Digitalization Platform for Electronic and Industrial Market
Agenda

9.30 Registrazione & Welcome Coffee
10:00 Welcome a cura di Ducati
10:10 Digital Twin di prodotto e processo:
   ▪ Dalla progettazione del prodotto e del processo produttivo alla simulazione e validazione
   ▪ Additive: un nuovo modo di progettare e realizzare i componenti
   ▪ La gestione integrata meccanica/elettronica/software
11.50 Success Story: Gruppo De’ Longhi
12.10 Il valore dell'IOT per il settore high tech e dell'elettronica
12:30 Q&A
13:00 Pranzo
14.00 Visita al museo e alla fabbrica Ducati

Twitter: @SiemensPLM_IT
Trends in the Electronics Industry

Disruptive pull of electronics in mature industries.

Customer Diversification is on the rise.

Devices are getting smaller and smarter.

Customer Experience is essential to growth.
Impacts for the Electronics Industry

Shorter technology Innovation Adoption Time Becomes Shorter.

Inability to achieve zero defect will cause loss of revenue/market share.

More difficult to enable collaboration across and through the Supply Chain.

Manufacturing environment needs to be closed loop, intelligent and integrated.
Siemens Vision:
Deliver Holistic Software Solutions to Digitalize the Enterprise, enabling NPDI Excellence.
Digital Twin of Product Ideation

Manage Product Complexity

Optimize competing targets

Enable modularity and reuse

Balance performance, cost, compliance

Integrate disciplines
Accurately represent what is real and simulate what is possible
Digital Twin of Performance Utilization

Plant and Machine Analytics

Optimizing asset performance, energy and resource consumption, maintenance, services...

Improve customer experience and supplier quality
Contextualize data and discover trends

Product Analytics
The Siemens Digitalization strategy
Make Strategic Acquisitions

ALM

Polarion Acquisition
PLM – ALM integration
Continuous Delivery

MES

Camstar Acquisition
PLM – MES Integration

Product Analytics

Cloud Based Solutions
Product Performance Intelligence

Electronic Design Automation

Mentor Graphics Acquisition
PLM – EDA integration
Digital Enterprise Suite
Siemens holistic approach to IoT

Teamcenter

Product Lifecycle Management

Manufacturing Operations Management

MindSphere

Totally Integrated Automation

Cloud-based, open IoT operating system: MindSphere
Connect more people in more places
Product Cost Management
Multi-Discipline Data Management
Integrated Closed Loop Smart Manufacturing
Additive Manufacturing
Supplier Collaboration
Compliance Management
Program & Program Management
Active Workspace
Find what you need faster

Increase productivity by reducing time wasted searching for information

shopping cart-like filtering
intelligent charts
easy access to relevant information
Active Workspace
User productivity – universal viewer

View the contents of various data types directly from the object's Overview location, without having to drill into objects and data structures.

View:
- PDF
- JT
- Text
- HTML
- Images (image files supported natively in browsers)

- Markup PDF and Images

View related files on summary view or any tab.
Active Workspace
User productivity – universal viewer

Enable knowledge users to visualize standard 2D and 3D format

- View 3D models
- Navigate 3D view
- View massive models
- View PMI
- Capture images
- Markup image captures
- Select multiple objects
- Set viewer display options
- Measure
- Search spatially
- Cross section
- 2D View and Markup
Active Workspace
Electronic Work Instructions: On-Line Digital Assembly Sequence

Shop Floor Level - Leveraging Manufacturing Engineering Data

Textual information
Assembly process navigation
Assembly animation or lightweight visualization

Parts list
Assembly sequence navigation
Multi-Discipline Data Management

Connect more people in more places

Product Cost Management

Integrated Closed Loop Smart Manufacturing

Additive Manufacturing

Supplier Collaboration

Compliance Management

Program & Program Management

Smart Manufacturing
MCAD product development
NX data management

Capture, manage and share NX data

- On-demand access to Teamcenter from inside NX: navigate, search, view data, check-in/check-out
- Vault, manage and control multiple revisions of component and product designs
- Support for all advanced Teamcenter security designations and data access controls
- Ability to create new product revisions or version updates for work in progress
- Ability to create, configure and edit a product structure in either Teamcenter or NX
- Consistent visualization of assemblies and their constructs in NX and Teamcenter
- Ability to load product structure by applying configuration rules, i.e. revision rules, precise, baseline, effectivity
- Selective/partial load of product structure for efficient management of assembly design
- Where-used/referenced queries on interpart relations in either NX or Teamcenter
eCAD and mCAD collaboration

- Enable eCAD and mCAD data exchange from logical to schematic to PCB board layout and mechanical representation
- Provide a common BOM structure to manage and visualize eCAD and mCAD data
- SDPD approach to design and verification, eliminates rework across disciplines
- Improves part/component re-use
- Reduces cycle time for change
ECAD Data Management
ECAD tool integrations and data management

### Uniform ECAD data management across tools and locations

<table>
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<tr>
<th>Vendor/Tool</th>
<th>Design</th>
<th>Library</th>
<th>Visualization</th>
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<tr>
<td>Cadence Allegro</td>
<td>Yes</td>
<td>Yes</td>
<td>SCH/PCB</td>
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<tr>
<td>Cadence OrCAD</td>
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<td>Yes*</td>
<td>SCH</td>
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<td>Yes</td>
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<td>Mentor xPedition</td>
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<tr>
<td>Altium Designer</td>
<td>Yes</td>
<td>Yes*</td>
<td>PCB</td>
</tr>
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</table>

- Manage versions/revisions; schematic, layout, variants, IDF/IDX, BOM, visualization, fabrication, assembly, etc.
- Open/Close, Save/Check-in design & derived data
- Control access/authorizations
- Execute workflows & manage/track release status
- Define/trace relationships between design objects
- Search and find the right design data
Integrated PLM-ALM Solution
Comprehensive ALM and PLM solution

- Increased visibility and confidence of test results, test coverage and schedule
- Reduced number of design iterations and verification process
- Trace Requirements to Software for Create/Update and to Test Cases for Traceability
- Identify and Execute the Test cases for Quality
- Track Test Results for Compliance/Regulations
- Record Build Information and Software Artifacts as Part of the Integrated BOM

Manage software requirements

- TRIGGER: Product change
  - Impact Analysis: Product change review
  - Execution: Change implementation
  - Release: Integrate BOM

- TEAMCENTER
  - Assign
  - Analysis Results
  - Integrate change
  - Build Ready

- POLARION
  - Impact Analysis: Software Change review
  - Implementation: Software Change implementation
  - Testing: Software Verification & Validation

- Issues and Risk Management

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Siemens Teamcenter-Polarion
Simulation Data Management

- Predict/simulate issues based on varying data conditions
- Store and manage 1D behavioral models and CAE models, simulation data and processes
- Store and trace analyzed parts
- Improve quality with simulation tools early in design cycle
- Reduce physical prototypes by leveraging the digital twin
- Accelerate early discovery of design issues

Multidisciplinary Simulation
Welcome to Simcenter!

Simcenter unifies a range of simulation disciplines and solutions in a rich, open, sustainable environment. Designed exclusively for advanced analysts, Simcenter delivers high-fidelity performance insights in time to drive product decisions.

You can facilitate possible reductions in pre-processing time through intuitive, direct geometry editing and mesh analysis. Simcenter provides a wide range of post-processing and report generation tools.

Simcenter enables you to create analysis models for structures, acoustics, electronics, thermal, fluid, motion, multiphysics, and optimization. It also supports a number of external solvers such as ANSYS, NASTRAN, LSTOOL, LS-DYNA, and MSC NASTRAN.

For tips and handy information, click Templates and other links on the left.
Cost & Compliance Risk Management
Cost Management

Deliver profitable price

- Process-based bottom-up calculation and cost models
- Integrated cycle time calculators for selected technologies
- Flexible simulations of what-if scenarios
- Cost-relevant knowledge database
- Delivers standardized costing methodology and a consistent database
- Enables the company-wide exchange of cost information for all involved business functions
- Ensures cost-effective return on capital over the product lifecycle
- Delivers optimized purchase prices through knowledge-based cost analysis
### Main control unit (incl. connectors) (060257)

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<th>Procurement type</th>
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<th>Unit</th>
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Siemens PLM Software
Volume simulation
Manufacturing Engineering
Capturing the process knowledge and global standardization

Integrated environment for Mfg BOM and Bill of Process Definition

- **Templates** based structures
- Graphical Mfg BOM definition and update guidance
- Bill of (Assembly) Process based on Mfg BOM and **best practices** for operations and sequences
- Complete description of the process phases with duration, workareas, tooling and required **process documentation**
- Integrated **change management**
Easy Plan

INBOX
0/1/0
Nuovo Totale Scaduto

GUIDA

STAMPE

PREFERITI

CARTELLA HOME

RICERCHE SALVATE

NUOVA PARTE

NEW WORK PACKAGE

MY STUFF

CREA DOCUMENTO

MODIFICHE

SEGNALAZIONE PROBLEMI

DOMANDE

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Siemens PLM Software
Manufacturing Engineering
Digital Twin for Product & Process

Complete Digital Manufacturing Simulation Suite

Robotics for Packaging Automation

Throughput and Efficiency Line Simulation

Production Time, Cycle Time, Capacity, Availability, MTTR, Shift Model in Every Resource

Cathode Coating
Additive manufacturing

<table>
<thead>
<tr>
<th>conventional machining</th>
<th>vs</th>
<th>additive manufacturing</th>
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</table>

![Diagram showing comparison between conventional machining and additive manufacturing](image-url)
Additive manufacturing

Breakeven: Conventional versus additive manufacturing

Optimization benefits:
- 15% weight reduction
- Equal strength / reduced stress
- Fewer manufacturing steps

Conventional thinking

Additive Manufacturing thinking
Additive manufacturing

Today’s Challenge: Industrialize the process

Disconnected applications
Multiple data conversions
Uncontrolled workflow
Conventional thinking
Additive manufacturing

Reshape the process to unleash your creative potential

Calculate → Optimize → Adapt → Validate → Make
Environmental Compliance and Product Sustainability
Keeping Up With Environmental Regulations

Substance Compliance Key Pillars

Material and Substance Management
• Manage materials and substances along with the product structure lifecycle
• Integrate with third party material sources

Supplier Declaration Automation
• Automated process to gather supplier material and substance declarations
• Supplier data managed along with product structure
• Industry standard support (IPC-175x, CMRT) BOMcheck and IMDS integration

Compliance Grading and Reporting
• Compliance grading
• Pre-configured rule sets
• Rules editor for custom regulations
• Dashboard views
Supplier collaboration
Support a complex supply chain and multiple use cases

Fully leveraging the supply chain to increase productivity and shorten time-to-market

- Strategically manage suppliers, supplier data and supplied parts
- **Aggregate supplied parts** in your company product structure
- Perform configurable search and **reports on all supplier information** in Teamcenter
- Automatically **notify the correct people** when supplier content information is changed or an issue is raised
- Suppliers can manage their information with a **standard internet browser**
- Aggregate **supplier KPI** information for scorecard reporting
Connect more people in more places

Product Cost Management

Multi-Discipline Data Management

Integrated Closed Loop Smart Manufacturing

Additive Manufacturing

Supplier Collaboration

Compliance Management

Program & Program Management

Integrated Closed Loop Smart Manufacturing

Smart Manufacturing

Additive Manufacturing

Supplier Collaboration

Compliance Management

Program & Program Management
Program and Project Management
Integrated planning & execution

Plan, manage and execute complex processes simply and efficiently

- **Planning framework** for long-term programs
- Realize program objectives with a top-down approach to the coordination of product development initiatives across domains
- Create **high level program plan hierarchy** (program, project, and subprojects with key events/milestones)
- Define criteria for **program events/milestones**
- Use in combination with schedule manager to provide a bottoms-up approach to program execution to enable stakeholders to efficiently **monitor the status of key deliverables**
Active Workspace
Dashboards and reports

Avoid costly mistakes by seeing the big picture in greater clarity

Self-service reports, dashboards and analytics which leverages your PLM and multi-source information to improve products and processes

• *Explore data* in Teamcenter
• Consolidate data from *multiple sources* into a single view
• Visualizing data with industry *leading graphics*
• *Analyze data* for process and product improvements
• *Track trends* and changes over time
Thank you