SIMATIC FAILSAFE 4.0
Predictive Failsafe: Improving the Safety of Industrial Environments

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MOTIVATION

- Advanced **control and monitoring** systems.
- A huge amount of **data** (safety-related) is generated.
- **People** and **machines** collaborate in the same dynamic **working space** and without separation.

- Improve **Safety** of people and of the equipment.
- Adapt the traditional, static, approach to **fail-safe operation** to the new dynamic environments
- Increase **Maintainability** and **Availability** of the systems

APPROACH

Identify data sources which may contribute to maintainability, availability and safety!

Apply advanced **analytics** to safety related data (data analysis, predictive features…)

Value of attribute
FUTURE
? SUCCESS
FORECAST
PAST
? FAILURE
PRESENT
? SUCCESS
Time
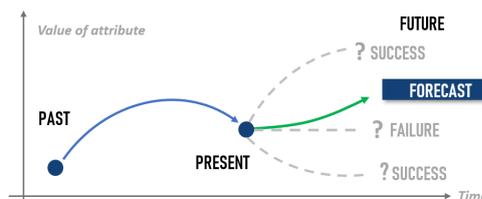
Together with Industrial failsafe applications **make up Predictive Failsafe systems**.

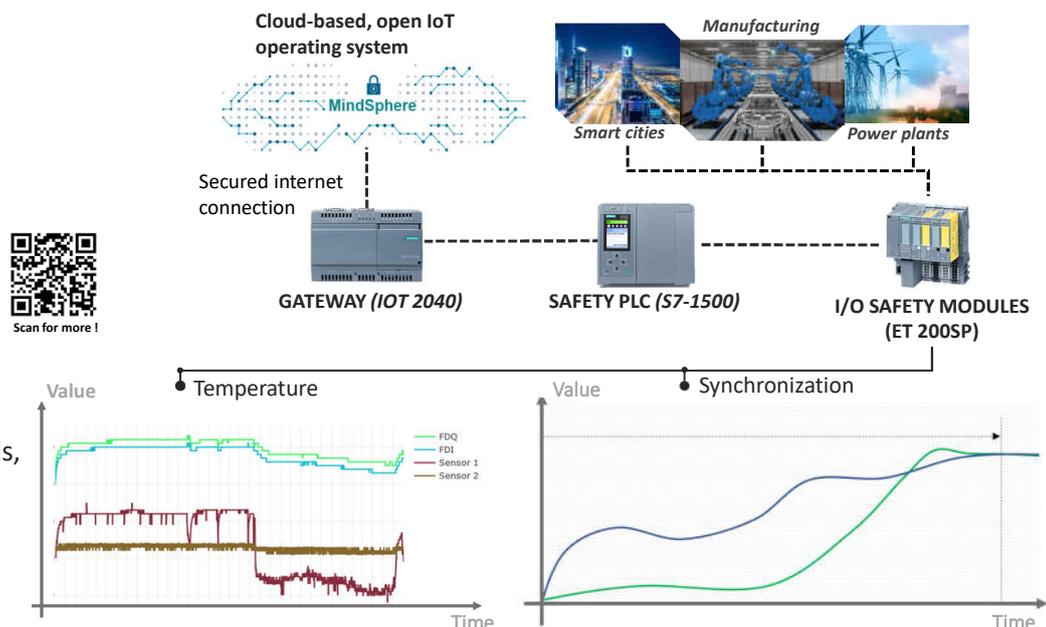Predictive Failsafe systems are able to **mitigate or prevent failures**.

SYSTEM ARCHITECTURE

Safety-related data sources:
- Control Data
- Hardware & Software metadata
- Product quality management
- Self-diagnostic data
- Configuration data
- People´s condition & behavior
- 3rd parties data
- Quality of service parameters
- …

L **Self-diagnostics test:**
- Random access memory tests,
- Temperature and Voltage levels,
- Timing and synchronization,
- Communications.

Scan for more !

Cloud-based, open IoT operating system

MindSphere

Manufacturing
Smart cities *Power plants*

Secured internet connection

GATEWAY (IOT 2040)   **SAFETY PLC (S7-1500)**   **I/O SAFETY MODULES (ET 200SP)**

Value — Temperature
FDQ
FDI
Sensor 1
Sensor 2
Time

Value — Synchronization
Time

EXPECTATIONS

Improve Functional Safety

Diagnosis system is closer to customers

Save time on both sides

Reduce the maintenance costs

Improve the overall customer's satisfaction

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