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# Many Processes, One Single Source of Truth

*To provide accurate product information quickly across all sales channels, Murrelektronik relies on graph technology. A Neo4j knowledge graph is the single source of truth for the company's online shop as well as its website of technical documentation.*

## BY THE NUMBERS

- 62M** nodes
- 95M** relationships
- 60K** products

## PLATFORM

Neo4j Enterprise Edition

## INDUSTRY

Manufacturing

## USE CASE

Product Information Management

## CHALLENGE

Time-consuming data verification and approval processes, with duplication as well as error-prone terminology management

## SOLUTION

Neo4j knowledge graph serves as a single source of truth, with role-specific views for specialist departments through graph apps

## RESULTS

- Higher data integrity and quality as well as documented data sovereignty across all channels
- Significant time savings through automated creation of custom content
- Flexible and future-proof data platform for automated applications

## The Company

Murrelektronik is a specialist in state-of-the-art decentralized automation technology for machines and plants. The international family-owned company has over 3,030 employees and develops, produces, and sells solutions in the field of power supply, interfaces, connection cables, and IO systems. Their online shop carries over 42,000 products.

## The Challenge

The starting point for the use of graph technology at Murrelektronik was the search for a new product information management (PIM) system. The existing PIM tool had been discontinued, and the relevant data - including texts, terms, technical details and graphics – was duplicated across several different systems, which impaired data integrity and made automatic provisioning in the online shop difficult. The company needed a solution that would store product information in a central location and feed each channel with consistent and accurate information without requiring a large amount of resources.

## The Solution

Together with consultants from [semantic PDM](#), Murrelektronik developed a new PIM strategy using graph technology and Neo4j. semantic PDM developed the data model and functionalities for the graph-based PIM platform. All data required for the online shop can now be consolidated and managed in a central location in Neo4j. One of their stated goals had already been achieved: namely, to eliminate the large number of different data sources and Excel files.

Products as well as components and raw materials are mapped in the graph as nodes within a data network. The individual data is linked to customer, compliance, marketing, and other department-specific data. Following a clear data sovereignty policy, each stakeholder actively collaborates on the knowledge graph, from technicians and product managers to test center and quality control to marketing. Special operating concepts and modules facilitate navigation. Role-specific views ensure that users only see the PIM data from the graph that is relevant for them.

In addition to fine-grained access control, release workflows and decision-making processes are also stored in the graph. This enables a high level of transparency and traceability, especially for terminology management.



"Behind an abbreviation like REACH compliance in the web store, there is actually a long series of internal tests and approval processes," explains Sebastian Stahl, Project Manager, Murrelektronik GmbH. "In the past, there was often a jumble of countless emails, and it was not always clear who was responsible for which terminology and product information in terms of content. That has changed now, which saves us a lot of time and headaches."

The advantages of the Neo4j knowledge graph as a central source for PIM are obvious for Andreas Weber, founder and CEO of semantic PDM. "Users always have the original data available in the knowledge graph. Duplicates and copies are a thing of the past. The likelihood of errors is reduced, and data integrity and data sovereignty are traceable. Above all, the PIM knowledge graph saves a lot of time because the data is stored and used directly in the right place without detours."



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**Andreas Weber, founder and CEO of semantic PDM**

### The Results

Currently, Murrelektronik's knowledge graph comprises more than 62 million nodes and 95 million edges. All product information can be combined in views via mapping configurations and imported directly into the web store. Changes take place in real time across all channels. In addition, sales can create specific reports for major customers that provide a very fine-grained overview of products. Customer-specific reports, which previously required considerable manual effort, can now be created at the push of a button.

"We have broken down the data into 'data atoms' that are so small that we can put together any type of view in a very short time - from simple to complex," says Sebastian Stahl. "We can adapt parts lists, manuals, or reports to the requirements and terminology of customers. Our sales department now has a helpful tool to serve our customers even better."

The PIM solution is well-accepted. This is also because the intuitive and scalable graph model can respond to individual preferences via micro-applications and views. "The flexibility is significantly higher than in classic IT systems, which were designed more for deterministic processes," says Weber. "For a manageable investment, companies can use powerful graph technology and expand their use over the long term. In addition, the costs for customization, user licenses, and maintenance are significantly lower than for comparable systems."

The potential of the knowledge graph is far from exhausted. For example, the company plans to enable more and more engineers, software developers, and technicians to work on the knowledge graph, which will allow the system to be expanded into an engineering platform. In the long term, Murrelektronik plans to use the knowledge graph in the very early phases of product development and to include requirements and function modules in the models.