SIMUS CASE STUDY

CLOUD-BASED DIGITAL COSTING AND CAD-CLASSIFICATION ENABLED BY 3D INTEROP

Market
Digital Data Optimization and Costing
for Manufacturing Companies

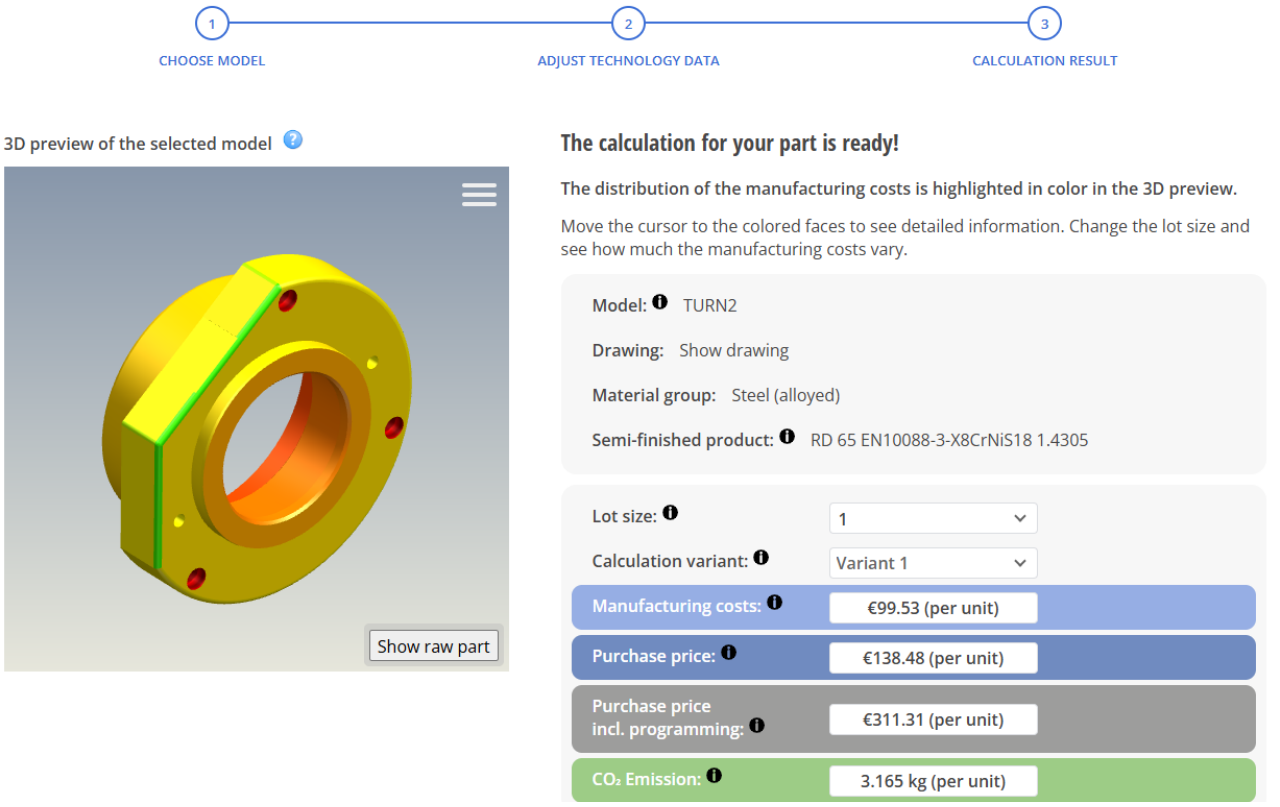
Product & Services
3D InterOp

Suite of Digital Data Optimization and Costing Software

Simus Systems needed a CAD format interface to move their data processing and costing software to the cloud.

SUMMARY

The collaboration with Spatial strengthened Simus Systems' market presence. By integrating 3D InterOp from Spatial, the Simus Systems software solutions were brought into the cloud and could reach a new customer segment. The goal of standardized, parallelized processing of all CAD model formats was achieved with Spatial.



THE COMPANY

Simus Systems develops software to support the digital transformation of engineering companies. The company was founded in 2002 as a spin-off of the University of Karlsruhe. Simus Systems' core competency is optimally structuring and classifying data to make it usable for further value-adding processes. Even extremely large data volumes can be handled, regardless of whether they are material master data or CAD data.

The Simus Systems software calculates manufacturing costs at a very early stage, giving companies planning security and an overview of project cost control. With the Simus Systems classmate solution, the user can create work plans, create and maintain material master data, generate texts, or assign customs tariff numbers automatically. A clean database enables many automated processes, thereby relieving various departments.

Developing Automatic Classification Concepts

Simus Systems developed the concepts for automatic classification based on the results of two research projects involving industry examples. The projects aimed to automatically classify data, such as article data and 3D CAD models, to increase data quality in mechanical engineering projects. The basic idea was to evaluate the implicit properties of the models and make these explicitly available to the user through analysis with the aim of reuse.

Based on these concepts, the Simus Systems classmate software suite, which includes classmate DATA (master data classification) and classmate CAD (geometry classification) modules, was developed. A corresponding search component, classmate FINDER, was created, which was later expanded to the browser-based easyFINDER.

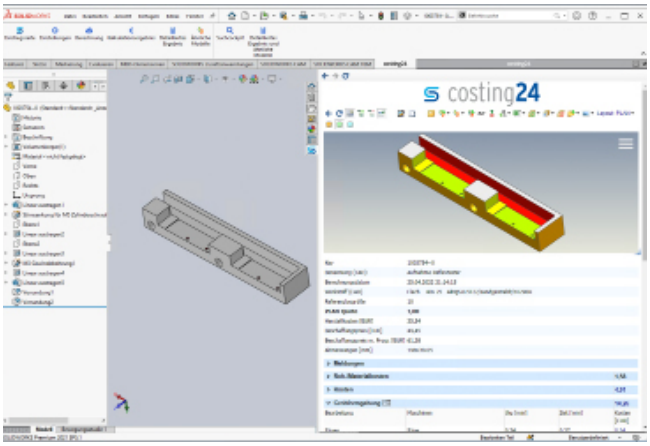
Later, classmate PLAN was developed, which is based on the geometry analysis results and automatically derives a routing based on the material and the existing manufacturing technologies and calculates the manufacturing costs for the 3D geometry model. This was later expanded to include the so-called CO2 footprint.

CHALLENGE

Implementing a standardized interface for reading all CAD formats

Simus Systems faced similar challenges to other companies in the market. A cloud-based, somewhat slimmed-down version of the very comprehensive on-premise solution was intended to appeal to new customer groups.

However, the previous approach, which was directly linked to an installed CAD system, was no longer feasible for using the software in the cloud. Simus Systems needed a way to read files from different CAD systems and convert them into a standardized format. This import should be scalable and parallelizable.



SOLUTION

Solving Cloud Migration Challenges with 3D InterOp

When Simus Systems decided to transfer its on-premise solutions to the cloud in 2018, they contacted Spatial and were advised to integrate 3D InterOp to address their challenges.

Simus Systems' commercial and strategic objectives were to have a cloud solution (costing24.com) with a reduced scope of services to calculate the manufacturing cost of parts, which would also appeal to customers with a less complex IT setup. They are also using manufacturing information such as holes and patterns from CAD files to populate cost.

To calculate the results using classmate CAD and PLAN, the raw CAD model data, such as surfaces, axes, points, and their position and dimensions, must be made available in a Simus Systems internal format for further calculation. For the implementation in the cloud, all native CAD systems would have had to remain available, which would have made the subsequent process (both economically and technically) correspondingly time-consuming and complex. By using the 3D InterOp library, a standardized system with an interface was integrated that can process standard formats (e.g. STEP) as well as native CAD formats like CATIA and SOLIDWORKS.

> "Working with Spatial was a real milestone for us: Thanks to the powerful 3DInterOp library, we were able to successfully bring our complex CAD-based solutions to the cloud while remaining flexible to meet individual customer requirements. For us, Spatial is not just a technology partner, but a true enabler of our product strategy."
>
> ~ Dr. Arno Michelis, Founder of Simus Systems

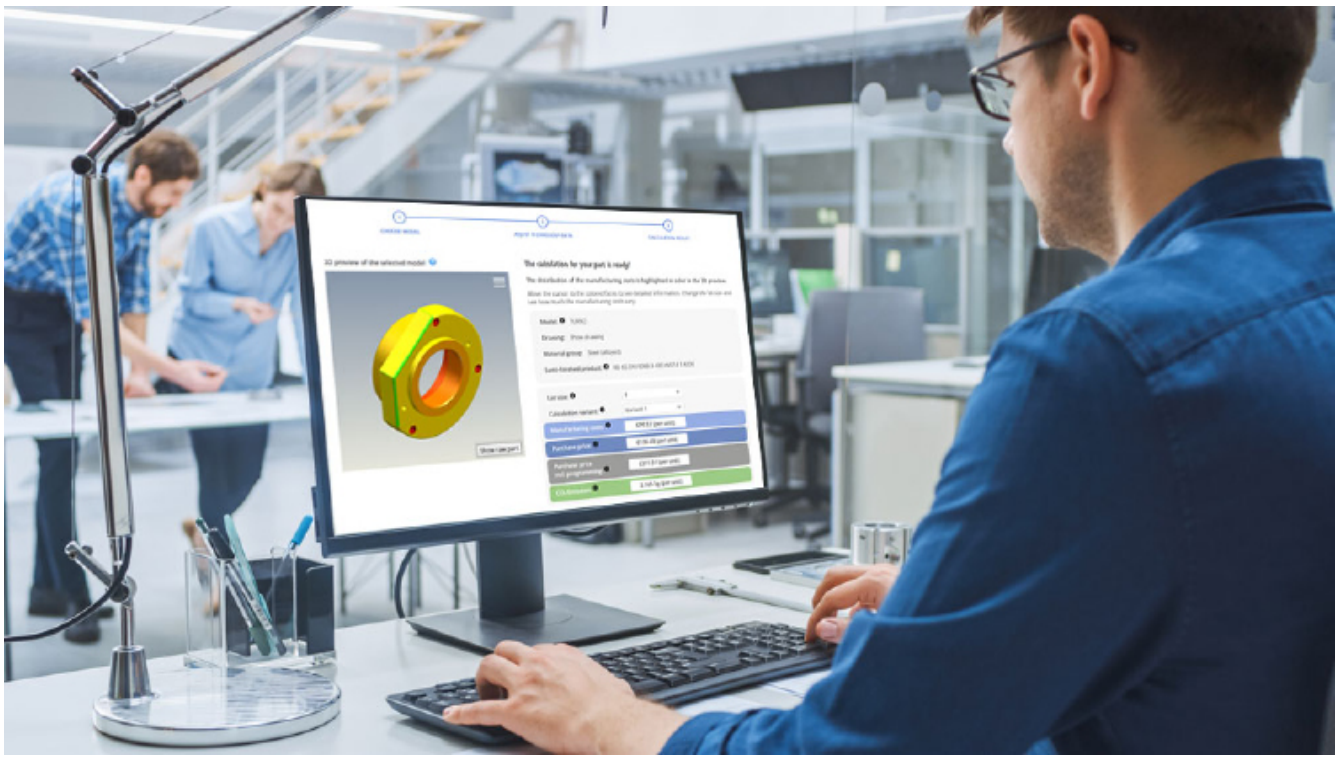
The Simus analyzer uses the 3D InterOp program library to load the customer's CAD model and enrich it with tessellation data. In the next step, the Simus analyzer reads the data structure and saves it in Simus' own format, allowing it to be further processed with the corresponding Simus modules.

After approximately six months, the functionality with the 3D InterOp library had been built up to such an extent that Simus Systems was able to proceed with cloud implementation.

KEY INSIGHTS

Expanding a portfolio with cloud solutions

The use of the 3D InterOp library enabled Simus Systems to integrate solutions into the cloud. Eventually, their portfolio of offerings was expanded to include on-premise implementations. Working with Spatial and their Technical Account Managers to integrate 3D InterOp into their solutions strengthened Simus Systems' market presence. After integrating with Spatial, Simus Systems registered and established new brands, including costing24 and Simus Connect. Simus Systems successfully achieved its goal of standardizing processing for all CAD model formats.



simus systems

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SPATIAL

Ready to catapult your application ahead of the competition?

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About Spatial Corp

Spatial Corp, a Dassault Systèmes subsidiary, is the leading provider of 3D software development toolkits for technical applications across a broad range of industries. Spatial **3D modeling**, **3D visualization**, **3D Meshing** and **CAD translation software development toolkits** help application developers deliver market-leading products, maintain focus on core competencies, and reduce time-to-market. For over 35 years, Spatial's 3D software development toolkits have been adopted by many of the world's most recognized software developers, manufacturers, research institutes, and universities. Headquartered in Broomfield, Colorado, Spatial has offices in the USA, France, Germany, Japan, China, and the United Kingdom. For more information on Spatial's latest updates and product offerings, please visit **www.spatial.com.**

SPATIAL

Europe/Middle East/Africa
Spatial Corp, Dassault Systèmes
10, rue Marcel Dassault
CS 40501
78946 Vélizy-Villacoublay Cedex
France

Asia-Pacific
Spatial Corp, Dassault Systèmes
17F, Foxconn Building,
No. 1366, Lujiazui Ring Road
Pilot Free Trade Zone, Shanghai 200120
China

Americas
Spatial Corp Headquarters
310 Interlocken Pkwy #200
Broomfield, CO 80021-3468
USA