MATCHING PRODUCTS WITH CUSTOMERS' NEEDS AT WÜRTH

How the market leader for assembly and fastening materials utilizes knowledge graph technology from Empolis to achieve this goal.

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Adolf Würth GmbH & Co. KG, based in the German town of Künzelsau, Baden-Württemberg, has over 7,400 employees. According to its preliminary annual report, it had total revenues of 2.21 billion Euros in the year 2020. That makes it the leader in the German market for professional assembly and fastening materials and the largest company in the global Würth-Gruppe.

Its more than 125,000 products are subject to high quality standards. Those products include, for example: screws, screw accessories, dowels, special-purpose chemical products, furniture and building fittings, tools, stocking and storage and retrieval systems, and work safety equipment for professional users.

Würth works with over 540,000 customers in Germany in the fields of skilled trades, construction and industry. Its customers range from one-man workshops to industrial enterprises that operate around the globe. Würth's overall motto is "Ensuring that each customer gets its own "Würth"".

The company relies on a combination of direct sales, brick-and-mortar retailers and e-commerce. Approximately 3,200 permanent sales representatives provide customers in Germany with local, face-to-face support. Over 500 sales outlets work to meet the immediate needs of customers throughout Germany. The restrictions and social-distancing required during the coronavirus pandemic have increased the use of digital business channels, such as the e-commerce store, Würth app and e-procurement solutions. E-business plays an increasingly important role in the "multi-channel strategy" pursued by Würth.

How do customers find the right product online?

For customers, especially those in the B2B field, immediately finding the right fasteners for the job they face or the right products for their specific construction project isn't always an easy task, especially when they are looking online. One reason is the variety of different products; another reason is the nature of the bidding invitations for construction projects.

These invitations rarely contain an explicit list of fastening materials, or when they do, they sometimes include only the article numbers and names used by other manufacturers.

Based on these requirements, Würth therefore has to break down the available products to the level of pipe clamps, screws, dowels, rails, etc. This process of matching up the requirements with specific products is very time-consuming and demands a great deal of technical knowledge. In the past, only a few technical experts at Würth had the exact knowledge needed to select the right fastening solution. As a result, this was a purely manual process carried out in the presales area (or by project management for the construction site).

The company therefore needed a web-based solution that could be used to aggregate expertise and product knowledge and make it accessible to all Würth employees.

Intelligent links between product information is used to match products with customer needs

Für Würth' success, it is absolutely essential to speak the same language the customers speak in order to satisfy their needs and transfer Würth's sales and support capacity into the digital channels. At the same time, all of the distribution channels must draw on one central source that contains all of the product information.
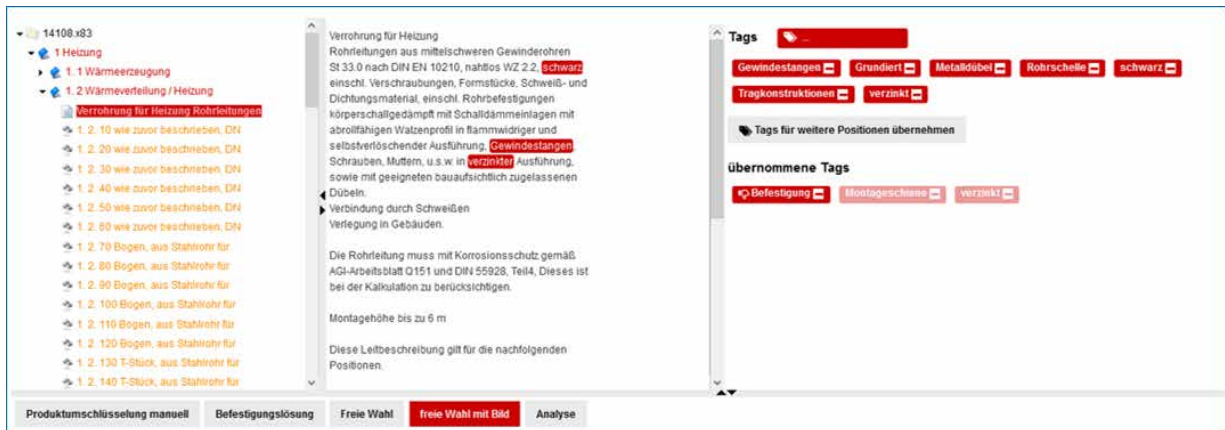
Based on the context, the knowledge graph displays all of the information for the user: What elements are needed, and what versions of those elements? What technical standards have to be considered, taking external specialist knowledge into account? The image shows the tool used to analyze the product feature directory. On the left is a directory of product features arranged as a tree structure. In the middle is the text corresponding to an element of the tree, automatically tagged with terms deemed relevant by the system. On the right are the tags the system has identified. These can be deselected manually, or more can be added. They can also be applied to other elements of the product feature directory.

A knowledge graph, with intelligent links, is used to close the gap between customer needs and product characteristics. In the search shown in the illustration, for example, the knowledge graph is used to determine which fastening material is needed for piping in heating systems.

To provide this information, the knowledge graph must be able to represent knowledge concerning the compatibility of the products

– with all of the required information: characteristics of pipes and pipe clamps, threaded rods, washers, etc. It therefore captures the logic of the products and indicates that in this case, it does not make sense to combine hot-galvanized components with stainless steel components. And this is just one example of the power of this technology. It not only ascertains all of the characteristics of the products available on the web platform, but also portrays them
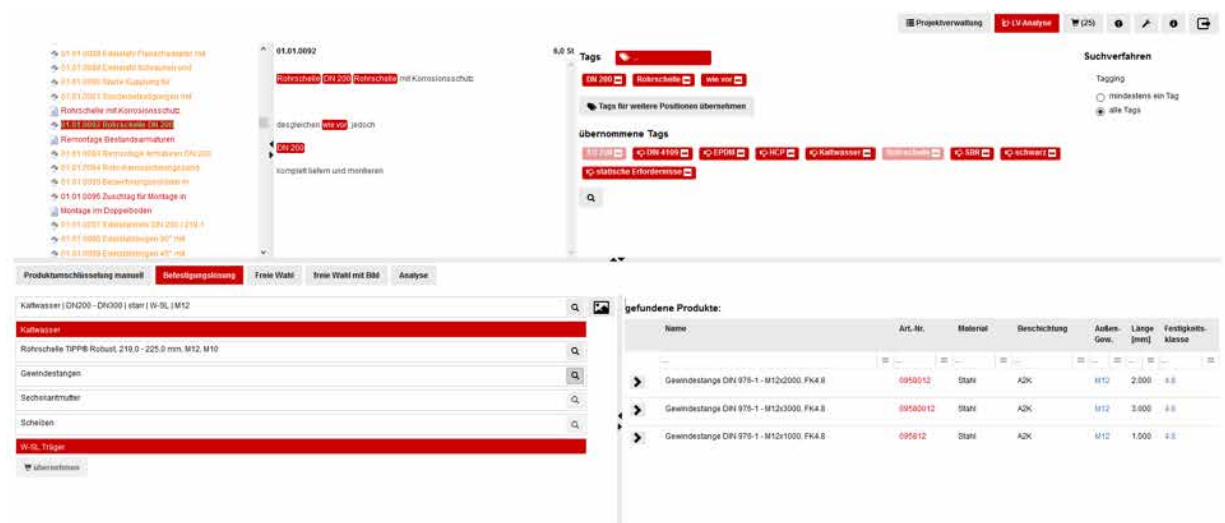

In this example, the system displays a fastening solution consisting of multiple products. The proposed solution specifies product classes, and the products corresponding to a selected class are displayed on the right. These are compatible with the previously selected product ("Pipe clamp TIPP..."), because their characteristics – which have been defined by experts – are compatible with one another (e.g., external thread M12 matches internal thread M12).
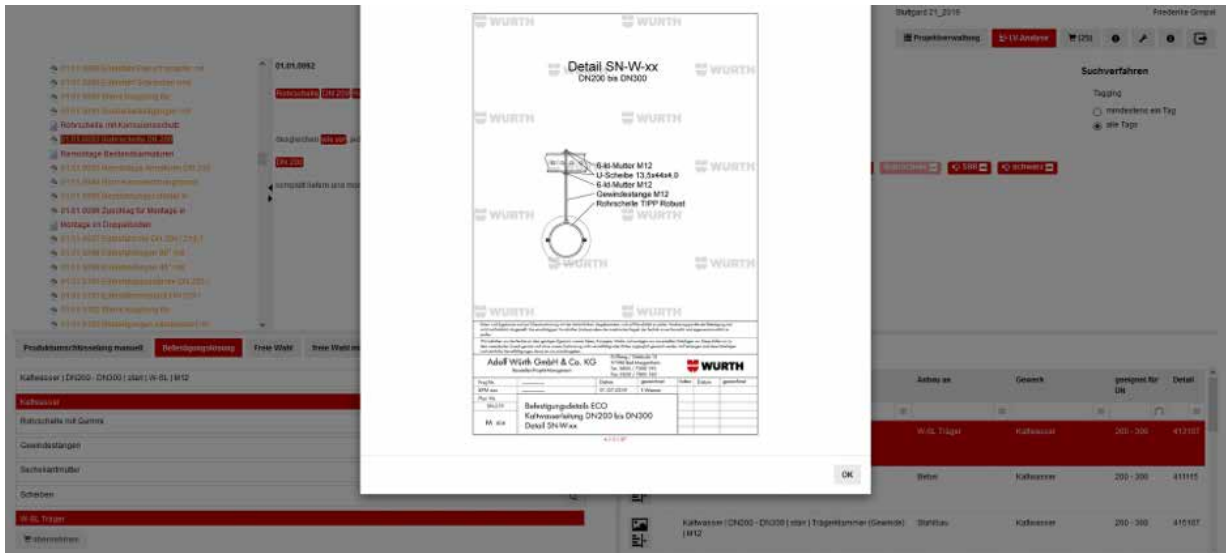
The fastening solutions are products that should be offered as a package and have been identified as compatible by means of rules defined by experts. Diagrams can also be stored in the system as an aid for decision-making.

in the context of their relationships with one another. Ultimately, after all, what is important in any construction project is the interaction of multiple components. This is what the user has to consider, and this is the job performed by the system. At the same time, the platform enables cross-selling by offering users products that could be appropriate for their project.

The knowledge graph can use AI techniques to process unstructured input provided by the customer. For example, it can translate requirements from the language of the customer into that of the manufacturer, or it can extract the products needed from unstructured text in the bidding invitation.
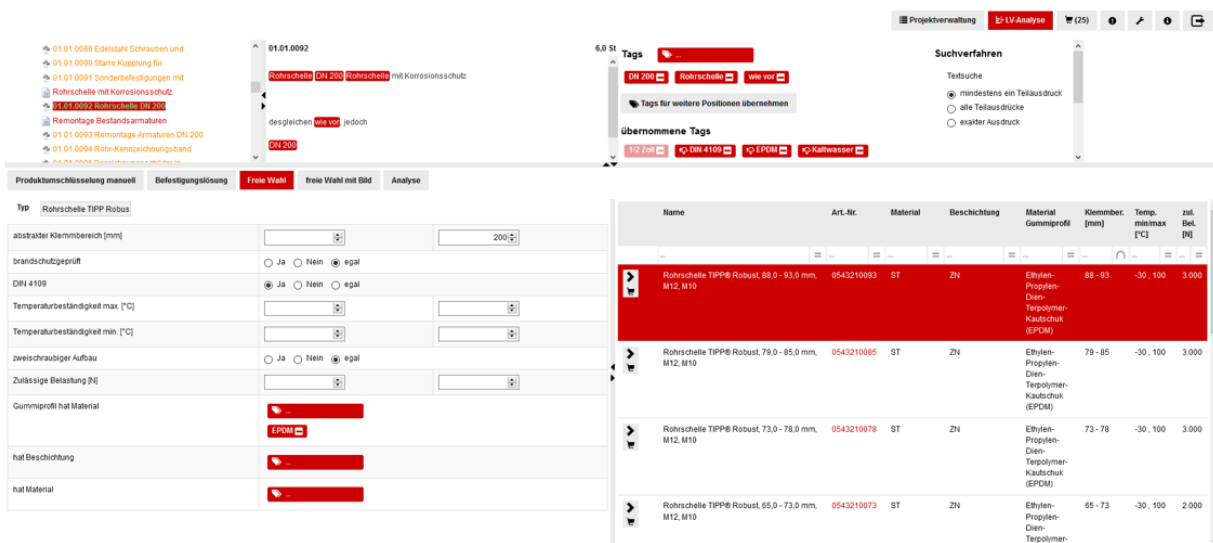
Suitable products can also be found by searching for specific characteristics.
The tags of the selected element are automatically added to the characteristics as required values.

Users can also search for individual products via their product categories, as they might in the online shop. The selection can be narrowed down with the columns for properties.

The success

Since knowledge graphs have the capacity to represent expertise about product relationships, they provide Würth with a powerful tool that generates the best possible information base for its sales channels. The knowledge graph technology provides important support to the company's e-business and multi-channel strategy. The technical and sales experts at Würth can use it to easily link what they know about product characteristics, use cases, possible combinations, etc. in a knowledge model. With this knowledge, customers and new or less experienced members of the sales staff can locate products based on their required properties and use cases.

With the Empolis solution, Würth's construction site project management can increase its sales performance by approximately 10 percent annually – without additional staff.

About Adolf Würth GmbH & Co. KG

Adolf Würth GmbH & Co. KG is a leading supplier of assembly and fastening materials for professional applications. It is the largest company of the global Würth-Gruppe and has over 7,400 employees. According to its preliminary annual report, it had total revenues of 2.21 billion euros in fiscal year 2020.

The company specializes in assembly and fastening material. Its more than 125,000 products are subject to high quality standards. Professionals have a high opinion of its screws, screw accessories, dowels, special-purpose chemical products, furniture and building fittings, tools, stocking and removal systems, and work safety equipment. Its objective is simple: to make its customers' work easier through tailor-made services, practical system solutions and a broad range of products.

WÜRTH

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Empolis provides solutions that enable companies and organizations to analyze, interpret and automatically process the rapidly growing amount of structured and unstructured data. They utilize their knowledge capital to improve enterprise-critical business processes enabling decision-makers, employees and customers to reliably receive precise and relevant information, situation-appropriate and task-relevant, for faster and better decisions.