

Automating Manufacturing Cost Estimation

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Customer: [Dassault Systèmes SOLIDWORKS Corp.](#)

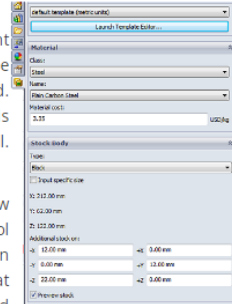
Description of the product line

SOLIDWORKS Costing is an innovative solution for mainstream CAD applications that provides real-time cost estimation of objects being designed, while model development is still in process.

Problem statement

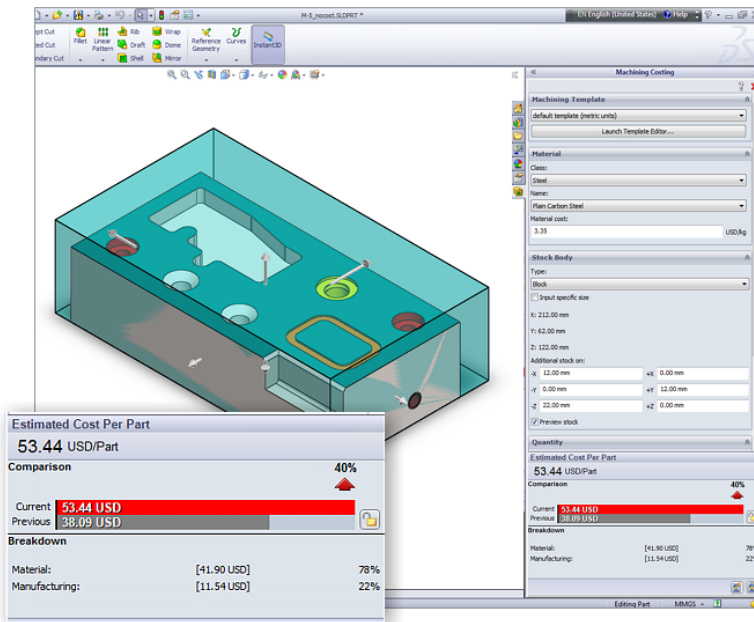
As engineering software modeling capabilities have matured, the focus of CAE software development has shifted to providing more advanced design optimization tools. Engineering calculations such as the optimization of stresses, loads, structure or flow, have become significantly more sophisticated. However, cost optimization has lagged. Existing solutions provide only post-process cost calculation. This means that cost determination and evaluation requires repeating the design process for each model. Such full-cycle iterations are both expensive and time-consuming.

SOLIDWORKS decided to explore the development of a run-time cost estimator, which would allow engineers to make modeling changes that would optimize cost during the initial design pass. The tool had to be easy to use, with an intuitive user interface, quick, and accurate. It also had to be built in record time, in order to be included into the next release of SOLIDWORKS. This would ensure that SOLIDWORKS would be first to market with this kind of application. However, a shortage of qualified resources within the SOLIDWORKS R&D organization threatened to jeopardize the entire project.



Why AMC Bridge?

With a great track record and excellent recommendations from previous SOLIDWORKS projects, AMC Bridge was an ideal candidate for the SOLIDWORKS Costing project. In addition to general development experience with SOLIDWORKS, AMC Bridge developed SOLIDWORKS Sustainability, a tool with characteristics similar to those required by SOLIDWORKS Costing: run-time evaluation, graphical feedback, and an advanced user interface.



Solution

To ensure the most efficient development process and deliver the project on time, SOLIDWORKS created a team with a SOLIDWORKS product definition specialist and project manager. AMC Bridge, engaged as a specialized consulting firm, provided a team of developers to work on implementation, as well as their own team manager. At the start of the project the AMC Bridge team built a functioning prototype to test initial concepts for the costing tool. The prototype helped to refine project specifications, which went through several iterations between the SOLIDWORKS product definition process and AMC Bridge developers. This process guaranteed the best possible software engineering solutions for the required user interface and user experience. Regular team meetings, which included the product definition specialist and project manager on the SOLIDWORKS side and the team leader on the AMC Bridge side, provided the basis for an efficient and successful development process. All stakeholders were kept current with project progress, and were able to continuously adjust development priorities and fine-tune project specifications. This ensured that no surprises or costly mistakes threatened final delivery.

Conclusion

The SOLIDWORKS Costing application was released on time as part of the SOLIDWORKS commercial software offerings and has been very well received in the SOLIDWORKS user community. A significant part of the success of this project can be attributed to the skills of the development and management team at AMC Bridge, as well as the efficient development process refined by AMC Bridge over years of providing software development consulting services to ISVs worldwide, including SOLIDWORKS. In the end, SOLIDWORKS gained a highly respected, functional addition to its popular CAD solution, and AMC Bridge gained valuable expertise in the area of cost estimation as part of the design and engineering process.