

# DIGITALISATION OF ASSETS, FACILITIES AND MAINTENANCE

Case Study

National Grid SA | Saudi Electricity Company

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# Saudi Electricity Company/ National Grid SA

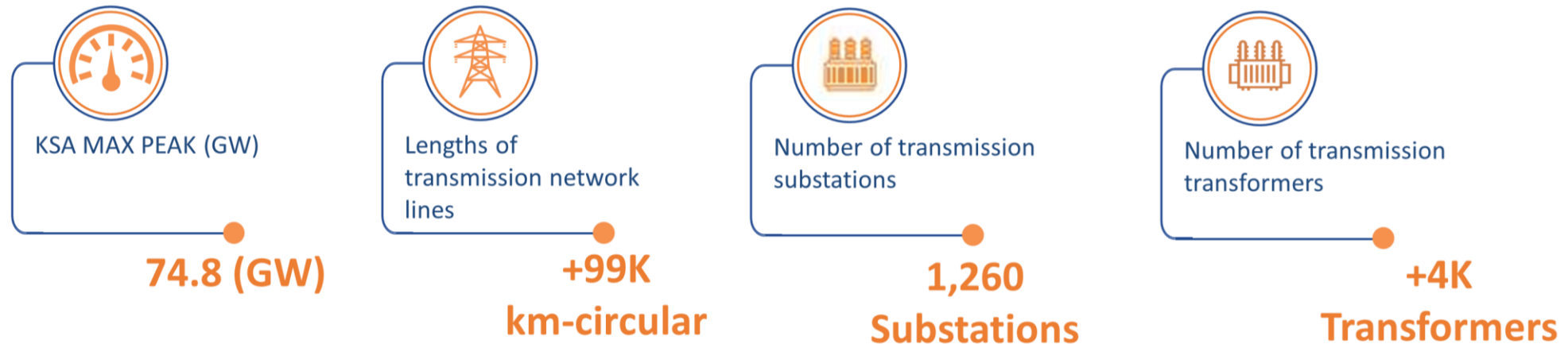


## About us

**Saudi Electricity Company (SEC)** is the top power utility in the Kingdom of Saudi Arabia, responsible for the generation, transmission & electricity across the nation.

**National Grid SA** is a subsidiary of **SEC** and the leading electricity transmission company in the Kingdom, mainly responsible for design, operation, planning, maintenance and management of the Kingdom's transmission network.

## Our Assets



# Objectives

## Motivation for the Digitalization



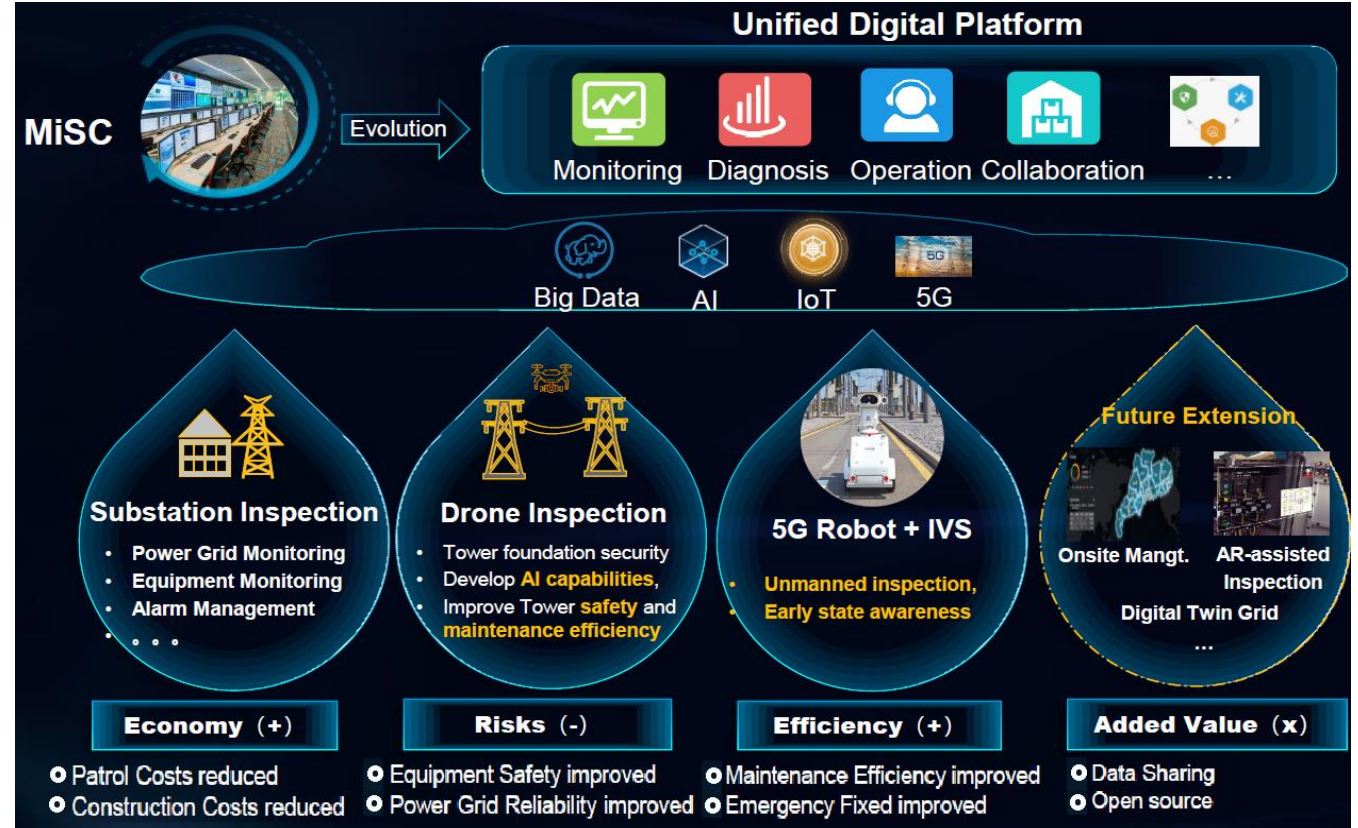
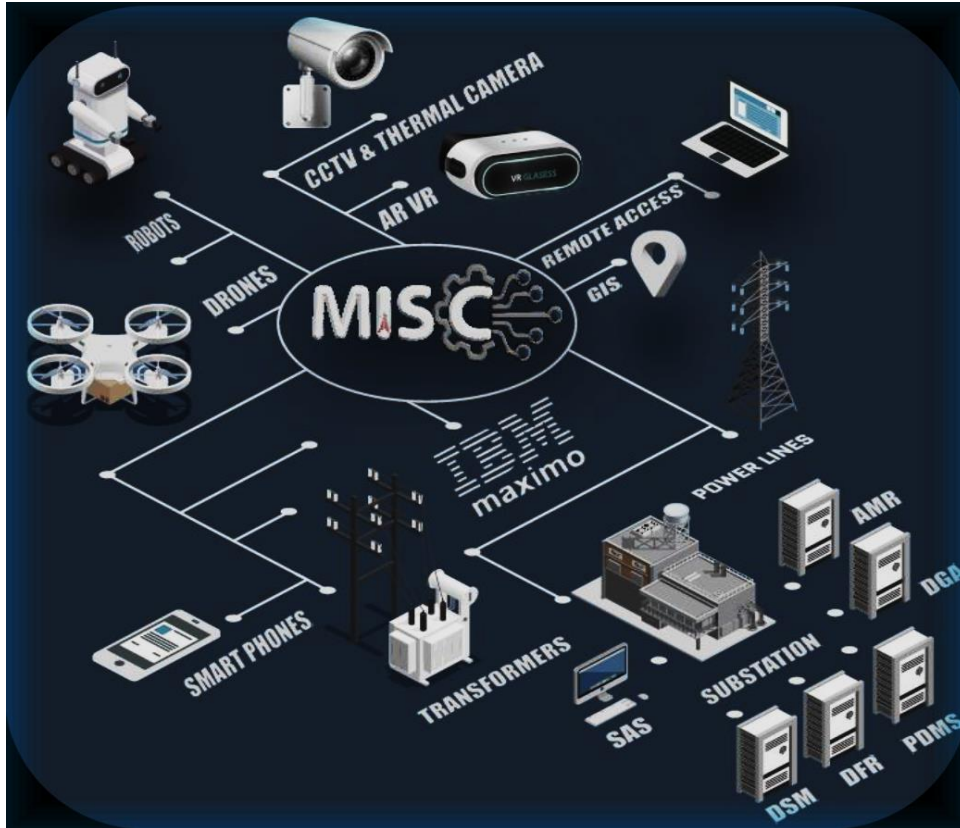
- To stay at the forefront of technological advancements, we are committed to adopting the highest industry standards to drive system performance and operational excellence.
- Our Digitalization efforts are focused on achieving greater efficiency, reliability and agility, while maintaining an unwavering commitment to safety and security.
- Minimize human interventions & associated errors while enhancing data-driven decision-making process.
- By embracing cutting-edge solutions, we aim to future-proof our operations, foster innovation, and deliver sustained value to our customers & stakeholders.



**An Optimal Solution**  
is  
a balance of  
**Performance, Risk & Cost**

# Overview: MISC Project

## Maintenance Intelligent Support Center



**Smart Support Center:** Enables real-time inspection and monitoring for proactive asset management.

**Seamless Connectivity:** Integrated with smart substation technologies for enhanced operational efficiency.

**Cutting-Edge Technologies:** Leverages advanced big data management and AI-driven insights to optimize performance.

**Intelligent Analysis:** Processes incoming data to drive automation, predict faults, and trigger early warning alerts.

**Remote Accessibility:** Provides comprehensive remote access to all subsystems, enabling proactive decision-making.



# MISC Architecture



# MISC

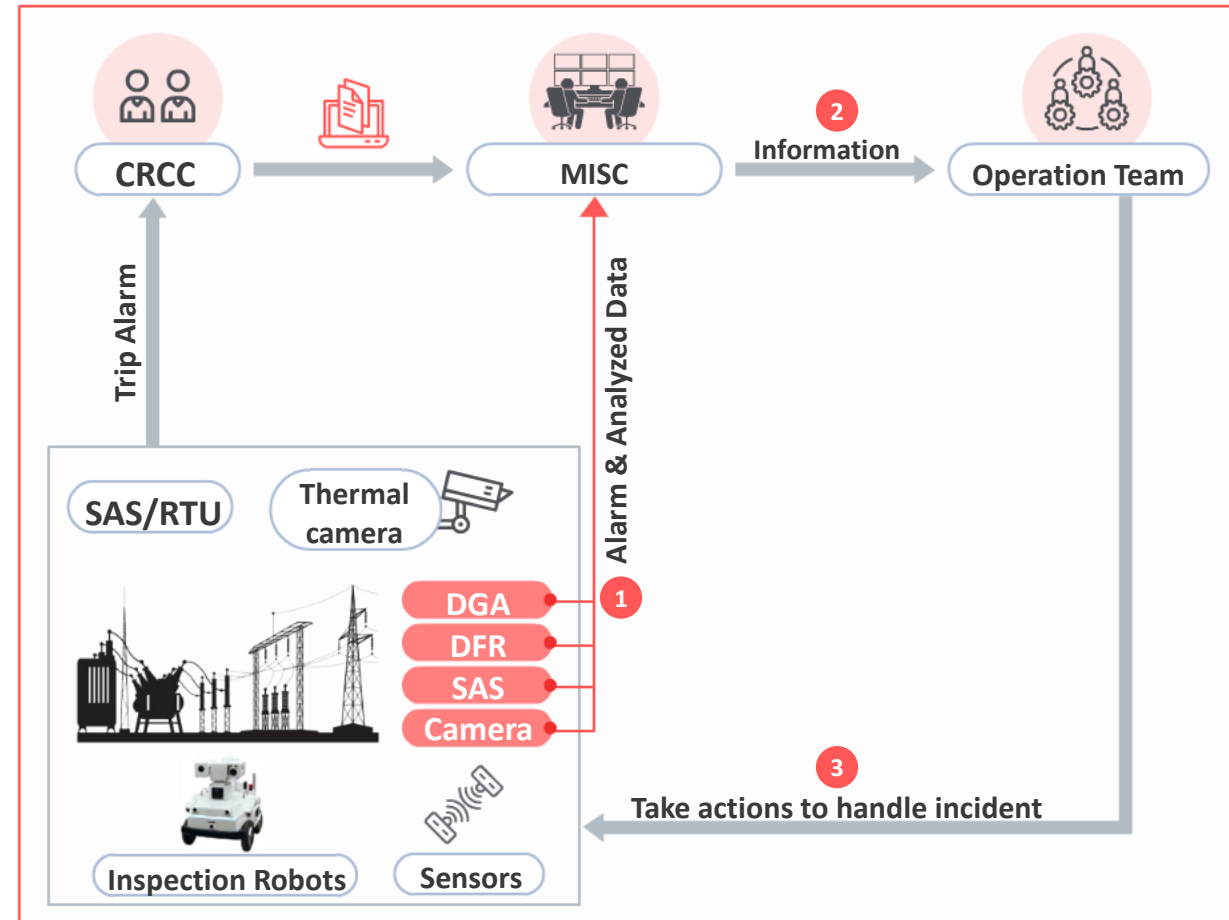
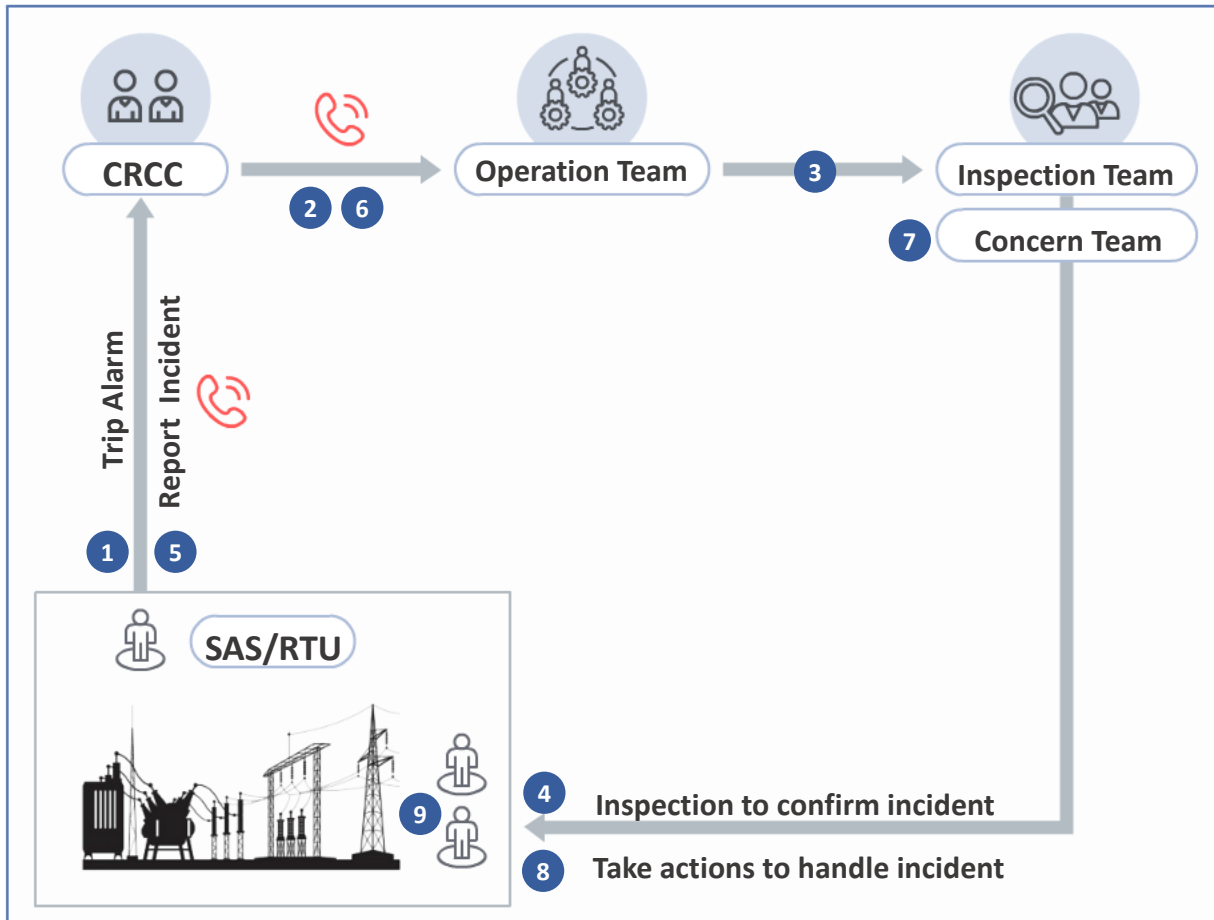
## Relative Benefits



Previous

VS

MiSC (now)



# MISC

## Overall Benefits



# MISC

## Business Values



Enhanced system reliability and decreased down time



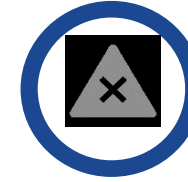
Increased regulatory & statutory compliances and safety



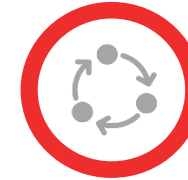
Unified system to effectively manage the assets and their associated risks



Better short-term & long-term system planning



Heightened confidence in operating the assets/grid



Maximized asset utilization and delayed investments for new infrastructure



**Sustainability & Stakeholders Satisfaction**

الشركة السعودية للكهرباء مصنف عام (داخلي) - SEC - Classified as Public Internal by SEC



- **Data integration and Quality:** Establish strong data governance frameworks early, ensuring data quality, interoperability, and standardization. Utilize data cleansing and validation tools.
- **Legacy System Compatibility:** Implement phased integration with middleware solutions and API-driven approaches to bridge old and new systems.
- **Cybersecurity Risks:** Adopt a zero-trust security model, perform regular audits, and invest in cybersecurity training for staff
- **Cultural Resistance to Change:** Conduct change management programs, involving stakeholders with demonstrated tangible benefits.
- **Skill Gaps and Training Needs:** Develop comprehensive training programs and partnerships with technology providers for the workforce upskilling.
- **Scalability and Future-Proofing:** Adopt modular and cloud-based architectures, allowing easy scalability and adaptability to new advancements
- **Prioritize Interoperability:** Choose platforms that support open standards to avoid vendor lock-in.
- **Factors that Accelerated Digitalization:** Several business processes had already been digitized at certain points in time, which facilitated the swift deployment of the Digital Asset Maintenance system for National Grid SA.