Fraunhofer IPK

Fraunhofer-Institut für Produktionsanlagen und Konstruktionstechnik IPK

Case Study: m3 management consulting GmbH

Identifying Artificial Intelligence and Automation Potential in the Energy Industry

m3 management consulting is the leading transformation partner for companies with network-based business models in the energy and telecommunications sectors in Germany, Austria and Switzerland. The company creates customized and sustainable end-to-end solutions for strategic alignment and the design of new business models, as well as for organizational and technological challenges.

Challenge

The energy sector will experience significant changes in the coming years: increasing decentralization, shifting labor markets and strong encouragement for digital transformation. Artificial Intelligence (AI) will play a key role in this – provided that companies know where and how to use it effectively. However, integrating AI into business processes is complex and requires a robust data foundation and a well-founded assessment of which processes are best suited for automation and support through AI and machine learning. To enable companies to take a targeted approach, m3 management consulting GmbH, with support from Fraunhofer IPK, conducted a practice-oriented study. The study systematically identified which processes and activities are best suited for automation using AI and machine learning. The starting point was a representative municipal utility with over 300 activities.

»The in-depth technology and AI expertise of Fraunhofer IPK, combined with m3's understanding of processes and the industry, has yielded insights that are directly relevant and applicable to the energy sector.«

Dr. Christof Spangenberg
Managing Director, m3 management consulting GmbH

m3

Collaborative Work

To draw representative conclusions for the energy industry, the team modeled a fictional yet realistic municipal utility, encompassing the core business areas of networks, customer service and sales, energy procurement, commercial processes and generation. Together with domain experts from m3, the team documented the processes for each area – including their core sub-processes – and a total of over 300 activities.

To evaluate these activities in terms of their automation potential, the project team established a metric comprising eight factors. This metric primarily examines the basic technical requirements as well as the operational benefits – including considering the need to strengthen the workforce. As part of this process, the team investigated existing market solutions and research approaches and incorporated them into the evaluation.

Solution

The evaluation yielded three key metrics: (technical) AI suitability, benefits and an assessment of the effort required, based on available off-the-shelf solutions as well as the criticality of the underlying process. The combination of these three factors determines the potential. Using this framework, the project team created a roadmap to help companies at every level of AI experience and maturity align their automation initiatives with their specific operational requirements and overall business strategy.

The study highlights which activities – given a solid digital foundation and corresponding business requirements, such as addressing the shortage of skilled workers – offer the greatest potential for AI implementation. It provides a foundation for launching application-specific AI projects in the energy sector and serves as a valuable reference point for energy companies navigating the complex landscape of AI applications.

The study is of great strategic relevance. Energy suppliers and municipal utilities can consistently deploy artificial intelligence now to remain competitive in the market. Our findings provide the necessary guidance for this.«

Dr. Christof Spangenberg
Managing Director, m3 management consulting GmbH

Further information (German only)**:**
www.ipk.fraunhofer.de/ki-fuer-stadtwerke
www.m3maco.com/de/industrien/energiewirtschaft/ki-studie-2025

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About Fraunhofer IPK

With the help of application-oriented research, we develop solutions along the entire industrial value circle.

Our guiding idea is a digitally integrated production in which man and machine interact on the basis of data and can thus adapt flexibly and proactively to changing requirements.