

E&E Industry V5R12 Sales Channel Package



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Summary

- Market Overview
- Sales & Industry Solution
- Release Value
- Technical Solution Readiness
- References
- Competition Analysis
- **Sales Channel Package**

- **1. Demonstrations delivered in V5R12**
- **2. Demonstrations Portfolio**
- **3. New V5R12 Demonstrations**
- **4. Demonstrations available from previous SMARTClass Kits**

Demonstrations delivered in V5R12

New

-  Knowledge Driven Conceptual Design
-  Backlighting Simulation
-  Issue Management
-  Requirements Management
-  Functional Analysis and System Architecture Definition

Evolution of the E&E Sales Channel Package

**Previous demos deliveries
can still be used!**

V5R7

- ✓ Relational Generative Design of a ThinkPad 560 laptop computer
- ✓ Relational Generative Design of a Mobile Phone
- ✓ SONY HD Video Recorder (P1 demo)

V5R8

- ✓ Relational Generative Design of a Mobile Phone (updated)
- ✓ Functional Product Optimization of a Mobile Phone
- ✓ Relational e-collab innovation including supply chain
- ✓ Generative Mold Core & Cavity design of a mobile phone
- ✓ Associative medical equipment design & validation
- ✓ SONY HD Video Recorder (P1 demo)
- ✓ Generative MoldBase design of a mobile phone
- ✓ Asynchronous collaboration: SmartBOM costing

V5R9

- ✓ Relational Generative Design of a Mobile Phone (updated)
- ✓ Collaborative BOM integration in electro-mechanical environment

V5R10

- ✓ Decision support DMU review
- ✓ Industrial design
- ✓ Specification driven product morphing
- ✓ Embedded know how component morphing
- ✓ Electronic and mechanical design integration
- ✓ Thermal analysis of a PCB
- ✓ Structural analysis of plastic part
- ✓ Collaborative workspace for electronics

V5R11

- ✓ Project Management & Derivation
- ✓ Sheetmetal Design for Manufacturing
- ✓ Generative Core Mobile Assembly Structural Analysis
- ✓ Electronic & Mechanical Design Integration

V5R12

- ✓ Knowledge Driven Conceptual Design
- ✓ Backlighting Simulation
- ✓ Issue Management
- ✓ Requirements Management
- ✓ Functional Analysis and System Architecture Definition

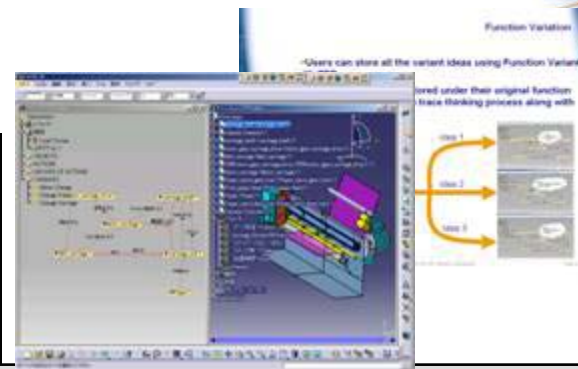
New Demonstrations delivered in V5R12

Knowledge Driven Conceptual Design

Abstract

Conceptual design is a key step for product innovation. its value lies on engineers' thinking which is intangible and thus difficult to capture.

This best practice proposes a new approach of visualizing and utilizing design intention (the 'WHY' of the design) to foster the product innovation.



3D PLM VALUE

Innovation	↗	+++	It helps engineers' exploration of product definition at systems engineering level. Visualization, capture and capitalization of engineers' design intent
Cycle Time	↘		
Quality	↗	++	Systematic check of customer requirements implementation.
Cost	↘	++	Enables engineers to reuse past ideas (not only adopted ones but also dismissed ones) so as to avoid "reinventing the wheel". It fosters efficient cost analysis through VE (Value Engineering) approach.

Key Messages

- Captures of design intent in the form of function diagrams with link to the 3D definition of the product.
- Comprehensive and agile concepts evaluation thanks to V5 Knowledgeware

3D PLM Scope

Brand	CATIA
Products Covered	PFD : Product Function Definition, KWA : Knowledge Adviser, KIN : DMU Kinematics Simulator, ASD : Assembly Design,

Backlighting Simulation



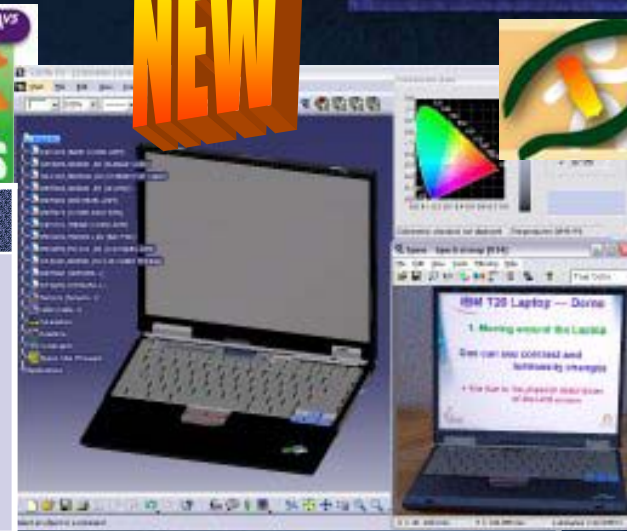
NEW



Abstract

The human being is the focus point for which all objects, systems and machines are designed.

SPEOS CAA V5 Based permits ergonomics professionals to address important issues related to the effects of lighting on the work environment, such as display light emission and material reflections, without the need for physical prototypes. It enables designers to concurrently perform physical ergonomics and physiological perception analysis in a common PLM-oriented simulation framework.



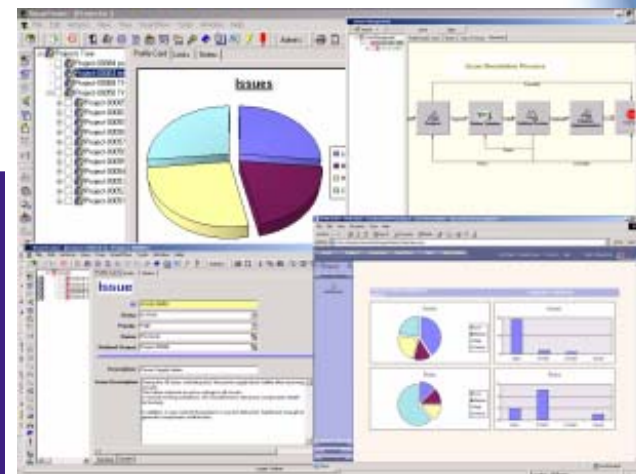
Values

Capabilities	↗	++	Handles the complete operator environment, including lighting conditions
Innovation	↗	+++	<ul style="list-style-type: none"> Improves visualization providing exactly what the viewer will see and perceive Integrates sensorial simulation as the final stage of the virtual prototyping process
Cycle time	↘	++	Accelerates time to market helping you design any human interface
Costs	↘	+++	Reduces cost consumption creating a virtual environment

Key Messages

- Easy to use (short learning curve)
- Fully integrated into CATIA V5: uses all the environment defined into CATIA V5 – associativity – CATIA V5 look & feel – knowledgeware compatibility
- Uses CATIA V5 material definition: optical properties = add-on to material properties
- Sources and sensors are defined using CATIA V5 existing geometry
- Results: Photometric/radiometric – Colorimetric – Human vision (glare effect, peripheral resolution, depth of field)
- Result analyzers: spectrum/colors, energy levels, contrast – proven accuracy
- Improves the visualization of your future product giving you true levels of light, true color information, necessary to know how you will perceive your product.

Issue Management



Abstract

All along the engineering processes, deviations from initial project plan can raise and affect the success of project.

In the context of a fragmented project teams, the quality, costs and development time are even more complex to control. It is essential to provide a collaborative platform with mechanisms to manage such critical information for project successes.

This Best Practice describes an infrastructure:

- to capture and share issues information,
- to control and support issue resolution and
- to support decision making for project success.

3D PLM Value

Innovation	↗		
Cycle Time	↘		
Quality	↗	+++	Consistent data organization for relevant information access Applicable to all project related data (Requirements, function, system, planning, resources, parts, supply chain...)
Cost	↘	++	Better decision making based on dashboard Faster issues resolution thanks to the workflow integration.

Key Messages

- Unique access to issues information for all project stakeholders
- Issue Management system embedded inside the project data environment for faster data access
- Workflows for resolution control
- Web access for worldwide collaboration
- Graphical dashboards for better decision support

3D PLM Scope

Brand	SMARTEAM		
CONFIGURATION	SMARTEAM – Editor Configuration		
	SMARTEAM – Web Editor / Navigator		

Requirements Management



Abstract

Lack of knowledge of the intended behavior of a product, as well as requirements creep, are common factors in out-of-control projects, cost and schedule overruns.

The Requirements management Best Practice provides the development team with a clear understanding of what is to be delivered, how and why.

It supports the system engineering process insuring the transformation of customers and markets requirements in correct multidisciplinary technical specifications.

It handles the requirements lifecycle including impact and dependencies between Market Needs, Functional product definition, Technical requirements, and system architecture.

3D PLM VALUE

Innovation	↗	++	Supports optimal cross-discipline collaboration around a clear, unified and consistent product definition.
Cycle Time	↘	+	Enables rapid and synchronized teamwork; Improve cross-teams communication.
Quality	↗	+++	Provide most effective way to drive right to target product delivery. Insures product quality and customer/market requirement matching - perfectly manage and understand requirements changes - Eases compliance with standards and regulations
Cost	↘	+	Do right at first time. Reduces or avoids errors, inconsistencies. Promotes usage of existing product platforms.

Key Messages

- Delivers key competitive advantage in the electronics industry by optimising the early stages of product engineering, when companies analyse market needs or customers requirements and establish product specifications.
- Provides management framework for the RM process: classification, dependency links, propagation management, life cycle management, dashboarding, audit and trail.
- Provides unified environment for design-to-target optimisation and ensures adherence of design to requirements
- Supports RM niche applications integration
- Fosters maximal reuse of requirements across projects and product families

3D PLM Scope

Brand	SMARTEAM: Mandatory
Products Covered	Smarteam / SET

Functional Analysis and System Architecture Definition

Abstract

One of the most critical task in the engineering process is to define the required functions to be performed by the product, and to define its system architecture.

The Functional Analysis and System Architecture Definition Best Practice provides the development team with a clear and unambiguous presentation of functional and logical definition of the product.

It supports the system engineering process insuring the transformation of customers and markets requirements into functions and systems to be implemented for right-to-target product definition.

It handles the functions and systems definition lifecycle including impact and dependencies between Market Needs, Functional product definition, Technical requirements, and system architecture.



NEW

3D PLM VALUE

Innovation	↗	++	Better control projects complexity. Helps companies to incorporate and take advantage of rapid technology change and to foster in-house creativity.
Cycle Time	↘	+	Reduce execution time by capitalizing on existing platform, design and corporate knowledge. Enables rapid, consistent and synchronized teamwork; Improved cross-disciplines communication.
Quality	↗	+++	Manages design-to-target process and drives product quality and customer satisfaction Insures product quality and customer/market requirement matching Eases compliance with standards and regulations
Cost	↘	+	Do right at first time. Reduces or avoids errors, inconsistencies. Promotes usage of existing product platforms.

Key Messages

- Provides management framework for the functional and system architecture definition: classification, dependency links, propagation management, life cycle management
- Provides unified environment for design-to-target optimisation and ensures adherence of design to requirements
- Supports functional/system architecture SW applications integration
- Fosters maximal reuse of corporate assets across product families

3D PLM Scope

Brand	SMARTEAM: Mandatory
Products Covered	Smarteam / SET

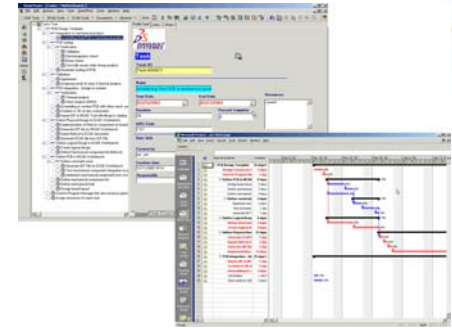
Demonstrations available from previous SMARTClass Kits

Project Management and Derivation

Abstract

The success of a project depends on the ability to maintain a unified and consistent view between the project plan, the resources, the tasks and the related data.

This best practice provides a unified collaborative environment for real time project management across the extended enterprise. It includes project planning, task execution control, project monitoring through an integrated dashboard and project definition reuse through project sequences templates



3D PLM VALUE

Innovation	↗		
Cycle Time	↘	+++	Fast project ramp-up and re-use of project management know-how Real time decision making and control thus avoiding schedule and cost overruns
Quality	↗	+++	Consistent data organisation between tasks, resources, and deliverables. Easy monitoring through a single, consistent decision-support dashboard. Project quality compliance Ability to capitalize on the company's project experience and knowledge
Cost	↘	+	Provides real time cost monitoring, allowing for faster decision making

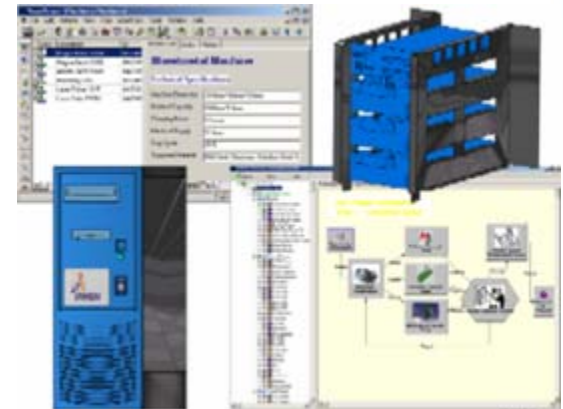
Key Messages

- Resource integration and management
- Dashboard utilities
- Consolidation of multiple project planning
- Fast propagation of tasks across the project team
- Derivation of existing project plans
- Process compliance
- Integrated project management tool with direct links between project definition and associated tasks, documents, deliverables and related information

3D PLM Scope

Brand	SMARTEAM
Configuration/ Product	SMARTEAM Editor Configuration, SMARTEAM Web Editor configuration

Sheetmetal Design for Manufacturing



Abstract

More often than not designers do not have access to manufacturing information. As a result, they design parts that are not suitable for fabrication. This leads to design changes late in the process or the creation / purchase of special tooling, both of which results in project cost and schedule overruns.

This best practice provides sheetmetal engineers with instant access to manufacturing know-how. It allows them to design the right parts first time and prevents design flaws and manufacturing rules violations.

3D PLM Value

Innovation	↗		
Cycle Time	↘	+++	Reduce the number of iterations between design and manufacturing teams to get the expected result.
Quality	↗	+++	Early and real time validation of the manufacturability of the sheet metal component which leads to ready-to manufacture products. Manufacturability check integrated into product development
Cost	↘		No special tooling necessary, through usage of existing assets

Key Messages

- Manufacturing specification-driven design templates.
- Corporate standardization
- Strong relationship between the resources (machines) and the design.
- Ultra fast propagation of changes due to relational design methodology

3D PLM Scope

Brand	CATIA	Mandatory	Comment
	SMARTEAM	Mandatory	Comment
Products Covered	Assembly Design; Sheet Metal Design		Comment
	Product Name		Comment

Generative Core Mobile Assembly Structural Analysis

Abstract

To ensure the product's attractiveness in terms of user comfort, it is necessary that the sound is audible and the level of vibration is at a reasonable level. This Best Practice helps to validate the behavior of electronic products (assemblies of mechanical and electronic components) based on vibration analysis. It enables project teams to quickly evaluate the dynamic response of the assembly to vibrations coming from the loudspeaker throughout the whole design process.



Innovation	↗		
Cycle Time	↘	+++	Simulation on native engineering data, no time consuming or error prone translation Generative, spec-driven simulation results allow for quick iterations in case of design changes
Quality	↗	+++	Optimized design quality through early simulation
Cost	↘	+++	Rapid virtual test bench reduces the need for physical testing, and increases the number of studies

Key Messages

- GDY easily and quickly predicts the dynamic response of a system under vibration. This allows the engineer to make informed decisions early in the development phase.
- Allows the engineer to check the influence of the distributed force (the load) on each mode of the structure.
- Provides advanced generative structural analysis on complex solid assemblies.

3D PLM Scope

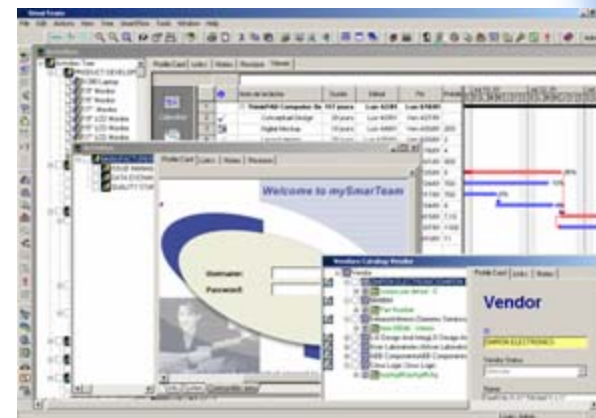
Brand	CATIA (mandatory)
Products/ Configuration	Products: GPS, GAS, EST, GDY Configuration AS2

Collaborative Workspace for Electronics

Abstract

Shows the new SMARTEAM for Electronics template providing collaborative product development which enable the typical Consumer, Industrial and Component industry best practices of project quick start, product 'make from' and component approval process. Providing better communication with design suppliers and EMSS.

The collaborative workplace for Electronics provides customers with reduced time to market, reduced engineering costs allowing resources to be focused on innovation or on meeting customer needs.



3D PLM VALUE

Innovation	↗	+	Complete HW/SW/Mechanical product definition for cross disciplines optimizations enabling time for innovation, not administration
Cycle Time	↘	+++	Rapid and controlled project start up with correct product definition available at the outset. Right data at the right time for the right people.
Quality	↗	++	Secured project data repository and consistent project and process execution
Cost	↘	++	Increases engineering productivity, right data in right place at right time. Reduces rework costs with suppliers and Electronics Manufacturing Services companies.

Key Messages

- Re-use of project structure including workflows and product (electromechanical) structure to integrate cross-functional product development process (H/W, S/W) by exploiting the increased capability of the SMARTEAM portfolio
- Typical electronics industry Vendor(EMS) BOM exchange with BOM costing and ECAD BOM extract
- Adds to basic industry value proposition of 'Product Data repository'

3D PLM Scope

Brand	SMARTEAM: Mandatory / CATIA: Optional
Products Covered	Smarteam / Smarteam for Electronics / SmartBom 2 / MySmarteam / CATIA CBD: Circuit Board Design

Specification Driven Product Morphing



Abstract

Definition of a Mobile Phone product model architecture for rapid product morphing. Enables a typical Consumer or Component 'make from' best practice which promotes early collaboration around key product design studies provides greater consistency and focuses innovation to areas of greatest market value.

3D PLM VALUE

Innovation	↗	+++	More, and quicker, design 'trade off' studies of product architecture or content. Understand the impact of innovation proposals faster.
Cycle Time	↘	+++	Promotes re-use of proven designs through template usage. Rapid concept and feasibility assessment for responding to customer RFP. Fast project ramp-up and and re-use of design know-how.
Quality	↗	+	Improves product quality through re-use of proven design specifications. Specifications can cover process and resource definitions to improve manufacturing ramp up.
Cost	↘	++	Modifications propagation cost reduced (mainly coming from style) due to relational design capabilities. Reduce the number of late modifications

Key Messages

- Design Templates for product layout promotes and simplify re-use
- Project Know how Encapsulation (Specifications, rules, knowledge)
- Ultra fast propagation of changes due to relational design methodology

3D PLM Scope

Brand	CATIA / SMARTEAM
Products Covered	ASD : Assembly Design; TDM: CATIA – TEAMPDM; KWA: Knowledge Advisor;

Embedded Know How Component Morphing



Abstract

Capture, share and re-use Component proven designs, with embedded corporate knowledge. Enables typical Consumer, Component and Industrial sub-segment design re-use best practices which achieve 'right first time' design providing reduction in time to market and reduced engineering cost

3D PLM VALUE

Innovation	↗	+	Innovation gets easily propagated across design teams. Focus on innovation while captured knowledge drives resulting design geometry
Cycle Time	↘	++++	Controlled design best practice repository supports quick queries of existing best practices. Easy and rapid morphing of complex designs to new specifications
Quality	↗	+++	Controlled and consistent Design. Re-use of proven designs and embedded knowledge rules validation. Achieve design targets and brand values quickly.
Cost	↘	++	Right the First Time. Avoid downstream costs and rework. Meet design goals at target costs.

Key Messages

- Design Template for definition of a keypad
- Keypad Design Know-how and Specification Encapsulation, including necessary clearance to outer shell
- Morphing of keypad definition when brought into new design

3D PLM Scope

Brand	CATIA / SMARTEAM
Products Covered	PKT: Product Knowledge Template, SmarTeam TeamPDM

Decision Support DMU Review



Abstract

Shows the use of Digital Mock-Up capabilities during the Concept or early Development phases. Enables typical Consumer or Industrial pre-packaging best-practice which provide greater product and process quality through faster more focused innovation

3D PLM VALUE

Innovation	↗	++	Enables early problem identification around product innovation or specification changes during 'make from' process. Early and consistent assessment of factors like internal space utilization, assembly, operation in context and ergonomics
Cycle Time	↘	++	Readily available coordination, design validation and review along the product development process ensure a shorter cycle time through faster cross-discipline decision making
Quality	↗	+++	Reduces or avoids data interaction errors, data inconsistencies and misunderstandings within the project team. Product quality ensured thru early decisions
Cost	↘	++	Avoid costs linked to unsynchronized data usage or misunderstandings. Reduces or avoids last minute design changes.

Key Messages

- Efficient decision support at each project milestone
- Product balance (centre of gravity) validation automated thru dynamic knowledge rules
- Permanent control of the design thru efficient handling of data interdependencies

3D PLM Scope

Brand	CATIA
Products Covered	DMU Portfolio / Assembly Design / Product Knowledge Template

Integrated Industrial Design



Abstract

End to end highly styled part design from designers sketch to product model including visualization and high level curve and surface functions. Enables typical Consumer or Industrial portable equipment best practices around 'brand values' and provides differentiation by design through rapid and innovative product styling.

3D PLM VALUE

Innovation	↗	+++	Capture and share stylist intent by integrating 2D styling pictures in the 3D assembly level as reference for the designers. Design alternatives can be explored and rapid changes enabled with associativity.
Cycle Time	↘	++	Shortening ID cycle time thanks to powerful curve-based tools that allow designers to efficiently create styled shapes from the integration of 2D styling pictures. Reduce TTM by removing data exchange bottlenecks thus promoting early multi-discipline collaboration
Quality	↗	++	Rapidly achieve targets around brand values and product differentiation. Ensure quality of design intent by providing advanced set of dynamic and permanent surface analysis tools.
Cost	↘	+	Reduced engineering cost of translation and design rework in today's typical methods Cost of ownership reduced by managing one single CAD system integrating the styling process. Right design the first time reduces rework.

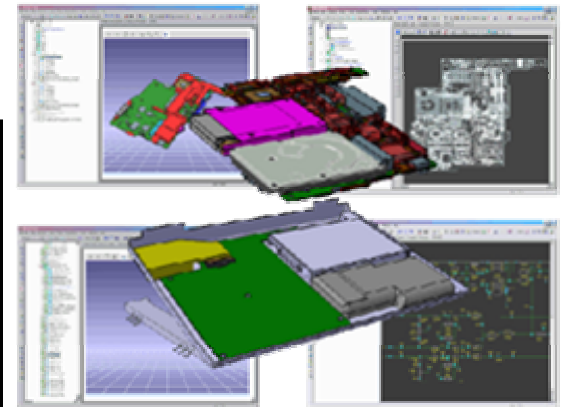
Key Messages

- Full integration of Styling process from styling sketch immersion to high quality surface and shelling.
- Real-time curve and surface quality check during styling process. Re-injection of styling ideas thanks to associativity.

3D PLM Scope

Brand	CATIA : Mandatory
Products Covered	FSK : Freestyle Sketch Tracer / FSS : Freestyle Shaper / GSD : Generative Shape Design / PDG : Part Design

Mechanical & Electronic Design Integration



Abstract

At any time during the engineering process, unmanaged data exchange between engineering disciplines may lead to design inconsistencies, delays, and poor quality. As concurrent engineering between ECAD and MCAD designers becomes critical, it is essential to provide a collaborative platform with built-in mechanisms to manage the life cycle of these various components.

This best practice provides a generic handling of electronic data between ECAD and MCAD designers. It enables a permanent data consistency within the product definition and also the component catalogs.

3D PLM Value

Innovation	↗		More innovative designs due to better integration of circuit boards in the overall product layout
Cycle Time	↘	+++	Unique data repository which enables an efficient control of the data flow between engineering disciplines Collaborative work on the most up to date data
Quality	↗	+++	Permanent, fully managed and consistent electronic data between the disciplines Avoids rework costs arising from late discovery of problems, or misunderstandings
Cost	↘		

Key Messages

- Unique access to engineering information for all disciplines (SMARTEAM)
- Unique data repository for all engineering disciplines
- Management and synchronization of MCAD/ECAD catalogs.
- Easy, automated and cross disciplined process of components qualification

3D PLM Scope

Brand	CATIA V5	Mandatory	CBD, PDG
	SMARTEAM	Mandatory	SMARTEAM for ELECTRONICS
CONFIGURATION			



Thermal Analysis of a PCB



Abstract

CATIA V5 Analysis can answer specific needs like thermal analysis. V5i GTH (Generative Thermal Analysis) developed by MSC.Software is a fully integrated and associative simulation product that allows the CATIA V5 - GPS user to simulate the thermal behavior (conduction, convection) of in-progress design.

3D PLM VALUE

Innovation	↗	+++	Low cost virtual prototypes testing allows multiple design options to be checked. As a consequence it gives the designer the opportunity to investigate new design concept.
Cycle Time	↘	+++	Design associativity of CATIA V5 Generative Analysis ensure the automatic propagation of design changes to analysis results avoiding time-costly file transfers and no value repeated tasks.
Quality	↗	+++	Optimize the quality of your in-progress design with early verification tools.
Cost	↘	+++	Save resources by conducting tests on virtual prototypes thus reducing the use of expensive real-life test. CATIA V5 Generative Analysis can be successfully used by non expert thus reducing out-sourcing costs.

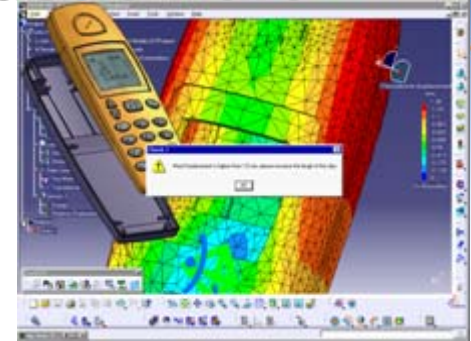
Key Messages

- Highest level of integration of CAA Partners products extending CATIA V5 Generative Analysis to specific domains
- Integrate the knowledge to simplify your design for faster analysis verification iterations.

3D PLM Scope

Brand	CATIA: Mandatory / MSC.V5i: Mandatory
Products Covered	GPS, GAS, EST: Generative Structural Analysis/ MSC.V5i GTH: Generative Thermal Analysis

Structural Analysis of Plastic Part



Abstract

Mobile phone design optimization based on V5 Analysis verification: the designer proceeds with design modifications to ensure that under the effect of two different load cases the resulting linear deformation of the mobile phone doesn't reach a critical and damageable value.

3D PLM VALUE

Innovation	↗	+++	Low cost virtual prototypes testing allows multiple design options to be checked. As a consequence it gives the designer the opportunity to investigate new design concept.
Cycle Time	↘	+++	Design associativity of CATIA V5 Generative Analysis ensure the automatic propagation of design changes to analysis results avoiding time-costly file transfers and no value repeated tasks.
Quality	↗	+++	Optimize the quality of your in-progress design with early verification tools.
Cost	↘	+++	Save resources by conducting tests on virtual prototypes thus reducing the use of expensive real-life test. CATIA V5 Generative Analysis can be successfully used by non expert thus reducing out-sourcing costs.

Key Messages

- ➔ Up front Analysis verification of design variations benefits from PDM integration
- ➔ Integrate the knowledge to determine the compliance to corporate standards, eliminating potentially unfavorable results

3D PLM Scope

Brand	CATIA: Mandatory / SmartTeam: Mandatory
Products Covered	GPS, GAS, EST: Generative Structural Analysis/ KWA: Knowledge Advisor

Thank you