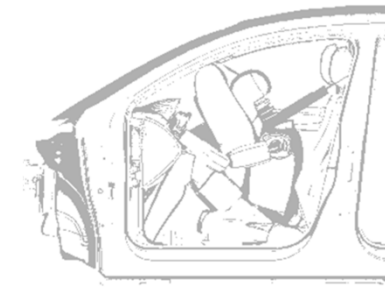
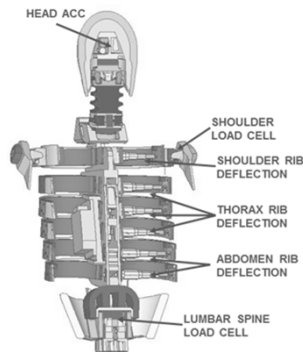


IAT supports customer development programs providing experience, expert knowledge & development tools for automotive safety applications



## Research

Solution Research  
Parameter Studies  
Advanced Methods

## Concept

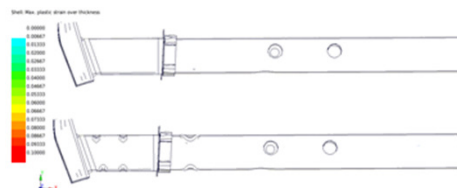
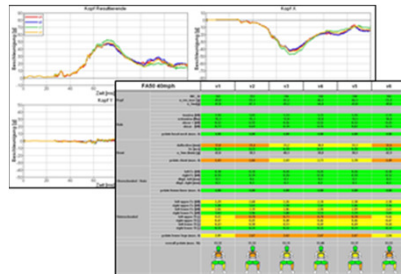
Concept Definition  
Concept Studies  
Proof of Concept

## Pre Development

System and  
Component  
Specification

## Development

System and  
Component  
Validation



- ▶ IAT is an expert in occupant safety
- ▶ IAT has more than 20 years of experience in automotive safety
- ▶ IAT is one of the biggest service providers for occupant crash simulation
- ▶ IAT supplementary to numerical simulation provides sub-system and component testing and design and build of specific test equipment
- ▶ IAT develops software for planning, conduction and evaluation of safety tests
- ▶ IAT products and services are applied world-wide
- ▶ OEMs trust in IAT for more than 20 years
- ▶ In cooperation partnership with TU Berlin, IAT has access to latest research and technology knowledge, facilities and a pool of junior engineers
- ▶ IAT employs 65 colleagues with an annual turnover of 4 Mio. Euro

# IAT Milestones



**1991** Foundation of IAT  
Ingenieurgesellschaft für  
Automobiltechnik mbH  
Start as Spin-Off of TU Berlin  
to conduct full scale vehicle crash tests

**1994** Start Development, Design  
and build of Testing devices  
Barriers, Rubberband-Crash facilities,  
Velocity measurement devices...

**1997** Start Softwaredevelopment for  
Testplanning and evaluation  
EVA, ISOVERTER,...

**1997** Start Numerical Simulation  
Occupant crash simulation  
(Madymo, PamCrash)

**2002** Formation of the subsidiary  
IAT Dynamics  
Marketing „RMOD-K“ tire-model

**2004** Partnership mit PDB  
pdb - Partnership for Dummy  
Technology and Biomechanics

**2006** Opening office Munich  
(Karlsfeld)

**2009** Opening office Stuttgart  
(Brackenheim)

**2011** Start Meshingservice &  
stuctural analysis

**2012** DIN EN ISO 9001-2008 -  
Quality Management System

**2013** ISO/IEC 27001-2005 – Information  
Security Management System

**2013** Start IAT-Vietnam

**2014** ...

# Scope of Services



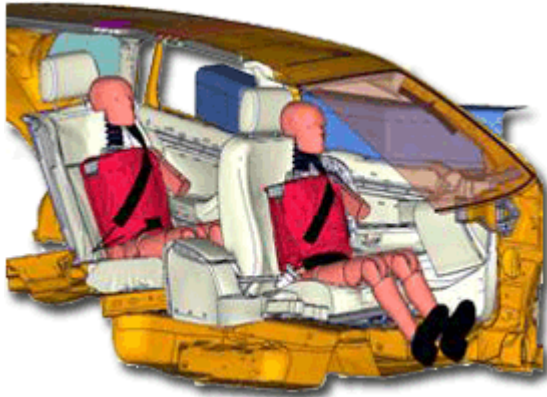
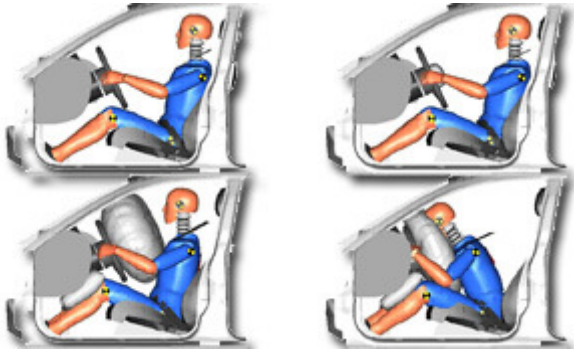
Next to standardized Services, IAT provides customer specific solutions

- ▶ Specialized Test Rigs
- ▶ Modification of Test facilities
- ▶ Software Development
- ▶ CAE Process Tools
- ▶ New Methods
- ▶ DOE / Optimization

# Scope of Services – Numerical Simulation



## ▶ IAT Services Occupant Crash Simulation

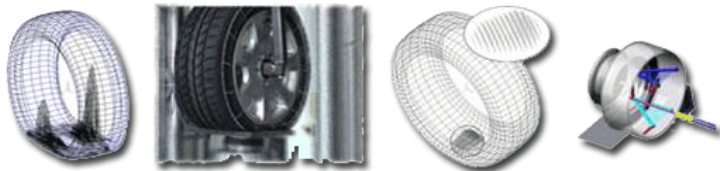
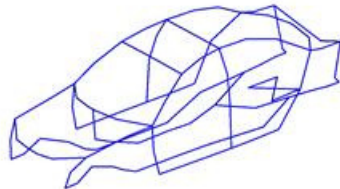
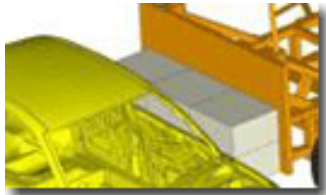
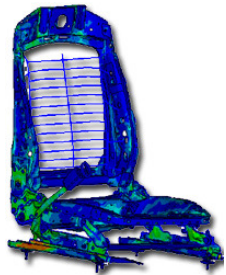


- ▶ Occupant Simulation from Concept to development with state of the art tools PAM-SAFE®, ABAQUS®, LS-DYNA®
- ▶ Systemdesign/-optimization based on DOE and statistical Methods
- ▶ Generation of validated models for tier 1 components in front and side impact (airbag, IP, steering wheel, steering column, seat,...)
- ▶ Creation of validated models for child restraint systems
- ▶ Out of Position-Simulation
- ▶ Development, evaluation and modification of dummy models

# Scope of Services – Numerical Simulation



## ▶ IAT Services Structural Analysis



- ▶ Linear static computation
- ▶ Linear dynamic computation
- ▶ Nonlinear computation (explicit, implicit)
- ▶ Rotordynamics
- ▶ Durability and Endurance strength
- ▶ Stiffness, natural frequencies and –forms
- ▶ Optimization (Topology, thickness)
- ▶ Preprocessing with Hypermesh® and ANSA®
- ▶ Tires (RMOD-K)

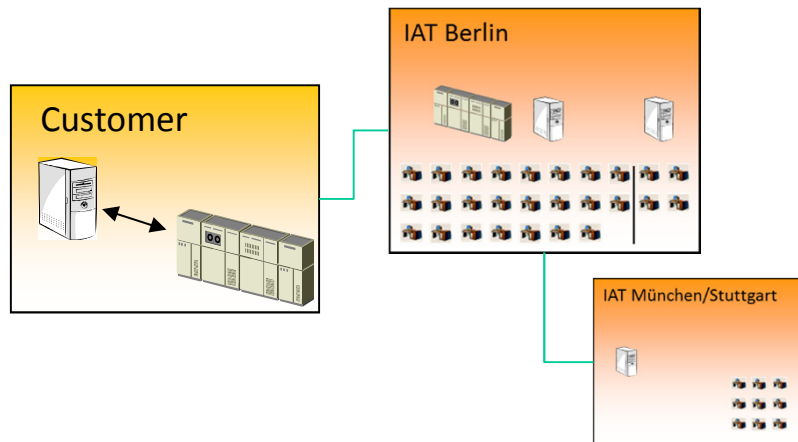
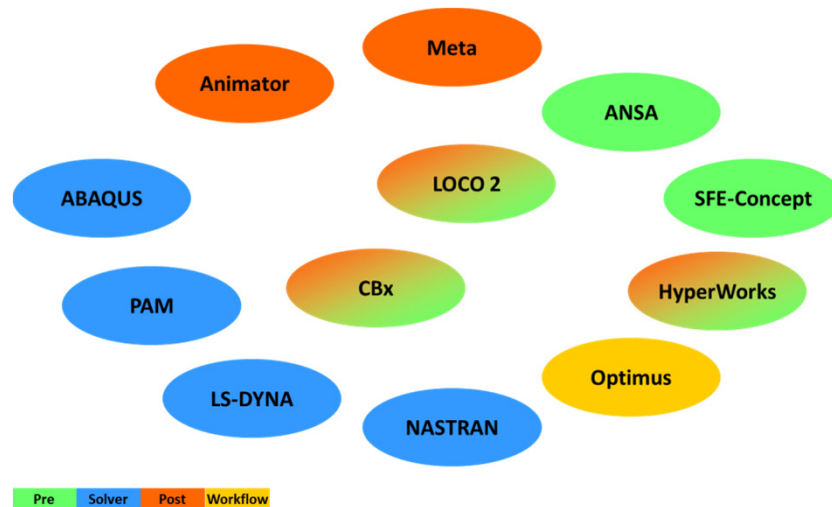
# Scope of Services – Meshing



- ▶ IAT Services Meshing
- ▶ Our service includes mesh generation as well as the creation of „ready to compute“ input decks. Models of complex assemblies will be delivered free of penetrations and intersections, connections are also included.
- ▶ Altair Hypermesh® or ANSA® are used for meshing. Further software can be installed as required. A secured server is available for data exchange.
- ▶ User-to-user-connections are installed to various customers. Encoded data exchange can be handled with the existing infrastructure.



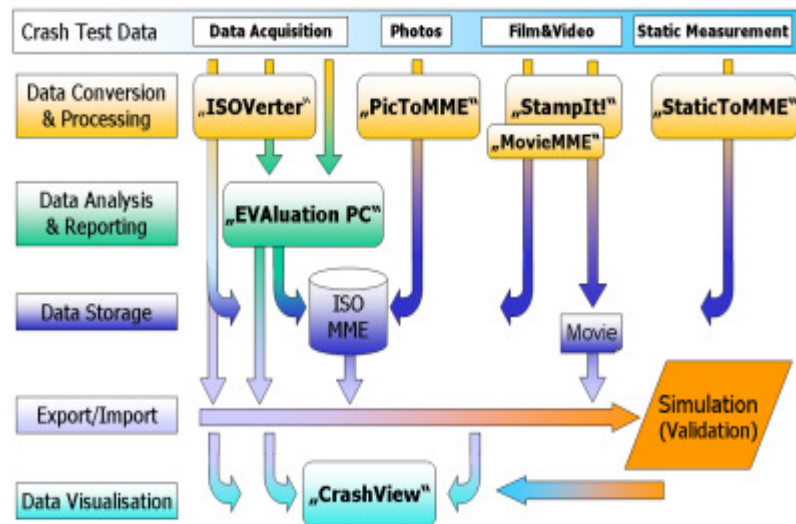
# Scope of Services – Numerical Simulation



- ▶ IAT Software Installations
- ▶ Pre-/ Post-Processing
  - ▶ ANSA, HYPERWORKS, SFE-Concept, LOCO 2, CBx, Primer, ANIMATOR, META
- ▶ Solver
  - ▶ ABAQUS, LS-DYNA, PAM CRASH, NASTRAN
- ▶ IAT Hardware Resources
  - ▶ 64 CPUs
- ▶ 100Mbit – 1Gbit data connections to customers



# Scope of Services – Software



## IAT Softwaredevelopment

We are developing software products for standardized and automated evaluation of testing data, utilizing the advantages of ISO MME (ISO 13499)

IAT products enable you to...

- Planning of test and resources
- Transfer measurement data to valid ISO formats
- Analyse measurement data
- Automated creation of reports
- File movies and pictures in accordance with MME

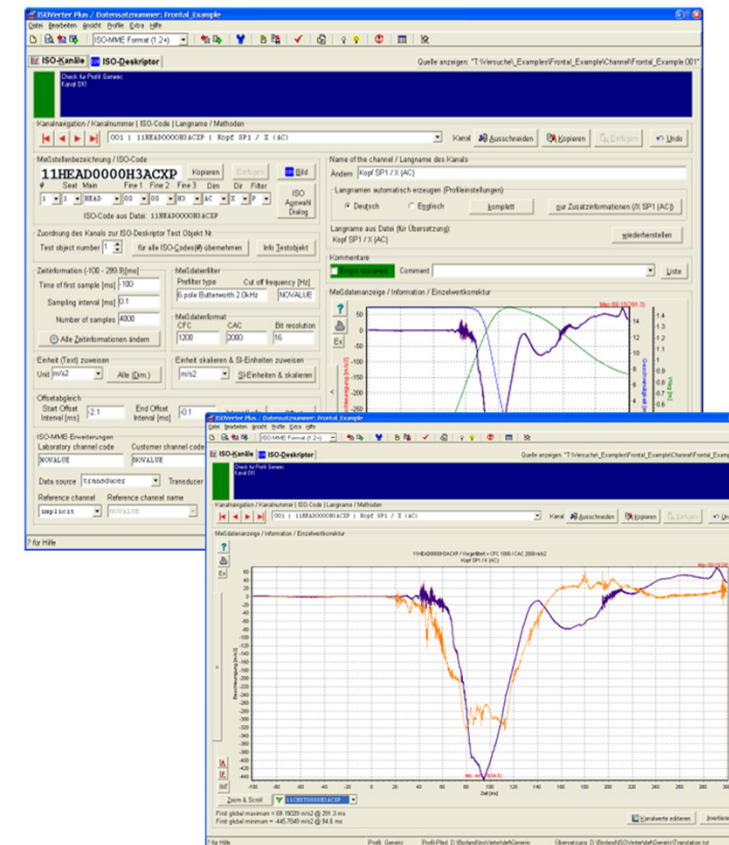
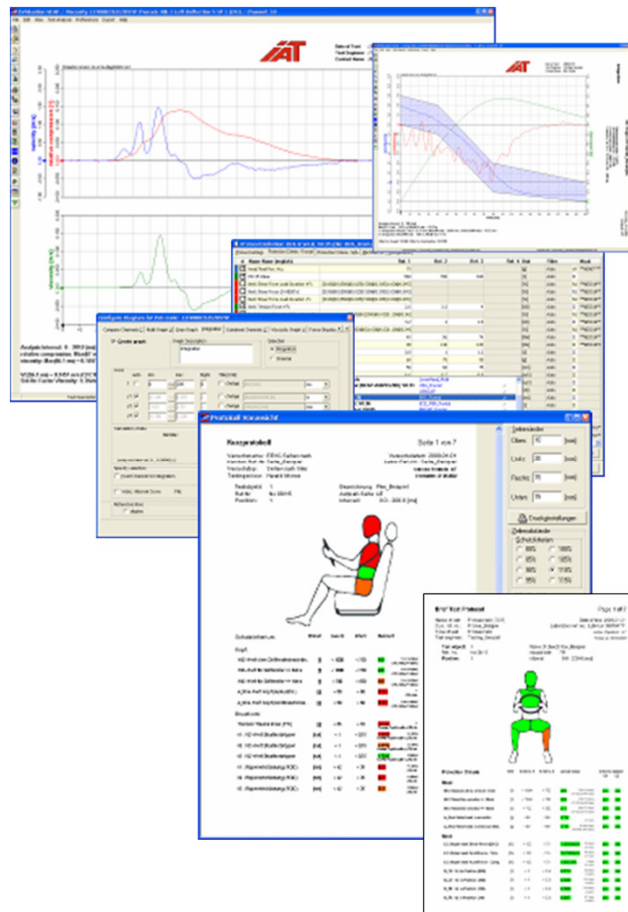
We adjust our products to your needs



# Scope of Services – Software



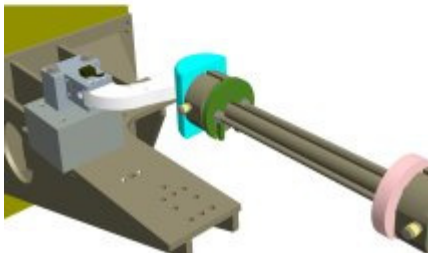
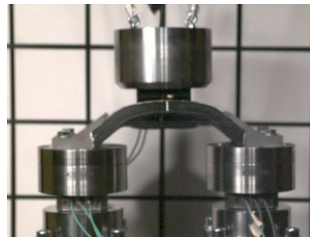
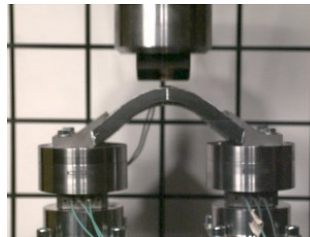
## EVALuation NCAP / ISOVerter Turn-key solution for crash testing



# Scope of Services – Testing



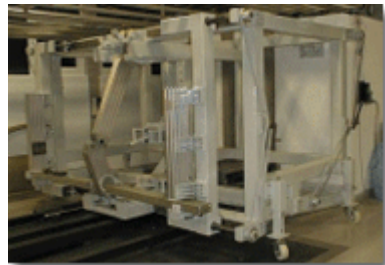
## ▶ IAT Services Testing



- ▶ Standardized test rigs
- ▶ Customer specific test rigs
- ▶ Sled and component testing
- ▶ Drop tower tests
- ▶ Pendulum tests
- ▶ Tests with fast hydraulic cylinders
  - ▶ in cooperation with external partners
- ▶ Validation tests
- ▶ Tests according to customer definition



# Scope of Services – Test Rigs



Test rigs and components according to customer requirements

- ▶ IAT Services Design and Build of test Rigs:

- ▶ Testing facilities / Test rigs

- ▶ Sled test facilities (e.g. ECE R16, ECE R44 )
- ▶ Low speed test facilities
- ▶ Customer specific test devices (e.g. door-test system, static and dynamic B-pillar test rig,...)
- ▶ Drop towers

- ▶ Testing equipment

- ▶ Sleds, Bases and Trolleys
- ▶ Barriers (AZT, EuroNCAP, Side Impact)
- ▶ Barrier sleds (ECE, FMVSS 214, IIHS)
- ▶ Euro NCAP "Flying Floor"
- ▶ Angle adjustment for sled systems
- ▶ Brake systems / emergency brake systems
- ▶ Measurement systems for Dummy-Positioning
- ▶ Dummy joints „1g-Joint“

- ▶ Occupant protection for automated driving
- ▶ Human Model during PreCrash phase
- ▶ Ideal Restraint System
- ▶ Adaptive Crash structures
- ▶ System design frontal occupant protection
- ▶ System design side impact occupant protection
- ▶ System design back-seat passenger protection
- ▶ System design for child protection
- ▶ Car body design to meet Small Overlap
- ▶ Struktural design B-pillar in side crashes
- ▶ Design of door trim
- ▶ Evaluation and modification seat structures
- ▶ Modelling of steering columns
- ▶ Modelling / Design of child restraint systems
- ▶ Optimization of CAE processes





# Customers



**Audi**



Mercedes-Benz



PORSCHE



# Customers

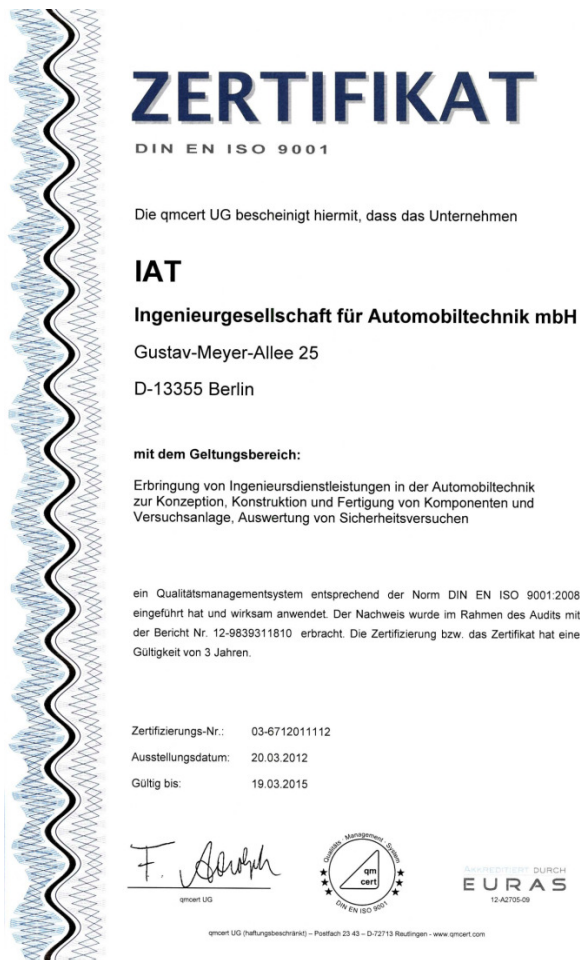




# Certificates



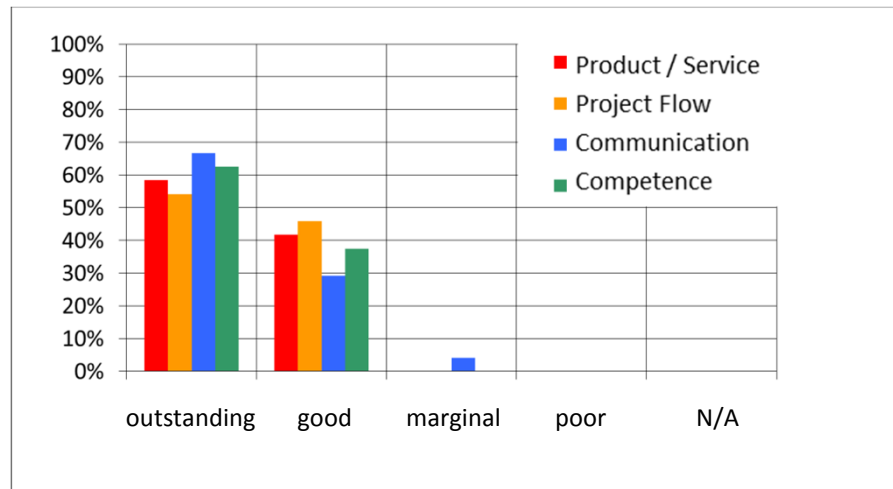
## Quality Management ISO 9001



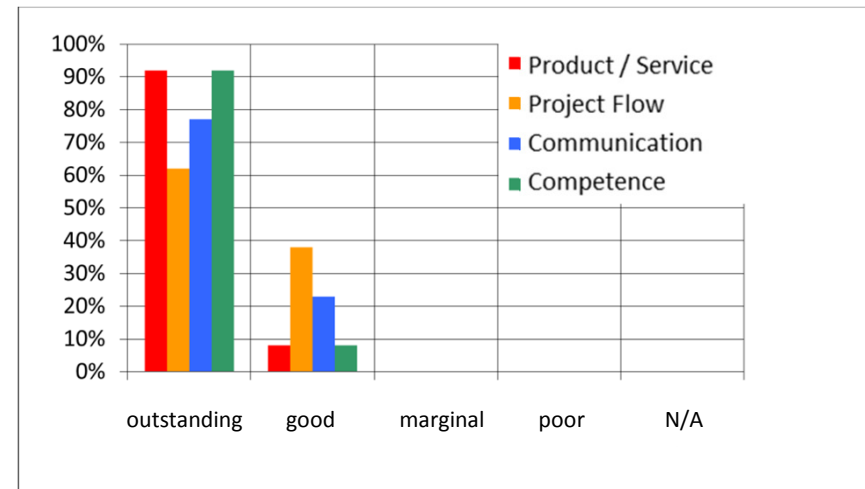
## Information Security Management ISO 27001



# Customer Satisfaction



Survey 2012



Survey 2013

Would you recommend IAT to others? **yes** ☒ **maybe** ☐ **maybe not** ☐ **no** ☐ **n/a** ☐

100% of our partners do recommend IAT

IAT

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# IAT Customers World Wide

