

Siemens Home and Office Communication Devices GmbH & Co. KG

*CATIA V5 and SMARTEAM for integrated product
development processes*



Overview

■ The Challenge

*Siemens Home and Office
Communication Devices sought
to increase its engineering
productivity, while responding to
growing demand volatility and
shorter product lifecycle times*

■ The Solution

*Siemens Home and Office
Communication Devices chose
CATIA V5 and SMARTEAM as
new PLM-platform for their
continuous product development
process improvement*

■ The Benefit

*With CATIA V5 and SMARTEAM,
Siemens Home and Office
Communication Devices has
improved design innovation,
leveraged existing know-how and
tightened design-to-manufacturing
processes to streamline
development and reduce costs.*

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design activities
from scratch, using
CATIA V5 with a set of
pre-defined product and
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to quickly complete
even sophisticated
design tasks with a high
level of accuracy.”*

*– Dipl.-Ing. Georg Heisterkamp, Process Innovation
Mechanical Design, Siemens Home and Office
Communication Devices.*

Staying on the cutting edge

Siemens Home and Office
Communication Devices is a
leading maker of high-quality
telecommunications devices for the
business and consumer markets.
Its award-winning Bocholt product
development and manufacturing site
in Germany has been critical to this
success since 1948.

But the fast-paced, customer-focused telecommunications market has become increasingly competitive over the past 20 years with frequent technological innovations (for example, wireless phones, smart phones, connected and networked devices) and customer demands for continuous advances in style and functionality of a broad range of products. As a leader in the marketplace, Siemens knew it was critical to continue streamlining its product development and manufacturing processes to improve its agility and productivity, while positioning itself to handle the increasing product complexity required to maintain its competitive advantage.

“The IT infrastructure and the processes must foster fresh ideas for product innovation, while driving high quality – an important brand value for Siemens,” says Heinrich Föcking, Head of Mechanical Design Department.

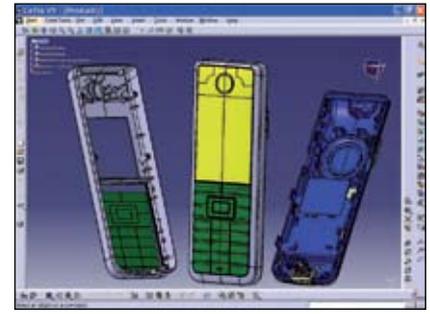
In addition, Siemens sought to better leverage the expertise and advantage of its many global suppliers and partners throughout the product development process to ensure improved overall product success.

CATIA V5 and SMARTEAM – a winning combination

To achieve its vision, Siemens knew it needed to leave its existing 3D CAD/CAE product development tools behind in favour of the latest technology processes. After a careful analysis of the leading market applications, Siemens selected CATIA V5 and SMARTEAM as its next-generation PLM solutions.

In close collaboration with IBM, Dassault Systèmes and MDTVISION, an affiliate of IBM, some important Siemens-specific adaptations were created to further enhance the usability and productivity of the standard applications in the context of Siemens' own specific corporate needs. The IBM PLM solutions were then implemented on a focused, project-by-project basis that allowed close control of time lines.

“We were able to map our already highly complex development processes to the new CATIA and SMARTEAM-based environment,” says Georg Heisterkamp, Process Innovation Mechanical Design. “And we didn't have to adapt our processes to the new tools because the new tools were adaptive to our processes.”



“The comprehensiveness of the IBM PLM toolset, coupled with the experience and know-how of Siemens' own project management staff and that of IBM and MDTVISION's pre-sales and consulting staff, were the main success factors that ensured first-time user satisfaction and compliance with project time lines and target cost,” he adds.

A phased and carefully planned concurrent implementation of device-development, mold design and NC-programming processes also was completed in conjunction with the creation of an action plan catalogue containing requirements for libraries and standards, as well as a target list of methods and automations to be implemented. This implementation included the use of SMARTEAM to manage CATIA's hierarchical and object links to allow concurrent engineering and design in context.

Enhancements to design and device engineering

Siemens' Bocholts facility is already realising many of the benefits of its CATIA V5 and SMARTEAM implementation.

When receiving styling data from design departments, the design data can be easily imported via standard data formats and a high level of styling intent can be maintained with minimal effort.

To create high quality shapes and curvatures, designers can employ tools like Generative Shape Design (GSD) and Free Style Shaper (FSS) to optimise designs. And these operations can be combined with analyses on different environmental circumstances, such as curvature or general surface attributes, keeping the process efficient and streamlined.

Using CATIA Knowledgware for the intuitive and flexible re-use of design know-how, designs can be easily developed and tested for manufacturability and target cost.

"This is an area where Siemens Bocholt's guideline of 'Avoid, standardise and automate as much as possible' comes well into play," says Heisterkamp. "Instead of performing design activities from scratch, using CATIA V5 with a set of pre-defined product and process templates helps to quickly complete even sophisticated design tasks with a high level of accuracy."

For example, he points out, all of the relevant geometrical engineering know-how for creating a new key pad is 'conserved' in the form of a 'PowerCopy', which is then simply applied to a new phone housing with a few mouse clicks. This way, many cumbersome and time-consuming tasks can be eliminated through a higher level of automation.

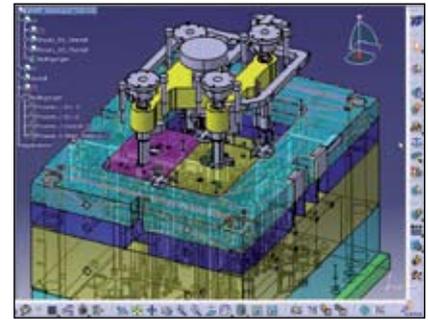
Design efficiencies also are gained with the use of CATIA's DMU space analysis tool. It is used for collision checks of sub-components in the design phase, and for dynamic section-based analyses.

Gains in mold and tool design

One of the success factors of Siemens Bocholt's PLM implementation and operation is the ability to maintain end-to-end control of its processes.

"CATIA is employed throughout the design and mold manufacturing departments, and the complete mechanical development process, can be overseen by one organisational entity, maintaining visibility of all product development stages end-to-end and bridging departments and tasks," adds Föcking.

By implementing productivity accelerators in the form of special applications on top of CATIA V5, Siemens is able to consider several aspects of manufacturing – like the tooling and mold technology or even the injection technology – used in the product build. The high level logic afforded by these applications allows for higher productivity through the automation of recurring tasks.



With the help of other applications, which work in association with CATIA V5, engineers can even simulate the mold flow and the cooling behaviour of the mold tools. This helps to make them 'right the first time' and leads to an optimal design of their complex geometries, optimised for cost and durability.

With the advantages of concurrent engineering afforded by IBM PLM solutions, even the design of complex housing can be streamlined by automatically extracting the fixtures required for molding any time, during the detailed design process, or by automatically calculating the configuration, or adaptation of the mold ejectors. And thanks to streamlining the mold design process, time is freed up for other value adding tasks.

Another example for the value of concurrent engineering is the way how designers can simulate the milling process in the production phase. By checking how the material is handled by the NC tools, engineers can address any potential manufacturing issues before the molds are produced, which helps avoiding costly errors and saving time.

The implementation of libraries containing standard parts, as well as standard geometries for all product development stages, aids in the cost-effective re-use of corporate know-how and ensures new products adhere to corporate design standards. And because the same dataset is used throughout the complete mechanical process chain, integrating mold cavity and computer-aided manufacturing, just a few simple assisting drawings are required. These drawings can be created automatically, ensuring consistency and time savings.

“To be competitive in a global marketplace, Siemens, like all other consumer electronics original equipment manufacturers (OEMs), has an extensive number of suppliers and partners to include in the development process, who provide parts and components like displays, battery covers, belt clips and capacity tools,” says Föcking. “Data transfers are being done via standard interface formats, and wherever possible, the design collaboration is done through native CATIA-based data exchange.”

According to Siemens engineers, the propagation of the same data-set from design to manufacturing reduces errors and increases design and engineering speed through the use of concurrent engineering and design-in-context practices.

Today, Siemens Bocholt is satisfied with both the quantitative and qualitative results coming from the latest PLM Business Process improvements. The contribution of CATIA V5 and SMARTEAM, they say, have been critical in achieving these goals and they will continue to be important enablers for the future improvements already in plan.



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