Process and Factory Automation
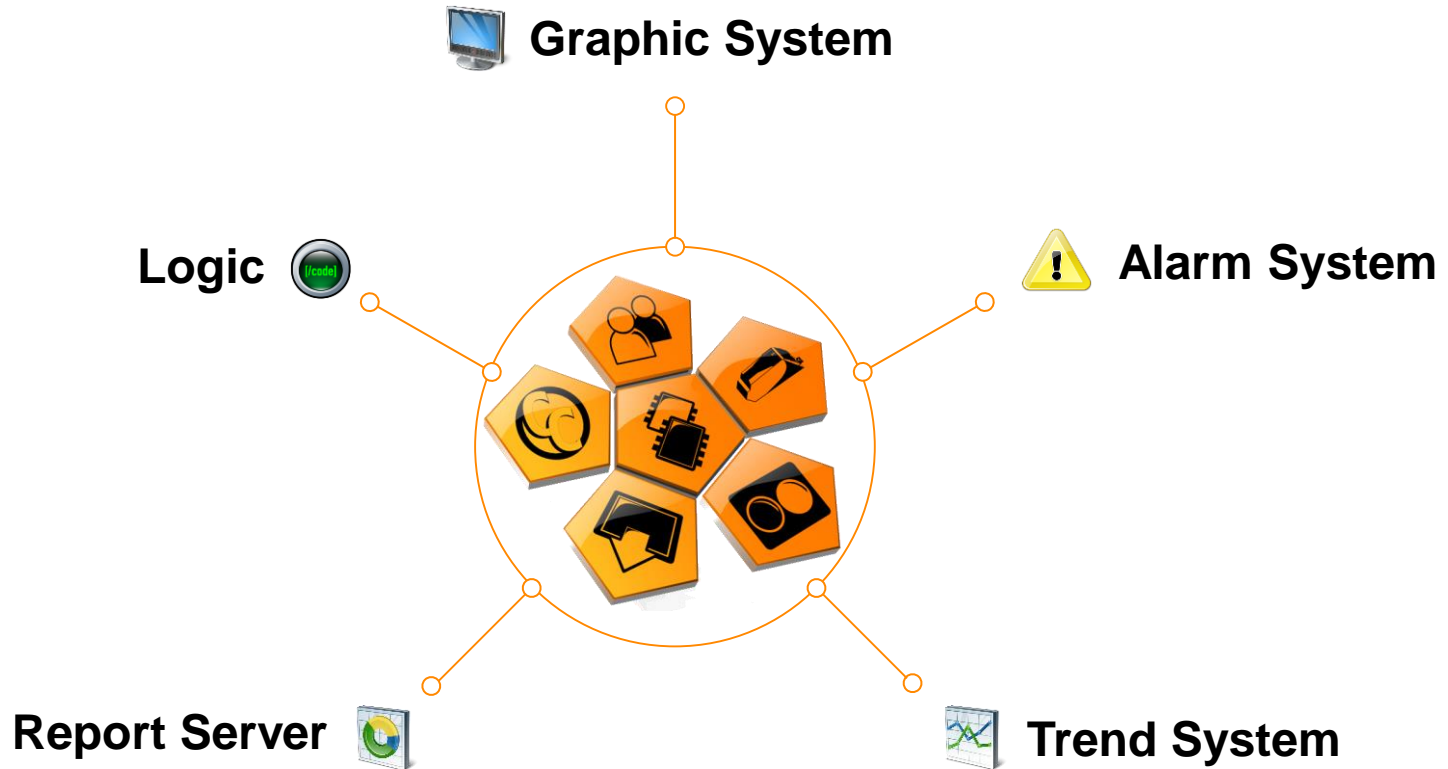
APROL

APROL

System Overview

APROL. Open DCS platform.

Graphic System

Logic

Alarm System

Report Server

Trend System

APROL Process Control System

APROL. Fitting for all disciplines.

Infrastructure Automation

Process Automation

Factory Automation

Plant Automation

Process Control

ConMon

EnMon

PAL
95+ Control Modules

APC

PDA

Customized

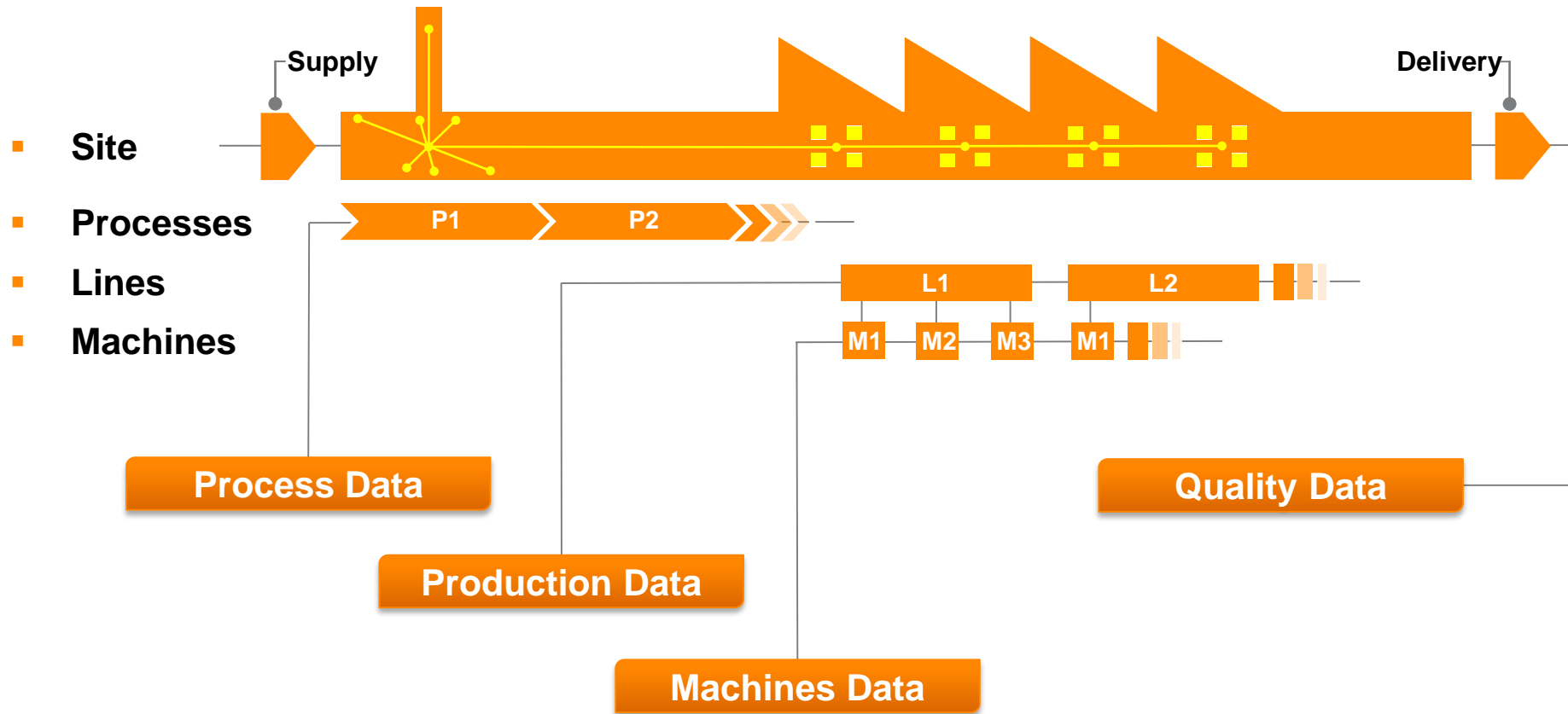# 4444+ installations worldwide

APROL

Process Data Acquisition

Challenges of an Efficient Factory: Data Transparency

- **Site**
- **Processes**
- **Lines**
- **Machines**

Supply

Delivery

P1 · P2

L1 · L2

M1 · M2 · M3 · M1

Process Data

Production Data

Machines Data

Quality Data

Key Players in the Factory Automation: Roles - Goals - Methods

Machine and Process Operator
Goal: Run machines & plants
Methods: Operating & monitoring

Factory Director
Goal: Achieve enterprise goals
Methods: Analysis & business reporting

Maintenance Engineer
Goal: Increase availability
Methods: Diagnostic-Tools & services

Energy Manager
Goal: Keep power consumption low
Methods: Consumption-Analysis & -Reporting

Production Manager
Goal: Increase efficiency and effectiveness
Methods: Production-Analysis & operations' adjustments

Quality Manager
Goal: Increase quality
Methods: Product-Analysis & quality reporting

Enterprise
Data warehouses
Internet
ERP
MES

Challenges of modern plants

Increased efficiency
Competitive
production

Fast reactions
Real-time acquisition

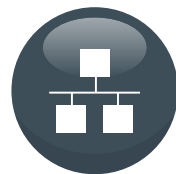**More transparency**
Regulations from
FDA, GAMP, etc.

Global distribution
Supervisory
analysis

APROL Process Data Acquisition

Many data sources
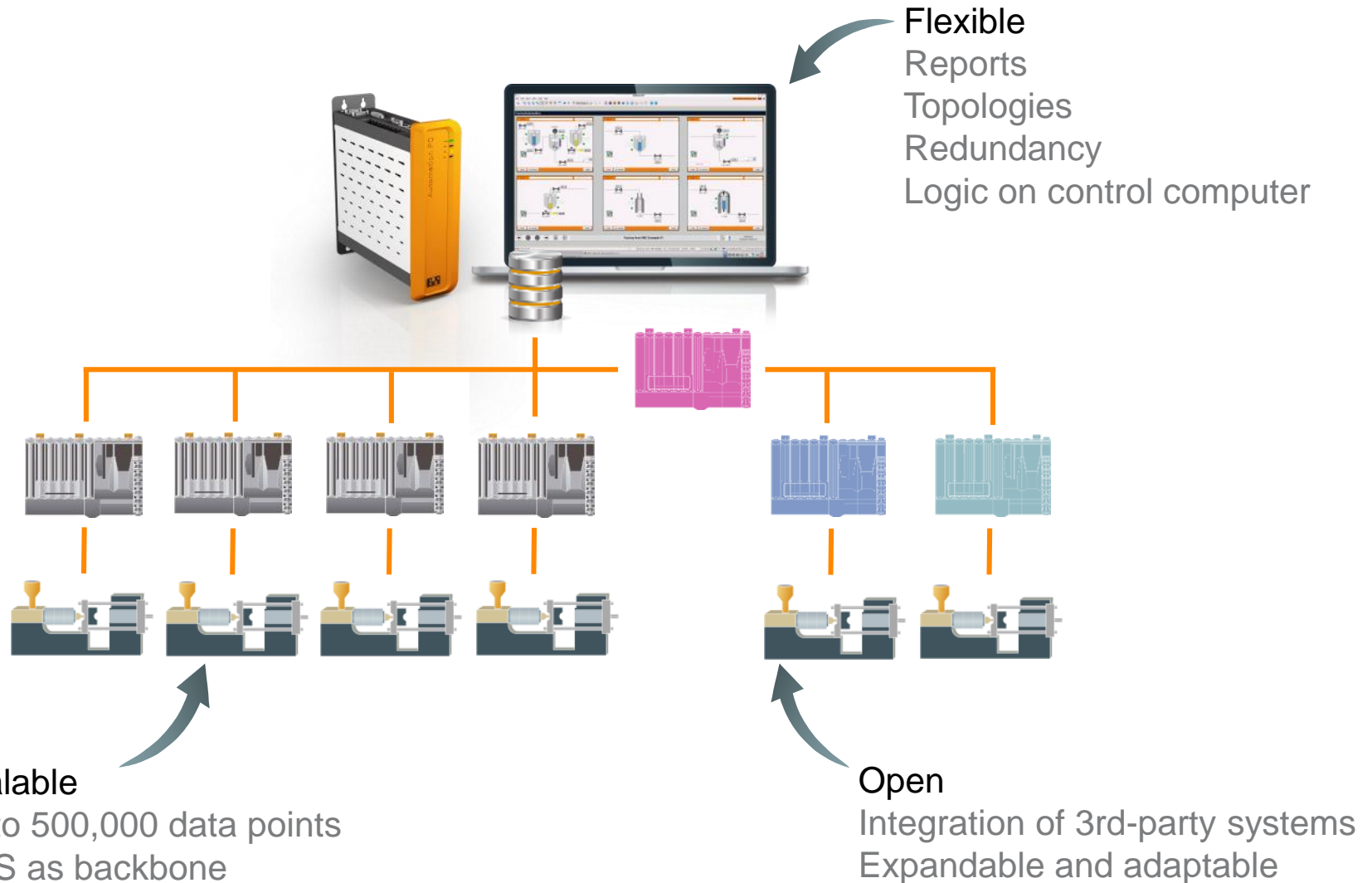Complex data structures
Different formats
Consolidation

Increasing volume of data
Intelligent links in
production chains

Flexible. Open. Scalable.

Flexible
Reports
Topologies
Redundancy
Logic on control computer

Open
Integration of 3rd-party systems
Expandable and adaptable

Scalable
50 to 500,000 data points
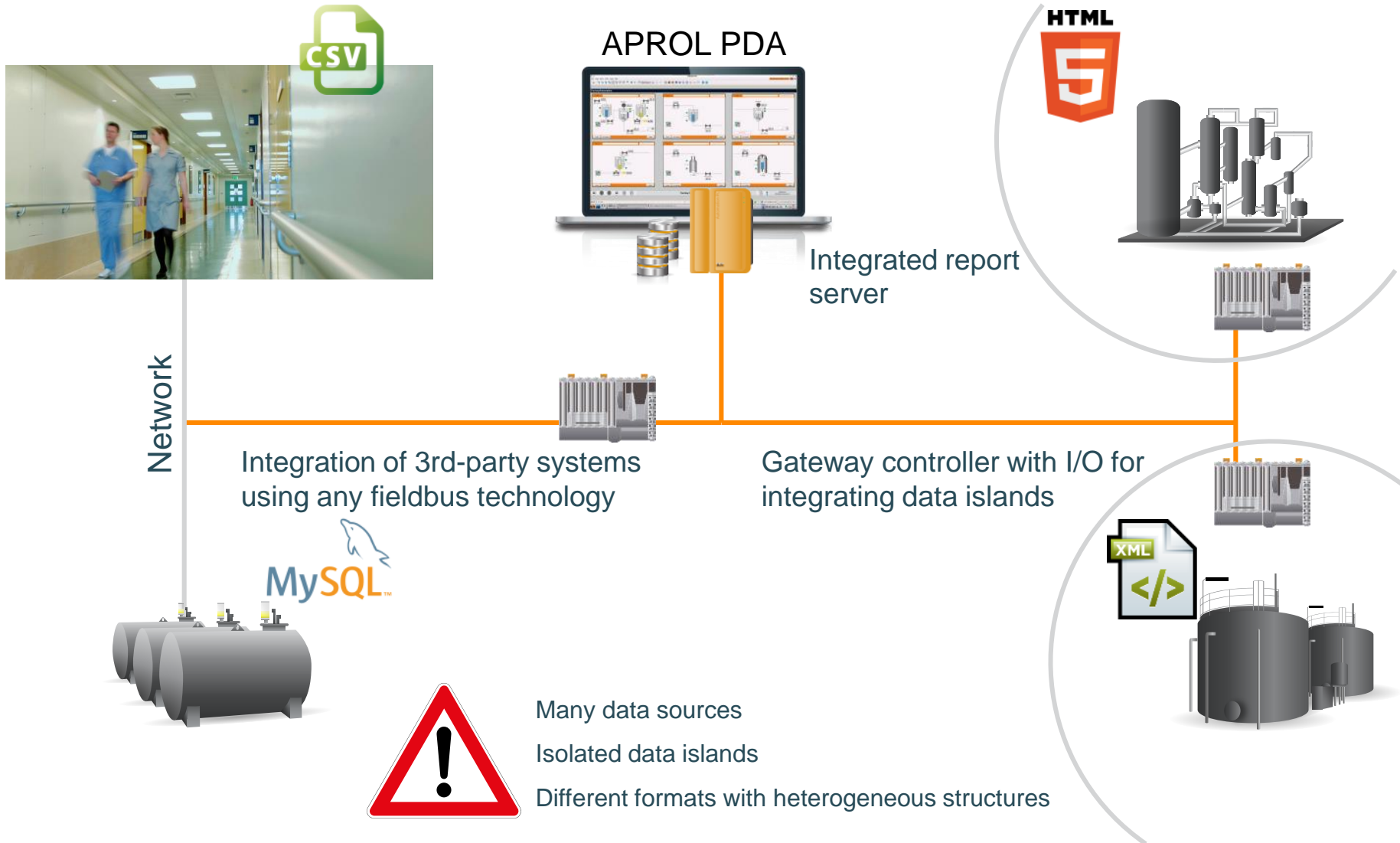DCS as backbone

APROL PDA
3 steps to data transparency

Acquisition → Analysis → Presentation

Data acquisition with APROL

Easy integration into existing systems

APROL PDA

Integrated report server

Integration of 3rd-party systems using any fieldbus technology

Gateway controller with I/O for integrating data islands

Many data sources

Isolated data islands

Different formats with heterogeneous structures

Network

MySQL

APROL PDA
3 steps to data transparency

Acquisition | **Analysis** | Presentation

Challenges
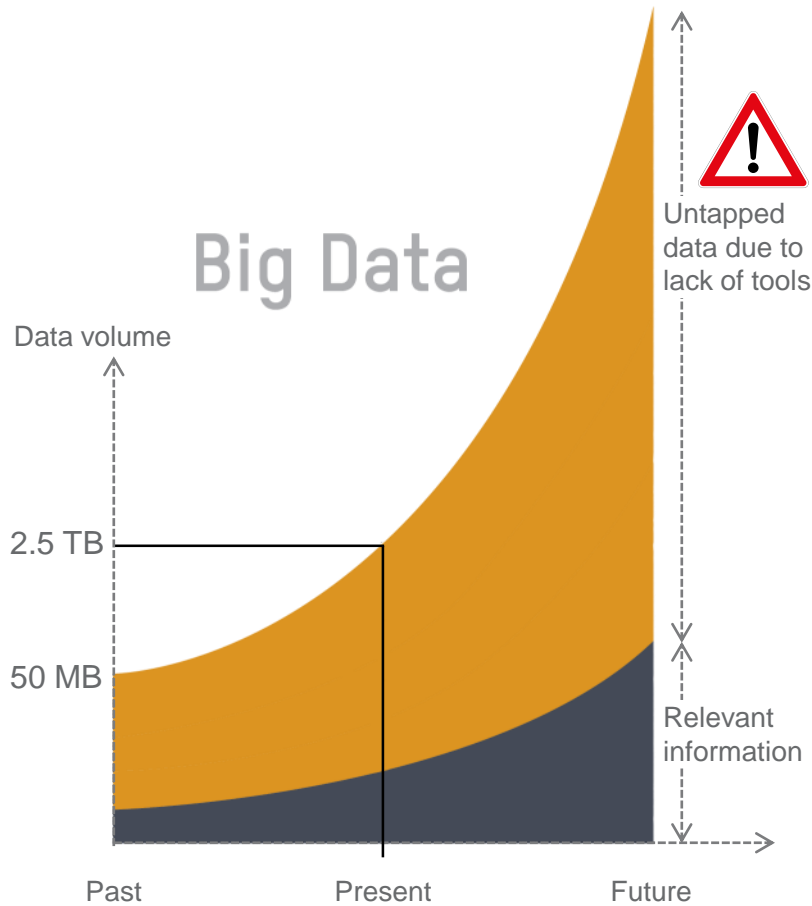
Different formats

Not only IEC data points

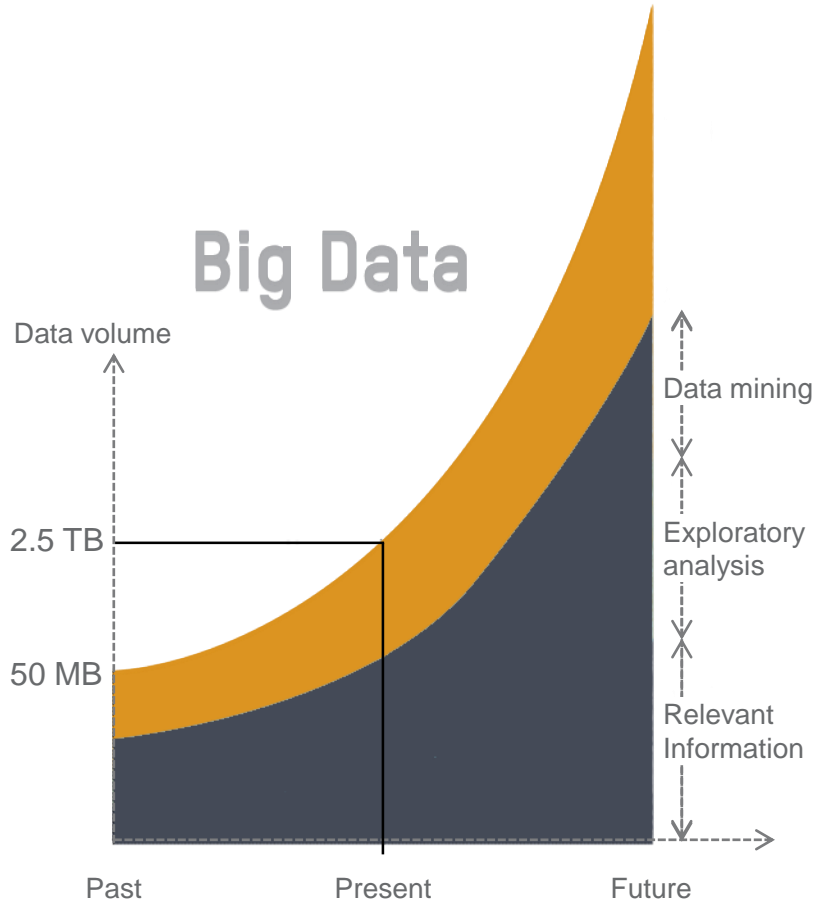Videos, PDFs, image files, etc.

Higher speeds

Faster fieldbus technology (Gigabit)

Higher controller sampling rates

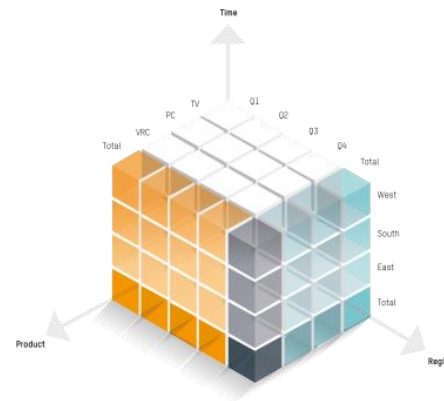### Large volumes of data

Terrabytes instead of megabytes

Increased volume of usable data

Big Data

Data volume

2.5 TB

50 MB

Past — Present — Future

Data mining

Exploratory analysis

Relevant Information

Exploratory analysis through ad-hoc reporting

Online analytical processing OLAP adapter

Data mining with 3rd-party packages

Detect patterns, relationships and trends

Data-Mining

rapidminer

R

APROL PDA
3 steps to data transparency

Acquisition → Analysis → **Presentation**
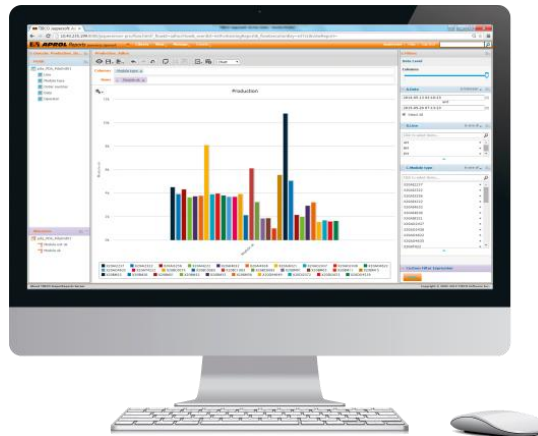
MICROTECNA
Engineering

Mobile. Intuitive. Real-time.

Standard reports
Fixed format and content
Adaptable graphs and charts

Ad-hoc reports
Any data sources
No SQL knowledge needed
Drag-and-drop

iOS

Custom dashboards
Fully customizable
Web-based design tool

Data displayed in real time
MES and ERP data
Operating and process data
Automatic OEE reports

APROL PDA
More than simply process data acquisition

More than simply process data acquisition

Factory automation

Advanced process control
Condition monitoring
Energy monitoring
Line management

Integration of machine HMI

VNC adapter
Web pages
IP cameras
Reports

OMAC PackML integrated

Standard control modules
Standard faceplates
Line-wide transparency
Archiving of all data

Integrated audit trail

Compliant with FDA 21 CFR Part 11
Seamless traceability
All operations logged
Integrated commenting

YOUR GLOBAL PARTNER FOR AUTOMATION EXCELLENCE