marel

SUCCESS STORY

How Marel gets component costs under control

By implementing simus systems' software, Marel gains transparent cost information worldwide, increases efficiency and reduces reliance on individual expertise, resulting in significant time and cost savings.

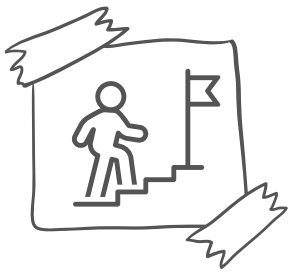
simus systems

Overview

Company

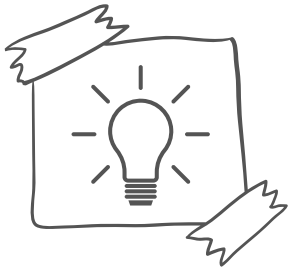
- Marel as a leading global provider of solutions for the food and pet food processing industry
- Innovative solutions for safe, high-quality and affordable food production
- Global network with 7,500 employees in over 30 countries

Challenge



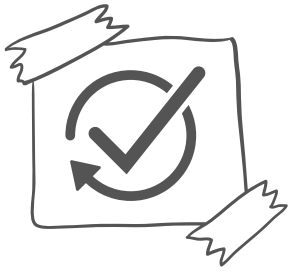
- Better insight into product costs and manufacturing times during the development of components
- Standardisation of different ERP, PDM and CAD systems and different working methods
- Strong dependence on the expertise of individual employees
- Efficient production planning made more difficult by a mix of small quantities and customer-specific adaptations

Solution



- Automated work plans and cost calculations based on CAD models
- Standardised and transparent cost information thanks to integration in ERP and CAD systems
- Reduced dependence on individual expertise thanks to standardised processes for costing and work planning

Results



- Significant time savings through automation processes
- Creation and reuse of around 1.5 million work plans and calculations

The globally active machine and plant manufacturer Marel has used simus systems software to automatically create work schedules and calculate manufacturing costs for around 1.5 million development components. Transparent costs at 16 production sites worldwide, knowledge capital that can be called up at any time and considerable efficiency gains are the results of a four-year project.

To ensure the sustainable production of high-quality, safe and affordable food, Marel, with 7,500 employees in over 30 countries, develops and manufactures machines, systems and software that are complemented by services. The solutions for poultry, meat and fish processing and, more recently, for the production of pet food, aqua feed and plant-based proteins are designed to reduce waste and improve yields and added value.

Gaining transparent cost information

Marel therefore strives for excellence in all of its own areas of activity. 'Our product development, procurement and production departments, for example, need better insights into product costs and manufacturing times worldwide,' explains André Kouwenberg, Global Manufacturing Engineer at Marel. Around 70 per cent of the costs of a machine are already determined at the development stage.

'That's why we were looking for a solution that would enable us to use standardised work plans and calculations in product development, procurement and production. This allows us to make cost-effective decisions without having to rely on different methods or the specialised knowledge of individual employees.'

Back in 2019, a project group began searching for software that would automatically derive work plans and calculate future manufacturing costs based on 3D models and component information. When there were only two names left on the long list of providers, a pilot project with simus classmate began. 'Based on the positive experiences and results, we decided in favour of simus classmate and simus systems as a strategic partner for the global implementation', reports André Kouwenberg.

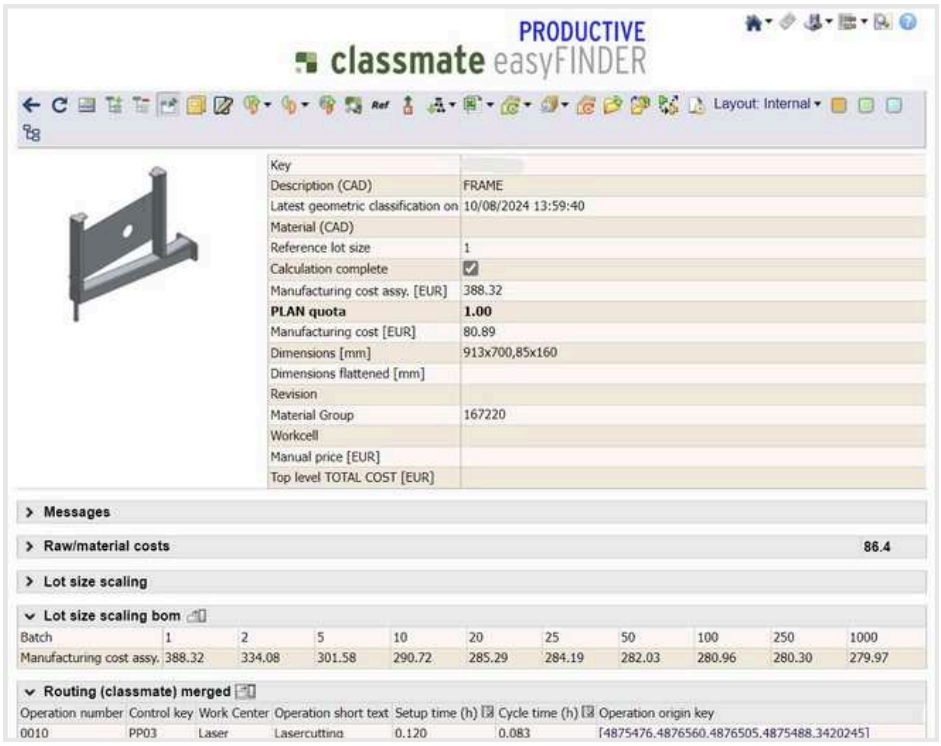
simus classmate automatically creates work plans and calculations

The simus classmate software suite contains powerful tools for realising the hidden potential in CAD and ERP databases. From structuring and cleansing to convenient synchronisation with SAP, there are modules that can be used flexibly. For example, the classmate PLAN module analyses CAD models and recognises the typical manufacturing processes based on geometry and text information. For each component, a technology database is used to automatically create work plans for the relevant machines and workstations. Future manufacturing costs are calculated on the basis of hourly rates, processing times and material costs. The results are clearly displayed to users in the web-based search engine classmate easyFINDER. This tool allows designers to access information directly from the user interface of the 3D CAD system - at Marel this would be Creo Parametrics, SolidWorks and Inventor.

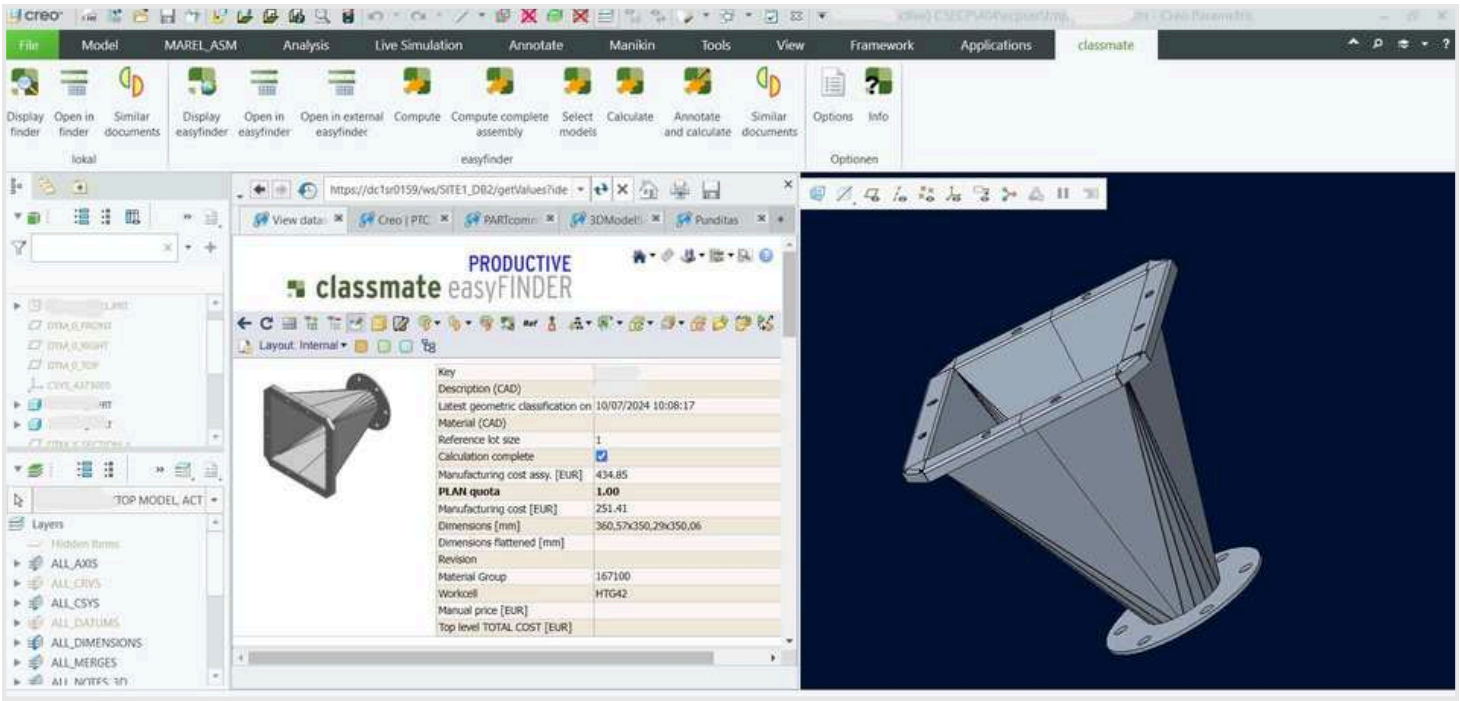
'This provides us with cost information during the development phase in order to improve the designs. We can also quickly find components based on certain features. In production, we save time and effort thanks to automatically generated work plans, and procurement achieves better conditions thanks to target costing.'

André Kouwenberg - Global Manufacturing Engineer

Insights into the software



The classmate FINDER search engine gives employees an overview of the cost situation.



Load CAD component, view work plan and view costing - designers do not have to leave the CAD interface to do this.

Four years of global roll-out

Starting in Boxmeer and Dongen in the Netherlands, the new system has been implemented at seven of over 16 locations between 2020 and today. The procedure follows a standardised process in each case: Following workshops with designers, purchasers, cost engineers, production specialists and simus systems, a technology database is filled with all internal and external production techniques and parameters. In addition to standard machining processes, 5-axis milling, turn-milling, sheet metal operations, various surface treatments, 3D cutting, laser welding and - newly developed together with simus - 3D printing is also taken into account. Interfaces to ERP, CAD and PDM systems are being implemented. 'We want to develop more and more with 3D models,' says André Kouwenberg. 'But we often have to use information from drawing files - either because there is no model or because the production drawing is the leading medium, for example for tolerance specifications.' The respective structure of the production cell must be taken into account for the automatic generation of work plans until the components are correctly assigned and the work plans are created for the correct machines. Finally, the solutions are installed at the workstations and the employees are trained.

Chicken, turkey or duck - Marel develops efficient solutions for poultry production, ...

... as well as state-of-the-art plants, systems and software for meat processing, from the reception of live animals to the dispatch of finished products.

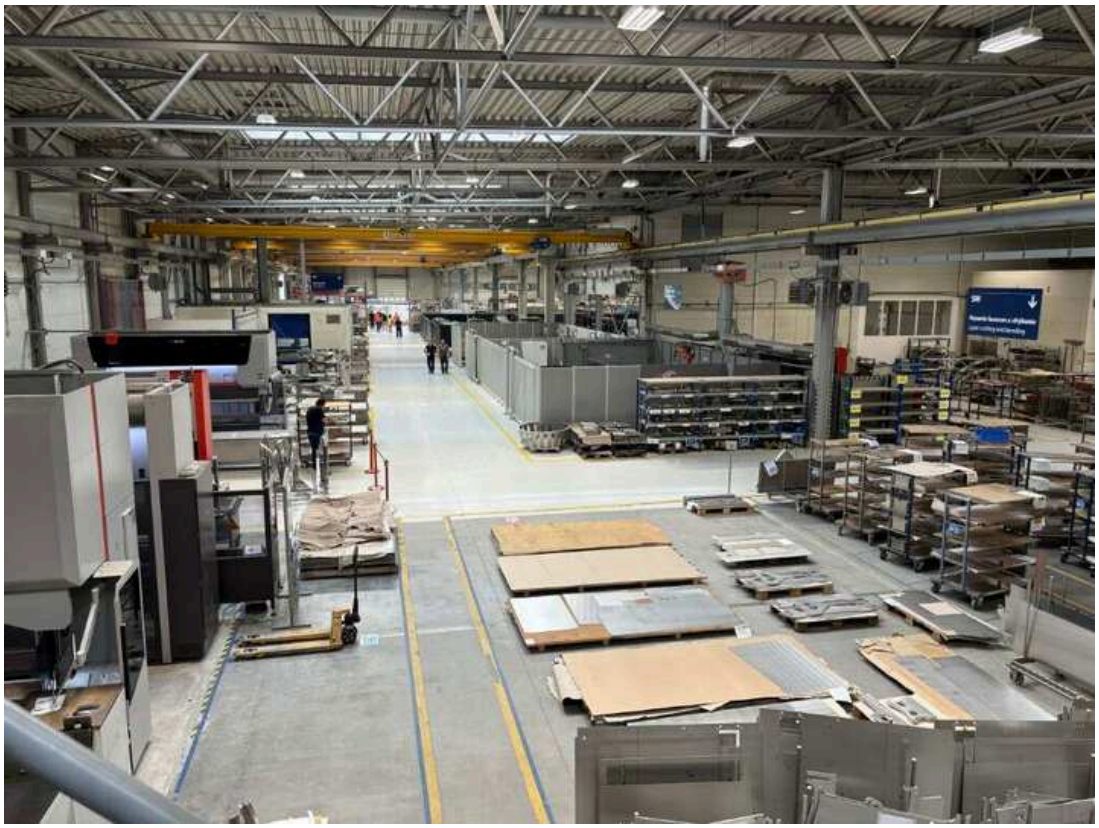
Different IT - standardised results

Various ERP and PDM systems and three 3D CAD systems alone had to be taken into account. 'Each site develops its own working methods, which we had to take into account,' says André Kouwenberg. As an open tool, simus classmate offers many configuration options. Marel was able to rely on the competent simus team for the complex customisations. 'The employees are very busy, but our projects were all completed on time and within budget.'
Even though the site in Lichtenvoorde in the Netherlands is only just going live, André Kouwenberg has a proud record:

> **'Around 1.5 million work plans and calculations have already been created with simus classmate - including many existing components that can now be reused together with the work plan. This would have taken us 305,000 hours or 180 man-years to do manually.'**

Positive assessment by the employees concerned

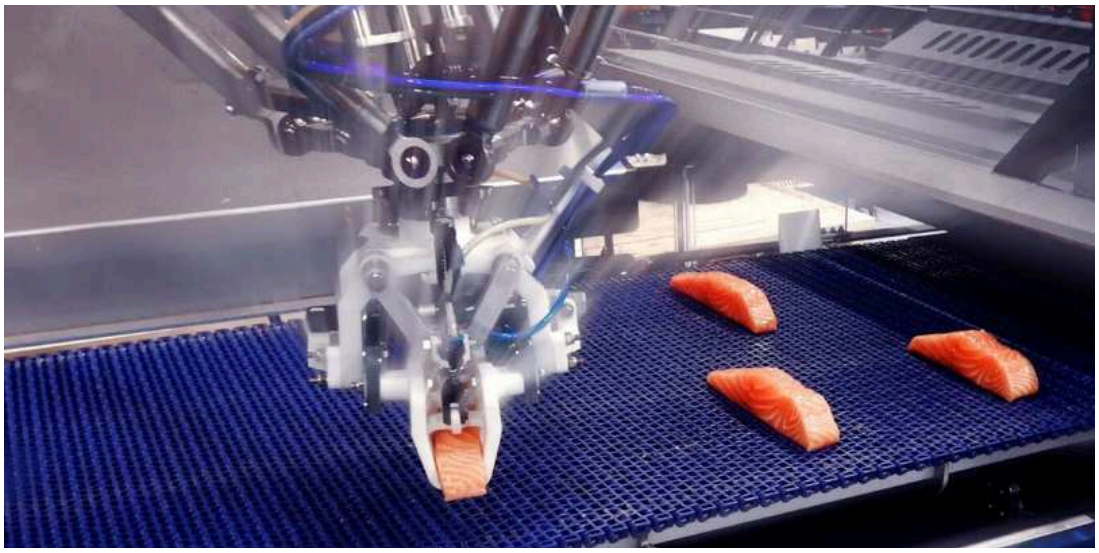
A total of about 100 users worldwide now generates thousands of new calculations per site per year. Around 30 per cent of users belong to product development, 39 per cent to production, 14 per cent are involved in procurement and seven work as cost engineers. The success of new software is also measured by whether the solution is accepted by the employees involved. An employee survey revealed that 40 per cent of the employees concerned use the solution daily, 30 per cent weekly and a further 30 per cent several days a month. 55 per cent are mainly interested in cost calculation, 15 per cent focus on creating work schedules and 25 per cent are equally interested in both functions. 65 per cent of users consider the application to be very useful for their area of activity. When asked about the main benefit for their work, almost 20 per cent of users state that they gain a good insight into the costs of individual products. 15 per cent cite time savings and 13 per cent greater cost awareness. Ease of use and the automatic creation of work schedules were also mentioned by 13 per cent each.



High mix - low volume. This production method of many plant manufacturers requires transparent cost knowledge.

Accessible cost knowledge is essential

The broad product range of machines contains around 70 per cent standard parts, while 30 per cent are customised. A high mix of small quantities poses challenges for production. 'The standardised and broadly anchored cost knowledge from simus classmate is therefore essential for us,' says André Kouwenberg.



Marel is the world's leading supplier of advanced stand-alone machines and integrated line systems for fish processing.

An engineering data warehouse and a self-developed calculation tool at machine level, each of which accesses information from simus classmate, have further increased the benefits. 'Overall, this provides a good understanding of the manufacturing costs of a system at an early stage of development,' says André Kouwenberg. Marel remains independent of the systems used, as well as the specialised knowledge of individual employees. André Kouwenberg summarises:

'We are no longer relying on individual knowledge and procedures in costing and work plan creation, which are now based on an objective level. This is particularly helpful at times when the underlying production knowledge is becoming scarce due to generational changes.'

simus systems

We develop software that supports mechanical engineering companies with digitalisation.

Software Bundesverband IT-Mittelstand Made in Germany
100% Service Quality Future

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.

simus systems GmbH
Siemensallee 84
D - 76187 Karlsruhe
Germany

tel +49 (721) 83 08 43 - 0
info@simus-systems.com
www.simus-systems.com

YouTube
LinkedIn