

From real customer experiences to the real potential of the IoT technology

Francesco Mari

SAP



What if... I could make granular business decisions based on much more precise data and knowledge, and progressively eliminate approximations and assumptions?

Pump A



Works at 80 to 90% of maximum speed with frequent peaks

Operational 24 x 7

Exposed to extreme temperatures and challenging weather conditions

Pump B



Works at around 50% of maximum speed in stable conditions

Operational 8 x 5

Installed in a protected, clean, conditioned environment

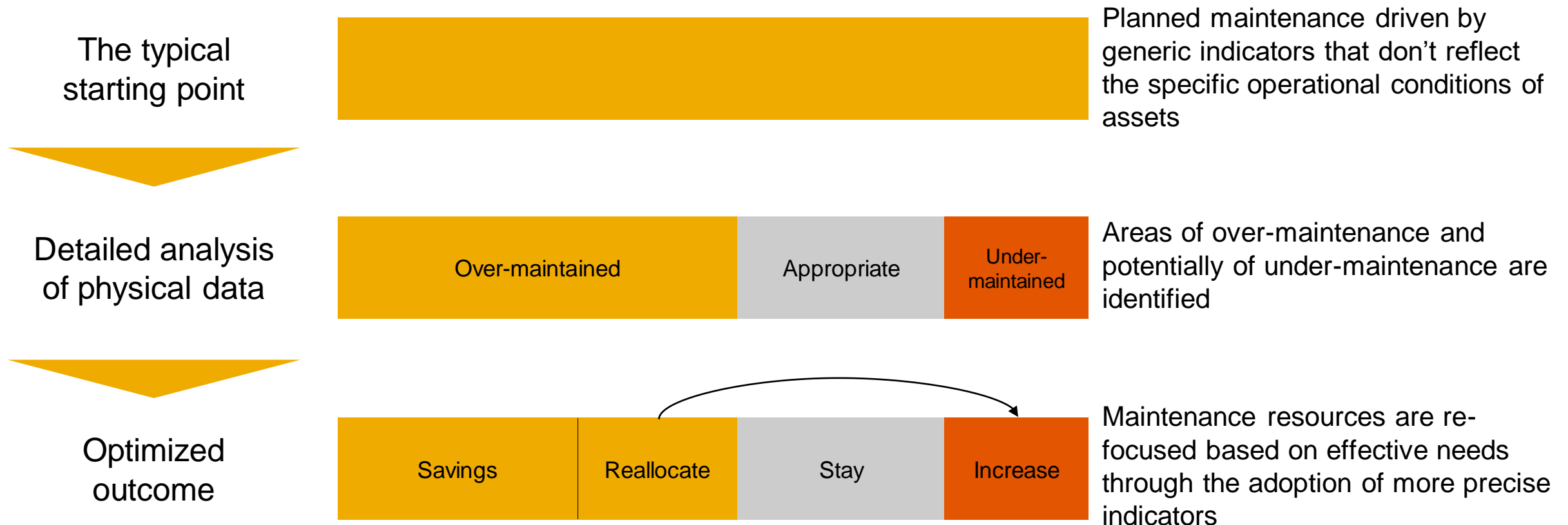
Preventive Maintenance Check list

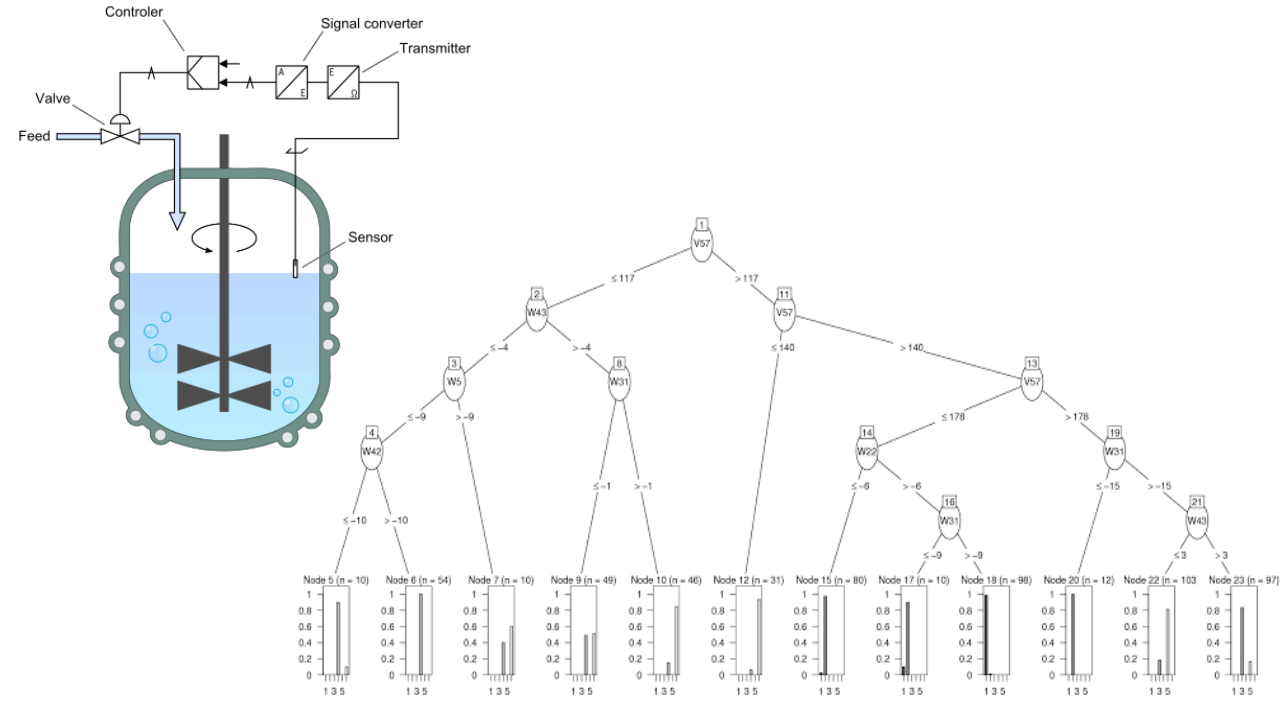
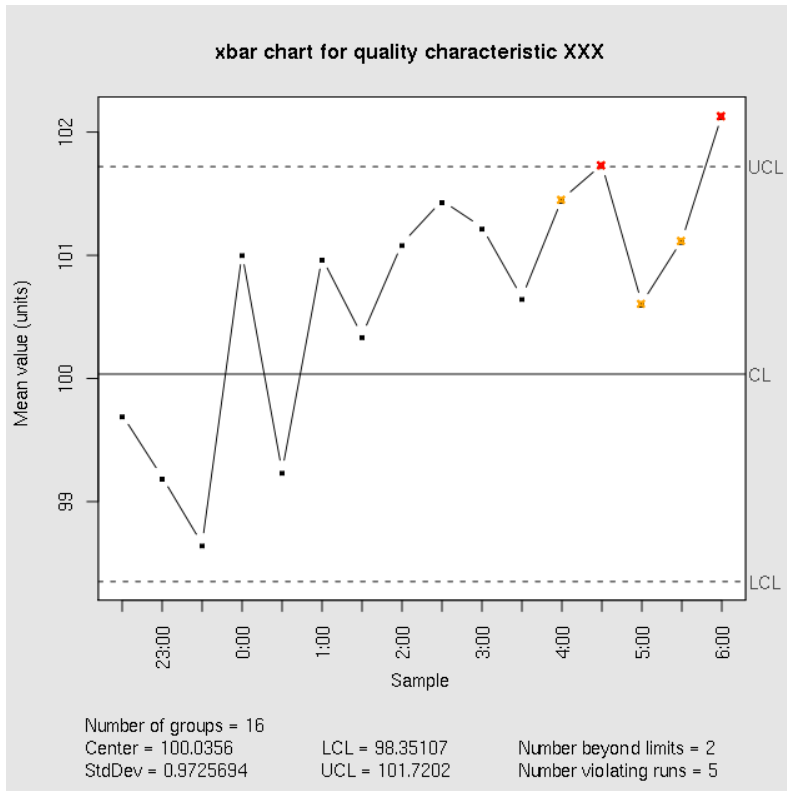
Period	Periodical PM tests
Daily	Monitoring Water level in Tanks
Daily	Monitoring Noise & Vibration
Daily	Monitoring water leakage
Monthly	Pets control service
Monthly	Check pressure gauges & Pressure Tank
Monthly	Monitoring Pressure Switch
Monthly	Check float valve and float switch
Monthly	Monitoring oil or grease leakage from bearing box
Monthly	Monitoring pump parts temp. (Bearing temp.)
Monthly	Clean the pump and pump room
Monthly	Make sure that motor performance is matching pump duty point
Monthly	Monitoring electrical motor temp.
Monthly	Check automatic operating mode circuit +operate st minutes.
Monthly	Check valves throttling position degre

Quarterly	Measure Motor performance
Quarterly	Measure Pump Performance
Quarterly	Keep tanks clean
Quarterly	Check suction and discharge line if blocked
Half year	System characteristic analysis
Yearly	Perform Fluid analysis, salinity and solid contents
OEM Recommendation	Greasing Pump
When needed	Painting Pump ,base plate, valves and elbows and renew concrete foundation

Maintenance of Complex Assets

When complex assets operating in diverse conditions are maintained based on generic indicators (e.g.: time or time of usage), over-maintenance and under-maintenance situations can arise





- Calculate mean and standard deviation
- Check upper and lower control limits (3 std dev from the center line)
- If outside control limits →
 - Stop production
 - Quarantine
 - Check 5 consecutive samples
 - Repeat the process
 - ...

- Collect and analyze process control data points and other relevant data sources
- Identify relevant factors contributing to product quality
- Dynamically determine product quality ranges
- Match quality ranges with demand and specific customer requirements
- Automatically adjust production plans to fulfill the demand of each customer according to the specific requirements

