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For power system expertise

Benefits of digital solutions

B3 PS3.1

What are the benefits of digital solutions like IoT-sensors, machine learning artificial intelligence, drones, robots etc. for substation life cycle from planning to maintenance? Which measures are necessary to increase the acceptance of intelligent IoT-based power equipment in substations?

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Benefits of IoT solutions for switchgears

- **Optimized maintenance by predictive analytics and real-time diagnostics**

- **Improved grid stabilization by controlled overload operation with digital twins**

- **Plug & play with ready-to-use dashboards and global fleet view**

- **Integration flexibility with APIs[1] and Microservices**

- **Cyber secure by design as fully separated from PACS[2]**

- **Supports mobile and agile working by remote asset monitoring & management**

- **Higher service levels possible by remote support, updates and maintenance**

- **Lever for data driven decision-making** ("big data as an asset") **and intelligent assets**

[1] Application Programming Interface
[2] Protection, Automation and Control Systems

Measures necessary to increase acceptance

- **Value of generated benefits needs to be better quantified and experienced by the user**

- **Awareness of cyber security standards and taken compliance measures for a secure IoT solution in substation environment**

- **Promote activities towards a "trusted cloud"[1] for the energy sector to enhance adoption of cloud infrastructures and services**

- **Microservices provide a cloud-agnostic integration of OEM know-how into customer cloud**

- **Continuous education of maintenance and operation workforce on digital technologies like IoT, cloud and AI**

1) Cloud services certified according to a harmonized certification schemes tailored for the energy sector, e.g. European Union Cybersecurity Certification Scheme on Cloud Services (EUCS)