SIEMENS
Ingenuity for life

Electronics and semiconductor

ASML

NX certification improves design proficiency at ASML

Products

NX, Teamcenter, Simcenter

Business challenges

Optimal connection between staff knowledge, skills and tasks

Structured staff development

Keys to success

Certification of employees with the underlying goal of identifying educational and training needs and facilitating knowledge retention

Results

50 percent more effective use of NX

Increased knowledge proficiency

Improved rollout of new releases

Better connection to new NX functionality through more frequent upgrading

Leading lithography machine maker uses certification to work more effectively and improve quality with NX CAD

Knowledge and skills development

Employees are every company's true capital. Making the most of this capital requires continuous development in every area of competence. High-tech company ASML is more aware of this than most other firms. Working on staff development to bring know-how to the highest possible level – and keep it there – is common practice at ASML.

ASML is one of the world's leading manufacturers of chip-making equipment. The company invents, develops, manufactures and services high-tech lithography, metrology and software solutions for the semiconductor industry to enable ever smaller, cheaper, more powerful and energy-efficient semiconductors. This results in increasingly powerful and capable electronics that enable progress within a multitude of fields, including healthcare, technology, communications, energy, mobility, and entertainment. ASML is a multinational company with over 70 locations in 16 countries and employs more than 14,000 people.

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Group Leader, Mechanical Development, Wafer Stages
ASML

The company uses NX™ software from product lifecycle management (PLM) specialist Siemens Digital Industries Software for computer-aided design (CAD).

Evaluation

Knowledge development encompasses more than traditional expertise, it also incorporates knowledge of the software used in product development. But how do companies determine if the right knowledge is available and whether it is being applied? "Knowledge and skill are influential in two important ways," says Denis Loncke, group leader, mechanical development of the wafer stages, ASML. "First, they help users perform their tasks faster and, second, they improve the quality and stability of the NX CAD data, including models, assemblies and drawings."

ASML machines are utilized to the greatest extent possible and kept up-to-date by ASML technology experts during their life-span. "That means the NX CAD data has to be rapidly understandable to all engineers. This is achieved through a structured process and correct usage of the NX design software," notes Loncke.

To determine whether knowledge and skills are at a sufficiently high level and being applied correctly, ASML needed a measurement method. "Our Siemens Digital Industries Software training manager came up with the idea of introducing certification," says Loncke. "We thought an exam would be too perceived as a performance review." Instead, ASML's top management wanted to help employees develop and progress within the organization. The case studies that allow employees to earn certification are jointly developed by Siemens Digital Industries Software training staff and key engineers from ASML. These incorporate specific software features that ASML uses on a daily basis. Skill assessment matrices are also written entirely in collaboration to eliminate different interpretations of the assessment.

Certification intake for training

"For an initial pilot project, nine engineers were invited to participate in a certification process," says Loncke. "The results varied greatly and were, in some cases, really sub-standard. However, it was always clear to those taking part that the result in itself was not relevant. It serves as an intake, so that appropriate training can be provided for the focused development of knowledge and skills."

Certification exercises and assessment matrices are divided into a number of modules: Teamcenter® software integration for NX, NX modeling, NX assemblies and NX drafting. Each user must score a minimum number of points on each module. If the minimum score is not achieved, training is required.

Because roles within projects can vary strongly, approximately 750 employees at ASML will be eligible for certification. The remaining NX users work at the concept level and do not create NX CAD data used in product development.

Siemens Digital Industries Software total care

Processing these numbers requires considerable effort. "Within ASML, we took care of coordinating certification of internal staff," says Loncke. "We proposed a date to everyone on which they could take the three-and-a-half-hour certification, within a four-week deadline. Some flexibility was required, but all involved did their utmost to make this work." As a result, all certification could be completed in the short period between October 2013 and April 2014. Certification of so-called "farm-out" companies started in April 2014. These farm-out companies take care of certain development tasks for ASML. Siemens Digital Industries Software is responsible for all planning and implementation, including the financial arrangements. "Siemens Digital Industries Software has taken a lot of work off our hands." says Loncke.

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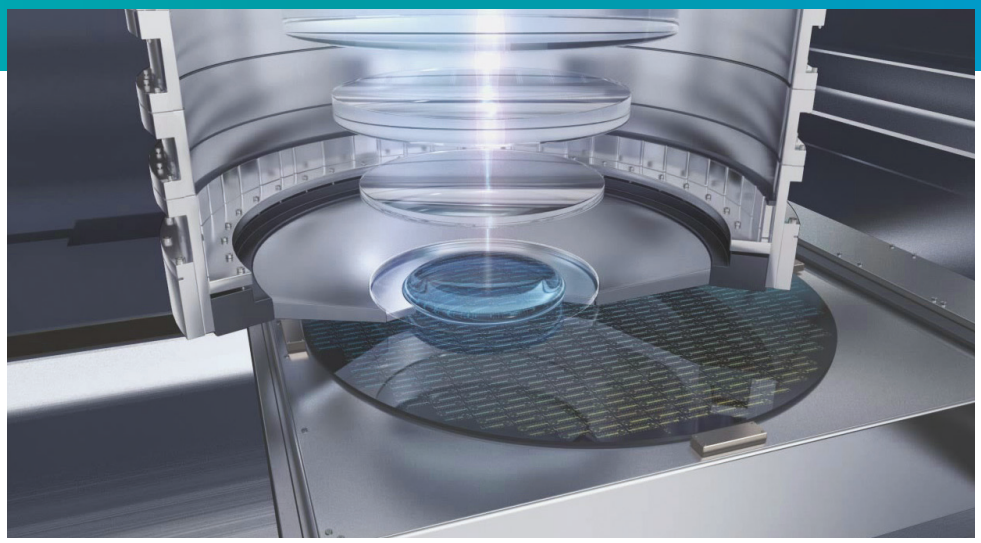

Training requirements are met with Siemens Digital Industries Software's standard training offering. No ASML-specific components are included. Many farm-out companies have been asking for employee certification of their own accord in a proactive approach that emphasizes the quality of their cooperation with ASML.

Securing and embedding processes

One-off certification is not sufficient to secure and embed practices and knowledge in the organization. "We won't be checking the engineers' daily output to see whether they're working according to the defined processes," says Loncke. "These should be second nature. With NX Checkmate validation tools, we do have a control model available, but this is geared towards standards compliance of models and drawings. Guaranteeing that processes are fully embedded will be realized by repeating the certification every two years."

Reactions from participants and management have been extremely positive. Even very experienced users who trained to pass the certification test remarked that they had learned a great deal. "Certain people scored 100 percent in all areas," says Loncke. "They have been lauded for this. Their NX knowledge and skills perfectly match the job they have to do."

Faster upgrade to new versions

Responses from certification participants have also included proposals for improvement of the roll-out of new versions of NX within ASML. In addition, input on the operation of NX has also been collected. This input has been evaluated by Siemens Digital Industries Software representatives and addressed in the development of NX.

Solutions/Services

NX
siemens.com/nx

Teamcenter
siemens.com/teamcenter

Global Certification Program
siemens.com/learning-services

Simcenter Femap with Nastran
siemens.com/simcenter-femap

Customer's primary business

ASML develops, manufactures and maintains advanced systems that allow its customers (major semiconductor manufacturers across the globe) to produce chips for electronic communications and information technology products such as smart phones, tablets and computers.
www.asml.com

Customer location

Veldhoven
Netherlands

Productivity benefits

The key benefit of certification is increased productivity. "We already knew the indicators before and after certification from the pilot," says Loncke. "After training and recertification, engineers were, on average, 50 percent more efficient with NX and Teamcenter." That metric was specifically derived from exercises not completed on time, and the use of prolonged workarounds. "After the training, exercises were completed within the allocated time and engineers went straight for the best solution using the right features," Loncke continues. "We have calculated the return on investment and arrived at a business case that unequivocally supports the value of training."

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