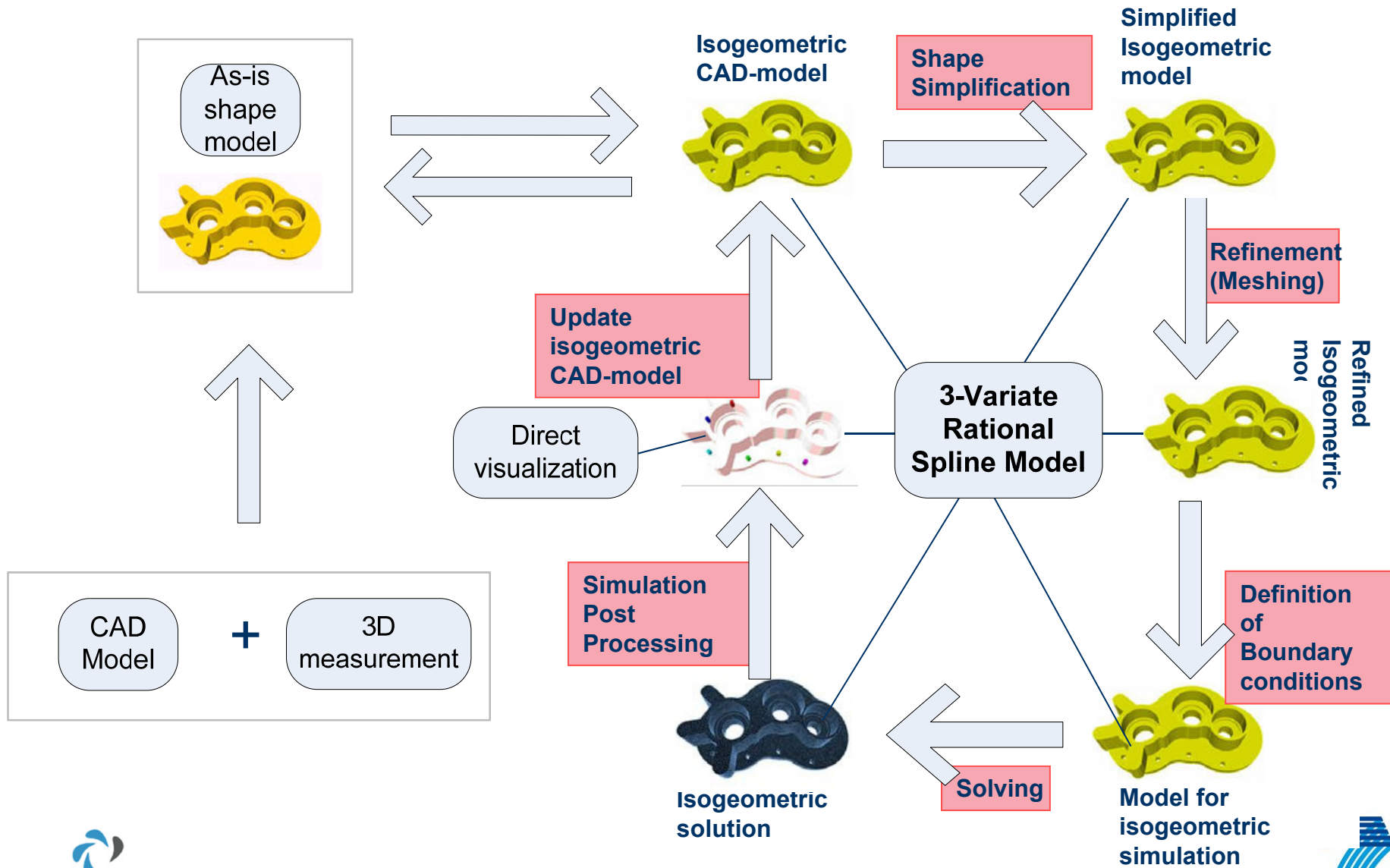


# Traditional simulation pipeline

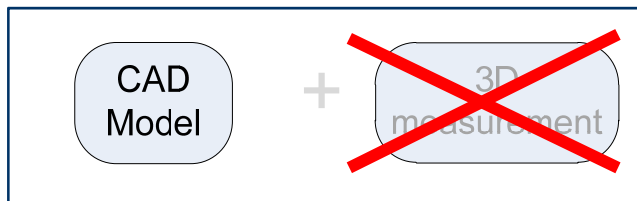
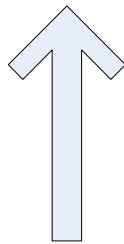
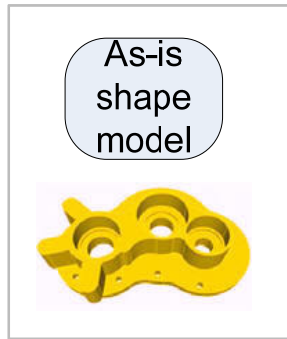


Limited mathematical and semantically consistency of models

# Isogeometric simulation pipeline

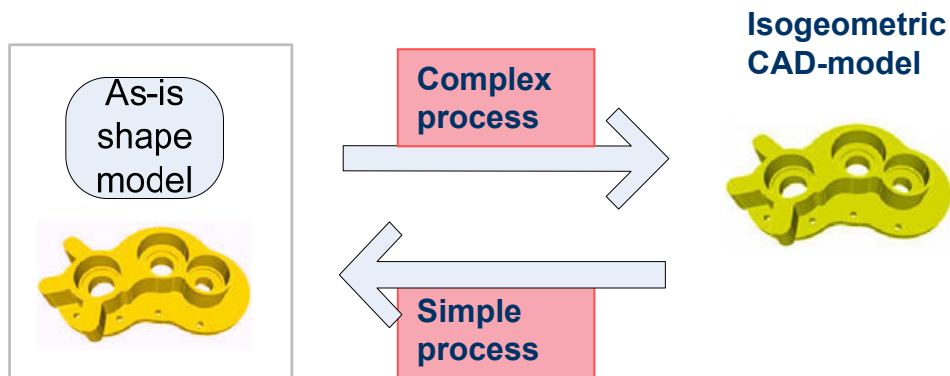


# Four major challenges:



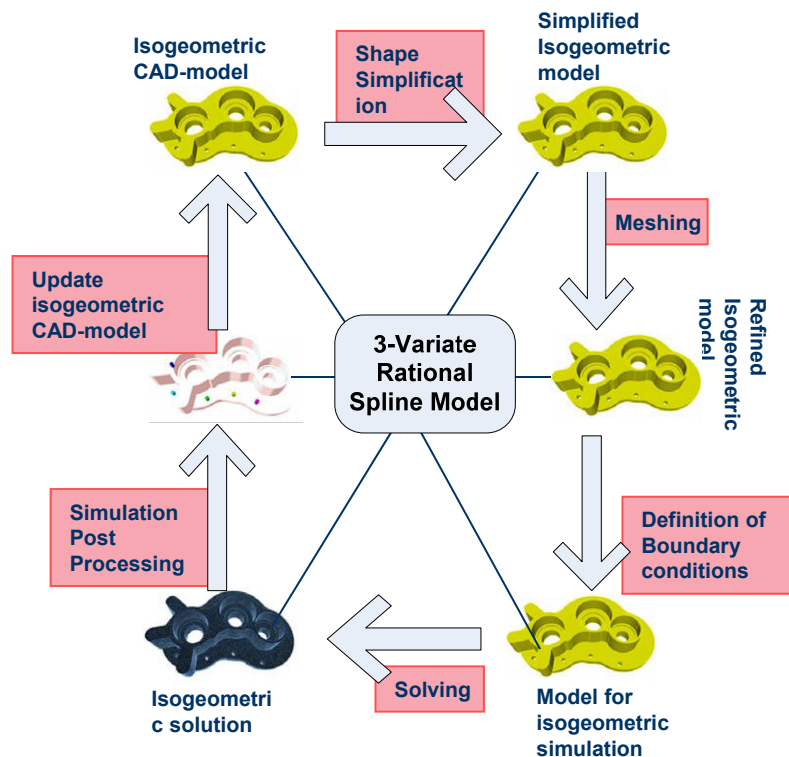
1. Create isogeometric suitable “as-is” model
  - In TERRIFIC from CAD

# Four major challenges:



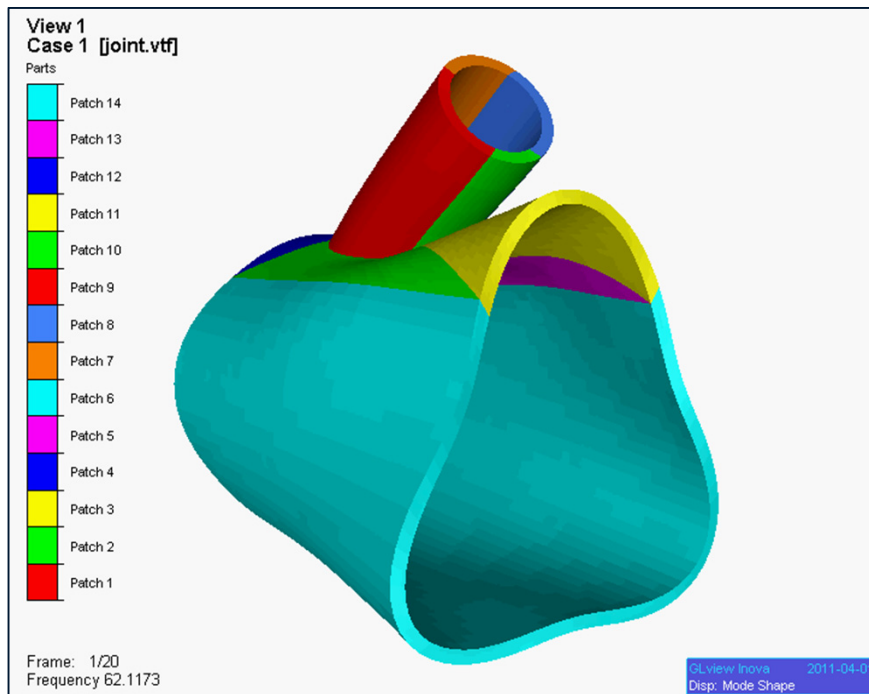
1. Create isogeometric suitable “as-is” model
  - In TERRIFIC from CAD
2. Create 3-variate isogeometric model
  - Main focus of TERRIFIC

# Four major challenges:



1. Create isogeometric suitable “as-is” model
  - In TERRIFIC from CAD
2. Create 3-variate isogeometric model
  - Main focus of TERRIFIC
3. Isogeometric analysis
  - In TERRIFIC for some application areas
4. Isogeometric visualization
  - Not addressed in TERRIFIC

# Example 3-variate NURBS-model of tubular joint

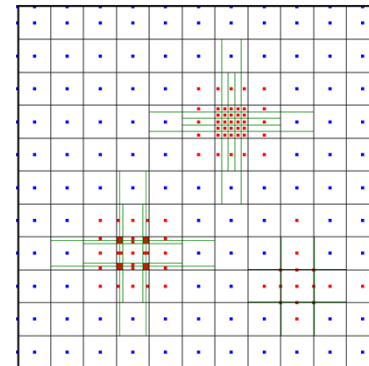
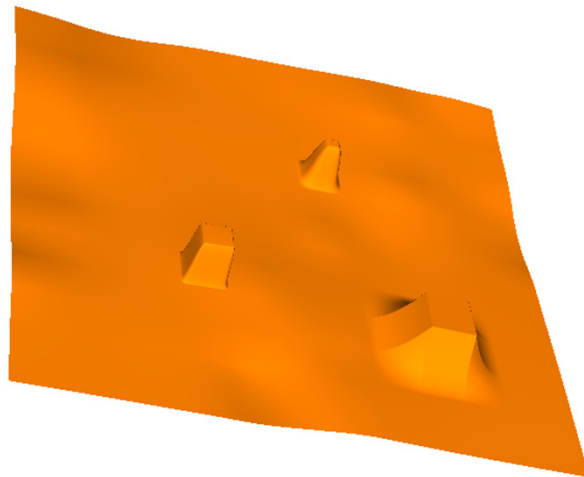


- NURBS volumes replace standard Finite Elements
- At any time during the simulation the object surface is represented by NURBS and compatible with CAD

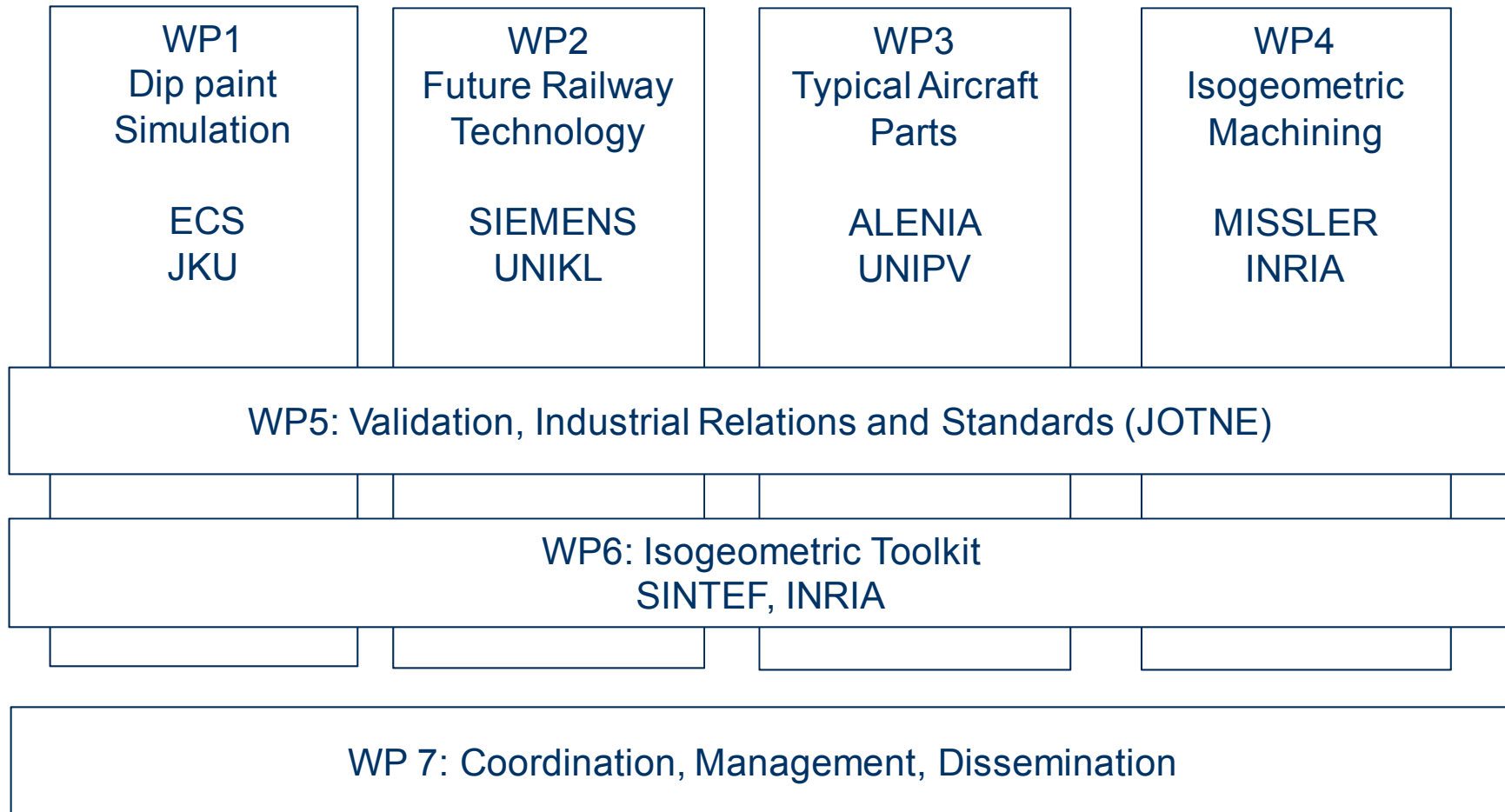


# Augmentation of ISO 10303-STEP necessary for the deployment of Isogeometric Analysis

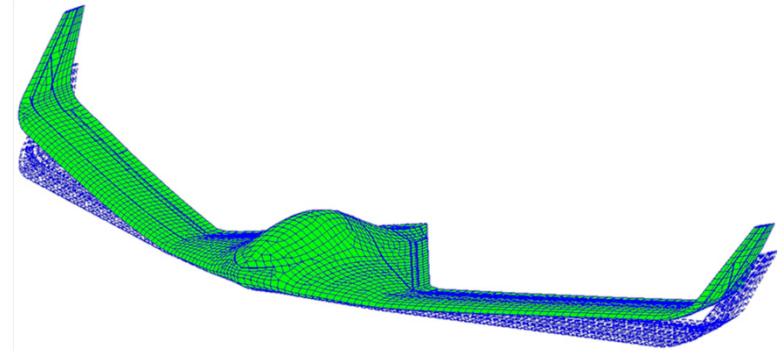
- Relation to ISO 10303-STEP through TERRIFIC Partner JOTNE
- Topology structures for 3-variate volumes
  - A face connects two volumes
  - An edge connects many faces
- Need support of local refinement needed in analysis
  - Locally refined splines such as T-splines or Locally Refine B-splines



# Workpackages – main responsibilities



# Development of the TERRIFIC Basis Isogeometric Toolkit



- Build toolkit based on
  - GoTools and SISL from TERRIFIC Partner: SINTEF
  - Axel from TERRIFIC Partner: INRIA
  - Isogeometric Solvers from TERRIFIC Partner: UNIKL
  - Open Source version as well as commercial versions of the components will be available
- Use of available commercial ISO 10303-STEP tools from TERRIFIC Partner JOTNE
  - EXPRESS Data Manager (Data model exchange using STEP)
  - Relation to LOTAR (Long Term Archiving) / LTDR (Long Term Data Retention) through TERRIFIC Partner JOTNE

# TERRIFIC and I-PLM



**TERRIFIC at a glance : Towards Enhanced Integration of Design and Production in the Factory of the Future through Isogeometric Technologies** FP7-2011-NMP-ICT-FoF 284981 is a 3 year program part of the EU "Factories of the Future" (FoF) initiative which is a € 1.2 billion programme in which the European Commission and industry will support the development of new enabling technologies for EU manufacturing which have cross-sectoral benefits and contribute to greener production.



## IMS I-PLM Archiving

The Intelligent Manufacturing Systems Program (IMS) is an industry-led, global, collaborative business innovation program focused on manufacturing processes. A project being proposed under the IMS umbrella is the Implementation of Digital PDM and PLM Data Archiving and Retrieval (I-PLM Archiving) project.

I-PLM Contact;  
Rick Bsharah  
[rbsharah@yahoo.com](mailto:rbsharah@yahoo.com)

Current planned stakeholders includes Automotive Industry Action Group (USA), PDES, Inc. Consortium (USA), Shipbuilding, Nuclear and Utility (Korea) and the TERRIFIC project (EU)



# The work in TERRIFIC has just started

- WebEx kick-off took place on September 8
- In person kick-off in Oslo, Norway, October 12-14, 2011
- First specifications of applications due at end of November
- Toolkit server is being set up
  - Pre-release of Toolkit components soon
  - First formally delivered version of Toolkit end of February 2012
  - Specification of Toolkit augmentation February 2012
- Participation in the next I-PLM Archiving conference call on Wednesday, September 21