

# Quoting System Modernization For a Global Industrial Manufacturer

How rewriting the quoting functionality and embedding it into a customer-facing 3D visualizer enabled a German subsidiary of the Renold Group to accelerate overall order processing **from 1-2 days to under 30 minutes** and boost quote-to-order conversion by **17%**.

Industry:  
Manufacturing

LEGACY SOFTWARE MODERNIZATION

ENTERPRISE AUTOMATION

CUSTOM SOFTWARE DEVELOPMENT

## Business challenge

Having half of your tech ecosystem up-to-date and the other half reliant on legacy software created significant performance and scalability constraints for our client, **Renold GmbH**, a global manufacturer of industrial conveyor chains, gears, and couplings, faced operational inefficiencies due to outdated quoting practices. Although they already had a modern, customer-oriented 3D configurator, its functionality was limited to checking the compatibility of details produced by Renold and visualizing them. To place an order, customers had to manually compile a list and send it to the sales team, who then processed it using an Excel spreadsheet with quoting logic written in a legacy VBA language.

The tech gap between the 3D configurator and the quoting system led to a **range of operational problems**:

- **Slow order processing**, as quoting alone used to take 1-2 working days
- **Time-consuming manual steps** that could be easily automated if both systems were written in the same programming language
- **The headache of aligning updates** across the two separate systems
- **Scaling limitations** of the legacy quoting system, which capacity is directly tied to the number of employees processing quotes

Renold wanted to simplify and fast-track the quoting process by integrating quoting functionality into the 3D configurator.

## Solution

As the 3D configurator was written in JavaScript (JS), the main task of **instinctools' legacy modernization** team was to rewrite the quoting functionality in JS and embed it into the configurator.

### 01 Deconstructing VBA Excel workflows

VBA is a specific language designed to work hand-in-hand with Excel, so its operational logic is tightly interlinked. Re-creating it in another programming language **couldn't be done by simply converting VBA code to JS**.

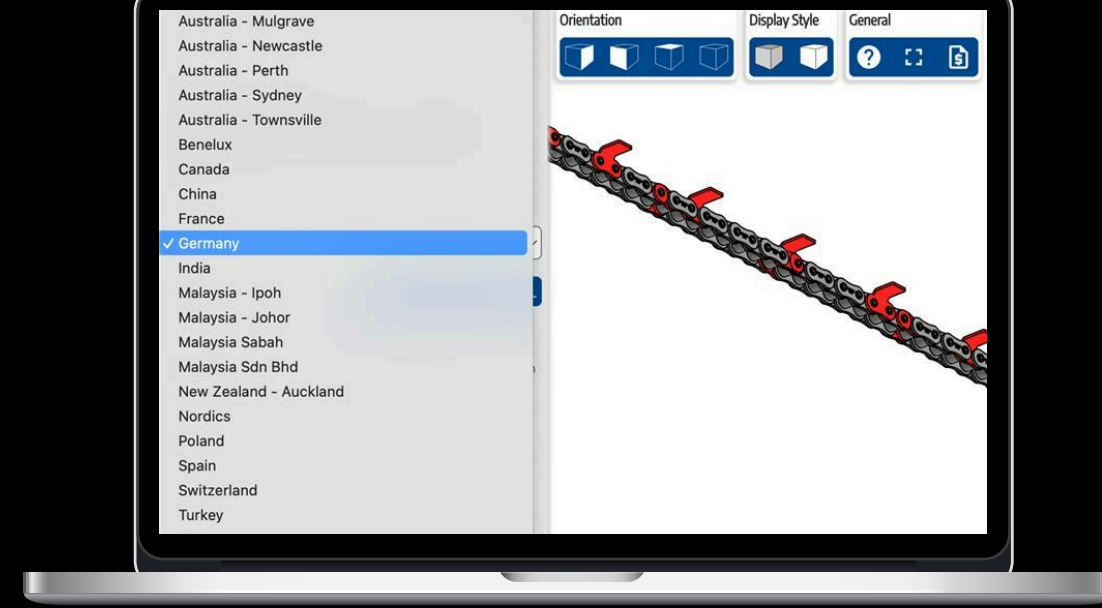
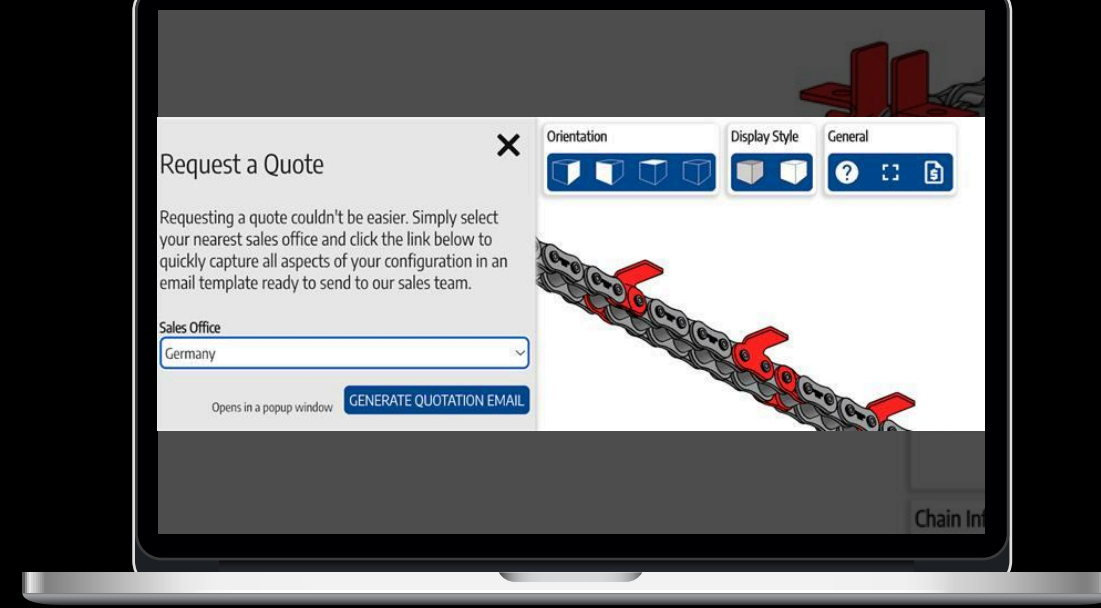
Our team needed to **thoroughly analyze and reverse-engineer the VBA workflows** to fully understand their logic before translating them into JavaScript. Key tasks included:

- Manually re-creating out-of-the-box VBA Excel capabilities, such as drag-to-fill and pattern-based formula propagation, in JavaScript
- Designing custom logic for handling dynamic rows
- Rewriting complex fill patterns into explicit index math

Instinctools' engineers collaborated closely with Renold's team to ensure the new system **mirrored the component matchability logic** from the legacy system down to the last detail.

### 02 Integrating the newly written quoting feature into the 3D configurator

We incorporated the new quoting engine as a standalone module into the existing 3D visualizer. With design and pricing being merged into one fluid experience, users can now assemble complex mechanisms by themselves and request a quote from the relevant Renold sales office right away.

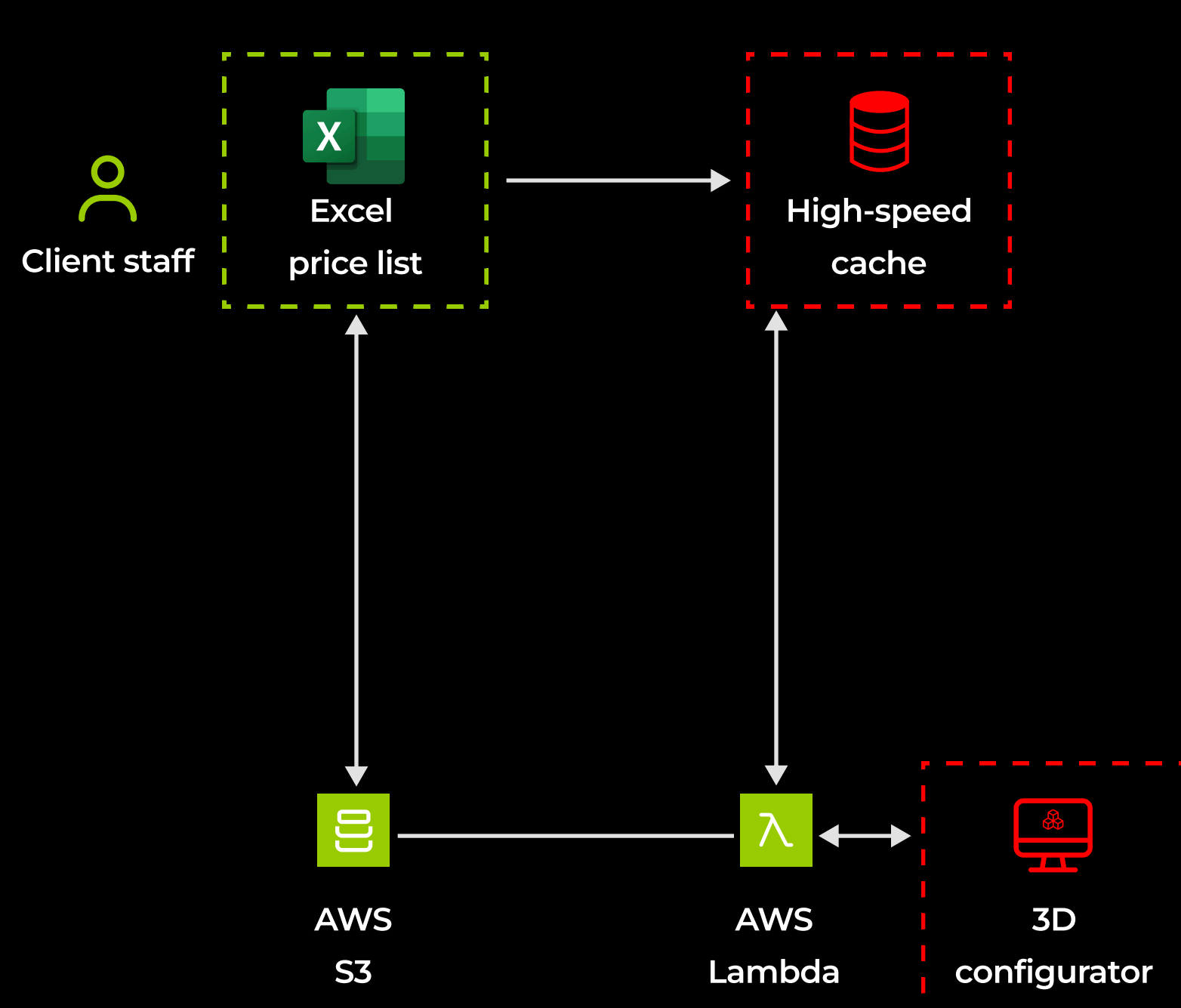


### 03 Simplifying price updates

Automating quote generation was a significant step forward that **accelerated the workflow from 1-2 days to under 30 minutes**. However, there was another order processing bottleneck the client wanted to address. In the previous setup, whenever the prices of the chains, gears, and couplings were changed, Renold employees had to manually adjust them in the VBA code.

Our **dedicated team reorganized the workflow so that prices inside the quoting module update automatically**. Here's how it works now:

- 01 The client's staff updates prices in an Excel file and uploads it to AWS S3.
- 02 AWS Lambda reads the file and transforms it into JSON data, storing it in the same folder.
- 03 AWS Lambda keeps the parsed JSON in fast memory to serve repeated requests faster.
- 04 The 3D configurator retrieves prices by sending requests to Lambda.



This approach also helped keep CPU load low and performance high, with **price checking done in under 10 milliseconds**.

## Before

- Mostly manual, Excel-based quoting
- Mechanism visualization and quoting exist separately
- Quoting takes hours or even days
- Price updates require VBA code modification
- Two separate codebases to maintain
- Scaling required more staff

## After

- Fully automated quote generation
- The quoting feature is embedded into a 3D visualizer
- Quoting is completed in under 30 minutes
- Price updates are handled automatically
- One unified codebase
- System scalability without increasing headcount

## Business value

- **Automated** quote generation and price updates
- **x32** faster order request processing
- **-60%** of man-hours spent on quoting
- **+17%** in quote-to-order conversion

## Client's testimonial

“

*Instinctools delivered everything **on time** and was **very flexible towards changes** in scope during the project work. The team was easy to work with and had a quick response time.*

**Detlef Ragnitz**

Engineering Director, Renold GmbH

## Do you have a similar project idea?

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