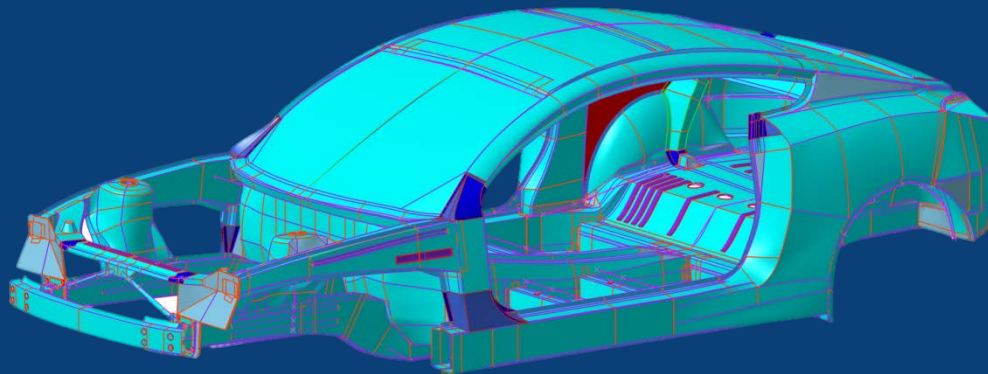




3DEXPERIENCE®

SFE 2015 SFE CONCEPT

Release Announcement



SFE CONCEPT Key Values

► **Fast Geometry Modeling**

SFE CONCEPT model s can be created very quickly in an early phase , even based on preliminary and incomplete input data.

► **Parametric Variation**

The implicitly parametric and declarative SFE CONCEPT geometry definition enables to create a high number of variants of a shape and topology of a simulation model in short time.

► **Ready-to-Simulate FE meshing**

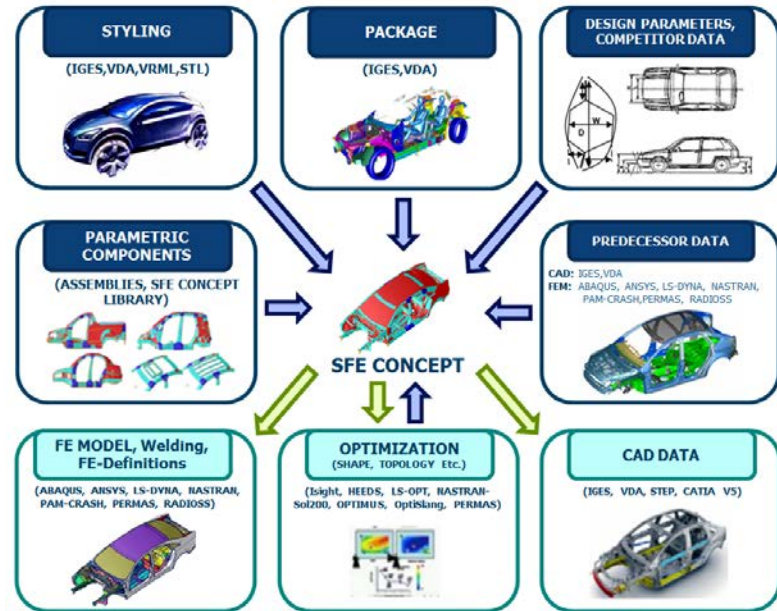
A ready-to-run associative FE mesh of the geometry – including the entire connectivity – can be created at any time for industry standard FE solvers.

► **Automatic Optimization Loops**

Optimization of shape and gauge parameters for NVH and crash can run in automatic batch mode loops „over night“.

► **Component Library and Model Assembly**

SFE CONCEPT model components and variants can be assembled from a library and can be connected to existing parts of the simulation input deck.



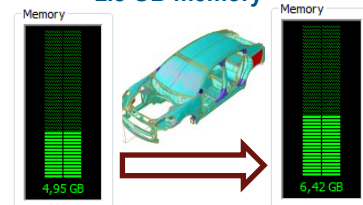
SFE CONCEPT simulation geometry

A geometry paradigm for functional analysis

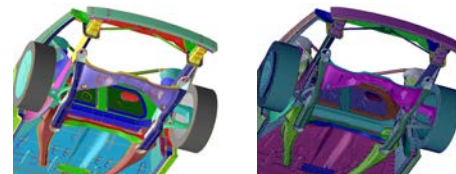
Functionality & Performance

Performance	- Memory for BIW: 1.5 GB - Load/Update BIW: 135 seconds - Modify on BIW dimension level
Flexibility	- Parametric dependency for un-foreseen modifications - Valid geometry changes w/o user interaction - Component re-use in unknown context
Simulation-ready	- ready-to-run associative mesh w/o user interaction - Un-limited automatic optimization support - integrates geometry with external mesh and load case components

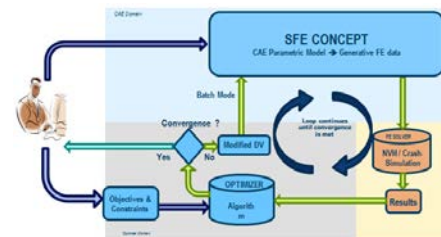
Load and Update BIW in 135 seconds,
1.5 GB memory



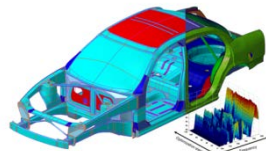
Flexibility – Support for complex modifications



Simulation-ready – Close the gap to SIMULIA



SFE CONCEPT Portfolio & Market



Portfolio and Product Packaging

- ▶ **SFE CONCEPT**
Implicitly parametric geometry/topology modelling for ready-to-run simulation models.
Real time modification and automated optimization in a dedicated simulation geometry.
- ▶ **SFE CONCEPT CATIA V5 CONNECTOR (CCC)**
SFE CONCEPT as CATIA V5 Workbench
- ▶ **Consulting and Service**
SFE CONCEPT modelling and FE meshing, upfront CAE evaluation, geometry and topology optimization for NVH, Crash, BIW process consulting
- ▶ **Related product: SFE AKUSMOD**
Interior acoustic evaluation for vehicles and other structures with automated coupling of fluid and structure mesh, inclusion of absorbers and powerful post-processing.

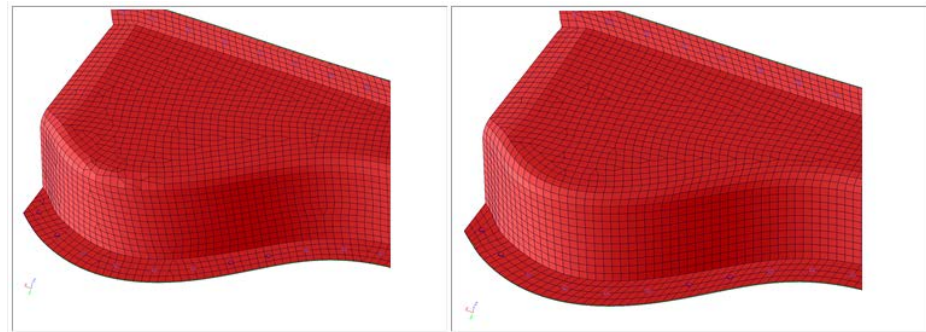
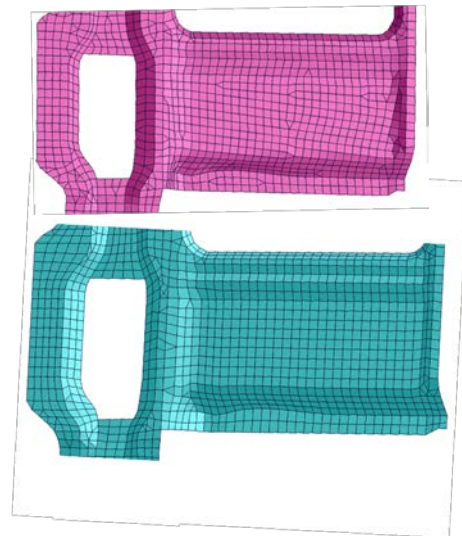
SFE Customer Map



SFE CONCEPT 2015 – New

Improved FE Meshing

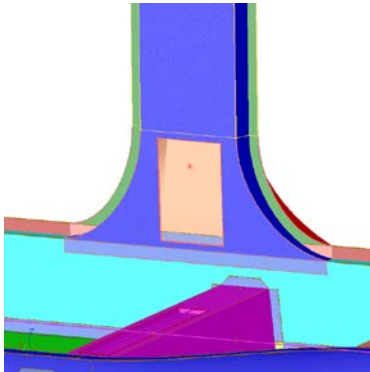
- ▶ New meshing method implemented
 - ▷ Automatic quality-based selection
- ▶ Part-wise meshing **after** layer offset
- ▶ New FE-Mesh formats:
 - ▷ AnsaXML
 - ▷ Ansys
 - ▷ RADIOSS-10



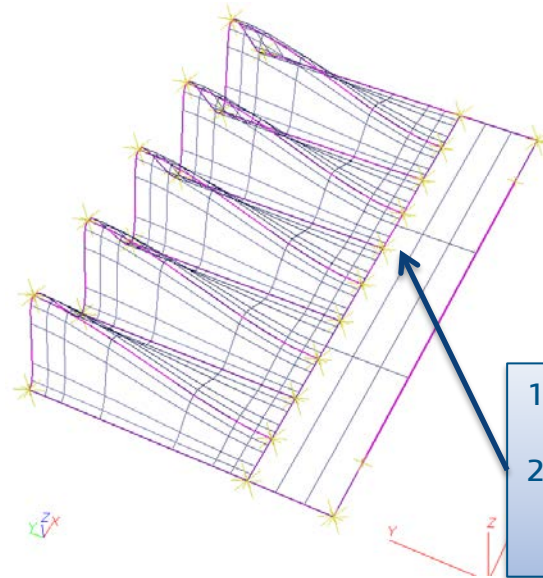
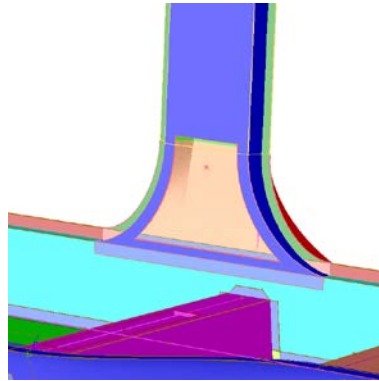
SFE CONCEPT 2015 – New

Offset Map

Previous
versions



In-plane
offset map

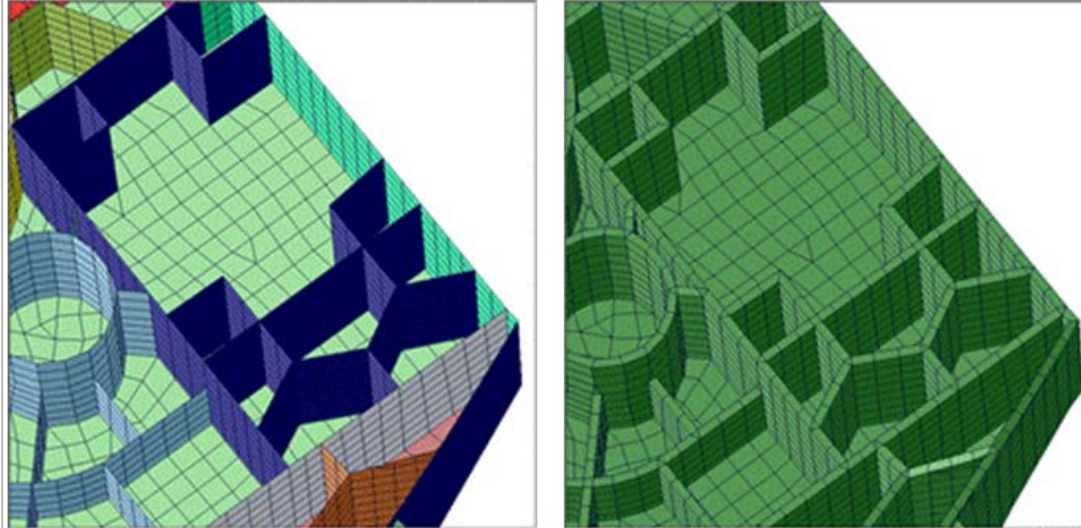


1. Map a line to the outer edge
2. In-plane offset map with extrapolation for the same line

SFE CONCEPT 2015 – New

Automatic Thickener

Example for a one-layer thickener mesh

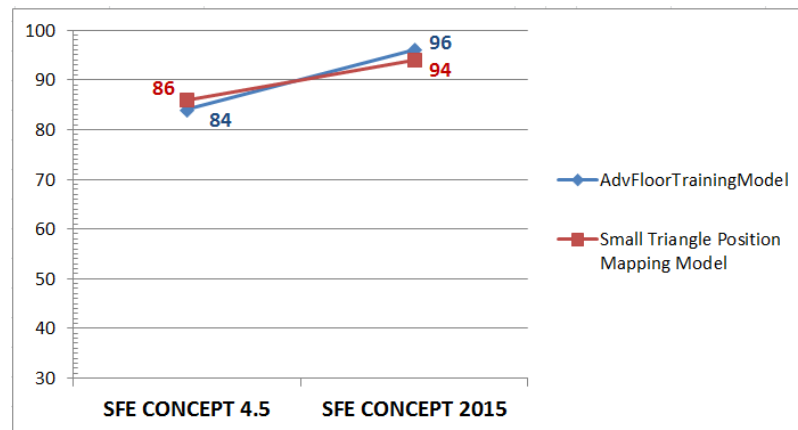
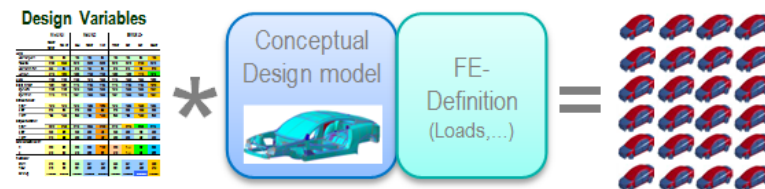


SFE CONCEPT 2015 – Robustness

Surface Mapping robustness

Randomized design-variable geometry modification

- ▶ Increased percentage of error free mapping
- ▶ Increased percentage of ready-to-run models



SFE CONCEPT 2015 – Save Time

Stamping and Kernel

- Move stampings across PID boundaries
- Geometry Kernel re-implementations
 - ▷ Base Sections: unified data model, domain number limitation lifted
 - ▷ “Guide Objects”: Reuse existing lines for geometry definition
 - ▷ Lines, Tangents re-implemented

SFE Portfolio – Deliverable Model

Continuity of SFE CONCEPT Stand-alone

DS Deliverable Model adopted since November 26, 2014 thanks to OTC integration

Release for all 4 SFE product lines with new naming paradigm: “SFE + year”

GA release

- ▷ 1 GA Release per year “aligned” with CATIA V5 WWGA taking into account CAA constraints

Maintenance release

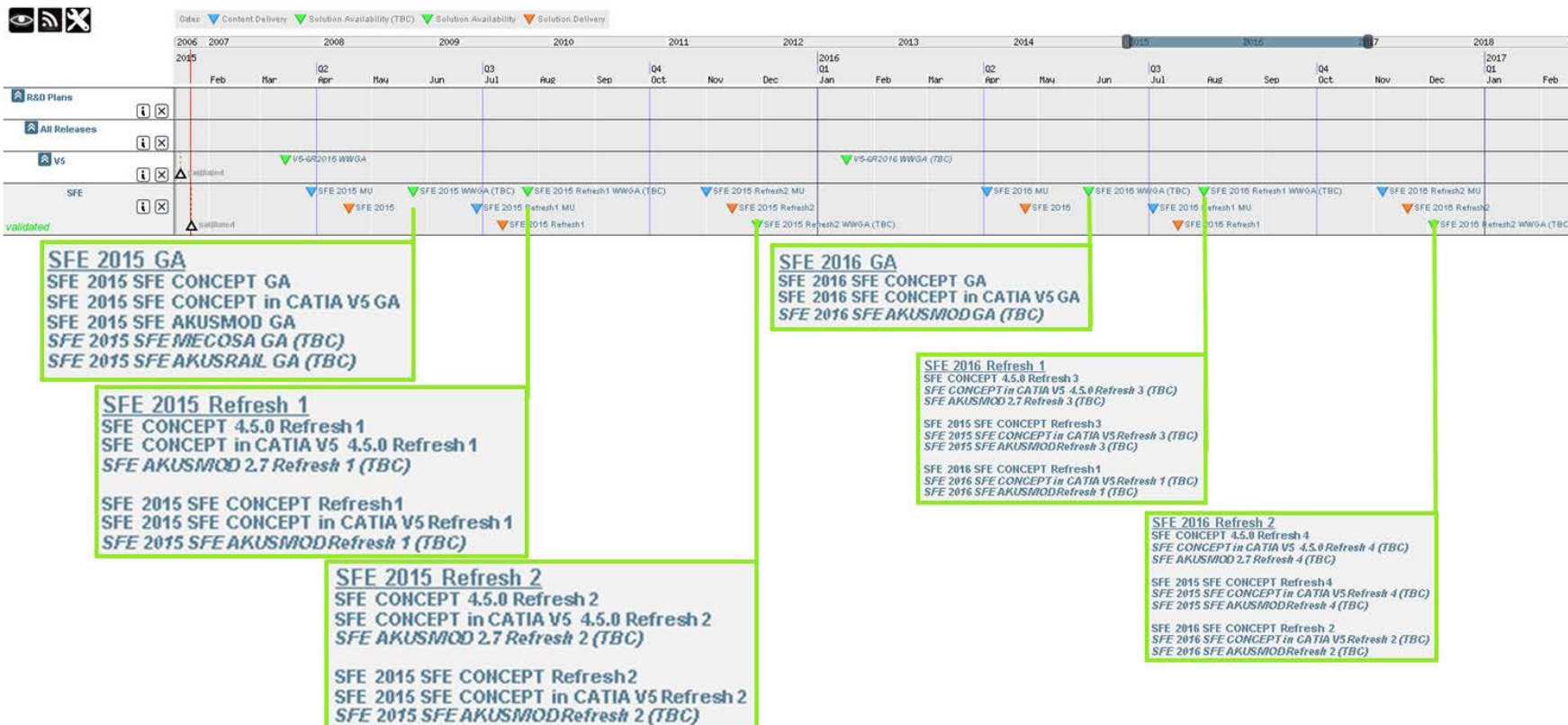
- ▷ 2 Maintenance Releases per year
- ▷ Maintenance is planned for 2 years
- ▷ Maintenance Release will be named “Refresh” as it corresponds to a whole content delivery (not an incremental one)

Support - Customer specific delivery

- ▷ Patches delivered as needed/Best effort by the Support through SRs (Service Requests)

SFE Portfolio– Master Schedule

Continuity of SFE CONCEPT Stand-alone

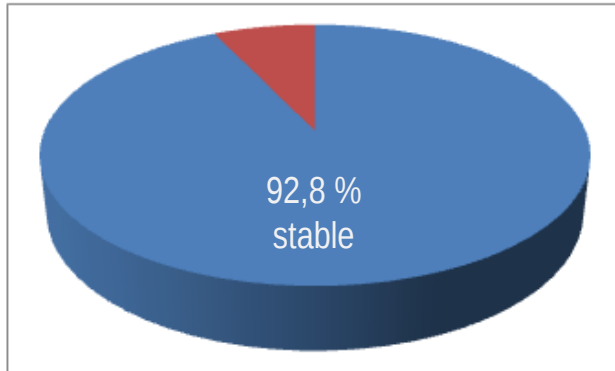


SFE CONCEPT – The Road Ahead

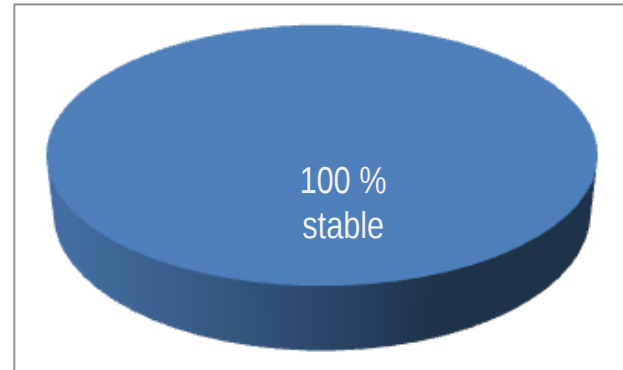
Quality Initiative

Percentage of stable geometry model update runs
in automatic high-number double-repetition update test

SFE CONCEPT 4.5.0.3



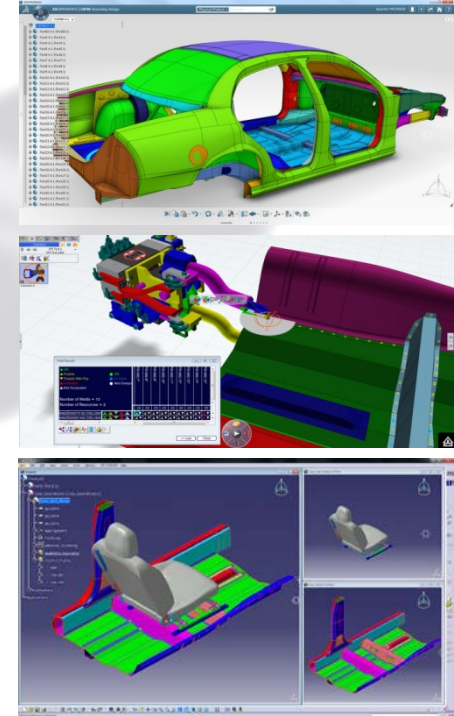
SFE CONCEPT 2015 Refresh 1 candidate



SFE CONCEPT – The Road Ahead

Simulation-driven Conceptual Design in the BiW process

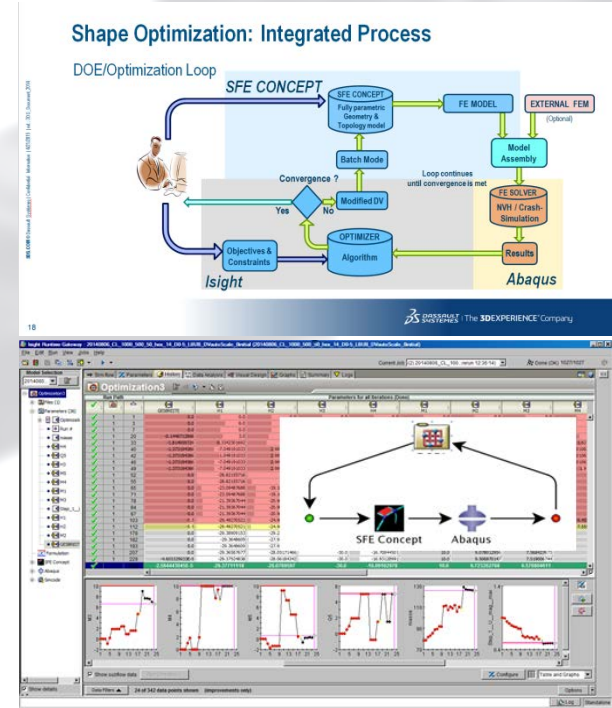
- ▶ Generate and pre-validate a fast and flexible conceptual model inside the scope of the virtual product design process
- ▶ Detail and manufacturing design stay associated to the conceptual simulation data
- ▶ Share fasteners and composite data between conceptual research and down-stream applications
- ▶ Facilitate dependency information between packaging components and conceptual structure model



SFE CONCEPT – The Road Ahead

Connect the Dots for Simulation-driven Design

- ▶ Realize simulation-driven conceptual design using the synergies of SIMULIA Abaqus and Isight with SFE CONCEPT ready-to-simulate FE meshing
- ▶ Find innovative designs and study alternatives in association with SIMULIA TOSCA topology optimization
- ▶ Provide parametric models for the SIMULIA acoustic validation process facilitating SFE AKUSMOD technologies



DS Strategy | An ambition to deliver an integrated solution covering the entire BIW process

