



ELECTROPULT

Analysis of an
information technology makeover

Process optimization with EPLAN

For a large manufacturer like Russia's Roselectroprom Holding ("REP Holding"), the introduction of the EPLAN software at its Electropult plant in St. Petersburg meant more than automating electrical design. It was an opportunity to leverage a major IT upgrade to optimize development and process management systems starting at the design stage.

Joint operation recognized need for automating design

The creation of REP Holding in 2004 brought two long-established Russian manufacturers based in St. Petersburg – Electropult and Nevsky Zavod – under one ownership, with a total work force of over 2,600, nearly one-fifth of whom work on product engineering. Electropult's products include transformer substations, electric motors, control panels, switchboards and electrical components.

“There are significant benefits to be realized before an order reaches the shop floor, such as improved staff productivity, more inter-departmental collaboration, more cost-effective purchasing of components, improved product reliability and faster turnaround of orders. REP-Holding's experience demonstrates that making a large manufacturing plant more competitive should not be limited to streamlining production costs.”

AUTOMATION

Cost
Efficiency



One of Russia's biggest IT upgrades ever

Russia applying to join the World Trade Organization provided the impetus in 2005 for the company to begin a major revamping of IT architecture and systems that would include new design automation software. The project became one of the largest of its kind undertaken in Russia. The software at the St. Petersburg complex was inadequate and wouldn't allow the kind of competitive improvements

REP Holding felt it had to make. There was a lack of collaboration among disciplines and departments and lack of standardization in design and development processes, forms and work flows. Nor was there adequate discipline in parts purchasing and inventory management. REP-Holding formed a new department, EP-Audit, to analyze the company's needs and manage the project, and then market this expertise to other companies. The implementation plan called for integration of the E-CAD, PDM and ERP systems along with new MCAD and the introduction of modular product architecture into the design and manufacture of products. Integration would bring new capabilities, like the ability to track and control modifications and re-use project data in designing variants of common products.

For electrical engineering, EPLAN was selected over competing domestic and foreign products because as an object-oriented, database-driven program, it not only gave the electrical engineers a full-feature program to automate design but also a tool that could be integrated into the PDM and ERP systems to promote inter-disciplinary and inter-departmental collaboration.

EPLAN link to new archive

Project implementation began in February 2006 and would last two years. Among early steps, a product archive and database of authorized components were launched and commands to access them incorporated into the EPLAN Platform – then based on EPLAN 21 – by way of third-party software. A standard library of drawing symbols and a protocol for adding to it were developed. More engineers were trained on EPLAN 21 to help familiarize them with the EPLAN approach as a way to ease them into the new, ground-breaking EPLAN Electric P8 that was launched as Electropult's universal E-CAD system the following year. EPLAN Electric P8 offered new ways to structure work. Much of the designer's job was automated, accelerating work flows, improving accuracy, increasing transparency and eliminating a large amount of redundant tasks. Data is entered once and all related diagrams and lists are updated automatically.



TEAMWORK

Faster
Results

Engineers order components from database

EPLAN became an integral part of the new regime for purchasing components. Working on different standalone systems, Electropult's electrical engineers had been ordering components in ways that were often wasteful. The creation of a global database of authorized components, accessible on EPLAN, required designation of uniform boxes, drawing symbols and forms as well as the creation of restricted project lists. (By 2008, the global list included 3,500 domestic and foreign made parts.)

Design of variants made easy

EPLAN simplified the design of variants of common products. The plant makes many variants of some products, often in small quantities, and previously engineers would have to start from scratch whenever they needed to design a new variant. Now, in EPLAN Electric P8, they can designate specific objects to change without redesigning the circuitry. That saves a great deal of time and makes it more cost-effective to produce small batches. This is also creating a growing database of archived, basic designs that can be quickly modified.

New capabilities being identified

Given that EPLAN Electric P8 is so feature rich, management at Electropult took the time after the initial implementation for an in-depth analysis of all the ways it could be used to improve productivity. The plant is taking advantage of the ability, with EPLAN, for several engineers to work simultaneously designing circuitry on the same project. Each can instantly see all changes being made by other members of the group, which greatly speeds project turnaround times.

“In harmonizing the supply chain with the components used in the product development process, it was important to pay special attention to the front end of the design process, namely the people who are determining the need for those components,” says Irina Vorontsova, general manager of EP-Audit. “It is necessary to define limits that impose reasonable restrictions on designers by giving them full sets of directories and authorized components and libraries of objects used in the design process in addition to giving them a full-function design tool like EPLAN.”



“It was impossible, up front, to develop and restructure all of the main data (boxes, symbols, report forms) required for the designers to be effective in an automated environment because of the large number of products manufactured at our plant,” says Irina Vorontsova. “We had to create a dynamic organizational structure where it would be possible to add missing variants of our main products.”

Fast, smarter,
more profitable

SUMMARY

Implementing the IT makeover at Electropult has accelerated project turnaround and increased the plant's profitability. Engineers are more productive. By using the automation features of their EPLAN Electric P8 software, electrical engineers can produce a variant of a common product, generating all schematics and documentation automatically and not have to do everything from scratch. Production costs have been reduced further by standardizing purchasing and inventory management practices, based on a new, central database. Design errors and product defects have been reduced. There is more effective collaboration on a project within the electrical engineering department and among departments, with even closer inter-disciplinary collaboration.

Find out more about Electropult on www.electropult.ru

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