



WHEN TRUST MATTERS

# Digital trust for physical and digital assets

## Continuous data quality monitoring of time series data based on the ISO 8000: 200 series

ISO Industry Day 2024

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23<sup>rd</sup> October 2024



# A global assurance and risk management company

160

years

~15,000

employees

~100,000

customers

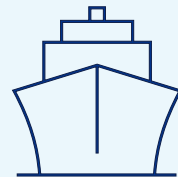
100+

countries

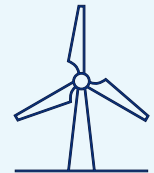
5%+

of revenue in R&D

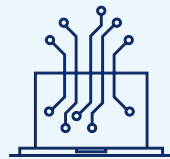
Ship and offshore  
classification and advisory



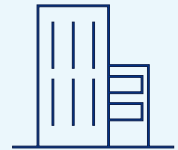
Energy advisory, certification,  
verification, inspection and  
monitoring



Software, cyber security,  
platforms and  
digital solutions



Management system  
certification, supply chain and  
product assurance



# Enabling our customers and their stakeholders to manage risk and complexity with confidence



## Certify, verify and test

against standards, specifications and regulatory requirements



## Qualify and assure

new technologies, systems, data, platforms, supply- and value chains



## Give expert advice

on safety, technology and commercial risk, and operational performance



## Co-create and share

new rules, standards, software and recommended practices



# Biggest barriers to digitalization



Resistance to change



Cyber security risk



Data Quality/Management



Lack of digital skills



Cost of digital technologies

Source: Digitalization in the energy industry: The views of the C-suite, DNV 2024. Percentages reflect net agreement statements.

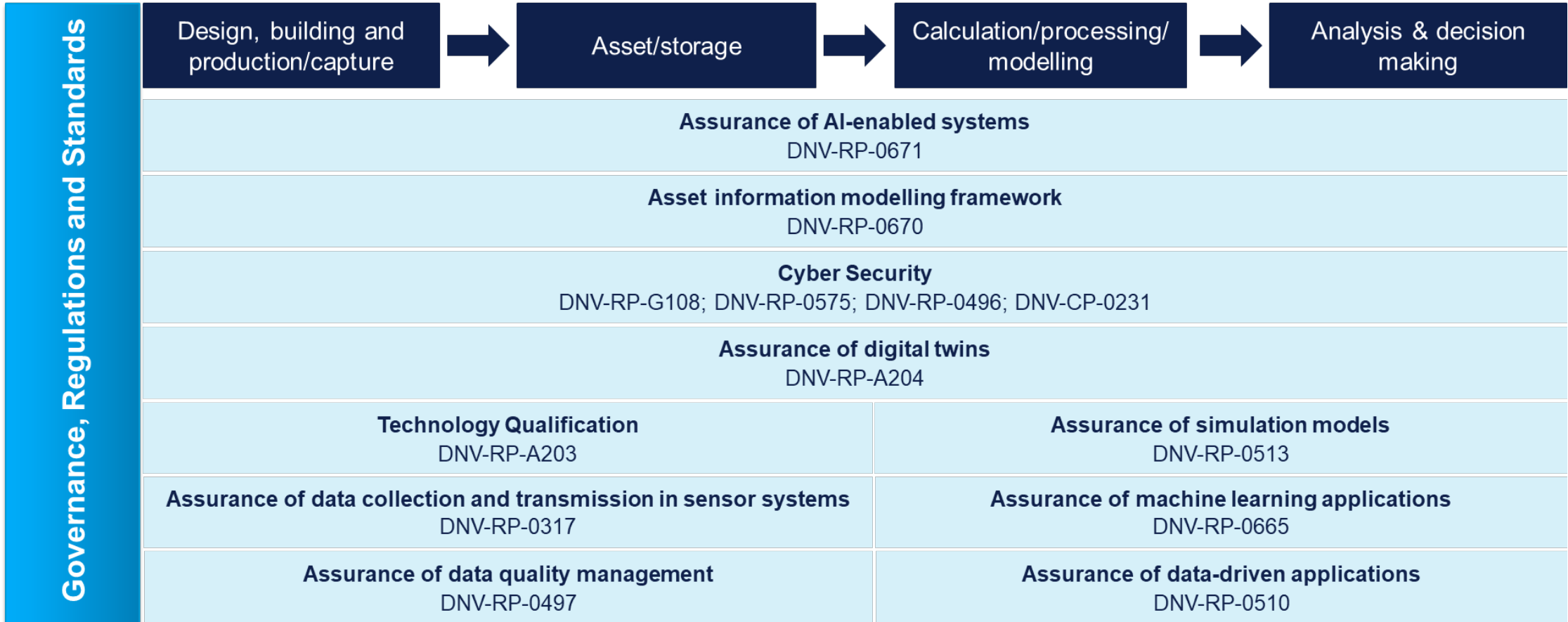


# Digital Trust by DNV

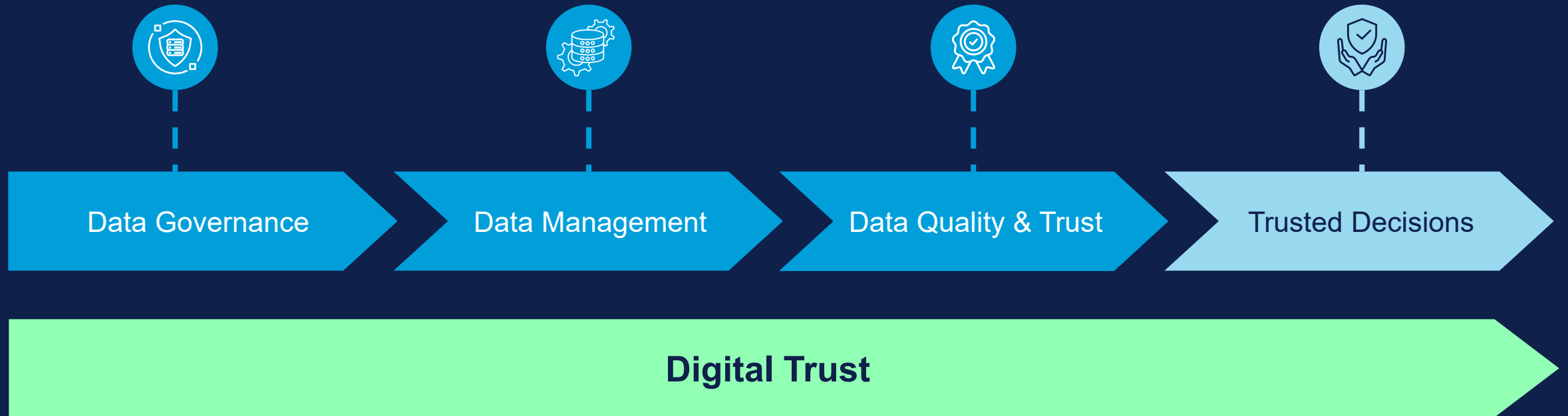
**Digital trust** is the **confidence** users have in the ability of people, technology, data and processes to create a **secure and reliable digital world.**



# Digital Trust and efficiency based on proven methodologies



# Good quality data enables trusted decisions



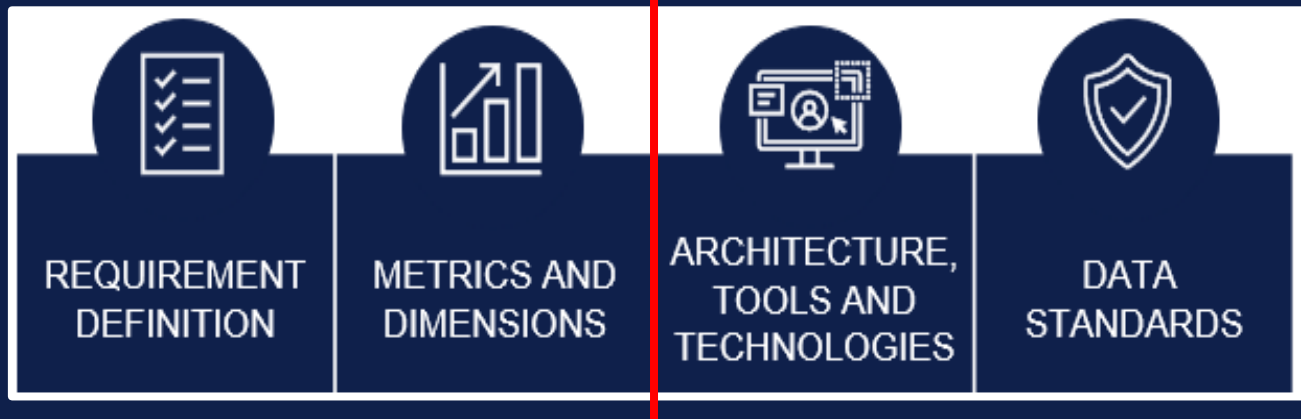
# Ensuring good quality data

## Data management capabilities

### People and processes

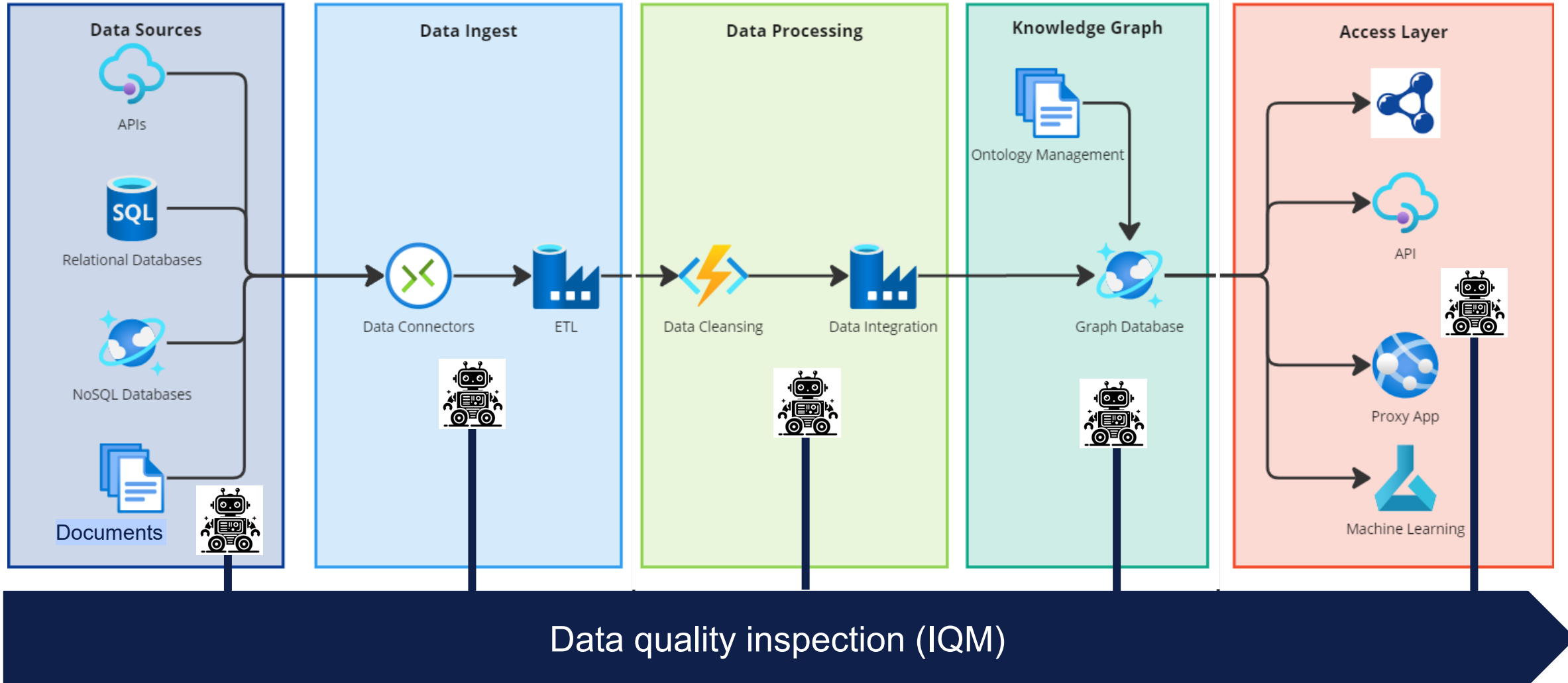


### Definitions and requirements





# IQM tool - enhancing trust in data



# Independent Quality Monitoring (IQM)

digital quality  
inspection of  
data,  
computation  
models, AI, and  
digital twins

# IQM Sample Use case for ISO 8000/210 sensor data quality

ISO 8000-210 Sensor Data Quality Characteristics - Consistency - prod ∨

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ISO 8000-210 Sensor Data Quality Characteristics - Completeness - prod ∨

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ISO 8000-210 Sensor Data Quality Characteristics - Timeliness - prod ∨

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ISO 8000-210 Sensor Data Quality Characteristics - Accuracy - prod ∧

**POST** /Drift Drifting Signals ∨

**POST** /Trim Signal Values Are Trimmed To Range ∨

**POST** /Outlier Value Out Of Proportion ∨

**POST** /Noise Noise ∨

**POST** /Skewed Skewed Distribution ∨

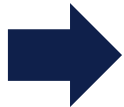
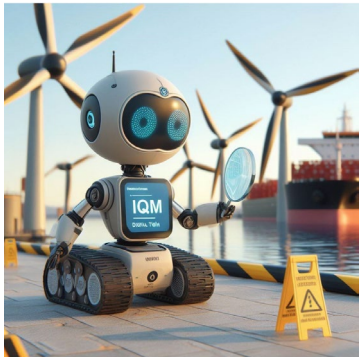
**POST** /Interpolated Interpolated Signal Values ∨

ISO 8000-210 Sensor Data Quality Characteristics - Precision - prod ∨

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# IQM Sample use case for ISO 8000/210 sensor data quality

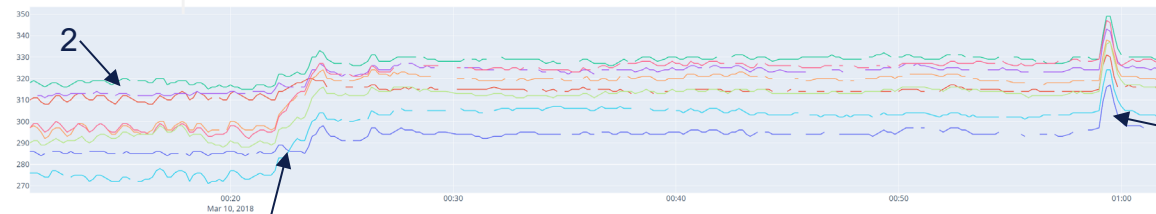
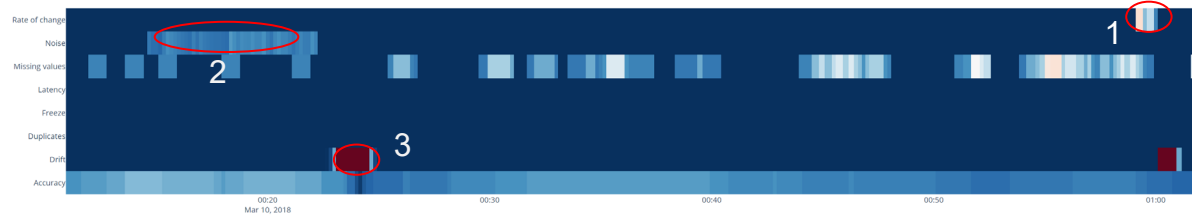
IQM



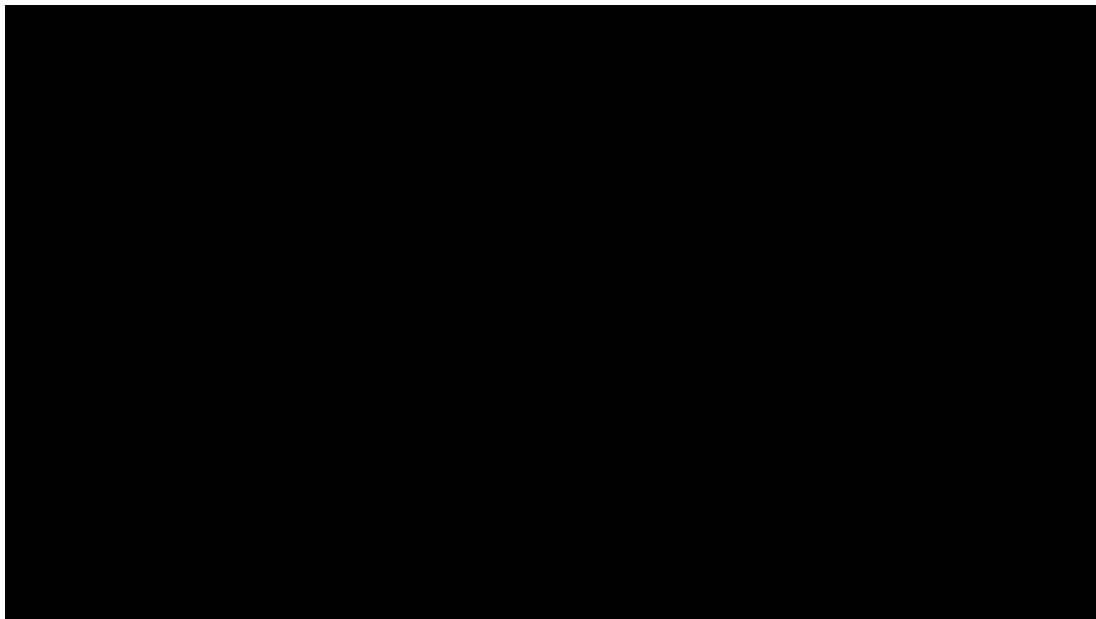
Rule 1: Outlier

Rule 2: Noise

Rule 3: Drift



Quality indicators  
Certificates  
Statements





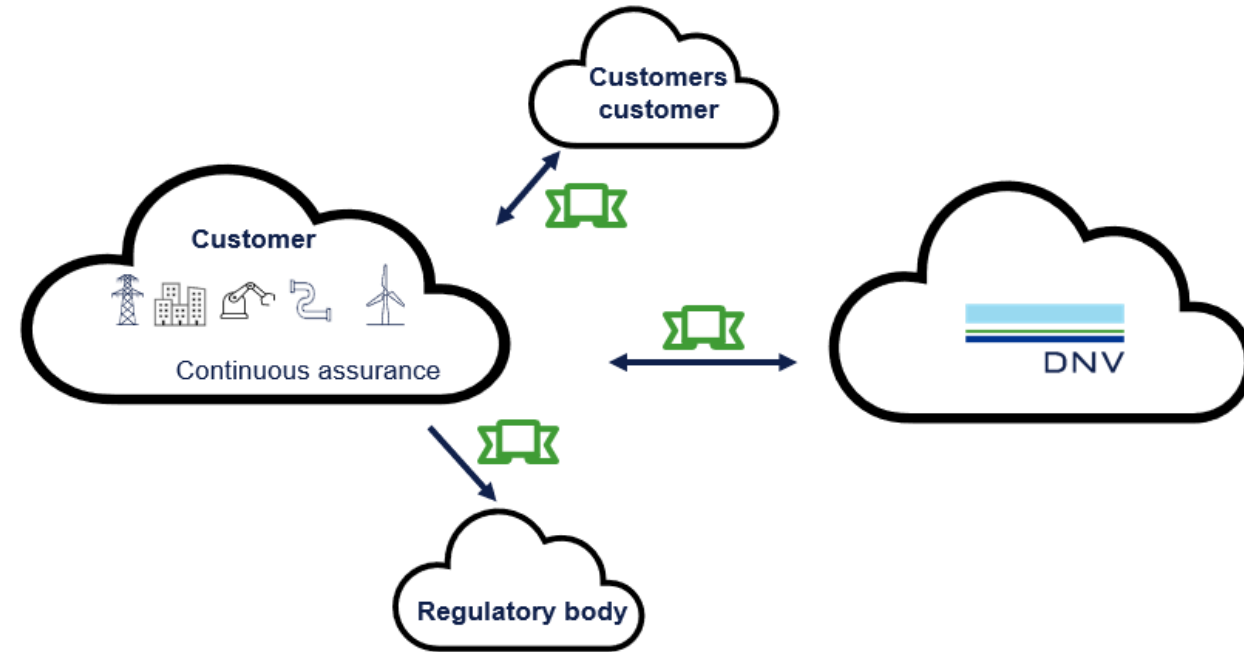
# IQM - Independent Quality Monitoring



## Benefit

- Automated industrial data quality management
- Enhancing trust in data across the data value chain

# IQM for 3<sup>rd</sup> party assurance



## Benefit

- 3<sup>rd</sup> party assurance in the digital space

# Thank you

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Taking industrial AI and digital technologies from hype to real value.

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