POTASSCO SOLUTIONS®

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Production

Smart Machine Configuration with Potassco AI

Contact Person

info@potassco.com

www.potassco.com

In a Nutshell

- Complex machines and systems are still often configured entirely by hand, which significantly delays quotation preparation and production, causing potential orders to be lost early.
- A knowledge-driven solution based on Potassco AI automates this process, assists humans, and thus accelerates the quotation process. All technical expertise is captured in the form of logical rules. This prevents errors, and the experts' implicit know-how remains within the company in the long term.
- Potassco Solutions provides consulting on potential approaches within common CPQ processes and supports both the modeling of knowledge and the implementation and maintenance within the existing IT infrastructure.

The Challenge

In modern production environments, companies are increasingly faced with the challenge of configuring complex machines and systems in a way that is both flexible and efficient. Today's production lines consist of modular components - drives, sensors, processing units, or control systems - that must be assembled differently depending on the product variant. This leads to an enormous variety of possible configurations, whose manual planning is not only time-consuming and error-prone but also represents a critical bottleneck in the quotation process.

A mid-sized manufacturer of packaging machines offers its customers customized solutions. Each system is composed of dozens of components that are subject to specific technical and logical dependencies. For example, a certain robotic gripper may only be used with a particular control unit, while other modules are mutually exclusive or require additional safety functions. The project teams regularly spent many hours determining permissible combinations and avoiding technical conflicts. This complex process significantly delayed the quotation phase and made it difficult to respond quickly to customer inquiries — a clear competitive disadvantage.

Our Solution

This is where Potassco AI comes into play: Its core technology is a declarative, knowledge-driven AI approach that is ideally suited for complex planning and configuration problems.

Instead of specifying every calculation step, you simply define the rules and conditions that a valid solution must satisfy. The system then automatically determines all permissible combinations. For the packaging machine manufacturer, this means that the time-consuming manual checking process is eliminated.

The configuration system based on Potassco AI is seamlessly integrated into the existing IT infrastructure. Engineers model the technical knowledge—such as dependencies, exclusions, performance requirements, and safety constraints—as logical rules. The system then takes over the search for suitable machine configurations. It automatically checks whether a customer request is technically feasible and, if a combination is not permitted, proposes alternative options.
In addition, users can interactively adjust configurations. Every change is validated instantly: the system shows whether the combination is still valid and explains, in case of conflicts, which conditions are violated and how to restore a correct solution. This creates transparency and reliability - even for highly complex requirements.

The Benefits

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Significant time savings & increased conversion rate

- **Quotation phase shortened by 60 %:** The configurator delivers valid machine proposals within seconds, significantly accelerating the entire process
- **More orders through efficiency**: The faster quotation process led to a significantly higher conversion rate.

Error-free configurations & Transparency

- **Only feasible configurations**: Incompatible components are automatically excluded.
- **Confidence in decision-making for all employees**: Thanks to transparent decision rules and system explanations, even less experienced employees can make competent and well-informed decisions.

Knowledge retention & Scalability

- **Knowledge retention for sustainable expertise:** The knowledge of experienced engineers has been formalized and permanently embedded within the company.
- **Data harmonization:** A unified data model provides a consistent basis and simplifies long-term data maintenance.

Outlook

Beyond pure machine configuration, Potassco AI can also be used in other areas of the company, such as production planning, resource allocation, or automated maintenance decisions. This example illustrates how companies can take a real step toward knowledge-based, automated decision-making processes using this technology.