CONFERENCE
OMAINTEC
2024
EXHIBITION

THE 21ST INTERNATIONAL
OPERATIONS & MAINTENANCE
CONFERENCE IN THE ARAB COUNTRIES

HOW DIGITAL TRANSFORMATION AFFECTED MANAGEMENT OF MAINTENANCE RISKS

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An Initiative by

OMAINTEC
المجلس العربي للتشغيل والصيانة
Arab Operations & Maintenance Council

Organized by

EXICON.
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مجموعة أكزيكون الدولية

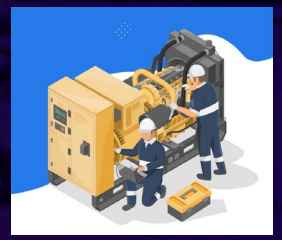
Introduction

Maintenance operations and activities have been affected by the accelerating digital transformation that the world is witnessing right now, and despite the positives that came with this transformation, it has also been accompanied by a number of challenges that must be understood and dealt with.
And in this presentation we will discuss the positive effects of the digital transformation on maintenance, and also the challenges came with it, along with real applications by Namaa and other companies around the world.

Maintenance risks

Maintenance risks are potential hazards or threats that may arise during maintenance activities. These risks can include:

Safety risks



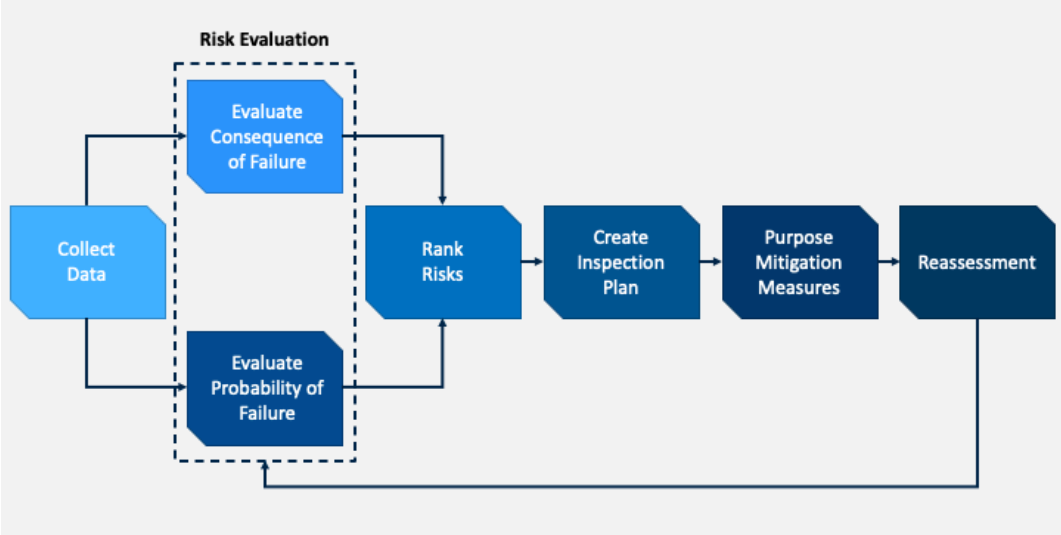
Equipment failure

Environmental risks

Operational risks

Management of maintenance risks

What is management of maintenance risks?



Risk based maintenance framework (RBM)

Management of maintenance risks

The management of maintenance risks typically involves the following steps:

1. Identification of Risks
2. Assessment of Risks
3. Mitigation of Risks
4. Monitoring of Risks
5. Continuous Improvement

Effect of digital transformation on management of maintenance risks

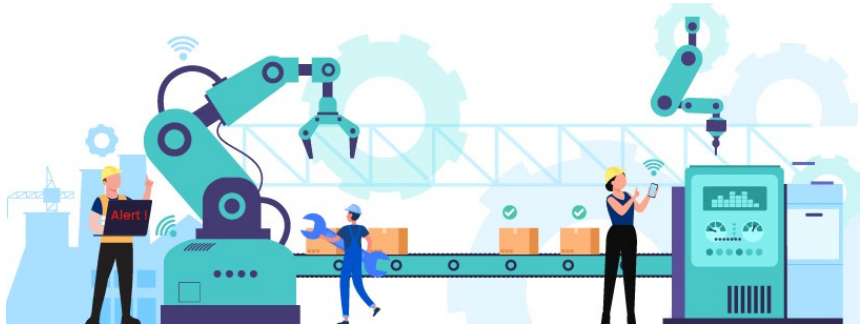
Digital transformation has made a significant impact on the management of maintenance risks in various industries. And here are some positive effects of digital transformation on the management of maintenance risks:

- Real-time monitoring
- predictive maintenance
- Condition Monitoring
- Providing remote maintenance capabilities
- Improving risk assessment and prioritization
- Enhancing safety and compliance management
- Increasing data-driven decision-making
- Enhancing collaboration and communication

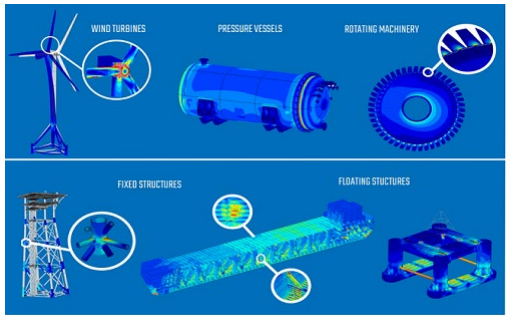
Effect of digital transformation on management of maintenance risks

The effects of digital transformation on the management of maintenance risks have occurred through introducing and using digital technologies and tools, And here are some of these technologies and tools :

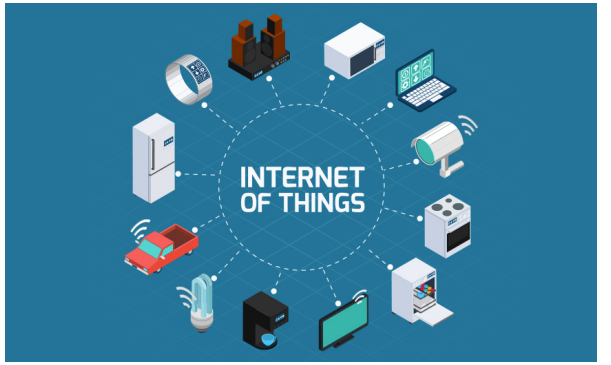
First: The technologies



Artificial intelligence (AI), Machine learning and data analytics



Digital Twins & BIM

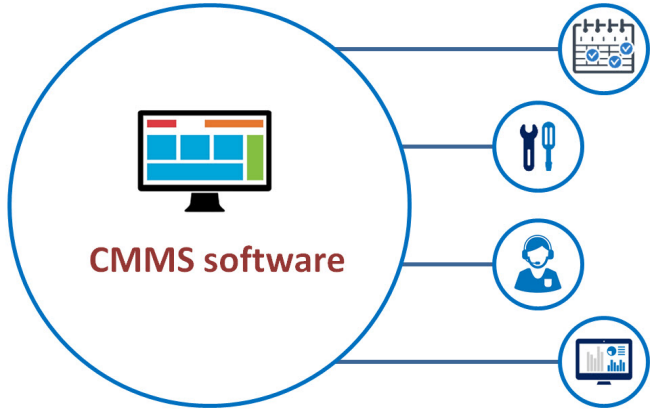


The Internet of Things (IoT)

Effect of digital transformation on management of maintenance risks

Augmented Reality (AR)

Virtual Reality (VR)



Computerized Maintenance Management System (CMMS)

Effect of digital transformation on management of maintenance risks

Second: The tools (devices)

Sensors

Robotics and Drones

Smart glasses

Neckband camera

360-degree Rotary Camera Mobile Phone

Challenges of digital transformation in management of maintenance risks

Organizations face several challenges in managing maintenance risks in the digital transformation era. Some specific challenges include:

1. Cybersecurity risks
2. Data management
3. Skills gap
4. Integration challenges
5. Cost
6. Regulatory compliance

Applications of digital transformation on management of maintenance risks

Here are some of real applications of digital transformation on management of maintenance risks by Namaa and other companies:

Namaa PMMS (Pavement Maintenance Management System)

Namaa VDED (Visual Distortion Elements Detection)

Maintenance 4.0

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Applications of digital transformation on management of maintenance risks

NAMAA

Namaa PMMS
(Pavement Maintenance Management System)

Applications of digital transformation on management of maintenance risks

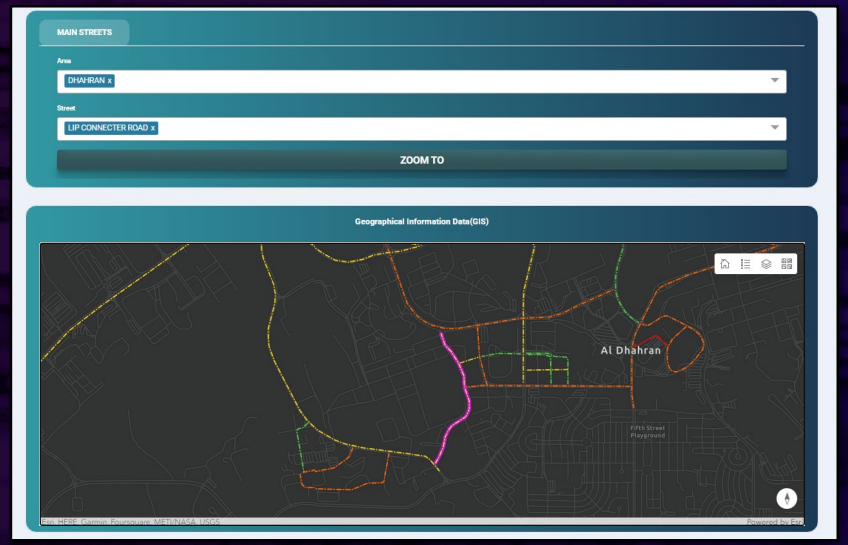
Multi- Function Vehicle (MFV)

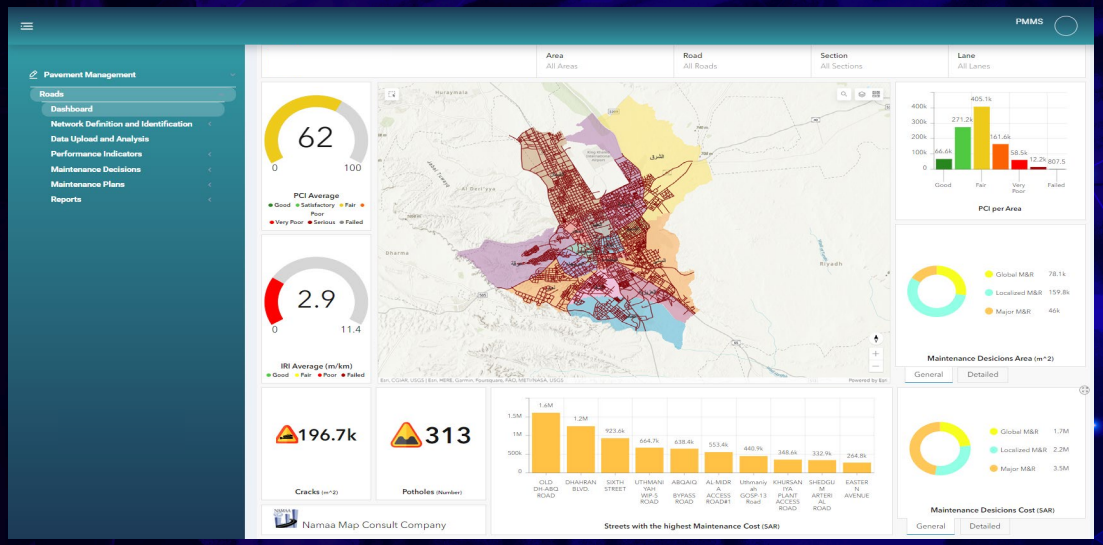
Fast Falling Weight Deflectometer (FFWD)

Fast Falling Weight Deflectometer (FFWD)

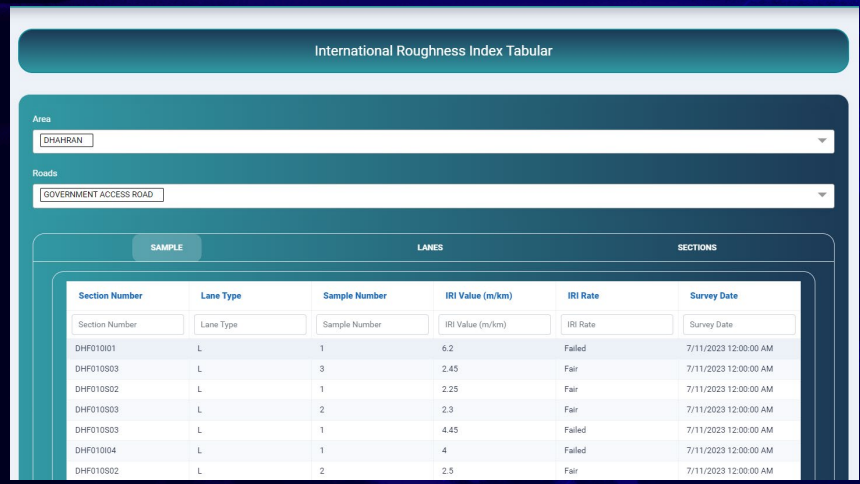
Ground Penetrating Radar (GPR)

Applications of digital transformation on management of maintenance risks





Roads Summary	MD Roads Details	MD Sections	MD Lanes
MD Samples	PCI Sections	PCI Lanes	PCI Samples
IRI Roads	IRI Sections	IRI Lanes	IRI Samples
Distresses Deduct	UDI Samples	UDI Lanes	UDI Sections



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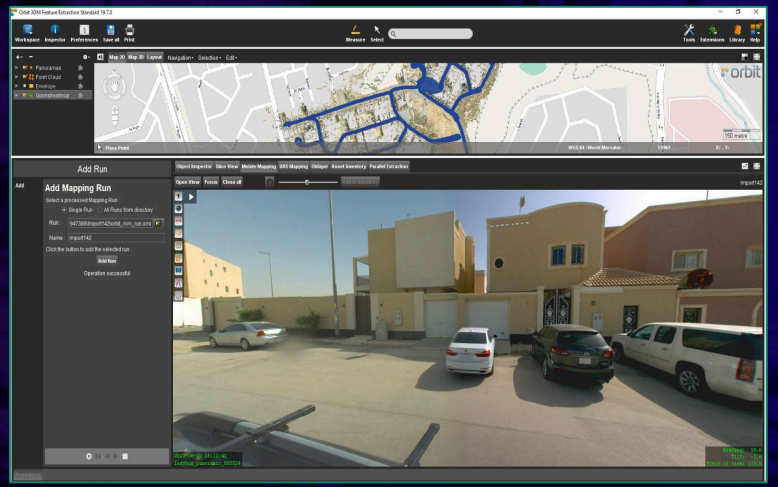
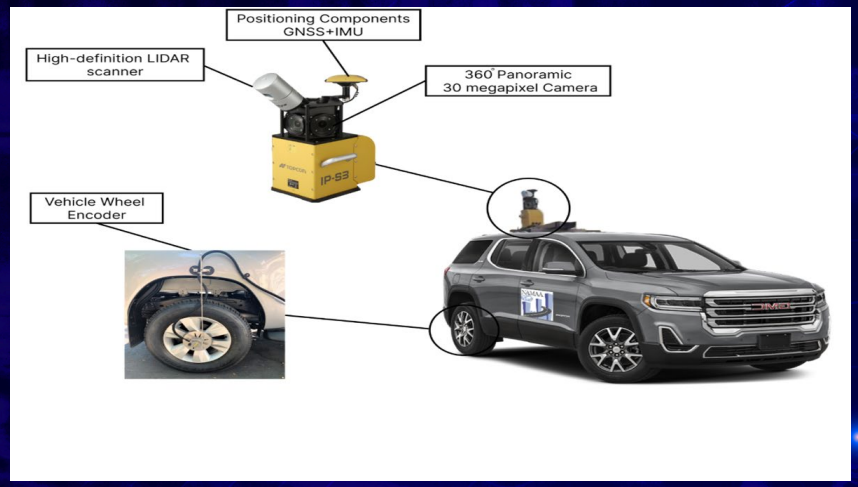
Applications of digital transformation on management of maintenance risks

Namaa VDED
(Visual Distortion Elements Detection)





Applications of digital transformation on management of maintenance risks

SIEMENS

Maintenance 4.0

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THANK YOU!

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