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take the value perspective.

Fully Automated Construction Within Eight Months

Teledoor successfully uses Configure-to-Order with CIDEON Conify

It's like 'programming' using the no-code method: Just as any untrained expert can build an executable software application without writing a single line of code, each of the 220 employees at Teledoor Melle Isoliertechnik GmbH have been able to create professional CAD designs since November 2022. They can also generate documentation, BOMs and work schedules. Or send professional 3D offer designs to interested customers at short notice. This doesn't require an engineering degree, CAD training or a technical school, just a few standard parameters in the brand-new Teledoor configurator. Because behind the DIY user interface, which is connected to the ERP or CAD system, the full power of CIDEON Conify unfolds.

Principle: The Customer is King

If you compare the three-man start-up in the 80s with today's world-renowned medium-sized company, you will quickly realize that it is not mass production that has made Teledoor successful. It was - and still is - the claim of the classic variant manufacturer to deliver the right solution for every customer with excellent workmanship and to never say 'no' to any customer. Those who, like Teledoor, do not compromise on customer orientation in the slightest can run into problems with classic engineering-to-order: in terms



Insulation Technology for the World

Teledoor Melle Isoliertechnik GmbH has been manufacturing proven and trusted cold storage and deep-freeze rooms as well as doors for cold storage and deep-freeze rooms for over 30 years. The product portfolio, which serves the gastronomy, food retail, confectionery, and pharmaceutical industries as well as the automotive segment, also includes climate control and test rooms, clean room technology and machine coverings. In addition, the company, which was founded in 1986, develops sophisticated custom-made products with a team of experienced engineers and technicians. For example, the external insulation of the Neumayer III Antarctic station, housings for wind tunnels in the automotive industry or customized coverings for temperature-controlled production lines in food manufacturing. At the headquarters in Melle near Osnabrück, sales, development and production are located in an area of 12,000 m². In addition, Teledoor, which generated sales of around 40 million euros in 2022 with 220 employees, primarily in Europe, has two further bases in Germany and a production site in Poland. Further information can be found at www.teledoor.de/en.

of margins, competitiveness and also within the team, as complex tasks also mean effort. This increases with the number of orders increases, which led Teledoor to look for efficiency potential. The company realized that the engineering department, with its 27 CAD workstations, was increasingly becoming a bottleneck and could no longer keep production running at full capacity.



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Cool construction

Focus on Pain Points

The potential analysis identified three main weaknesses: CAD, processes and strategy. Initially, the engineering department was lagging behind the incoming orders because too much repetitive work meant a very high and error-prone time investment. Daniel Krämer, Head of IT & Digitalization at Teledoor: "In the end, our colleagues had to repeatedly assemble the same things in different dimensions. Only the smallest part of their work consisted of their actual task: construction". Another area where the cost/benefit ratio was disproportionate was the spare parts business, because it had to be permanently approved by the engineering department so that the standard interfaces to the ERP could be addressed. "In addition," explains Daniel Krämer, "we had to take action because we were unnecessarily inflating our database: Many components were identical but had multiple part numbers because they had been copied into the PDM system. Ultimately, there was a lack of overview and a clear approach, as certain standards get lost in an engineering department with more than 20 people."

The real endurance test, however, was the communication between the departments, for example in the case of last-minute order changes. Krämer adds: "These can end in complete chaos if data redundancies occur, for example from the creation of the order in text form, through its implementation in a CAD design, to the information for production."

A new era in Engineering

So, what to do? Krämer reflects: "Over the course of two years, we actually made a number of attempts to streamline our processes, reduce errors and develop standards. However, we quickly realized that we needed to take a disruptive approach in order to make real progress." Krämer also felt compelled to initiate a paradigm shift in light of owner Veit Bowenkamp's goal to produce quantities of 1 as efficiently and with the same quality as quantities of 10,000. As a result, Teledoor had to examine entire process chains instead of individual production steps with limited optimization potential. Through the topic of variant engineering in the PDM/ERP segment, Daniel Krämer discovered CIDEON, one of the few software specialists with integrated CAD, PDM and ERP expertise. "We were particularly interested in CIDEON's claim that the engineering-to-order principle does not have to contradict the idea of automation," explains Krämer.



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Daniel Krämer, Head of IT & Digitalization at Teledoor



Implementation of CIDEON Conify at Teledoor

No Touch process in less than eight months

After preliminary meetings, CIDEON and Teledoor got started straight away and less than eight months later they had achieved their goal: a no-touch process from customer inquiry to production in which the engineering department no longer needs to make a single manual intervention, at least for configurable standard products. The Configure-to-Order solution, which was implemented in record time, is based on CIDEON Conify. This is an individually configurable software solution that links the sales and engineering data at Teledoor and integrates involved systems such as ERP, CAD and PDM. From a process perspective, the configured product is automatically created as a CAD record via the user interface and then saved in a PDM-compliant manner. The entire process is carried out in no-touch mode, as documentation, BOMs and work schedules are generated automatically and are passed on to order management and production. After only nine months, the new process was already able to produce its first tangible product. Daniel Krämer was pleasantly surprised: "We had originally estimated that it would take about a year to achieve a productive working environment with full automation."

Totally Different and Clearly Better

With CIDEON Conify, Teledoor has effectively established an automated high-speed process in which increasingly intelligent data models are available without any human intervention, from sales to the customer to production. "In practice", explains Daniel Krämer, "the sales department opens a front end in the ERP, enters the relevant product parameters in the user interface and presses a button. 15 minutes later, the production can theoretically start on the machine without any intervention. In the past, this could take up to two weeks, partly due to delays in the process."

CIDEON Consultant Mario Behrens adds: "For many who repeatedly produce batch size 1, this is a dream: we are talking about a fully automated design where the proposal is immediately available, where the material calculation is instantly available and where the product is engineered in minutes, including bill of materials, neutral formats and CAM data in the ERP system. All of this can be clocked into production immediately." The fact that the engineering error rate is zero, duplicates are technically impossible, and proposal designs are sent to the customer within an hour as a 3D model or in BIM format is seen by Teledoor as an additional competitive advantage.

Daniel Krämer: "There is also no additional work due to order changes either. And of course: the engineering effort for, as of today, 50% of our standard products has been reduced from 100% to 0%. The immediate effect is that by eliminating engineering time, we are now once again competitive in the freezer cell segment. We offer top quality, dimensionally accurate cells at top prices - while other suppliers only offer standard cells in their catalogs."



Daniel Krämer, Mario Behrens and Florian Steinhorst take a look at a product construction in the configurator.

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Initiating an automated configuration process

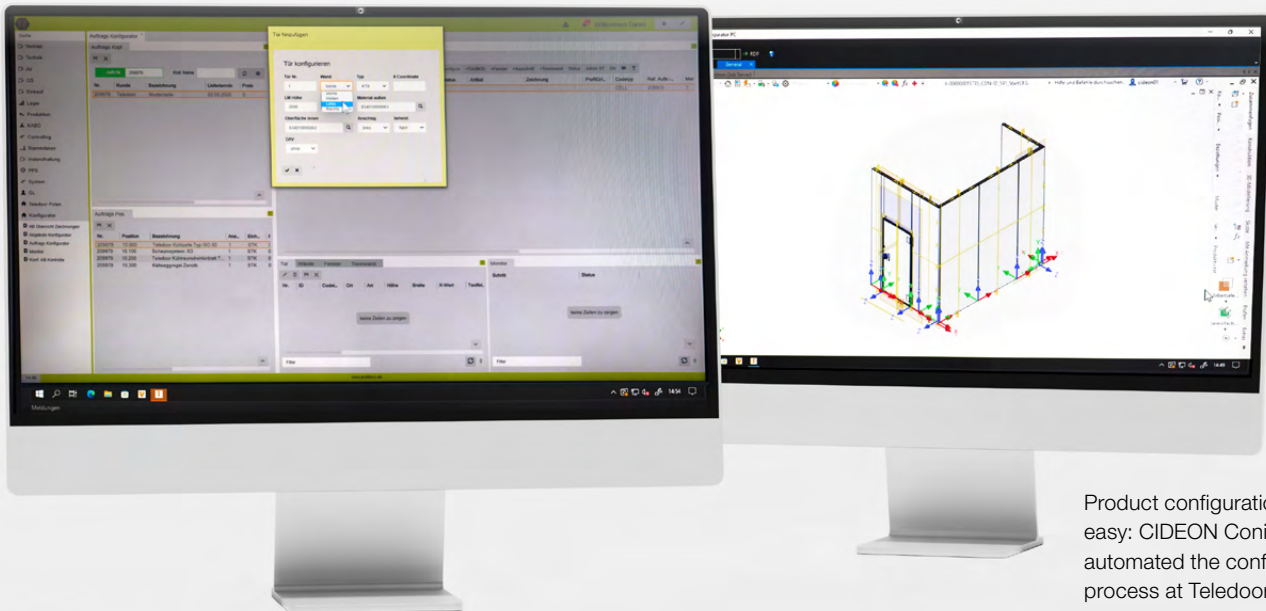
Three Steps to Configure-to-Order

The road to Configure-to-Order was not an easy one, but it was a logical one. Teledoor divided the project into three stages. First, the master elements were entered into CAD, then the actual CAD automation via iLogic, and finally the transfer of the engineering documents. In iLogic, a tool for standardizing and automating engineering processes and configuring virtual products, the engineering principles were integrated as objects directly into component, assembly and design documents. Teledoor provided a trained team of four, ranging from university graduates to experienced engineers. In collaboration with CIDEON, Teledoor then created the configurator cockpit for the company's sales staff - "a nice graphical interface that simplifies the whole thing and keeps the application easy to use. We are now in the process of setting up our own department for the expansion and operation of the configurator, in order to further develop the features and specifications and to be able to meet all requirements," says Krämer.

This department is currently also working on setting up additional configurators for other product lines such as refrigerated doors, discount stores and the spare parts business. Krämer: "In the final stage, we want to cover 60% to 70% of all orders via the no-touch process, with 30% to 40% going to the engineering department." The manual engineering effort will definitely remain, although it will be minimized by a hybrid engineering method called "No Touch Plus". Teledoor's engineers are supposed to use the configurator to achieve a 70 percent approximation, and then design the remaining 30 percent – which is usually much more complicated to realize - themselves.

CIDEON Conify and Teledoor: a Comparison of Costs and Benefits

The economic impact of the use of CIDEON Conify at Teledoor is already showing outstanding results: "The project has been implemented exactly as we imagined it. The ROI is achievable within a year, which I can easily see



Product configuration made easy: CIDEON Conify has automated the configuration process at Teledoor.


Implementation of CIDEON Conify at Teledoor

Flagship project for variant manufacturers

on the live dashboard", says Daniel Krämer and adds: "Even the budget was not fully utilized, which is really unusual for such projects." Consultant Mario Behrens is also pleased: "The customer gave us the freedom to show how far we can go. This also applies to the no-touch process." The customer is certainly satisfied - Krämer: "Absolutely. In the end, we didn't create an AI, but our colleagues here have been working with CAD for 20 years and suddenly the CAD system practically works with itself. And nobody realizes that this is configurator production. The process is so tightly integrated that there are no open questions."

At Teledoor, the application is seen as a flagship project for many variant manufacturers. Mario Behrens has high hopes for CIDEON Conify: "As of today, there is no other solution on the market that can provide the complete bill of materials directly when an offer is submitted. This is what we offer. And we know which items don't exist at the moment. We know which part families are affected, we can rely on pre-production times, and we can activate inventory management via the bill of materials: This allows us to give precise delivery dates. That's unique."

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This is what we offer. 

Mario Behrens, Consultant at CIDEON



About CIDEON

CIDEON advises and supports companies in optimizing their product development processes – from the initial concept through to engineering, production and services. CIDEON's innovative solutions ensure continuous data flow along process chains making data accessible and cost-effective throughout the company. In this way, CIDEON's customers can fully exploit the potential of digitalization to benefit themselves and their clients. CIDEON employs more than 300 staff at 13 locations in Germany and Austria. It is part of the Friedhelm Loh Group, a globally successful Group with more than 12 production facilities and over 95 subsidiaries.

Further information can be found at cideon.com and friedhelm-loh-group.com.

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