EUR24_XX - The Evolution of Maintenance in Digital Age: Betting on IOT and Expert Systems

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Abstract:

The digital world is fast transforming with the emergence of new tools and frameworks. In this landscape, predictive maintenance is leading its own revolution: transitioning from a reliance on general alarms, triggered when limits are reached, to an approach where trends and foresights, grounded in online monitoring, play a dominant role. The goal is to reduce costs by minimizing both planned and unplanned interventions, thereby enhancing asset availability through the Internet of Things (IoT) and expert systems. By connecting seemingly decoupled information, we seek unexplored operational paths, supported by the IoT ecosystem and AI tools such as neural networks. The article highlights how a digital twin, based on real-time monitoring of an electrical machine, can anticipate operations and detect trends, thereby enhancing predictive maintenance. Leveraging AI and IoT doesn't guarantee perfect outcomes but prepares industries for the most probable scenarios, ensuring smooth operations and prolonging asset life. With this strategy, industries equipped with such systems are undoubtedly placing the right bets for the future.