



2019 ACCUG

What is ACC360?



A business of SPG Dry Cooling



ACC360

ENGINEERED RETROFIT

Modification, revamp or relocation of condensers

PERFORMANCE IMPROVEMENT

Improve the performance to address changing operating conditions

WET TO DRY CONVERSION

Conversion to reduce water consumption

REMOTE PERFORMANCE MANAGEMENT

Cloud based ACC analytics and predictive maintenance





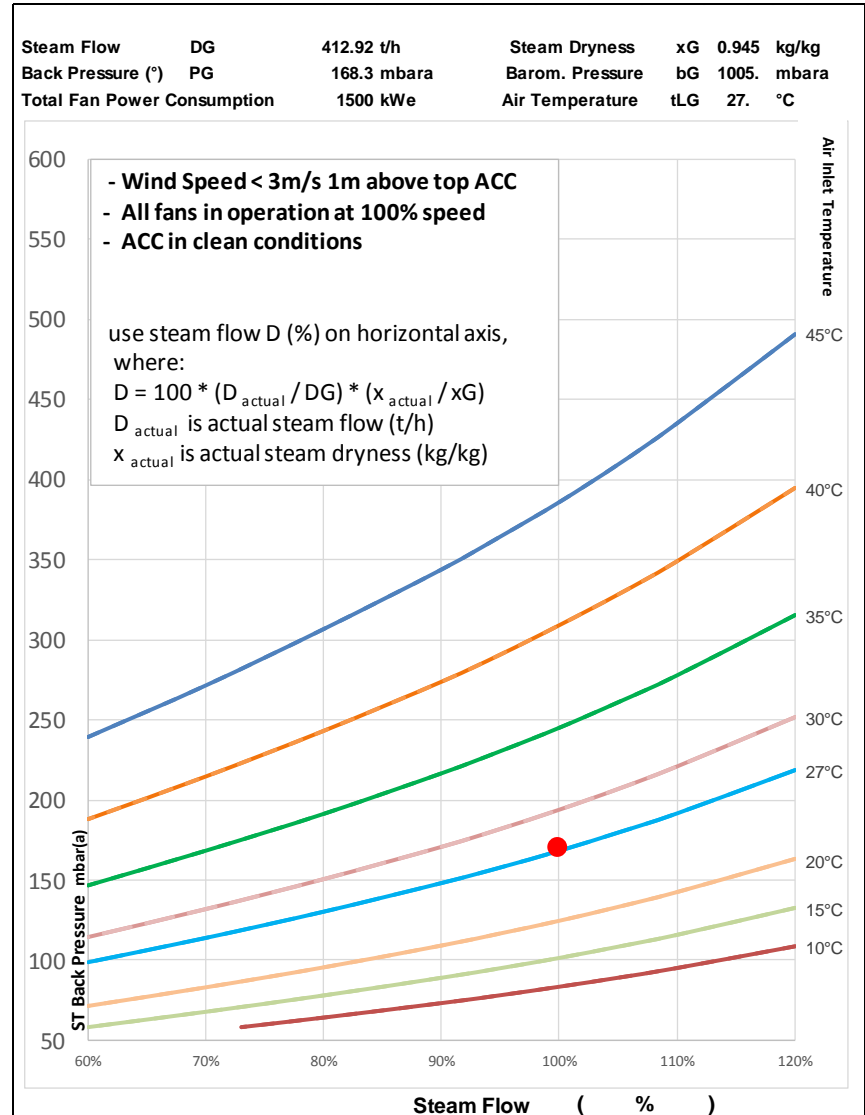
REMOTE PERFORMANCE MANAGEMENT

ACC DESIGN vs OPERATING CONDITIONS

ACC design generally specified to meet **one (or a few)** particular performance(s) with

- All fans in operations
- Wind speed below 3 or 5 m/s
- ACC in clean and new condition

As per ACC recognized design/test code

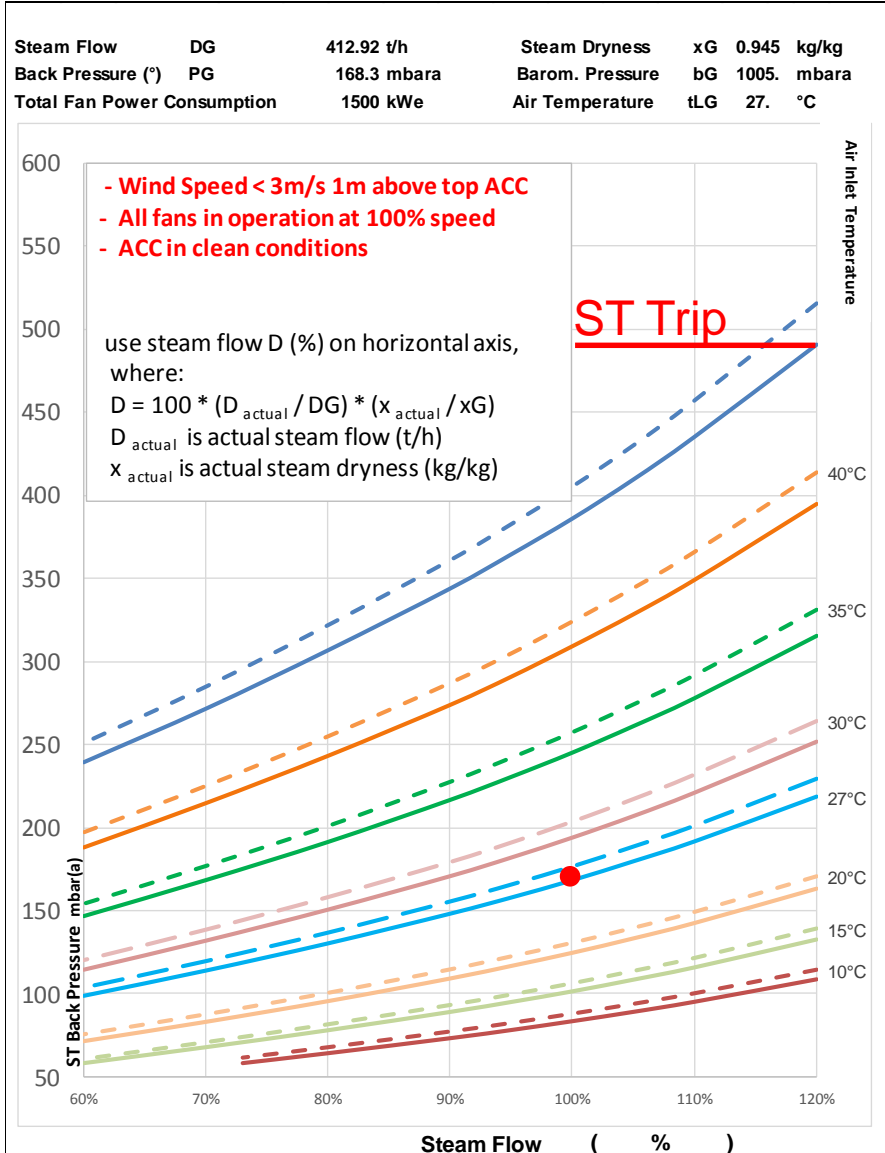


ACC DESIGN vs OPERATING CONDITIONS

During lifetime of ACC actual performances are continuously changing due to

- ACC aging
- ACC heat exchanger fouling
- Air ingress (leakage, loss of vacuum system perf.)
- Some modules stopped due to maintenance / failure of fan / gearboxes / motor
- Higher wind speed / different wind direction

➔ Unreliable production
➔ Loss of production





REMOTE PERFORMANCE MANAGEMENT

ACC360 RPM is an intelligent, purpose-built, cloud-based solution that provides insight into the performance and health of any Air Cooled Condenser (ACC).

Intelligent Performance Analytics (IPA): A deep-dive into the performance of the ACC. Integrating all aspects influencing performance to provide an evaluation of past, present, and future performance

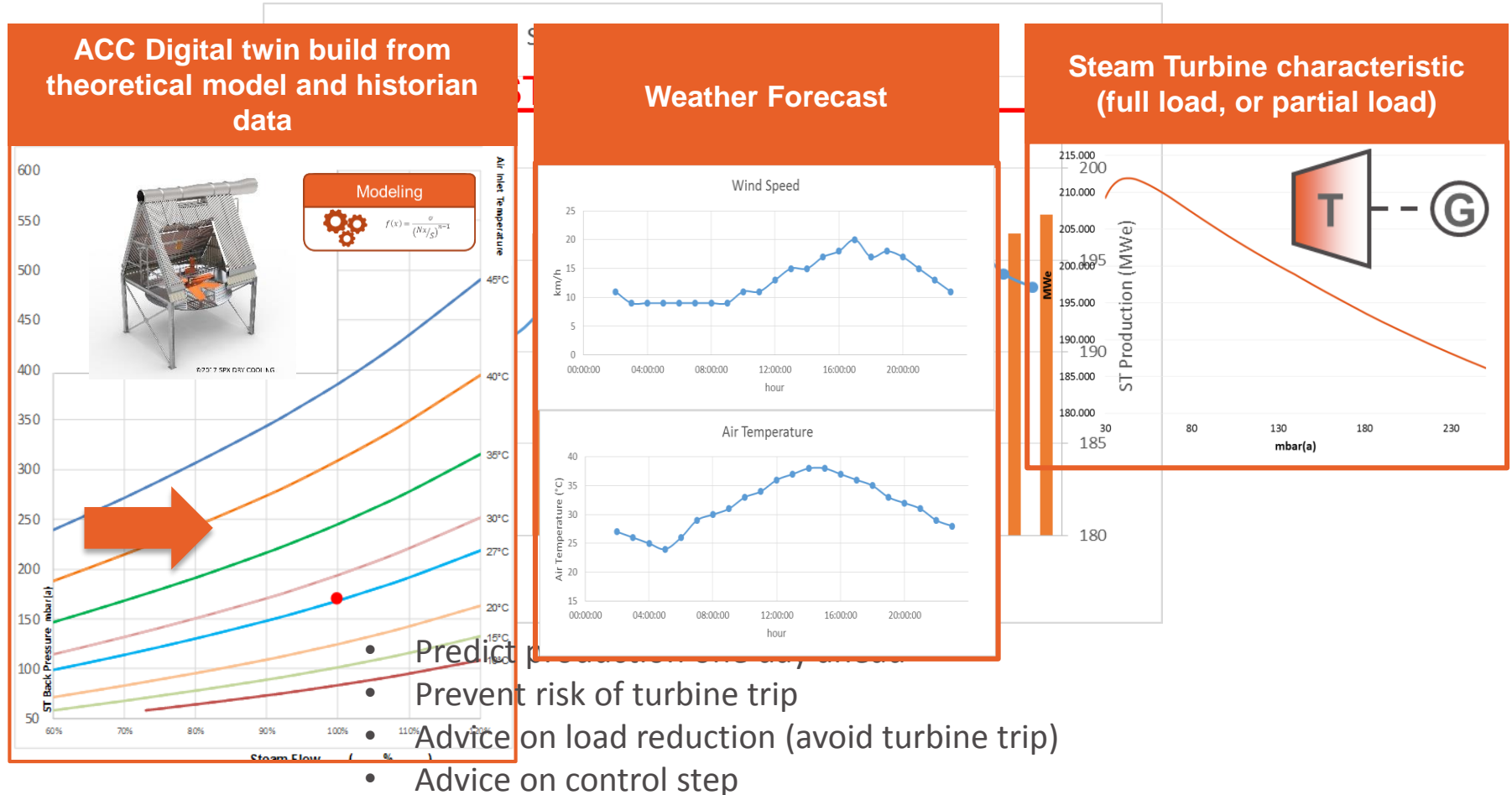
Condition Based Monitoring (CBM): Through the use of additional vibration monitors on any critical piece of rotating equipment, monitor and predict potential failures before they happen. Wirelessly connected and uploaded to the cloud and integrated into our proprietary analytics software.

Predictions: Resolute integration of the performance and health allow for high-resolution forecasts. Capitalize every MWh at your disposal with confidence.

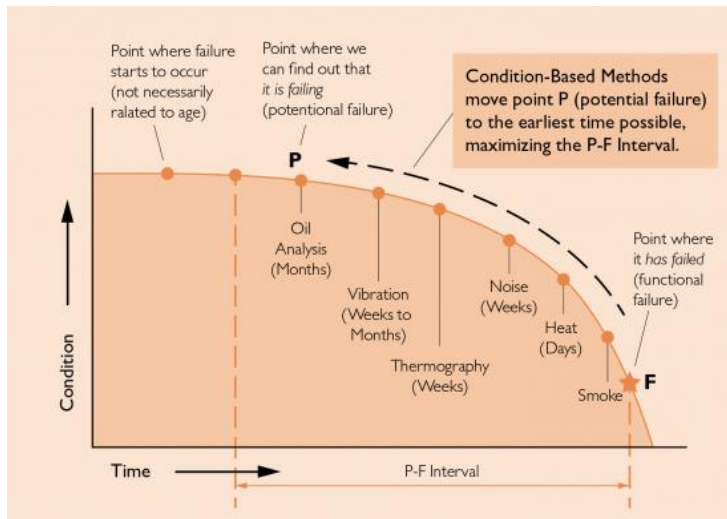
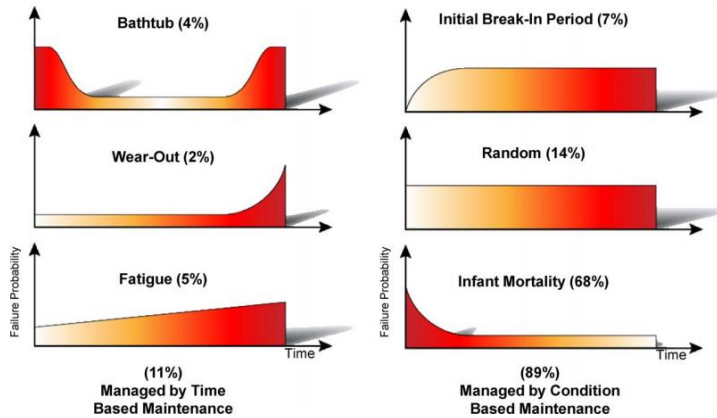


Maximize **net output** and **profitability**
by optimizing ACC operation

Example: Performance and net output predictions one day ahead



CONDITION BASED MONITORING

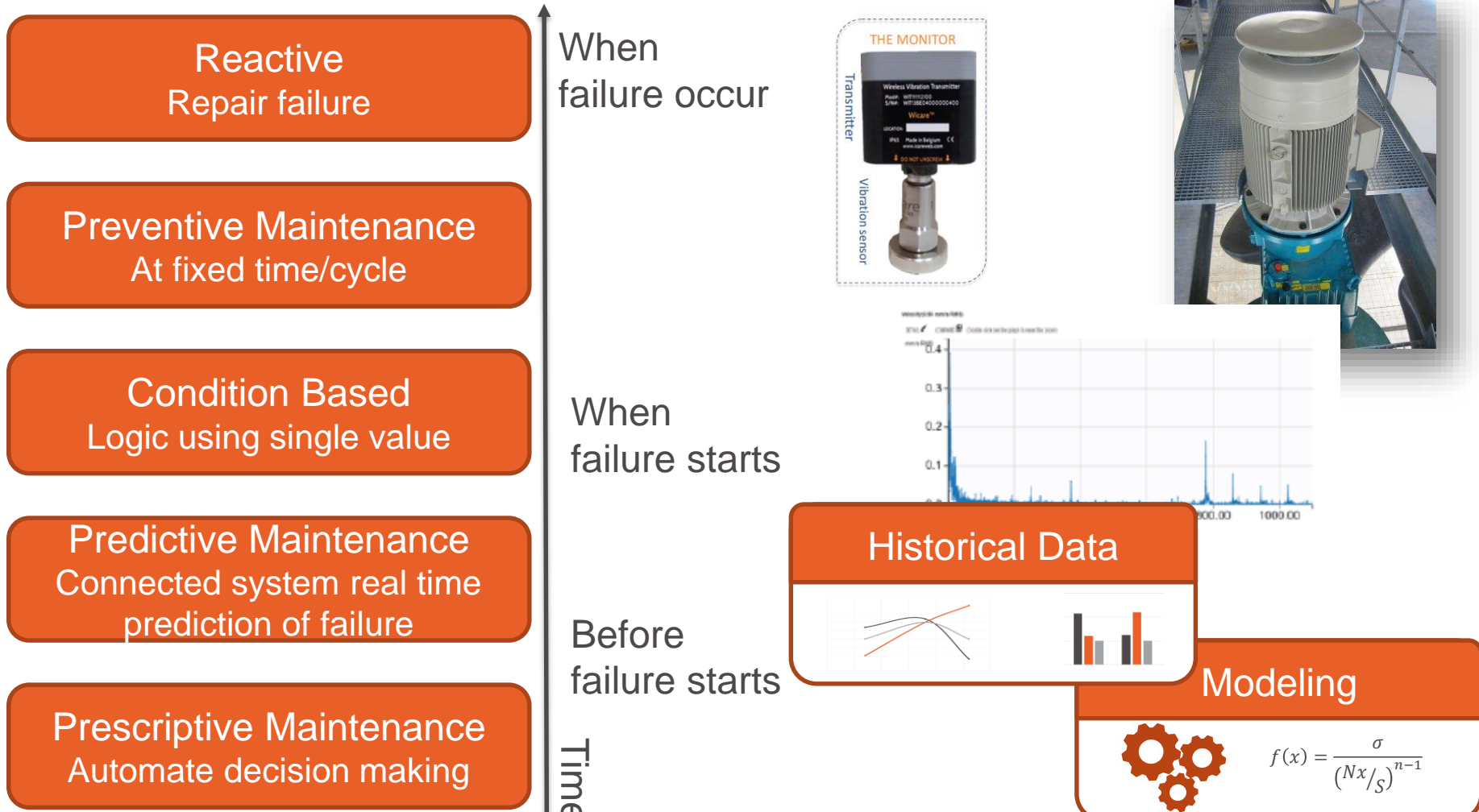


e.g. gearbox failure

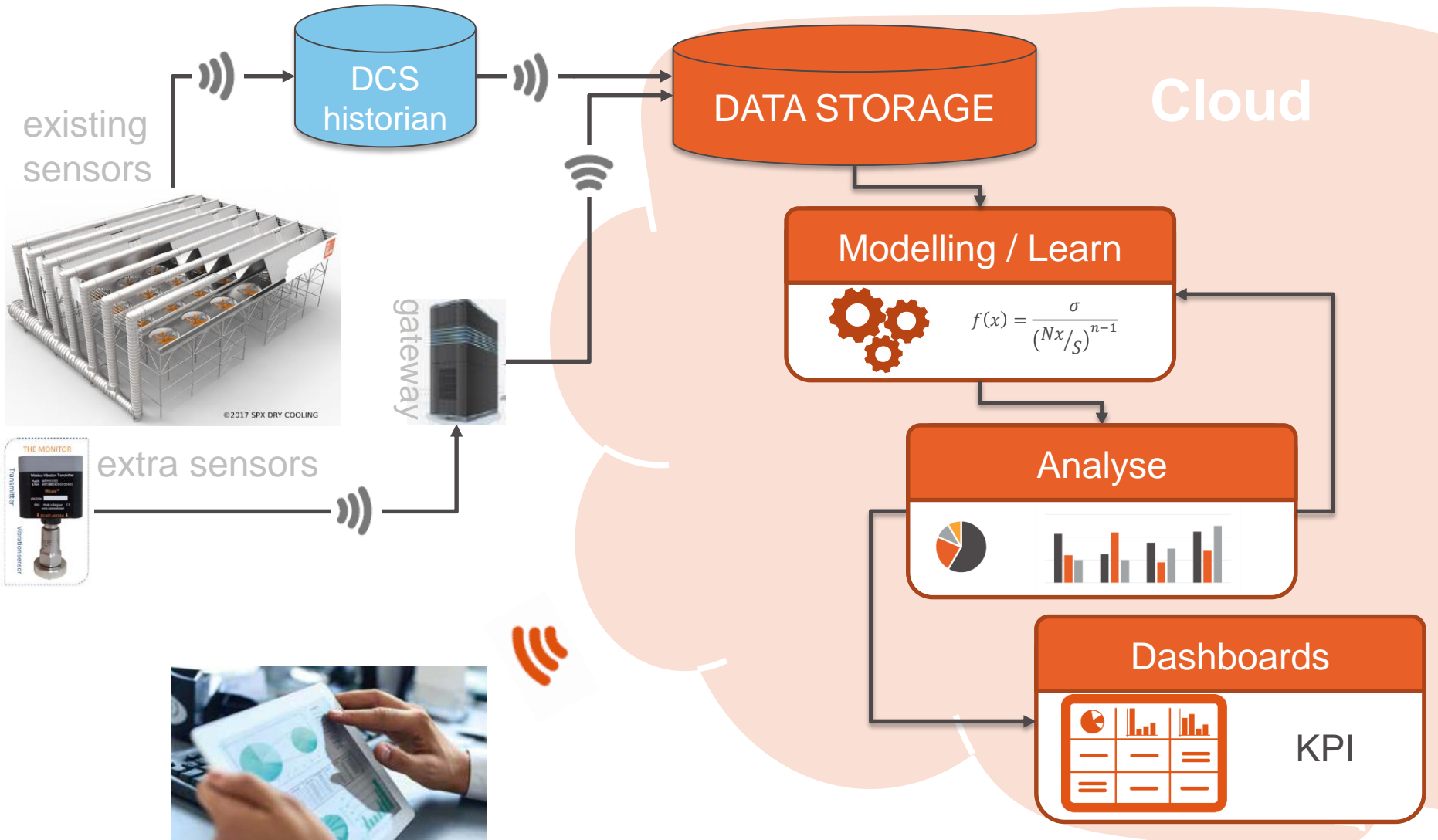
- Loss of performance
- Turbine trip
- Unplanned maintenance / outage
- Cost

CONDITION BASED MONITORING

Example: Gearbox health status (lifetime assessment and maintenance plan)



REMOTE PERFORMANCE MANAGEMENT



REMOTE PERFORMANCE MANAGEMENT

