SEAVISION

Beyond Serialization: Data in The Industry 4.0

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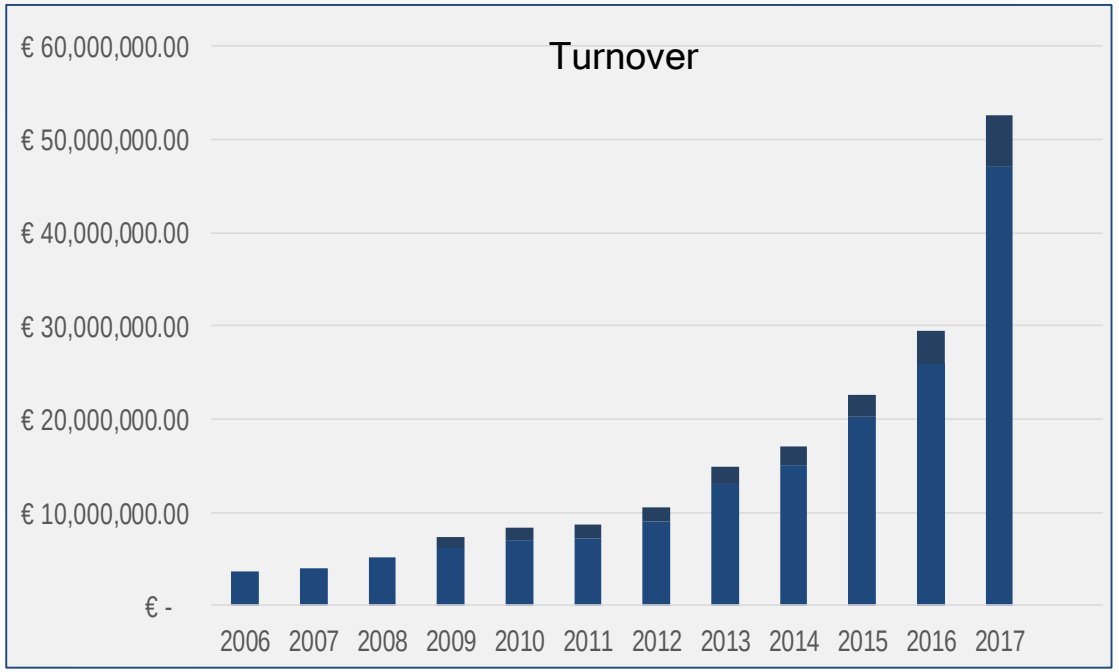
Wins and commercial results

+ 1000 T&T lines deployed worldwide

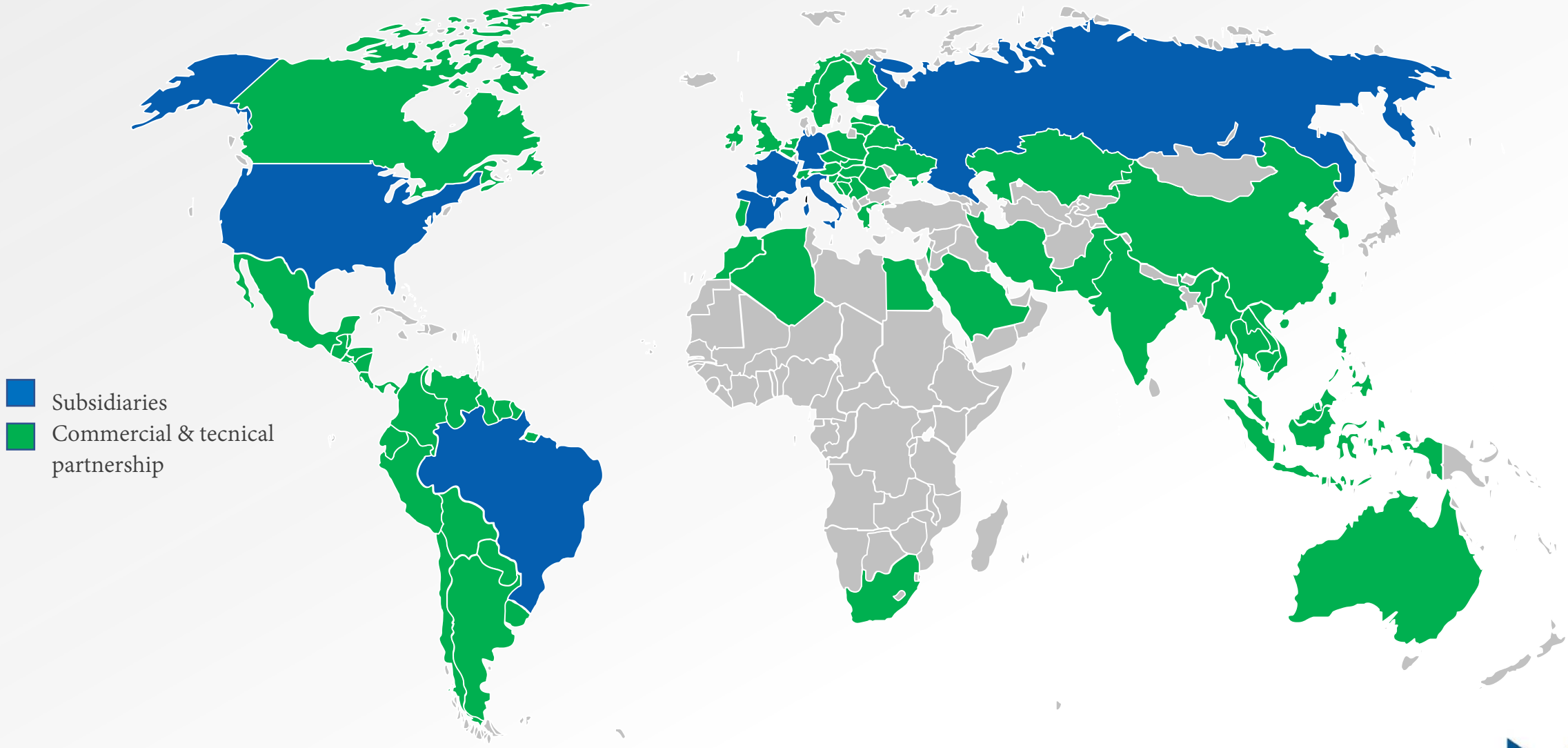
+ 5000 Vision systems installed globally

+ 40% new Technical Assistant Engineers employment on annual basis

+35% CAGR growth in last 5 years



Today global reach



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Product & Services portfolio

HARLEQUIN

- Blister Inspection
- Pharmaceutical kit chec

OCV

- Characters and codes on product and package
- Products integrity

DATABOX

- Linear and 2D codes check

HARLENIR

- Active Principle inspection

MANUAL WORKSTATIONS

- Manual aggregation, commissioning and reworking

SCADA & DATA ANALYTICS

- Lines' management and data collection from lines' machineries

T&T COMPLETE SOLUTION

- Serialization and aggregation solution

SERVICES

- On-line & on-site support
- Training service
- Feasibility studies

SLA packages

- Service Level Agreements for dedicated support

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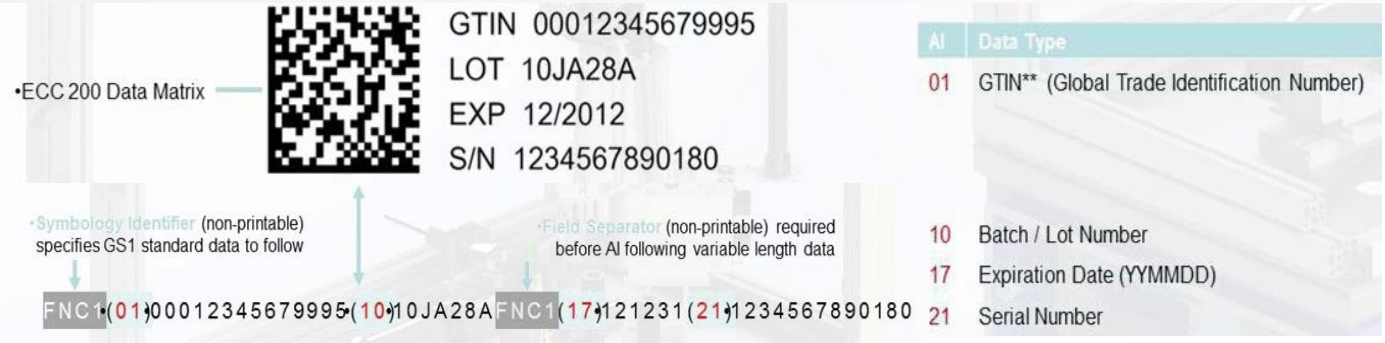
Serialization Overview

Serialization definition

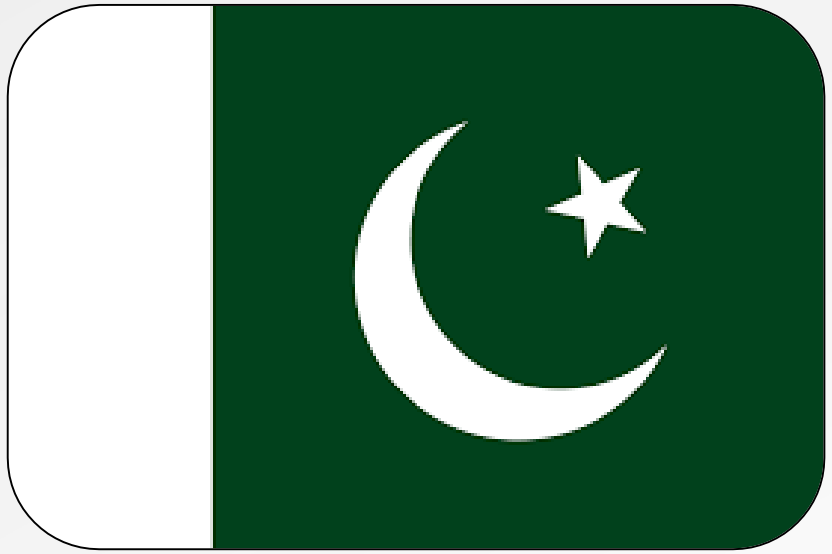
Serialization means to apply a unique random serial number to an item to allow its tracking along the supply chain according to GS1® standard.

- ✓ Serial number provisioning
- ✓ Marking
- ✓ Verifying
- ✓ Commissioning data

Every SKU of same GTIN shall have its own unique fingerprint code



Pakistan Track and Trace System



Regulatory Agency:

Drug Regulatory Authority of Pakistan (DRAP)

Deadlines:

- starting in November 2017, optional until June 2019
- mandatory from June 2020, tertiary packaging included

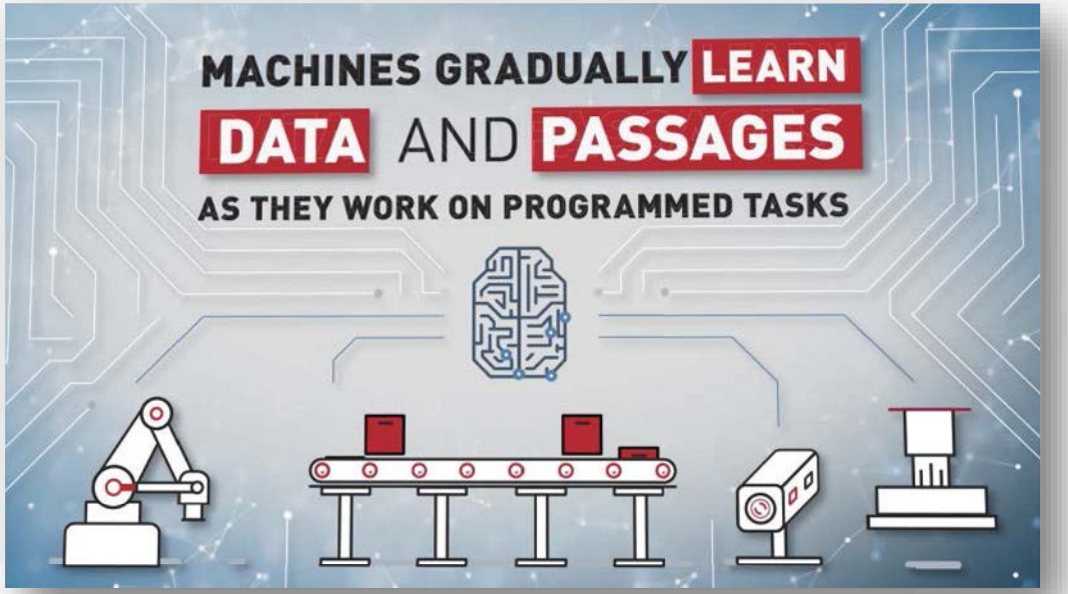
Coding type:

- 2D Datamatrix following GS1 standards on Primary packaging (only if not included in secondary packaging)
- 2D Datamatrix on Secondary packaging
- SSCC for tertiary packaging

- * Primary Packaging: packaging which is in direct physical contact with the active ingredient)
- **Secondary Packaging (a carton containing one or more primary packs)
- *** Tertiary Packaging: (a package containing one or more secondary packs)

Industry 4.0 Opportunities from Serialization

Advanced Robotics - AI: Line and Machine Intelligence

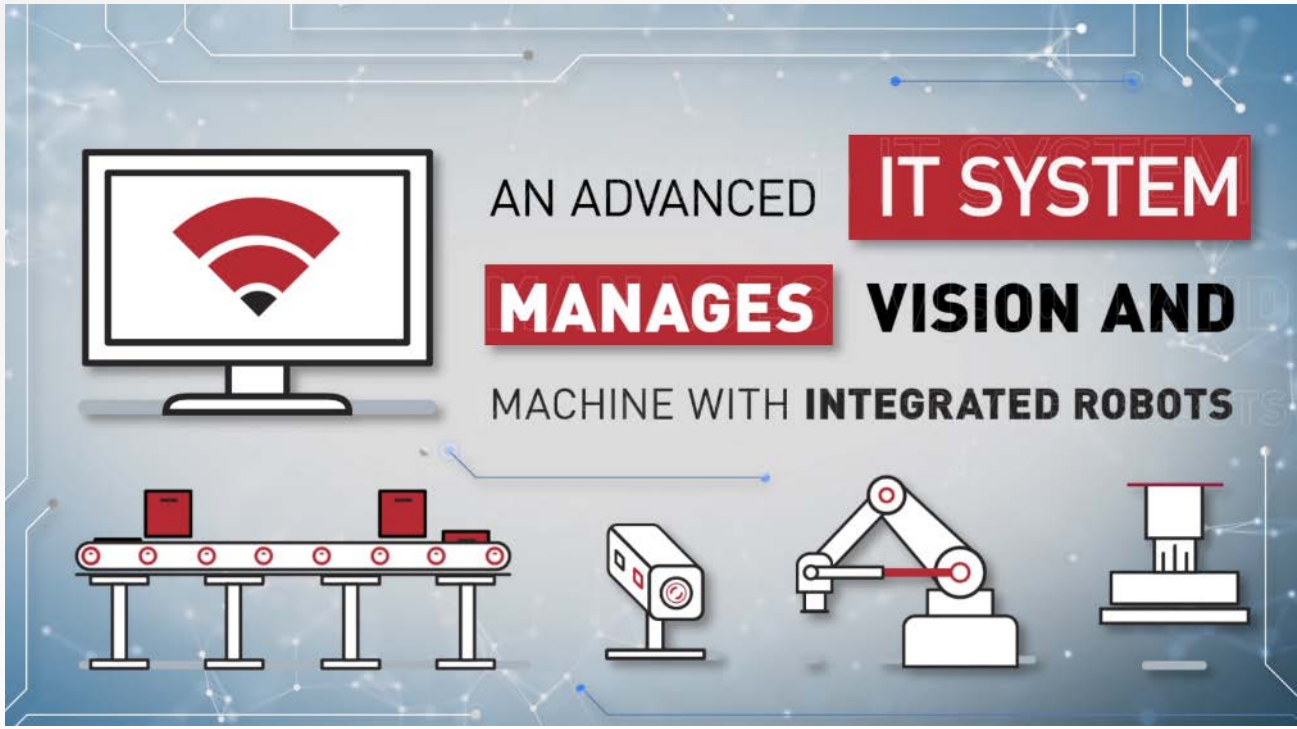


Line and Machine Intelligence

The Machines optimize production flow and improve the processes according to what take place in the plant

SEA Vision Integrated IT System with Machines and Vision Control

- Intelligent Machines incorporated in Intelligent Production Line
- Vertical integration with SCADA and ERP/MES systems
- New technology and artificial intelligence will drive disruption and new solutions for the manufacturing process



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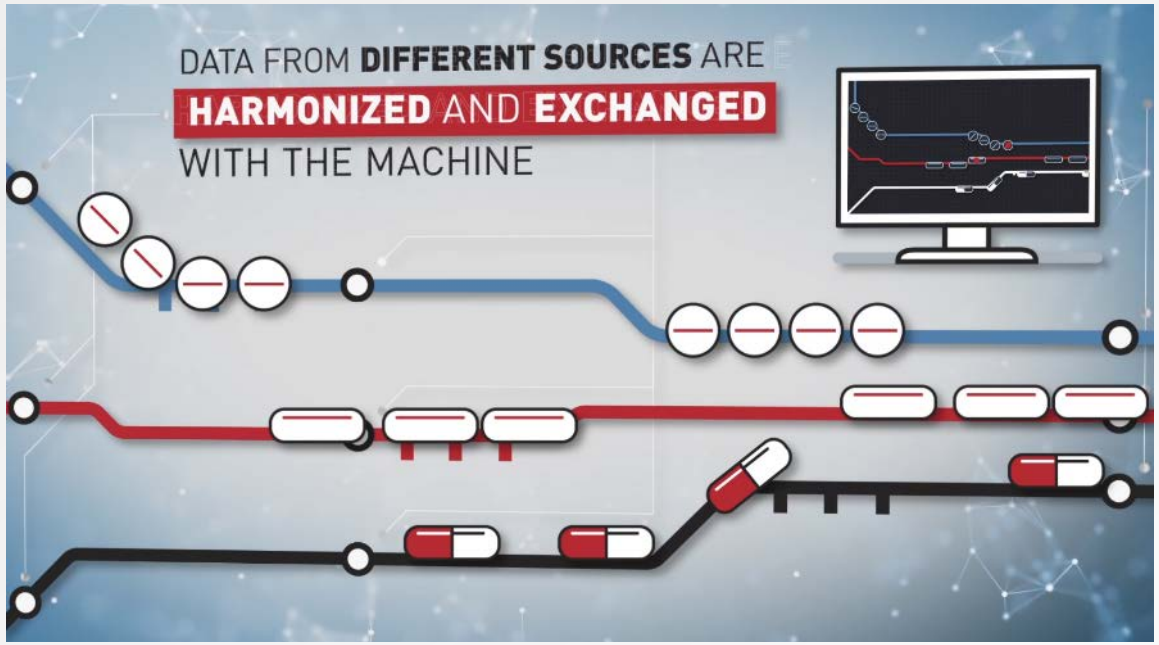
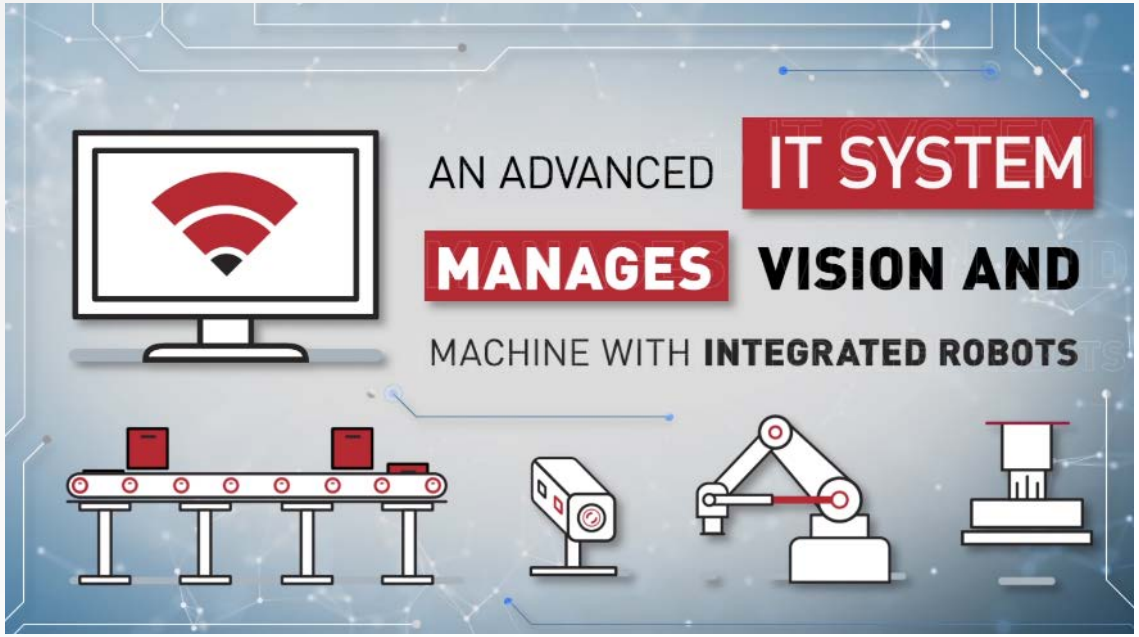
Vertical Integration and Line Management

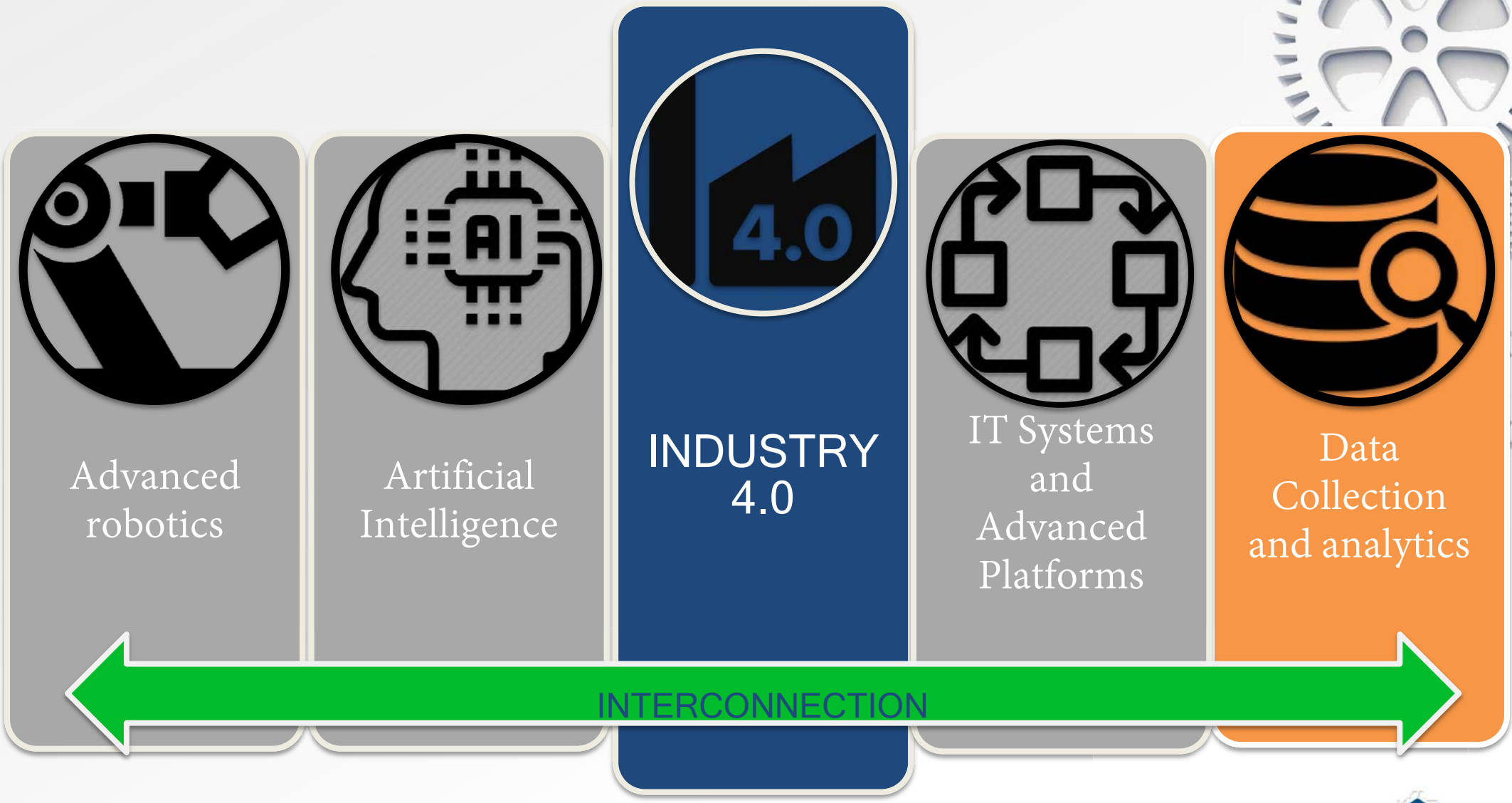




Vertical Integration and Line Management

Smart Factory is based on full Integration and Data exchange, increasing process quality,
minimizing human actions, offering paperless reporting and production reconciliation

4.0: a technologies hub



Data Collection and Business Analytics as Drivers for Efficiency

Smart SCADA & DASHBOARD

- Data collection from vision systems and machines PLCs
- Line data monitoring and processing
- Gather data in real time for OEE improvement

DASHBOARD

SEA Vision Server

Data collection from vision systems

Machines's PLCs input & output

- Synoptic view of all lines status

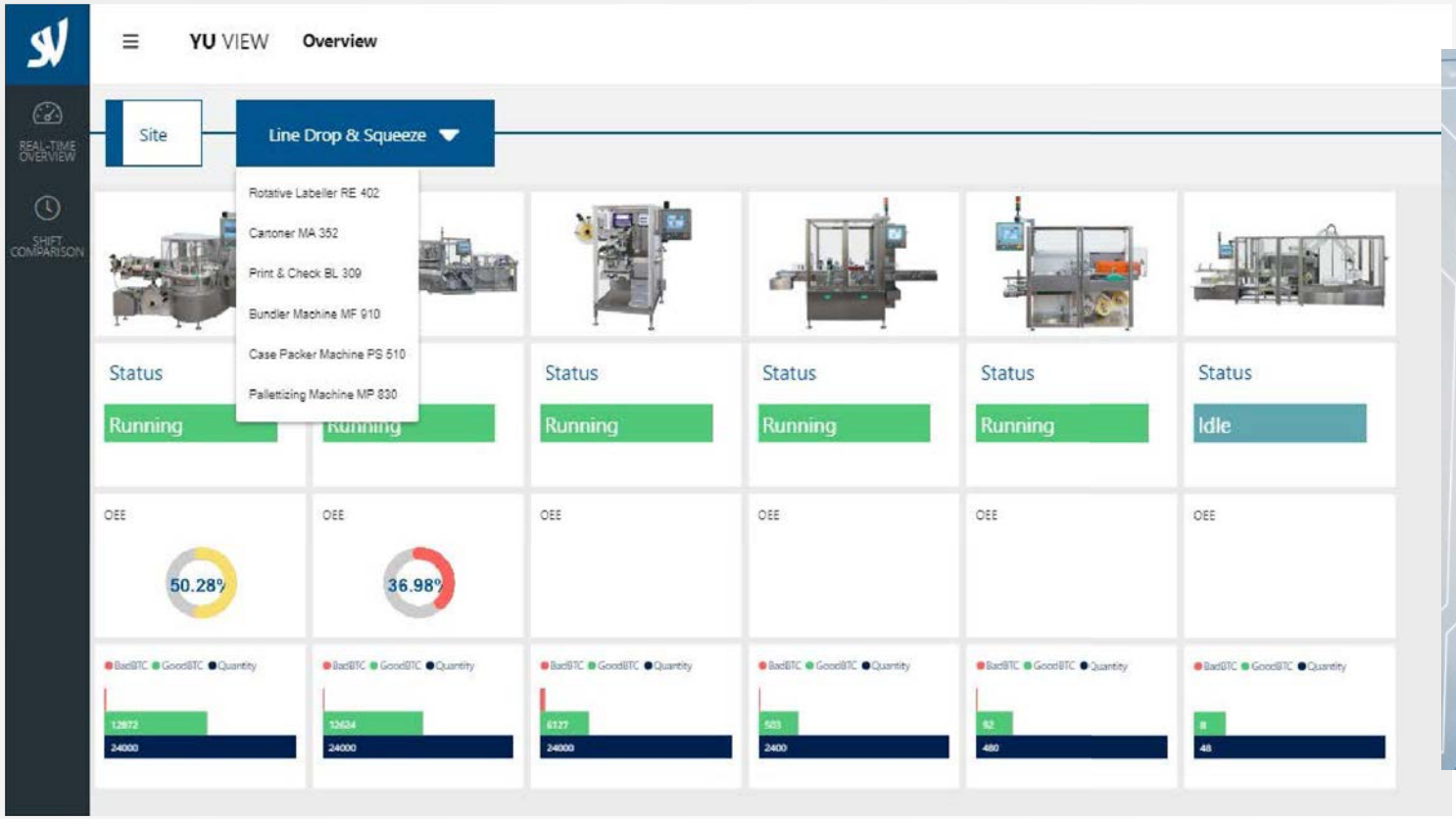
3 Bricks of DASHBOARD SOLUTIONS

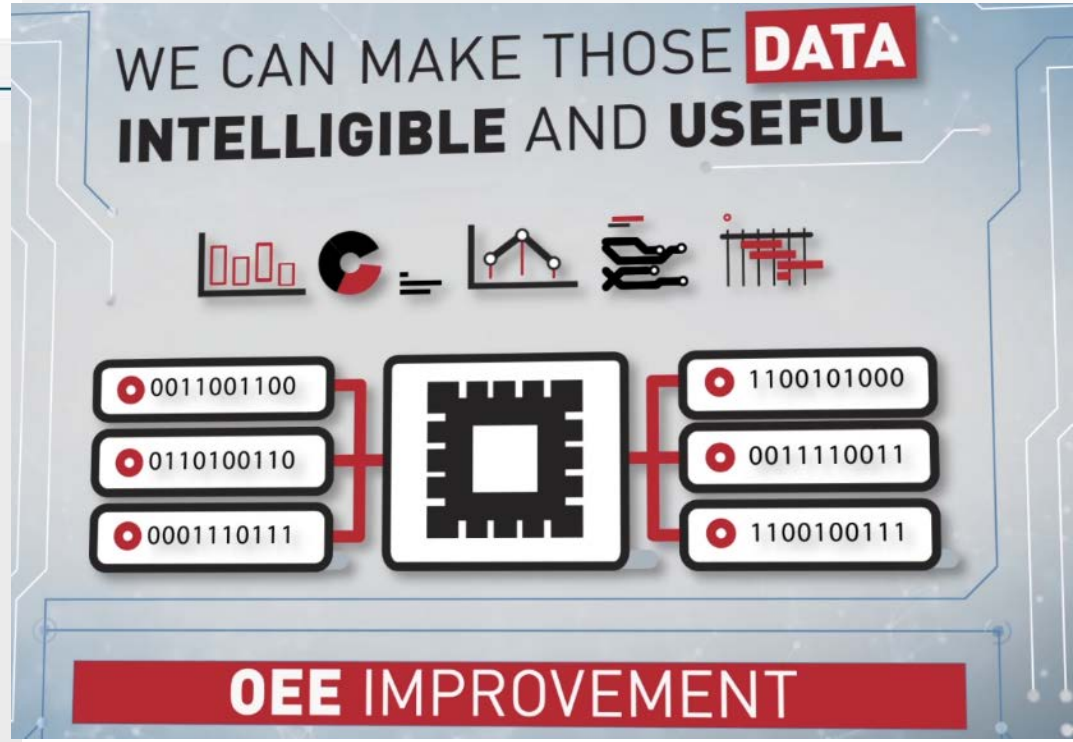
- Real time lines production status overview
- Global Line OEE

- Machine KPIs
- Machine Status and Down Time Reasons
- Custom Machine Charts

- Production reports for Historical Trends

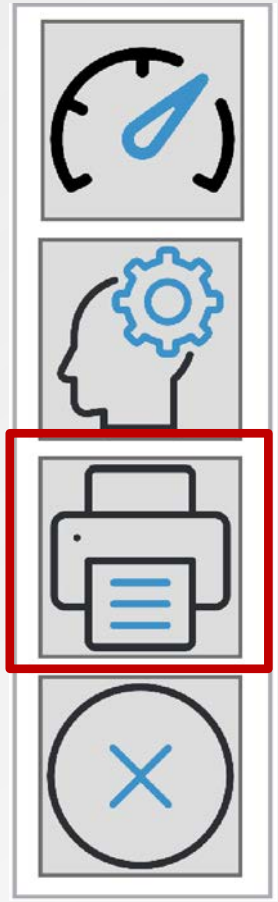
DASHBOARD VIEW: OEE, KPI and Much More



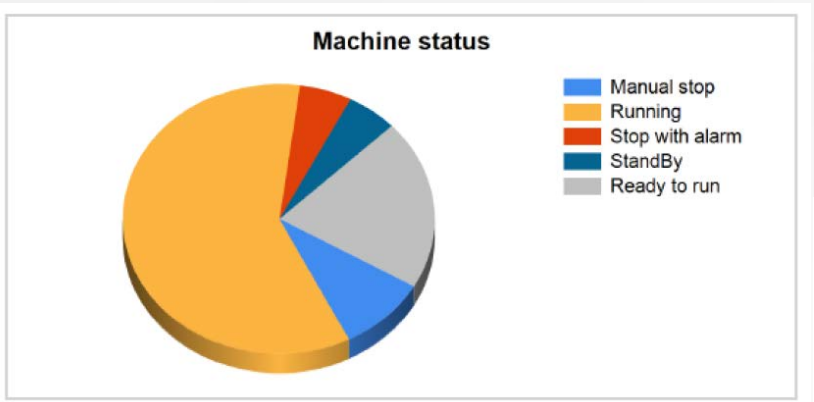


Views can be grouped and drilled down hierarchically by level such as sites, lines and assets.

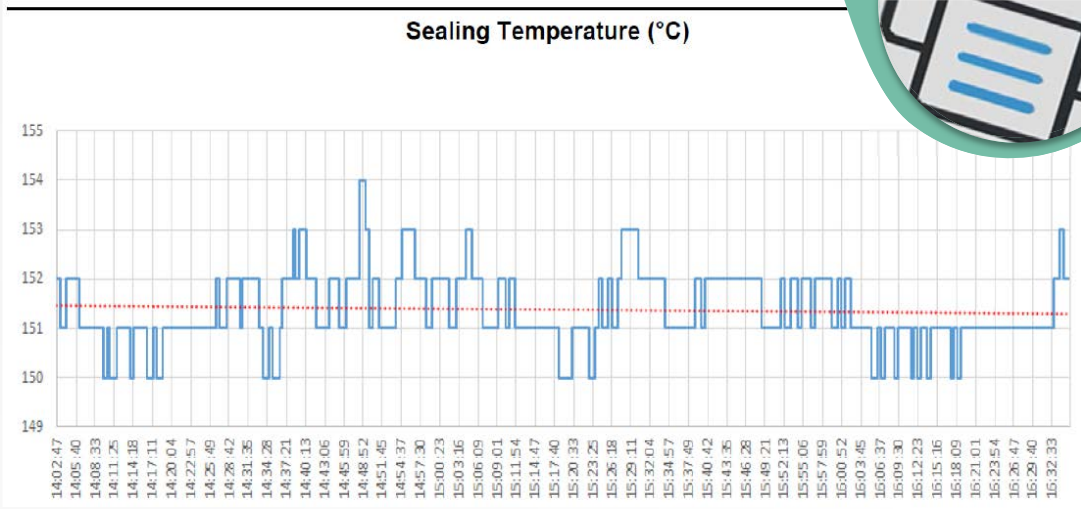
Dynamic and Custom Reports

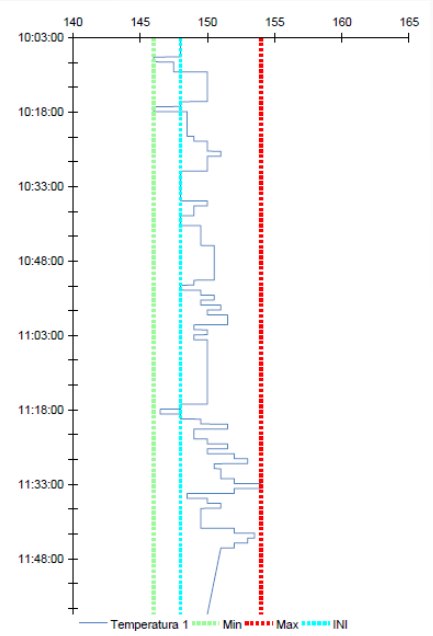


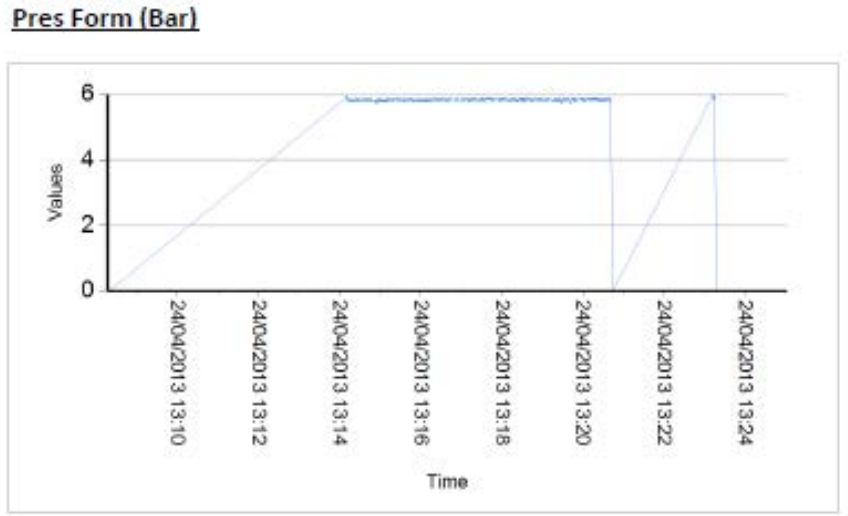
- ✓ Dynamic sample of machine conditions, e.g. temperature or pressure and custom graphics creation.



Status	Time	Percentage
Manual stop	6 minutes, 4 seconds	9,27%
Running	38 minutes, 58 seconds	59,53%
Stop with alarm	3 minutes, 34 seconds	5,45%
StandBy	3 minutes, 28 seconds	5,30%
Ready to run	13 minutes, 23 seconds	20,45%







SEA Vision Business Analytics

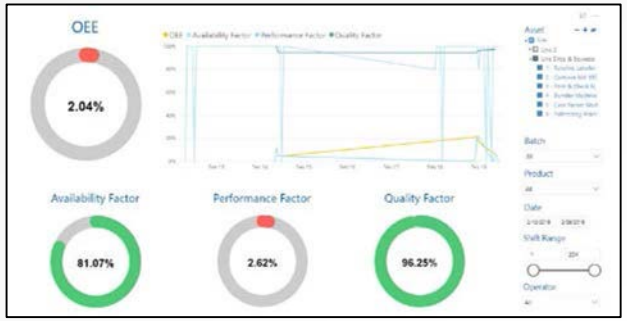
With **data analysis techniques** and **extraction** of the data processed by the packaging lines, SV4.0 tranforms “Big Data” into ***“Smart DATA”*** in a in a ***simple***, ***flexible*** and ***effective*** way to obtain t***he right information which reach the right people at the right time”***.

DATA COLLECTION → DATA NORMALIZATION → DATA ANALISYS → MANAGEMENT DECISION

The objective of our solution is helping customers improving their decisional process with a data-driven instrument.

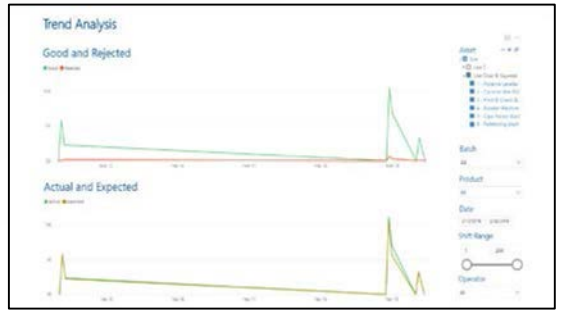
Descriptive Analytics:

- Real time lines production status overview
- Global **Line OEE**
- **Machine KPIs**
- Machine Status and **Down Time Reasons**
- Custom Machine Charts



Predictive Analytics:

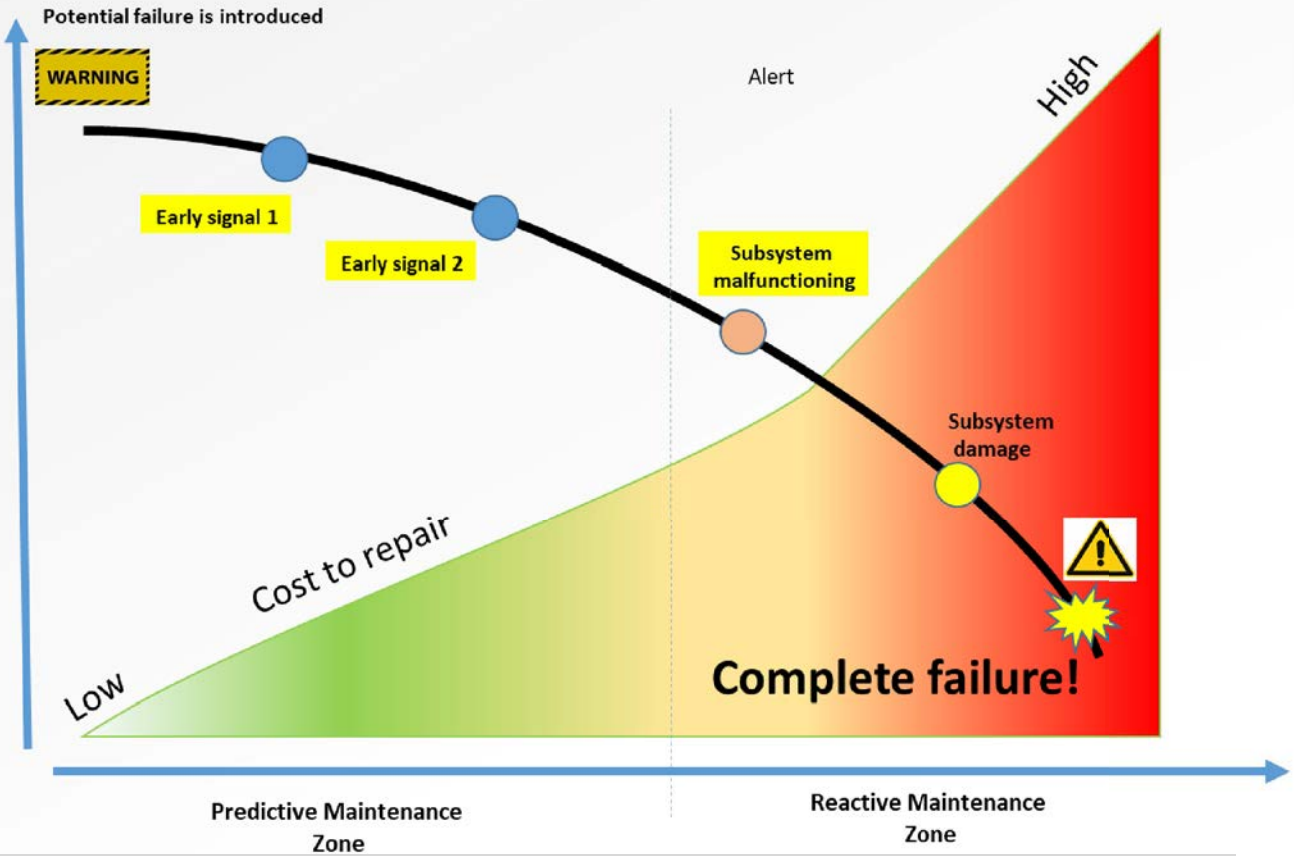
- Predictive Maintenance and Critical Parts Usage
- Equipment Wear



Prescriptive Analytics

- Production reports for Historical trends

Predictive Maintenance



Moving from reactive maintenance to predictive maintenance requires real time data collection able to interpret it meaningfully. The status of machines is recorded using sensor technology and automatically checked against templates which indicate a possible fault. To this end we apply concepts such as data mining, data modelling or machine learning.

SEA Vision Industry 4.0 Benefits

- Minimized time for batch start **> reduce time-wasting operations**
- Secure data transfer by mean of ERP and MES Automatic imputs, with validated process **> Safer process**
- Traceability processes and automated data exchange from Lines to wharehouse and centralized ERP / MES **> Full process control**
- Balancing upon products in the packaging line (in/out) **> Avoid cross check contamination**
- Business intelligence to visualize in real time the line status and advanced reporting **> Faster problem resolution**
- Integrated processes in a centralized framework allow to use data for > **improve decision making process**