



你要的都有 – Mainstream解决方案 规划披露

Agenda

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Solid Edge 解决方案规划

关键点解析

FLOEFD for Solid Edge

Solid Edge ST10 抢先看

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西门子拥有100多年制造经验，50余年工业软件经验

1958 –
Beginnings of production
automation: Siemens
receives the patent for
SIMATIC

1996 – Totally Integrated
Automation (TIA) enables
interaction between
all automation components

2009 – TIA Portal provides
access to all automation
tasks

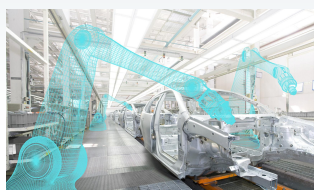
2013 – Siemens is currently the
only company whose
technologies combine the real
and the virtual production world
under one roof

Future – virtual and real production
worlds increasingly merge. On a “ Digital
Enterprise Platform ”, product
development and production are
integrated step-by-step through
industrial IT and software



1958 1995/96 2001 2009 2011 2012 2013 2016

Production
engineering and execution



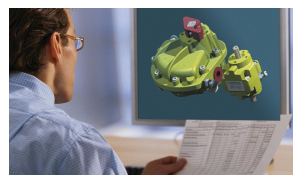
Beginning ca. 2000 – software for
product and manufacturing
design becomes
increasingly
important

Product development

2007



2012



VISTAGY
engineer success

PERFECT COSTING
SOLUTIONS

2013

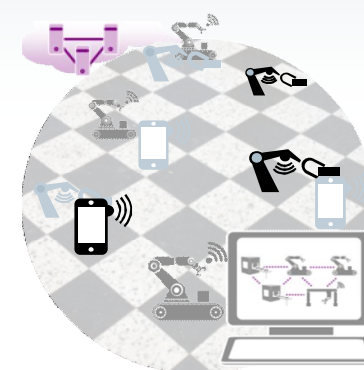


KINEO

2014

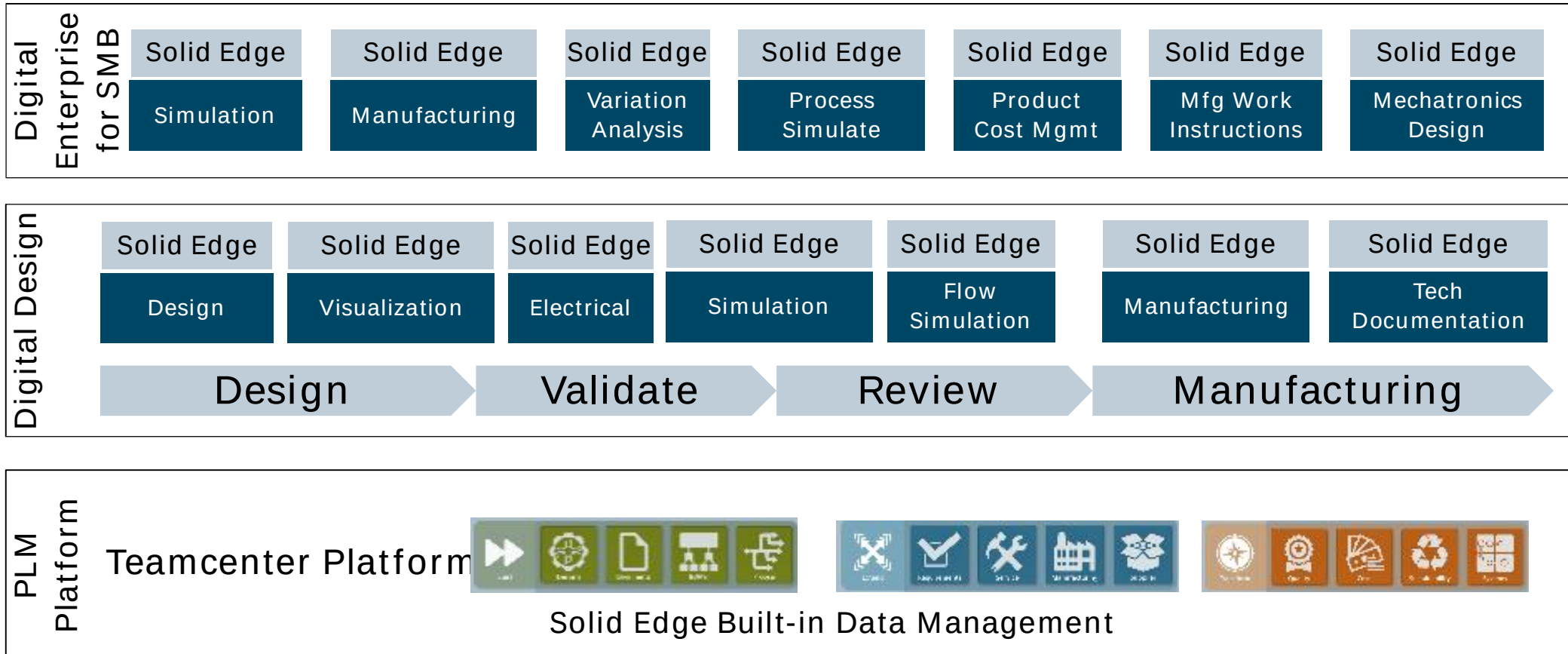


€11+ billion
in investments
since 2007



Solid Edge 解决方案规划: Solid Edge Branded Portfolio

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下一代 Solid Edge & Femap

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- 为设计和协同的下一代平台, 社交 与工具
- 通过Femap与Simcenter加速发展

Marketing

Sales Channel

Academic

Portfolio

Next
Generation
Solid Edge &
Femap

Partner-
friendly Online
Model

Solid Edge

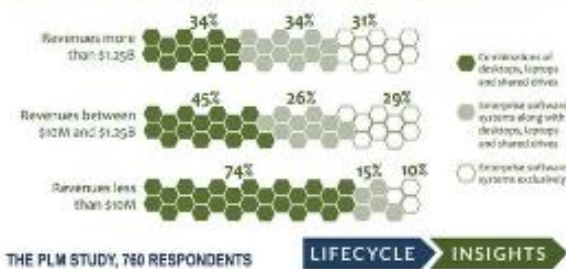
Delivered with ST9
We will continue to invest here...

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PDM Clarity

- Built-in PDM
 - Zero setup: No IT resources, no SQL
 - Instant search & where used
 - Solid, basic release/revise process
 - “ *Meeting customers where they live* ” *
- Teamcenter Integration for Solid Edge
 - Addresses virtually all top field requests
 - Integrates active Workspace natively
 - *Top customers (P&G, SEB, Robbins) jumping straight to ST9 based on release content*

MEANS OF MANAGING DEVELOPMENT DATA



*Chad Jackson, Lifecycle Insights

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Delivered with ST9
Increased investment going forward...

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Cloud & Mobile

Flexibility is key

- Cloud OR Desktop
- Perpetual OR Subscription
- Monthly OR Yearly

- Cloud-enabled provides cloud benefits, without forcing a new way of working
 - CAD that follows you from device to device
 - Excellent collaboration via DropBox and more
 - Super reliable, in spite of Internet glitches
- Mobile strategy is Microsoft centric
 - Viewers for all devices (iOS, Android, Windows)
 - CAD productivity on Surface – continue to build/leverage Microsoft relationship
- *Continue to invest in cloud, pen-based computing, additive, and other hot areas – with a focus on adding real value.*

Solid Edge Simulation

Mainstream CAE解决方案

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Solid Edge Simulation

Femap with NX Nastran

FloEFD for Solid Edge

基于Solid Edge的设计仿真一体化环境

开放、专业的CAE仿真分析环境

完全集成于CAD系统的专业CFD仿真环境

Solid Edge Simulation

Simulation Express

Included with Solid Edge Classic
Femap Mesher
First Pass simulation
NX Nastran Solver
Part Structural Analysis
Sheet Metal Structural Analysis
Create Multiple Studies
Direct Connection to Femap
Six different Structural Loads
Multiple Constraints
Full control of Meshes
Word or HTML Reports

More...

Simulation

Included with Solid Edge Premium
Femap Mesher
First Pass simulation
NX Nastran Solver
Part Structural Analysis
Sheet Metal Structural Analysis
Assembly Structural Analysis
Create Thermal Studies
Create Structural Studies
Direct Connection to Femap
Six different Structural Loads
Multiple Body Loads
Five different Thermal Loads
Multiple Constraints
Full control of Meshes
Word or HTML Reports

More...

Femap

Analysis centric FEA
CAD Independent
Solver Neutral
Finite Element Modeling
Mid-plane Extraction
Weldment modeling
Data surfaces
Finite Element Meshing
Assembly Modeling
Beam Modeling
Composite Modeling
Pre and Postprocessing
Contour and criteria plots
Deformed shape animations
Dynamic cutting plane & iso-surfaces
Full output selection
XY Plots
Customization
Native Windows application
More...

FloEFD for Solid Edge

Intuitive User Experience
Native Solid Edge data
Embedded Fluid Flow
Embedded Thermal Simulation
Geometry & Simulation data are synchronized
Fast automated mesher
Unique solver
Parametric study and design comparison for “ what-if ” analysis
Intuitive and easy to use for non CFD experts
Availability of Special FloEFD Modules:
Joule heating
Electronics Cooling
HVAC
Advanced LED

More...

Complementary CAE products are sold based on the customers specific requirements and workflow

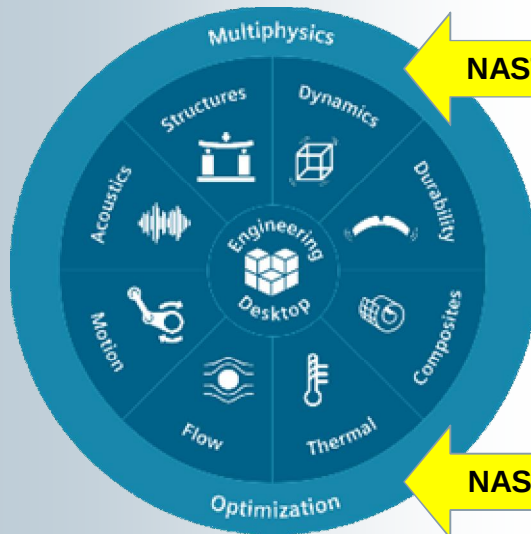
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Simcenter 3D

FEMAP

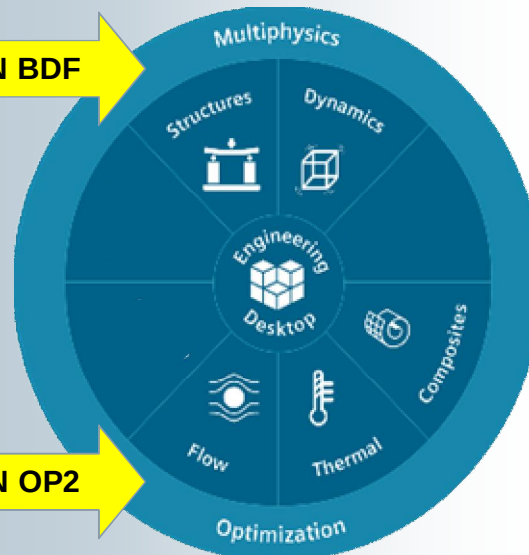
Mesh-Centric Analyst Workflow

- Provides the analyst a CAD-Neutral, Solver-Neutral Environment for FEA Modeling and Post-Processing
- Powerful FEM tools for model creation, editing, and verification based on either, mature geometry or legacy FE models
- Efficient reuse, update, & integration of legacy FEMs from all industry standard FEA solvers
- Primary User Interaction is with Nodes, Elements, Materials, Properties, Loads and boundary conditions
- Analyst-driven tools for grouping, model visualization, and post-processing of large output datasets
- Accommodates analyst centric workflow requirements for specific FE entity ID Control
- Fully Integrated API for further streamlining and customization of mesh-based analysis processes



NASTRAN BDF

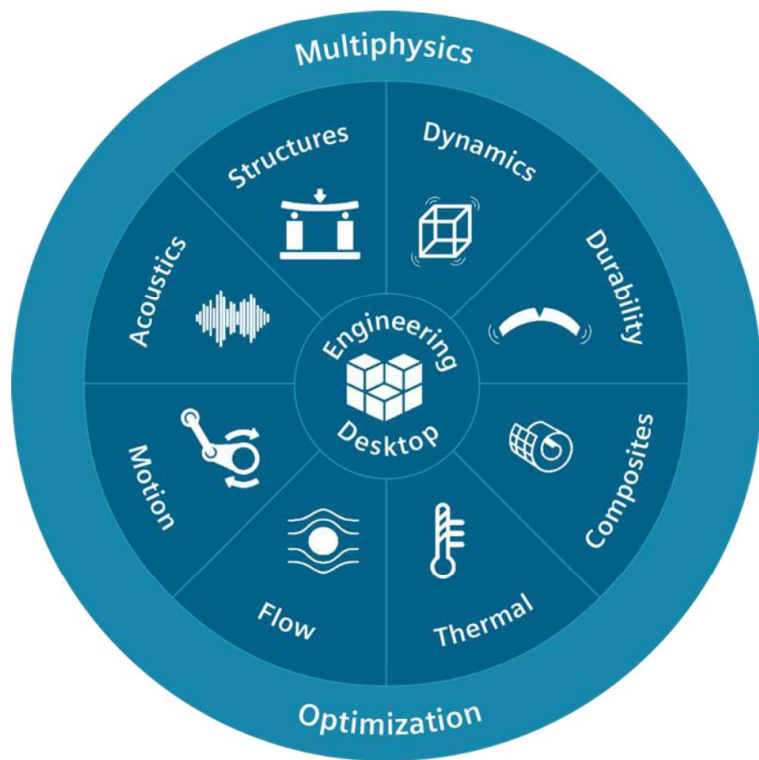
NASTRAN OP2



Geometry-Centric Design Workflow

Mesh-Centric Analyst Workflow

The Simcenter Portfolio



Simcenter™ Portfolio for Predictive Engineering Analytics
Simcenter 3D & NX Nastran

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Simcenter™ Portfolio for Predictive Engineering Analytics
STAR-CCM+

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Simcenter™ Portfolio for Predictive Engineering Analytics
LMS Imagine.Lab Amesim – System Synthesis

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Simcenter™ Portfolio for Predictive Engineering Analytics
LMS Test.Lab & LMS SCADAS

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Simcenter™ Portfolio for Predictive Engineering Analytics
HEEDS – Multi-Disciplinary Exploration

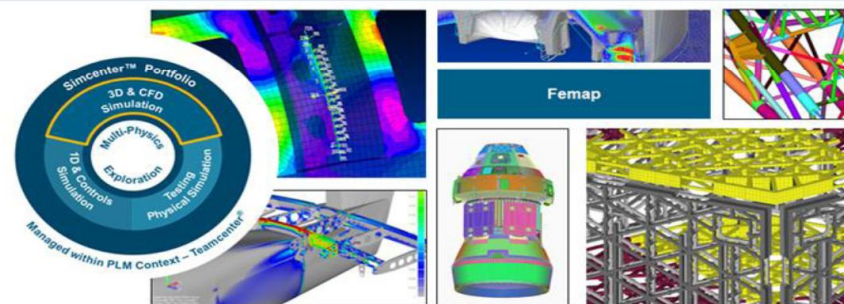
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Simcenter™ Portfolio for Predictive Engineering Analytics
Teamcenter – Model & Data Management

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Simcenter™ Portfolio for Predictive Engineering Analytics
Femap

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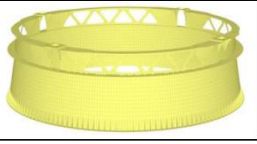
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Siemens PLM Software

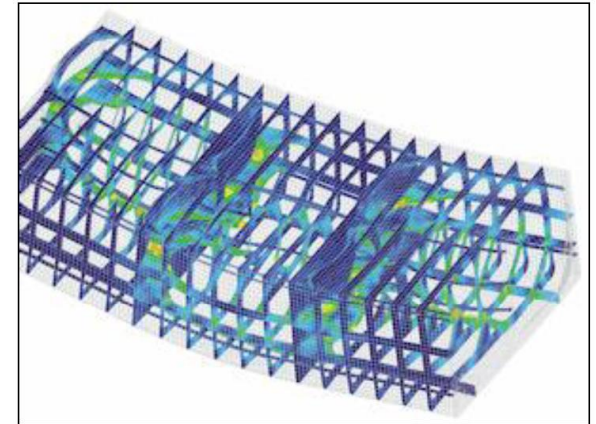
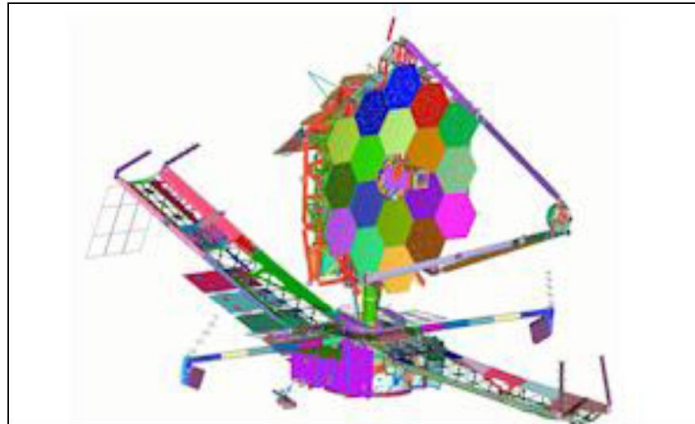
Simcenter™ Portfolio for Predictive Engineering Analytics

Femap

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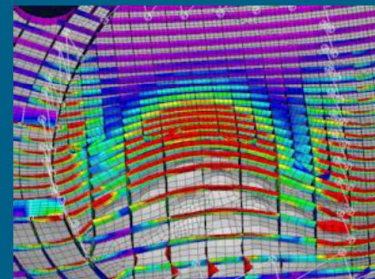
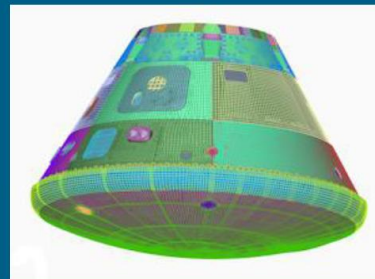
Airframe Loads
Airframe Stress
Space Vehicle
Stress and
Dynamics
Ship Hull
Offshore
Platforms



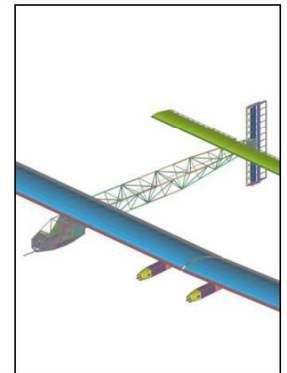
Extensive
Nastran
Support

Linear Statics
Normal Modes
Buckling
Dynamic
Response
Optimization
Nonlinear
Heat Transfer
Rotor
Dynamics
Aeroelasticity

Geometry
Clean-up
Model
Visualization
Pre- and Post-
processing
Customization



Mesh-centric
FEM
Mesh Creation
Mesh Editing
FE Model Reuse



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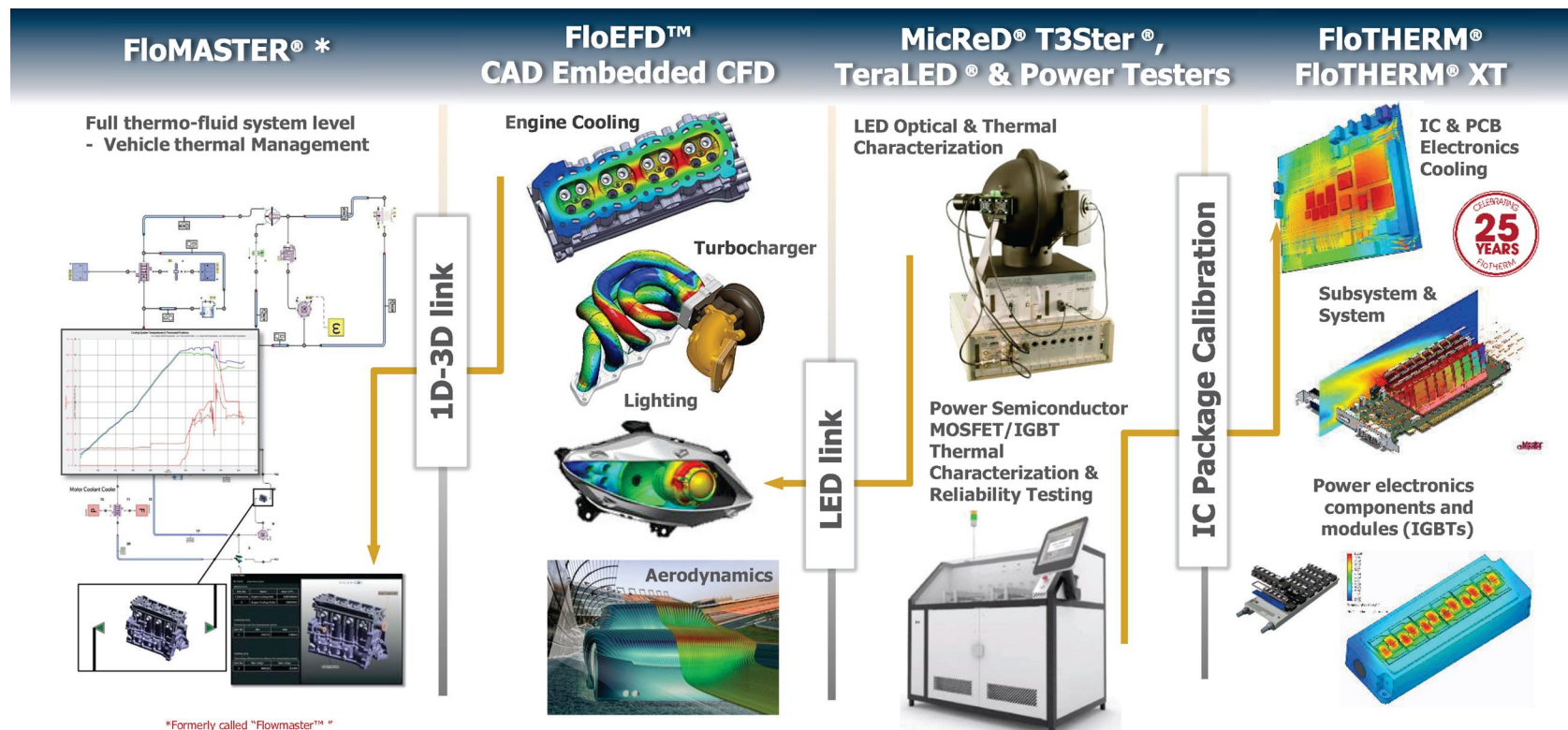
Solid Edge 解决方案规划

关键点解析

FLOEFD for Solid Edge

Solid Edge ST10 抢先看

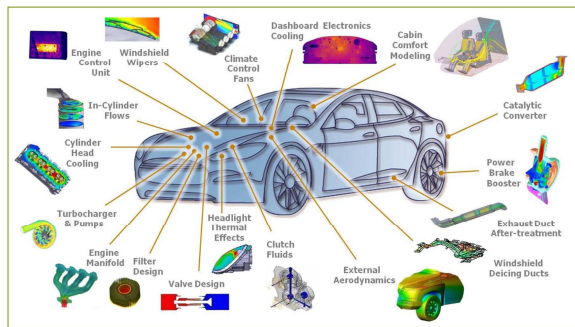
Mentor Graphics' Mechanical Analysis Suite of Tools & Integrated Solutions



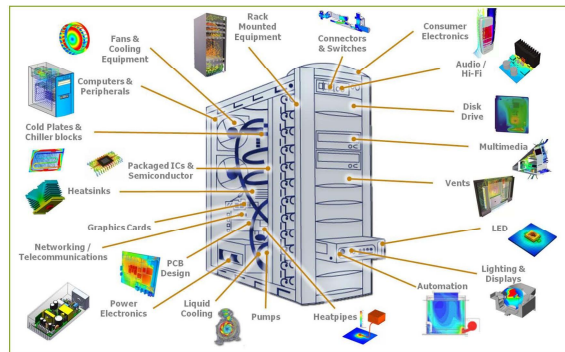
Industry

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Automotive and Transportation Industry



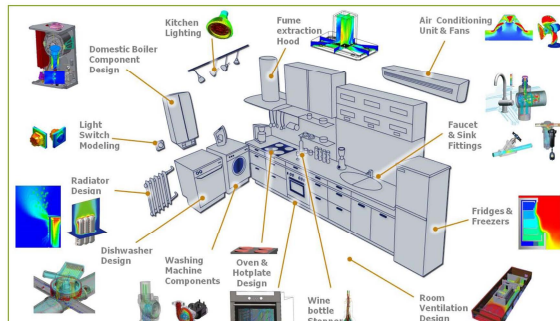
Electronics Industry



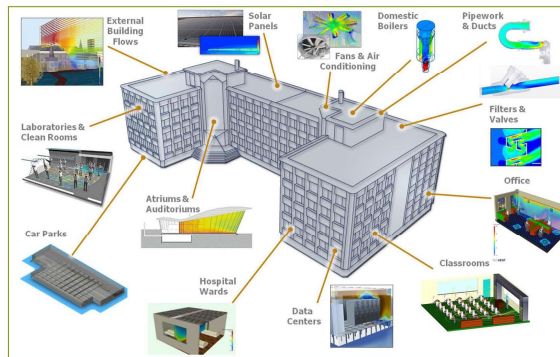
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www.mentor.com



Domestic Appliances



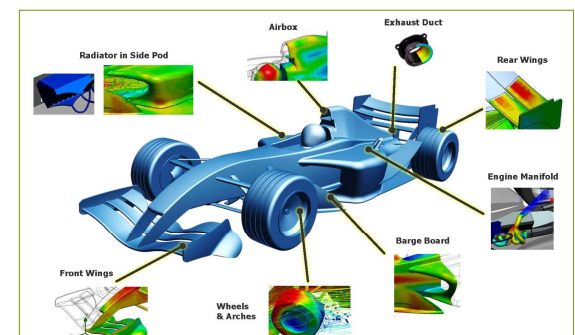
Built Environment



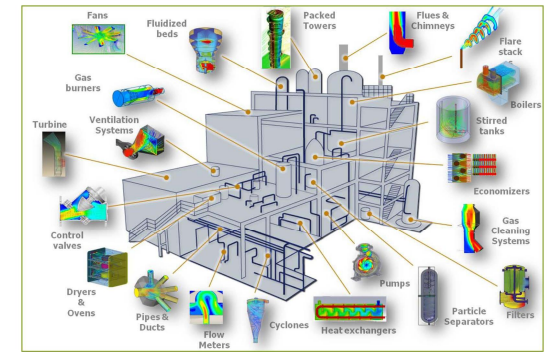
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Motor Racing



Process Industry



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FloEFD功能概略

不可压缩流

WATER
(REAL LIQUID WITH POSSIBILITY
OF CAVITATION)

NEWTONIAN
NON-NEWTONIAN LIQUIDS

可压缩流, $M < 3$

STEAM (REAL GAS WITH POSSIBILITY
OF CONDENSATION)
WATER FILM
HUMIDITY

COMPRESSIBLE LIQUID

高马赫数仿真, $M < 10$

高超音速, $M < 30$

粒子追踪

焦耳热

气体燃烧

MAIN CALCULATIONS CAPABILITIES

- § 稳态或瞬态流
- § 流体与固体间热传递 (各向同性或各向异性)
- § 自然对流与强制对流
- § 辐射传热
- § 旋转域 (风扇, 涡轮, 泵)
- § 焦耳热
- § 参数研究, 实验设计

MAIN CALCULATIONS CAPABILITIES

- § 风扇、散热片
- § 多孔介质、穿孔板
- § 热、电接触电阻
- § 热电冷却器 (TEC)
- § 热管, PCB, 热接头
- § LED 模型
- § 舒适度参数

FloEFD for Solid Edge Providing you more opportunities

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FloEFD for Solid Edge是完全集成于CAD：

- FloEFD作为内部工具嵌入Solid Edge
- FloEFD拥有独立的边界条件及仿真项目工具条
- FloEFD完全利用Solid Edge原生的CAD数据
- FloEFD仿真项目与CAD模型始终保持同步
- 所有的前后处理工作都在Solid Edge中完成

	HVAC	ELEC	LED	EDA	ADVANCED
Joule heating (Electrical condition)		+			
Heat Pipe		+			
PCB generator		+	+		
Two-resistor component		+			
Network Assembly (Delphi)				+	
EDA Import				+	
Tracer	+				
HVAC Comfort Parameters	+				
DO Radiation model	+		+		
Monte Carlo Radiation model			+		
Ray visualization			+		
LED Model			+		
UV Germicidal Irradiation			+		
Film Condensation/Icing			+		+
Water absorption in Solids			+		+
Hypersonic option					+
Combustion option					+

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Solid Edge 解决方案规划

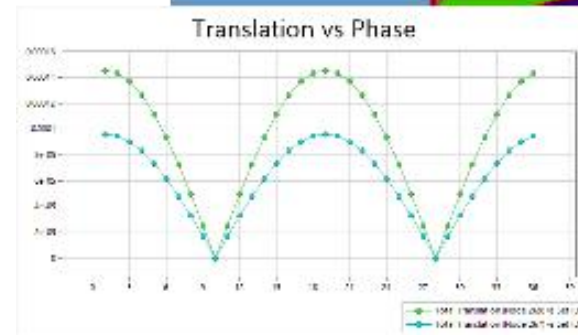
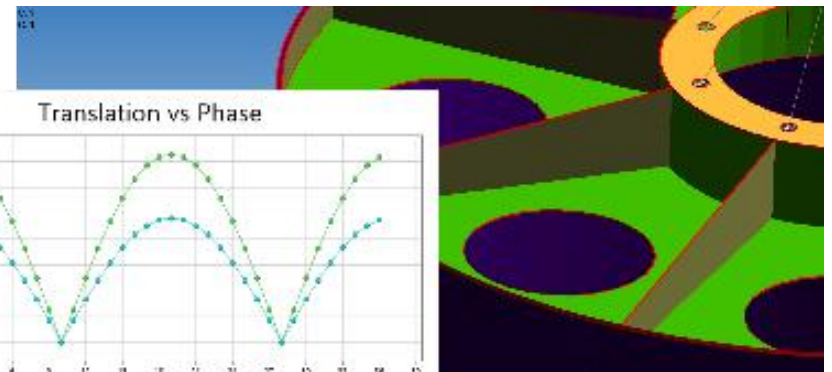
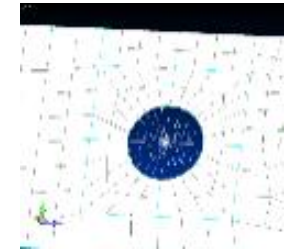
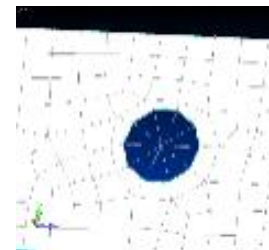
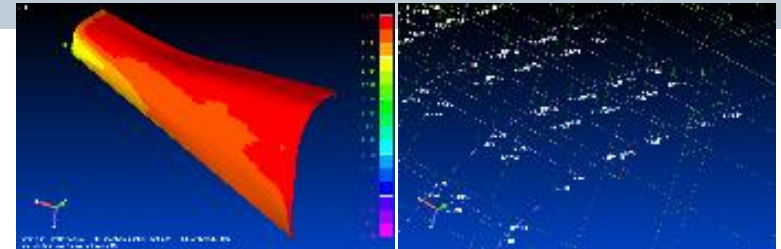
关键点解析

FLOEFD for Solid Edge

Solid Edge ST10 抢先看

FEMAP v11.4+ Sneak Peak

- High Performance Data Mapping – new algorithm 1000x faster
- Meshing Toolbox – Rigid Element Auto Update
- Graphics – Feature Line Plots
- Charting – on-the-fly transformations, complex data plots – automated shear/bending moment diagrams from free-body data

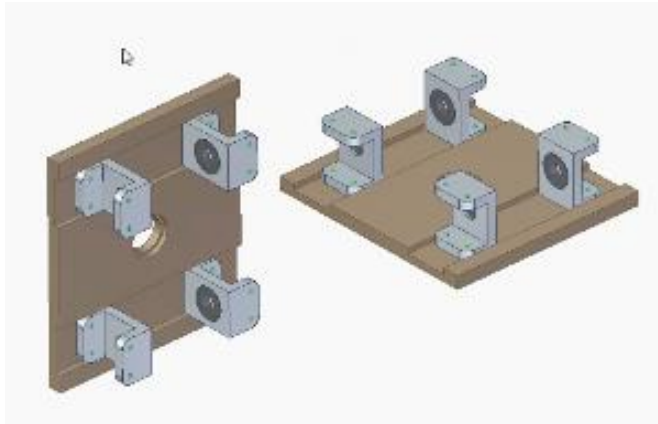


Solid Edge ST10 Sneak Peak

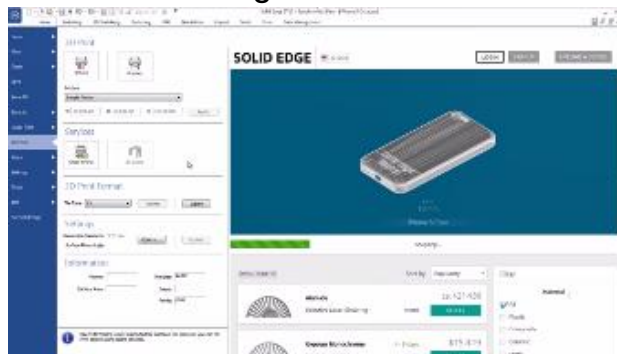
A few selected things that we are working on...

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Continued Synchronous & Assembly Investment

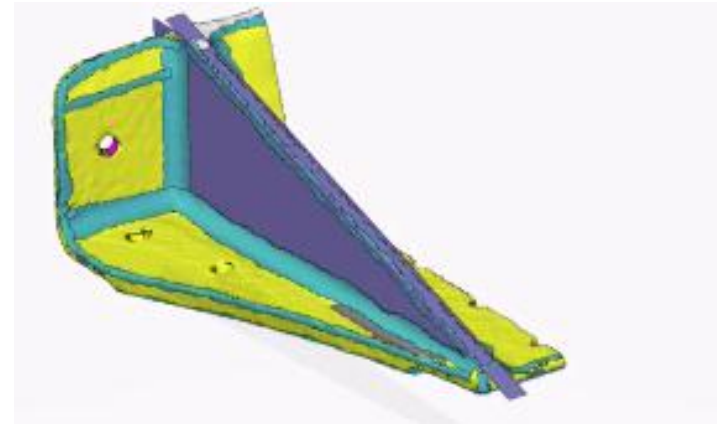


Convergent & Additive



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Reverse Engineering (Beta atop ST9)



Catchbook-like Pen recognition



谢谢