



PRECISE  
PLANNING AT  
THE PUSH OF A  
BUTTON

Thüga AG, as a minority shareholder in around 100 energy providers in Germany, is using advanced analytics to tackle the growing challenges of the energy sector. The company has used it to automate a number of steering and planning scenarios so successfully that the next prototypes are already in the works.

**T**he transformation of the energy sector is putting utility companies under pressure. Trends such as decentralized renewable production, smart electricity meters and the growing complexity of energy trading have all led to a highly volatile business environment. This demands new approaches to corporate performance management to enable organizations to move successfully into the future. The Thüga Group, the largest network of municipally owned energy and water utilities in Germany, decided back in 2016 to use the power of digital technologies for this. The company researched the suitability of a variety of processes, methods and models, identified individual use cases and set up pilot projects to develop detailed prototypes.

#### **STRONG NETWORK, AGILE PROJECT**

In order to provide the necessary resources, Thüga took a well-proven approach. Within their partner network of 100 companies, they quickly identified a partner company who could provide the operational expertise for the selected use case,

and involved them in the project from day one. Thüga was able to convince its partners to become involved mainly because it focused on the specific benefits of the selected use cases for their business, which led to optimistic curiosity. The result was a common pool of resources that could also be used to carry out unscheduled tasks. Thüga relied on agile project management to be able to handle the complexity of the issues and to reach its goal quickly. And successfully: using four week development iterations, the team implemented individual functional features. Thanks to regular feedback rounds, it was possible to correct course at an early stage if developments were heading in the wrong direction, and also to react quickly to new requirements. A further part of its success was that Thüga defined the necessary base data for the prototypes at the start of the project and began by making the data available. Especially in advanced analytics projects, it is important for cleansed data to be available at an early stage. The fact that the project team always worked closely with the business departments involved also paid off. Thanks to intensive communication, all the participants felt involved in the development project right from the outset.

## AUTOMATED SALES FORECASTING

In order to handle the volatility of energy procurement, Thüga decided to develop a model that reflected medium-term sales planning for the electricity and gas business sectors. Since the gross margin was used as the target variable, the project team looked at the individual components used to calculate this margin, uncovered technical drivers and identified the data that influenced it, such as market and procurement prices. Internal data was supplemented by external information to create the most comprehensive base data possible. These data played a major role in sales planning, as they made market trends visible.

The project team set up the prototype using various statistical methods and models, including neural networks. During its operation, the system then decides independently on the basis of factors such as turnover, price and quantity which model is most likely to provide an accurate forecast in each individual case. This has proven itself over and over again in practice: The automated sales planning provides consistently better forecasts than the previous manual process. Several Thüga partner companies are currently using the digital prototype to calculate their sales margins, and then using this as the planning basis for management, to evaluate their current and future situation.

## FINANCIAL DATA MADE FIT

In a different use case, Thüga defined the cost centers and order forecasting for the administration. This prototype was intended to generate proposed values for forecasting, using all the overhead costs. First, however, it was necessary to see to what extent the existing process could be accelerated or even automated by using advanced analytics. Especially in the case of financial data, this is not always possible without making changes to the base data. Often there are structural changes to cost centers, accounting patterns and accounts, or the order history is not available.

In order to supply an adequate basis of information despite this, the project team cleansed the data thoroughly using a mix of manual and machine procedures. Among other things, recurring small orders in the order data were aggregated and forecast. This meant that individual orders were not evaluated during planning, although the basic costs could still be predicted with sufficient accuracy. For the automated cost center forecasting, the system dynamically selects the most suitable statistical model to make the most accurate forecasts in each case. This approach has been confirmed in practice. The automated cost



*Prototypes for tangible application scenarios help to reduce fears of digital transformation.*

center and order forecasting has consistently delivered very good results, which will significantly reduce the cost of forecasting.

## REDUCE CONCERNS WITH TANGIBLE SOLUTIONS

For Thüga, developing advanced analytics prototypes for specific applications is just one element in a comprehensive digitization plan. But they do play an important role in reducing employees' fears of and resistance to digital transformation. Interdisciplinary work on tangible solutions makes the potential visible, while also illustrating the current limitations of digital technologies.

Meanwhile, the close collaboration between Thüga AG and its partner companies has helped to build up advanced analytics skills within the network. That has paid off: thanks to their intensive dialogs, those involved already started identifying further potential applications during the project. The next prototypes for new use cases are therefore already underway. ■

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