PROCESS OPTIMISATION AND ANALYTICS

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1) *Our Digital Vision*
2) *Our needs*
    I. *Get From Data to Actions*
    II. *Insights*
    III. *Cloud Based Storage*
3) *Actions required*
    I. *Preventing Problems*
    II. *Reduce Time to Solve Problems*

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1- Data

- Data generation (sensors, PLCs, IT systems)
- Data Storage
- Data aggregation

2- Information

– Real-time aggregation of KPIs
– Customized Performance dashboards
– Automated reporting of real-time and historical data

4- Action

- Smart notification
- Fast escalations
- Effective root cause problem solving
- Automatic triggering of actions (e.g. predictive maintenance, optimization of process parameters)

3- Insights

– Smart root-cause analysis
– Benchmarking between lines/sites
– Identification of problem areas
– Optimal process parameters

GET FROM DATA TO ACTIONS

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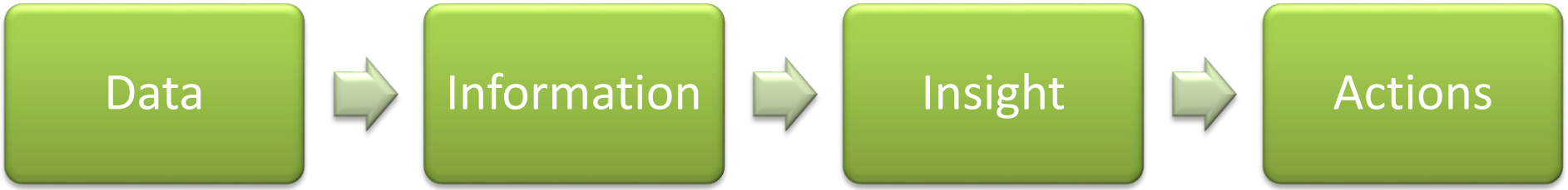

- Large amount of data available
- Different types of data
- Data is stored locally
- Some data is lost

- Only part of the data is monitored
- The information is visible
- Information is stored locally

- Insights are forgotten

- No actions

Difficulty to get from data available to actions

INSIGHTS

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Smart root-cause analysis

- Identify and define problem
- Gather info
- Identify relationships
- Identify solutions
- Implement solutions
- Observe effects

Benchmarking between lines/sites

- Comparing performance
- Comparing process/ lines/ sites
- Find best
- Find reasons why

Identification of problem areas

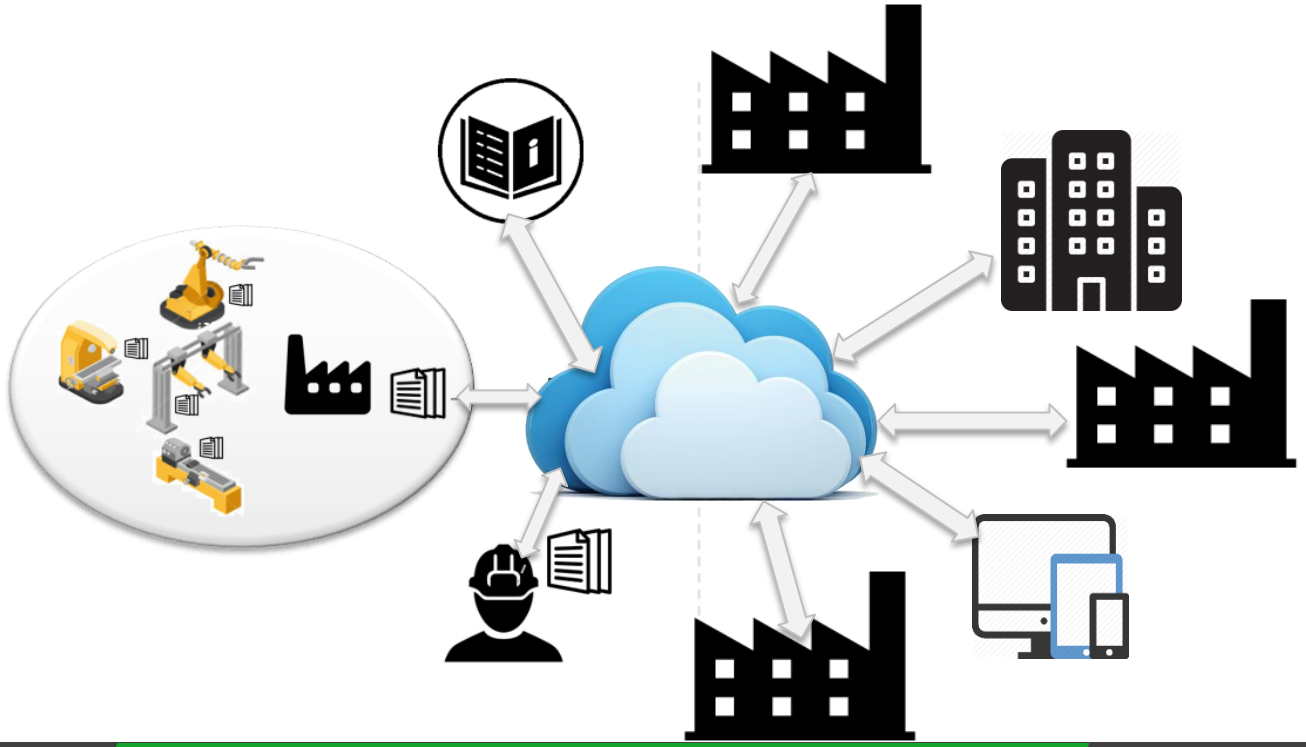
- Research
- Reasons
- Causes
- Location

Optimal process parameters

- Analyze historical and current data
- Understand machine parameter relationships
- Optimise parameters
- Obtain best results

CLOUD BASED STORAGE

- Gather data
- Make data available (analytics, traceability…) and understandable
- Access data from different locations



PREVENTING PROBLEMS

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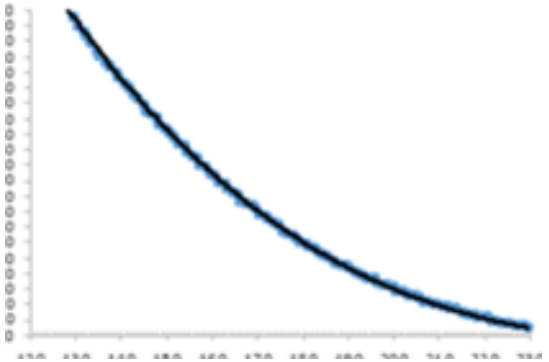
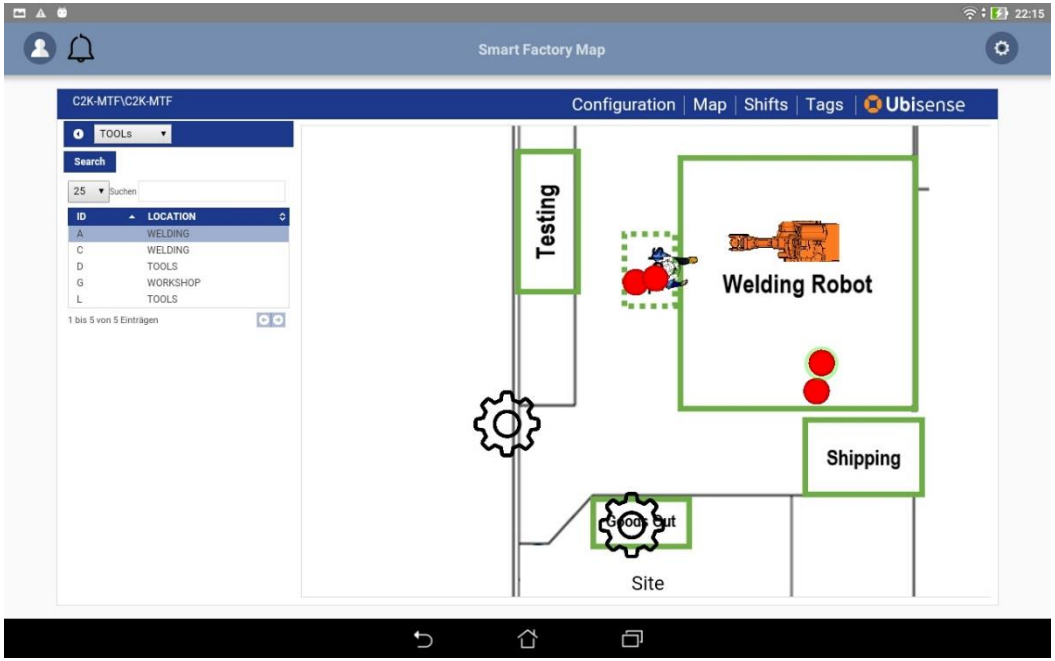
- **Preventing problems example: Data Analysis**
  - **Real Time** data collection and monitoring
  - Data **Analysis** to Understand Parameter **Interactions**
  - **Learn** from machine behavior
  - **Optimize** parameters to obtain best results – Machine ideal parameters



- **Reducing time example: Tool Finder**
  - Internal position of assets (tools, operators …)
  - Wrong tool
  - Missing tool

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