



B/S/H/
BSH Hausgeräte GmbH

SUCCESS STORY

Precise work planning and calculation
for perfect production tools

By introducing classmate PLAN, BSH Hausgeräte GmbH has been able to digitalize its work planning in tool-making, halve its workload and significantly increase precision and process quality at the same time.

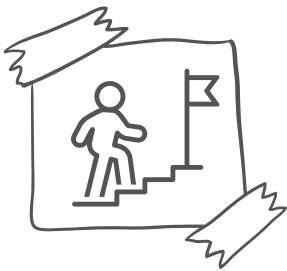
Overview

Company



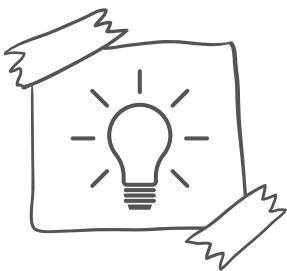
- BSH Hausgeräte GmbH is a global leader in the household appliance industry with over 57,000 employees in 50 countries
- Germany's largest BSH site in Traunreut with around 3,000 employees, 80 of whom work in toolmaking
- 1.4 million ovens, stoves and hobs from Traunreut every year

Challenge



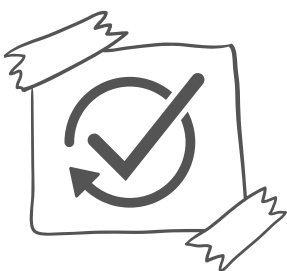
- Discontinued legacy system leaves gaps in digitization and high manual effort
- Planning processes heavily dependent on employee knowledge
- Lack of consistency between 3D CAD/CAM system NX and ERP system from SAP
- High demands on precision and efficiency when planning complex manufacturing processes in toolmaking

Solution



- Introduction of classmate PLAN for automated work planning and costing based on 3D CAD models with PMI
- Seamless integration into existing IT landscape, including SAP and CAD/CAM system NX
- Standardized processes with realistic time and cost specifications for all processing steps and assemblies

Results



- Working time per component in planning reduced by 50 %
- Over 10,000 components efficiently planned and calculated - completely digitally and consistently
- High user acceptance and continuous expansion of the system

BSH Hausgeräte GmbH, which includes well-known household appliance brands such as Bosch, Siemens, Gaggenau and Neff, uses simus systems' classmate PLAN software to plan and calculate all components and assemblies in its Traunreut tool shop. This has halved the working time per routing, optimized quality and seamlessly digitalized the process.



Household appliances have been manufactured in Traunreut near Lake Chiemsee in Bavaria since 1949 - and by BSH Hausgeräte GmbH since 1967. Today, around 1.4 million stoves, ovens and hobs leave the largest site in Germany every year, employing around 3,000 people. In toolmaking, around 80 employees contribute to the efficient development of sheet metal components and assemblies. This is where progressive tools for small sheet metal parts, large transfer tools for presses up to 8,000 kN and parts for devices for internal special machine construction are produced. "Around half of the new tools are also produced internationally for sites in Spain, Turkey and Poland," reports Stefan Huber, production planner and key user at BSH. "However, the focus is on the Traunreut site, where the toolmaking department, as a guarantor of stability for series production, also carries out rapid-response repairs and preventive maintenance on cutting and injection molding tools."

Legacy System with Digitization Gaps

Even if the average tool costs in the industry are only a single-digit percentage of the manufacturing costs, they are often in the six-figure range per piece. Meticulous work planning with time calculation and costing is therefore critical to success for sustainable, resource-conserving and efficient toolmaking.



When a software tool used for this purpose was discontinued, BSH also wanted to improve processes with a new solution.



**Stefan Huber - Production
Planner and Key User**

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"Employees' knowledge and procedures have influenced the timelines and prices. With more standardization, we wanted to achieve results that were independent of individuals and greater accuracy."
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In addition, a new solution needed to integrate better with the 3D CAD/CAM system NX and the ERP system from SAP in order to reduce manual work and waiting times.

Work Planning and Calculation with classmate PLAN

The selection team therefore evaluated the classmate PLAN software from simus systems alongside the successor to the existing solution. The program, which focuses on production processes in mechanical engineering, analyses 3D models, recognizes the work sequences and automatically assigns them to the existing production equipment. It also shows set-up and production times for each work step and calculates the costs according to individual specifications. In addition, classmate PLAN integrates seamlessly into existing IT solutions.



Mario Leutner - System Engineer and Project Manager

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"After a preliminary project and an internal benefit analysis, we decided to introduce classmate PLAN. This involved the decision to dimension all new NX models and the old stock with PMI (Product Manufacturing Information) and to introduce drawing-free designs in the process. This also resulted in significant simplifications and synergies with classmate PLAN."

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The preliminary project had already led to an adjustment of the initially very different functional and requirement specifications and created a clear distribution of tasks.

Fine-tuning for Precise Planning Processes

Once the implementation basics such as the SAP interface and the technology databases had been created, the implementation project was divided into four phases. Around 100 different components that had already been provided with PMI were selected. They represented all the expected work sequences and variants.

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"Our routings include many different operations - from turning, 3- and 5-axis milling, eroding and hardening to laser cutting and bending of sheet metal parts, laser sintering and welding through to pre-testing and coating. We process a wide variety of materials, from aluminum to tool steel",

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reports Stefan Huber. The results were presented and discussed in weekly online conferences with simus systems.

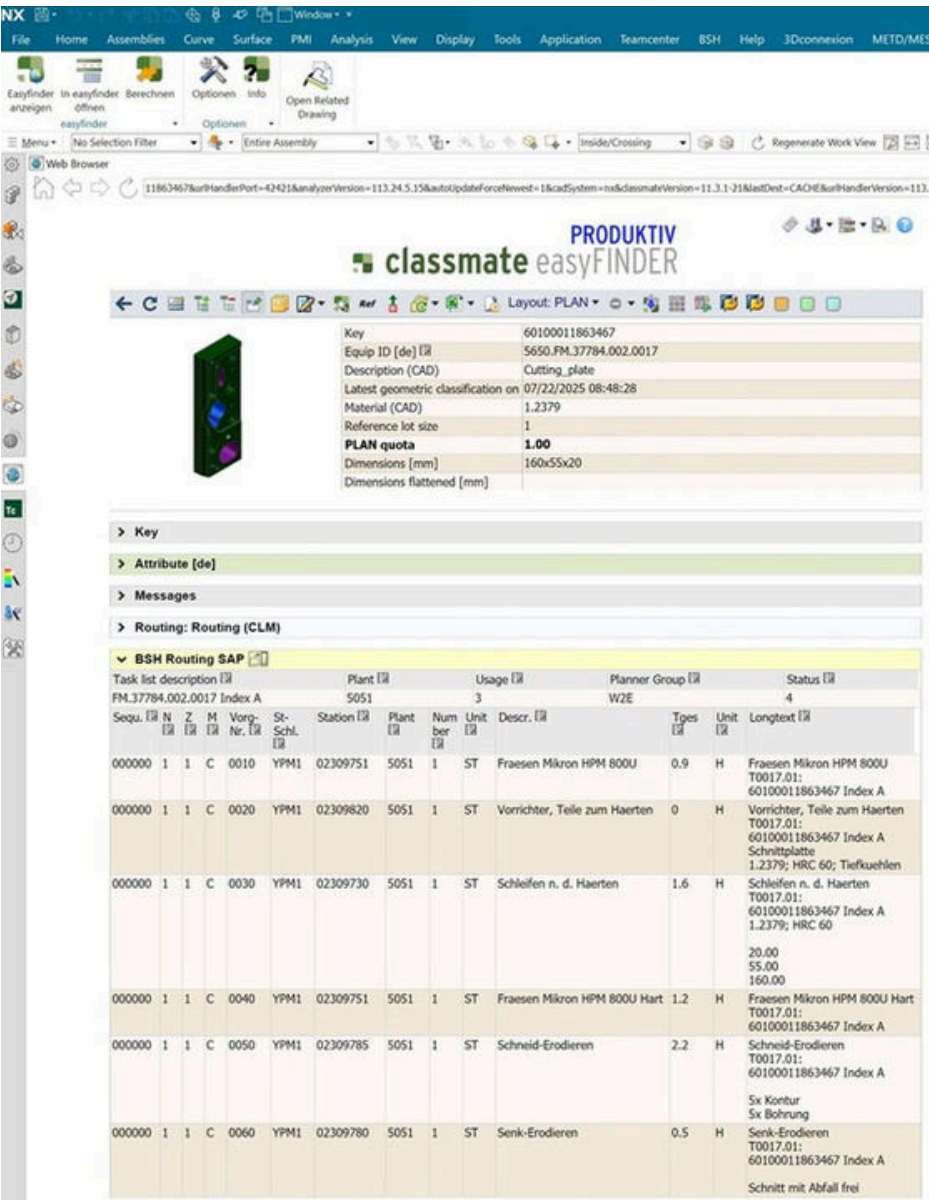
In the first phase, all operations should be assigned to the correct machines in the correct sequence.

In the second phase, long texts were to be assigned to the work sequences to provide information on the special features of automatically recognized milling, grinding, cut and sink eroding, coating and hardening.

In the third phase, the processing times for the calculation were refined. "simus systems provided standard values for many machining operations such as milling," recalls Stefan Huber. "Where we were able to use these, we saved a lot of time." On the other hand, cut eroding posed particular challenges: "It depends on the material and the number of cuts, the taper and the surfaces," says Stefan Huber. "For the holes, simus classmate recognizes the required tolerances and relevant contours based on the colors assigned to surfaces in NX." In the end, all machining processes, including die-sinking, bending and laser cutting, were correctly recognized and linked to realistic time specifications and costs.

View Assemblies as Complete Projects

In the final step, individual routings were combined into overall routings in order to take assembly times into account. A project plan of this kind comprises around 500 machine hours and around 100 hours for pre-testing and assembly, for example, and is then automatically transferred in full to SAP via an interface. "As a special feature, we combine identical parts according to certain specifications in order to optimize set-up times, for example," reports Stefan Huber.



The screenshot displays the classmate easyFINDER software interface. At the top, there is a menu bar with options like File, Home, Assemblies, Curve, Surface, PMI, Analysis, View, Display, Tools, Application, Teamcenter, BSH, Help, 3Dconnexion, and METD/MES. Below the menu is a toolbar with various icons for navigation and editing. The main workspace shows a 3D model of a cutting plate on the left and a detailed data table on the right. The data table includes fields for Key, Equip ID, Description, Latest geometric classification, Material, Reference lot size, PLAN quota, and Dimensions. Below the data table, there are sections for Key, Attribute [de], Messages, and Routing: Routing (CLM). The routing section is expanded to show a table of BSH Routing SAP data.

Task list description	Plant	Usage	Planner Group	Status									
FM.37784.002.0017 Index A	5051	3	WZE	4									
Sequ.	N	Z	M	Vorg-Nr.	St-Schl.	Station	Plant	Number	Unit	Descr.	Tpes	Unit	Longtext
000000	1	1	C	0010	YPM1	02309751	5051	1	ST	Fraesen Mikron HPM 800U	0.9	H	Fraesen Mikron HPM 800U T0017.01: 60100011863467 Index A
000000	1	1	C	0020	YPM1	02309820	5051	1	ST	Vorrichter, Teile zum Haerten	0	H	Vorrichter, Teile zum Haerten T0017.01: 60100011863467 Index A
000000	1	1	C	0030	YPM1	02309730	5051	1	ST	Schleifen n. d. Haerten	1.6	H	Schleifen n. d. Haerten T0017.01: 60100011863467 Index A
000000	1	1	C	0040	YPM1	02309751	5051	1	ST	Fraesen Mikron HPM 800U Hart	1.2	H	Fraesen Mikron HPM 800U Hart T0017.01: 60100011863467 Index A
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000000	1	1	C	0060	YPM1	02309780	5051	1	ST	Senk-Erodieren	0.5	H	Senk-Erodieren T0017.01: 60100011863467 Index A

Routings are particularly extensive in toolmaking - with classmate PLAN they are created automatically.

Smooth Transition into Practice

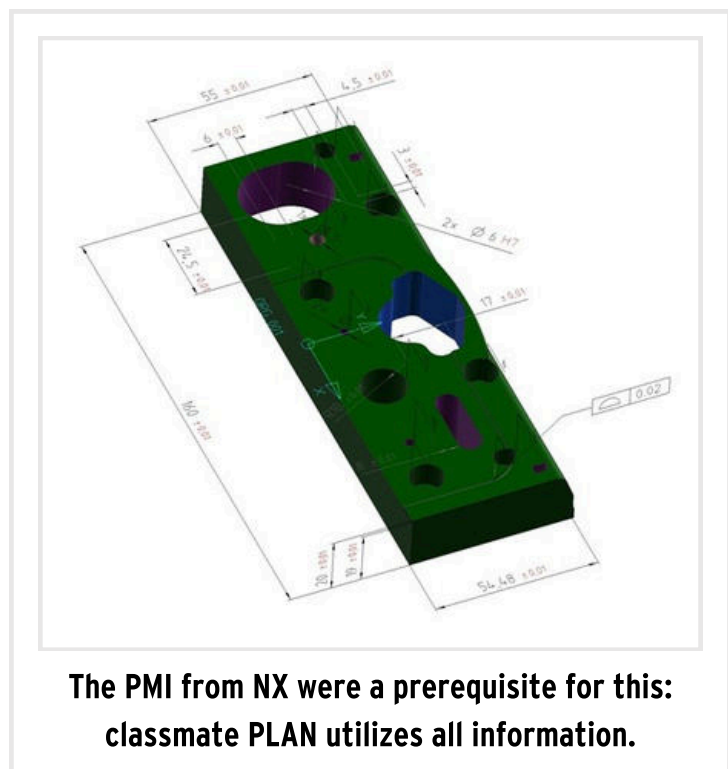
After around one and a half years, everything was done:

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"We were able to successfully complete the project with the excellent support of simus systems",

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explains system engineer Mario Leutner. However, the transition into practice followed the models that already contained PMI. "During the careful transition, we were able to make further fine adjustments in parallel," says Stefan Huber. "Since then, we have carried out enhancements with simus systems every year."



Since the beginning of 2025, every CAD model now comes with PMI, so that all routings are created and calculated exclusively with classmate PLAN. So far, the three production planners have been able to create routings and changes for over 10,000 components. "The system has been very well received and works extremely well," summarizes Huber.

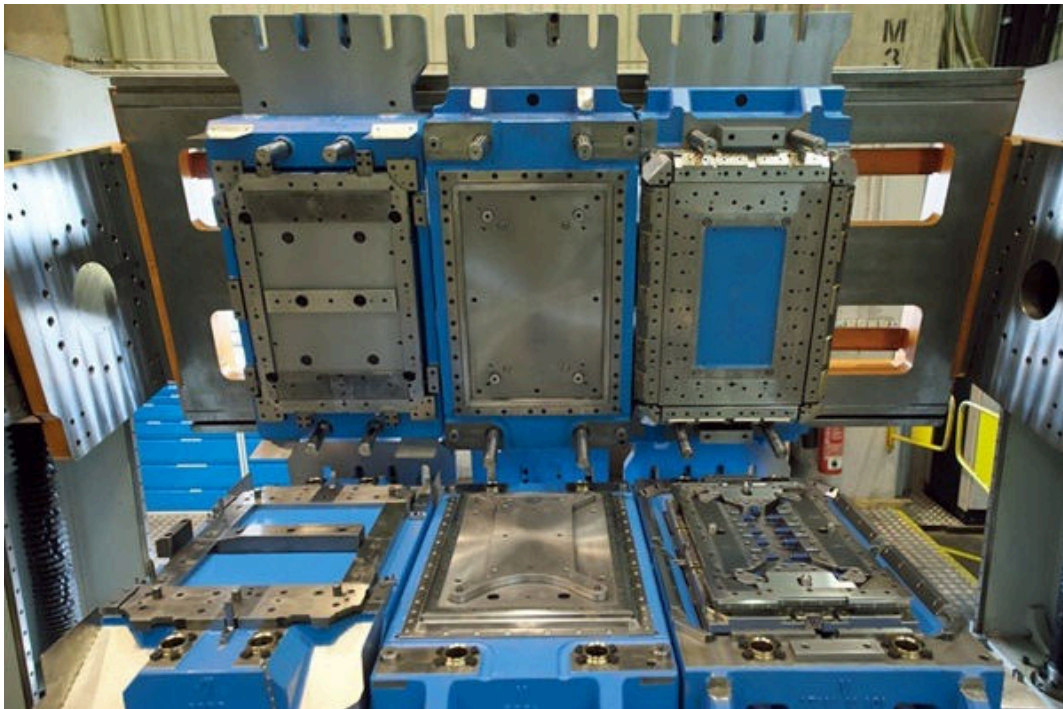
Planning Time per Component Halved

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"In a performance test using representative sample tools, we determined that we were able to halve the working time per component. In addition, the high performance of the system eliminates waiting times, for example when transferring to SAP",

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explains Stefan Huber. In many areas, the end-to-end processes provide additional benefits: "We can now transfer frequently required standard parts for the warehouse directly to SAP, which we previously had to enter manually," says Stefan Huber. But the company is not resting on its laurels: "From September, we will be working with simus systems to also take material and hardening costs into account. Then we will know exactly what each individual part or an entire assembly costs."



A typical transfer tool from BSH's toolmaking department in Traunreut with three stations.



We develop software that supports mechanical engineering companies with digitalisation.



Optimise data structure

Our core competence is to optimally structure and classify data and thus make it usable for further, value-adding processes.



Keep costs and emissions under control

Our software calculates manufacturing costs and emission values by analysing the 3D CAD model in a matter of seconds at a very early stage of development.



Automate processes

A clean database enables many automated processes and thus reduces the workload in many departments.



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