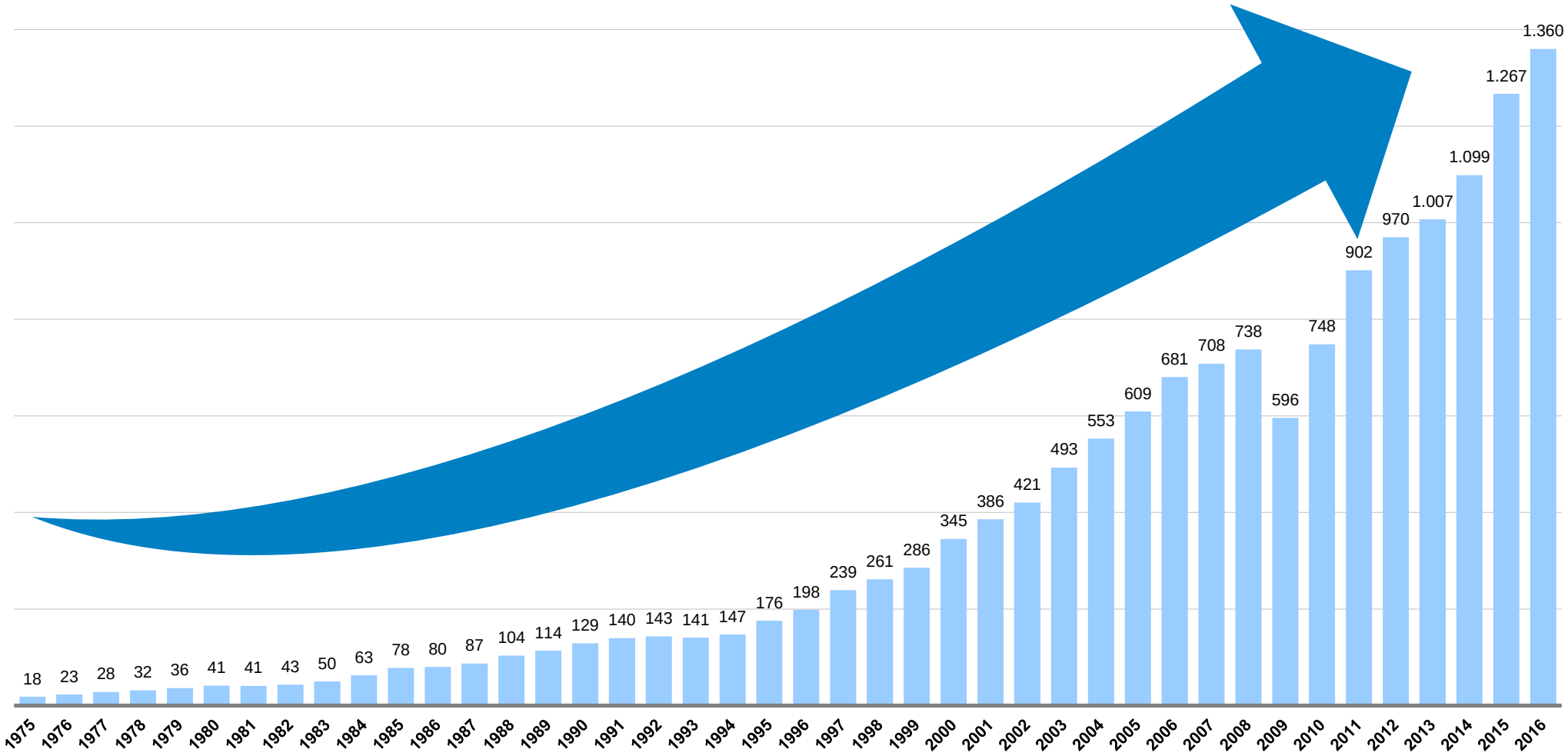
# LE TECNOLOGIE 4.0 DI SICK PER LA LOGISTICA INTEGRATA

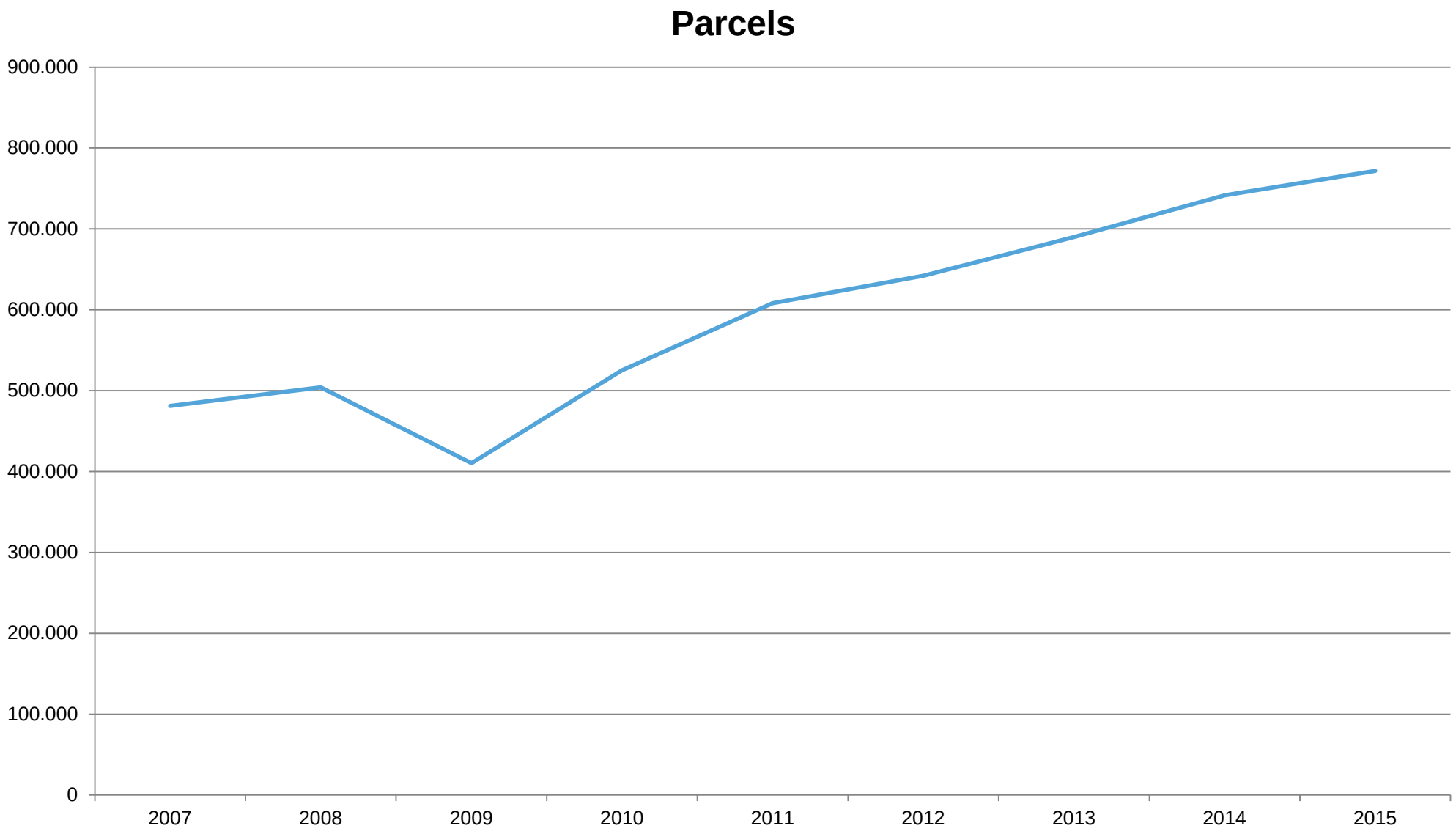
SICK
Sensor Intelligence.

Luca De Vincenzi
Business IT Coordinator | System Manager
Assago, 24 Marzo 2017

# THE SICK GROUP HISTORY



# SICK LOGISTIC IN FIGURES



# GLOBAL DIGITAL MARKET

Globalization

Harmonization of all processes

Digitalization Production and Business Processes

Cultural Change

Collaboration, Transparency and Trust

# CUSTOMERS HABITS ARE CHANGING

# MARKET OPPORTUNITIES VS. BUSINESS CONSTRAINS

CUSTOMER

FLEXIBILITY

SPEED

VALUE ADDED SERVICES (SPECIAL PACKAGES, KIT, CUSTOMIZED LABELLING & DELIVERY NOTES)

ON TIME DELIVERY

MORE THEN 40.000 ITEMS

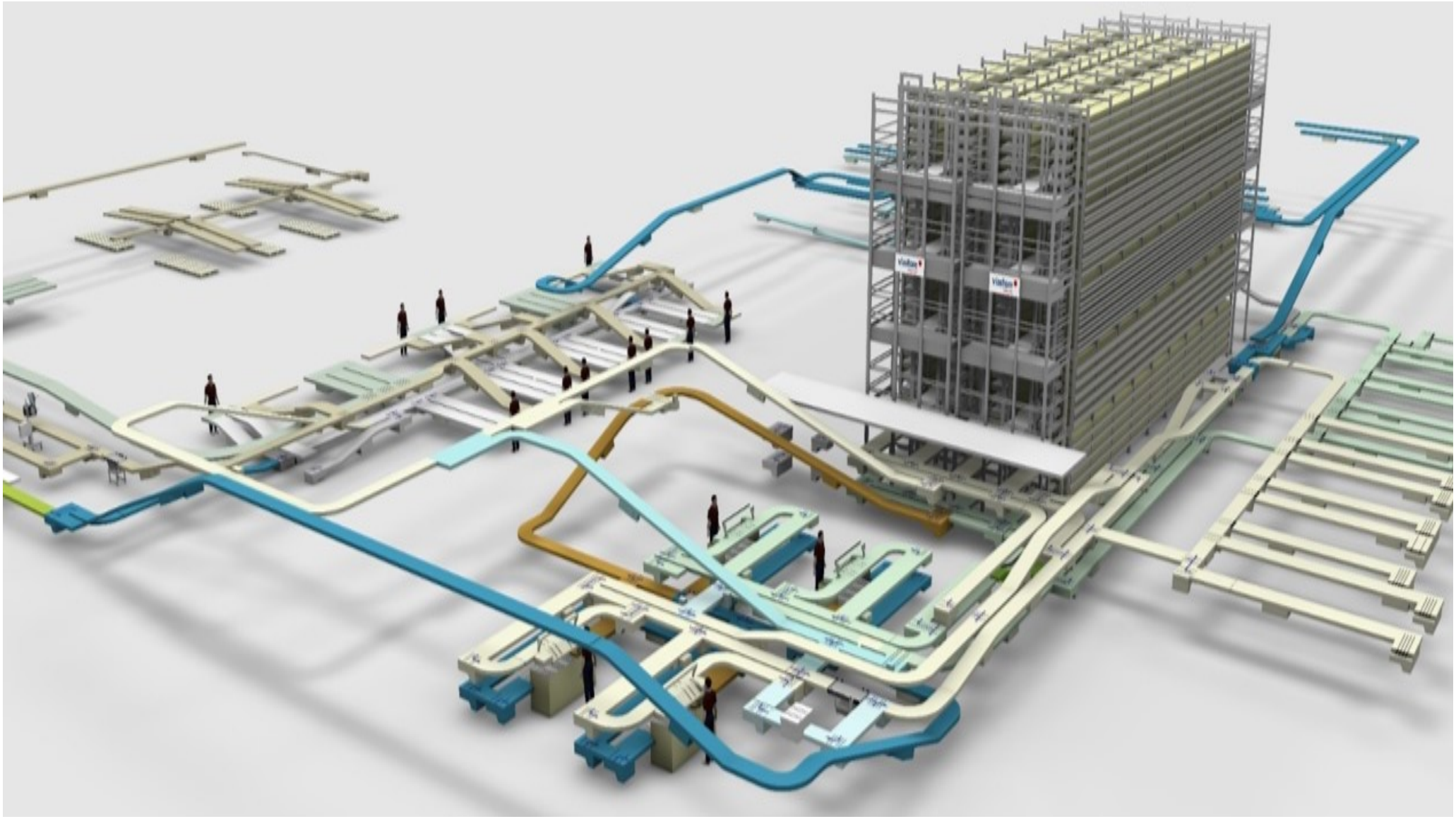
BULKY GOODS

DELIVERIES PEAKS

EXPRESS SHIPMENT

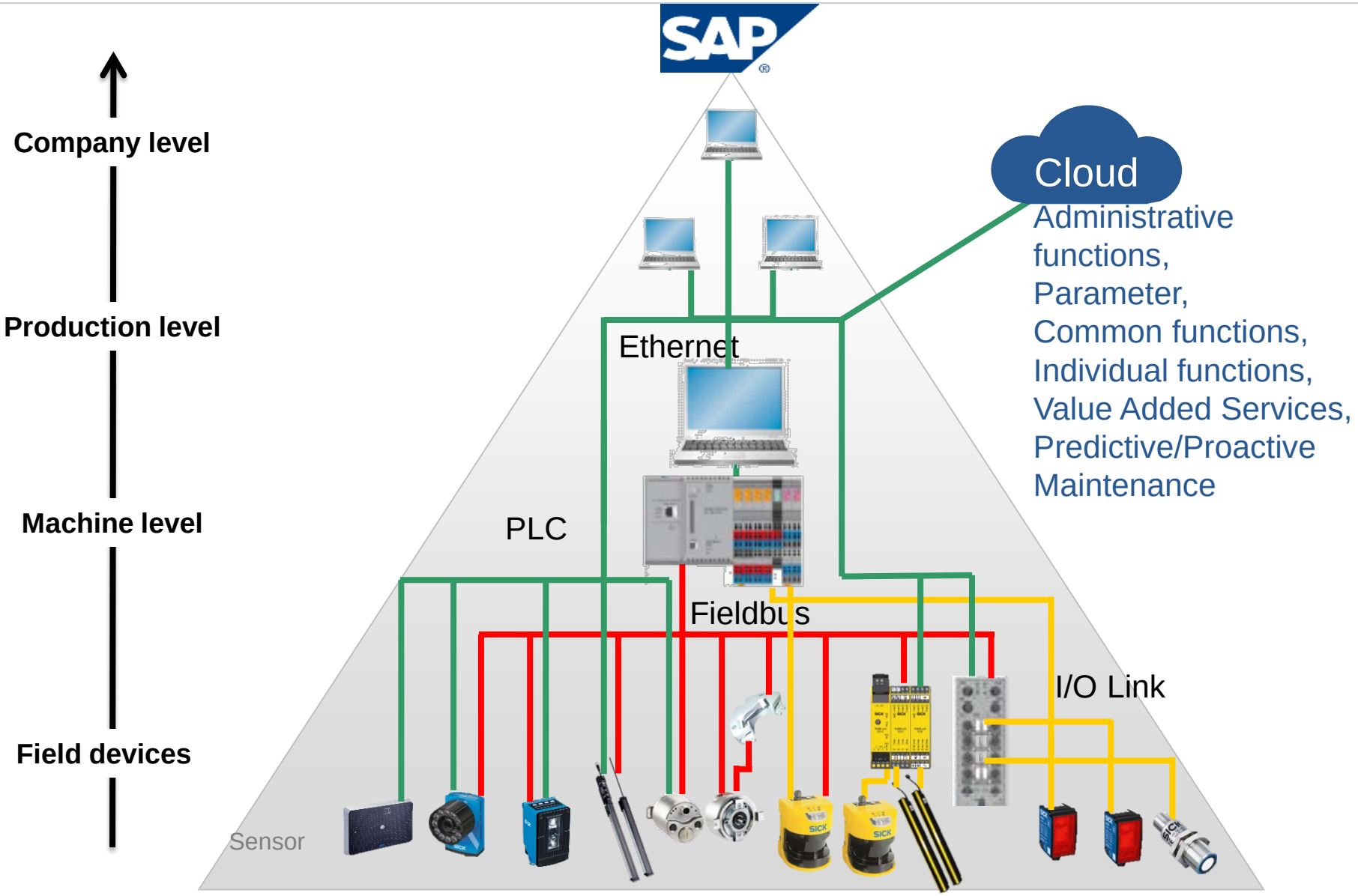
TRACEABILITY

# SICK DISTRIBUTION CENTER



# MARKET OPPORTUNITIES VS. BUSINESS CONSTRAINS

# SENSOR TECHNOLOGY PERSPECTIVE ON INDUSTRY 4.0



INDUSTRIE 4.0
READY

# INDUSTRY 4.0 – LAYER MODEL

## LAYER MODEL FROM SENSOR TO APPLICATION

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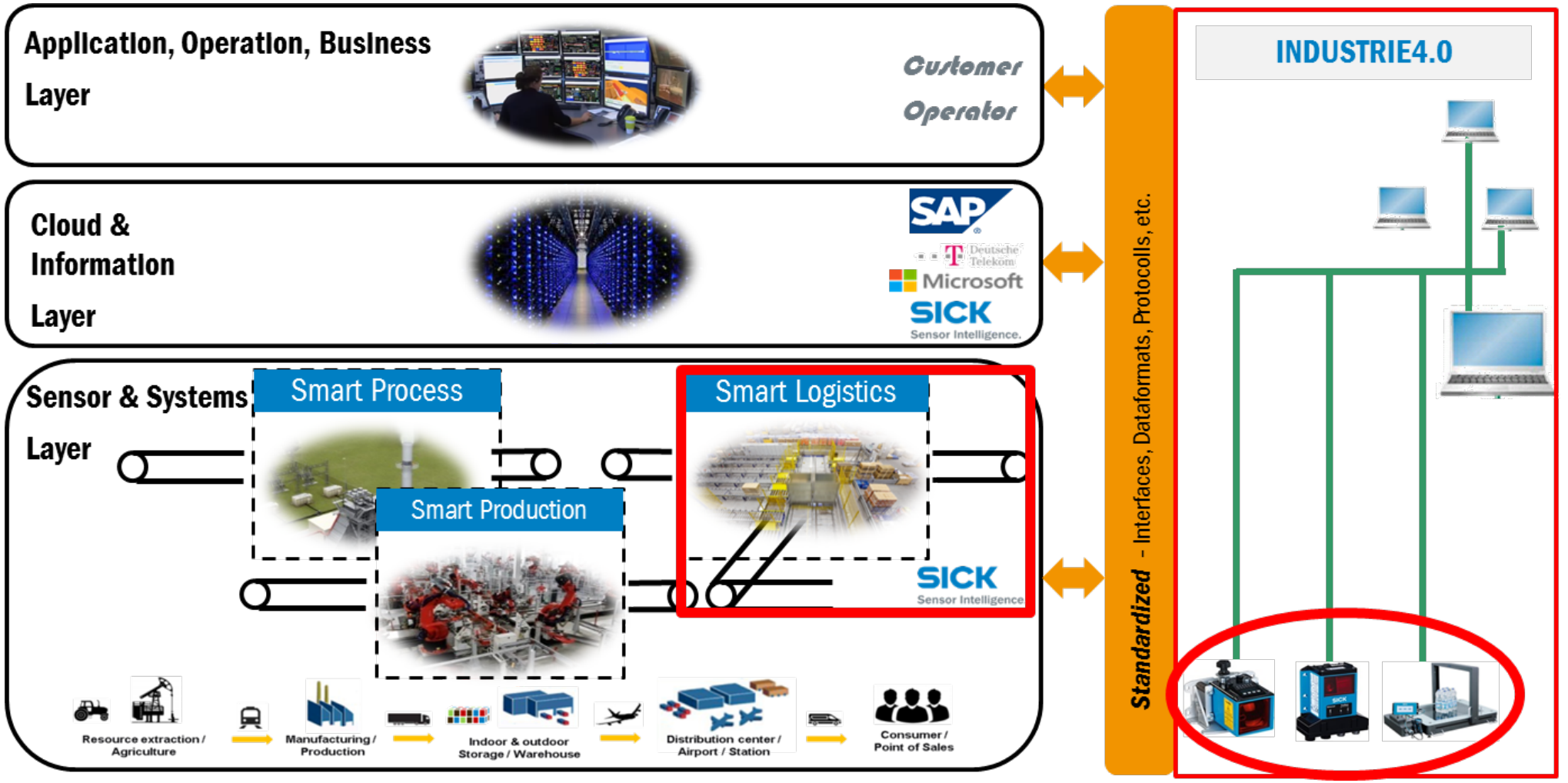

# SYSTEM ARCHITECTURE
## SICK DISTRIBUTION CENTER

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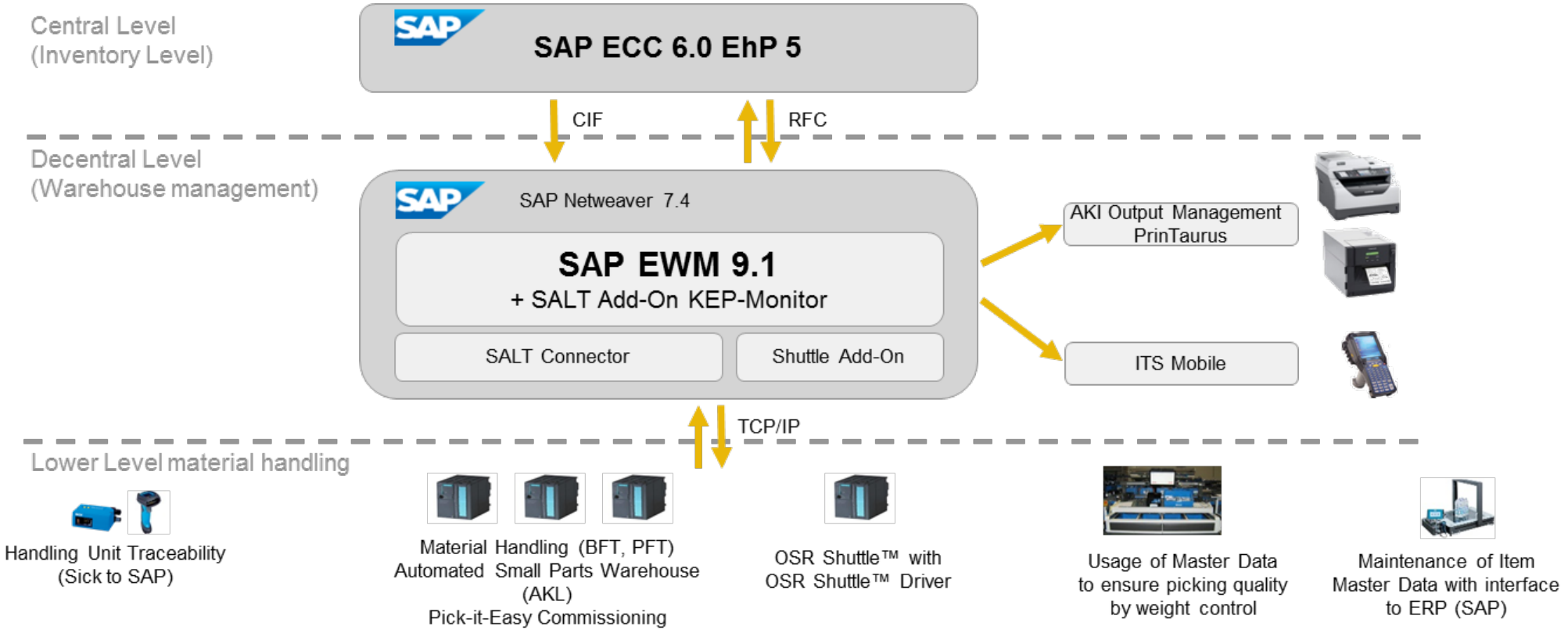

# MANAGEMENT OF COMPLEX MATERIAL FLOW BY SAP EWM-MFS

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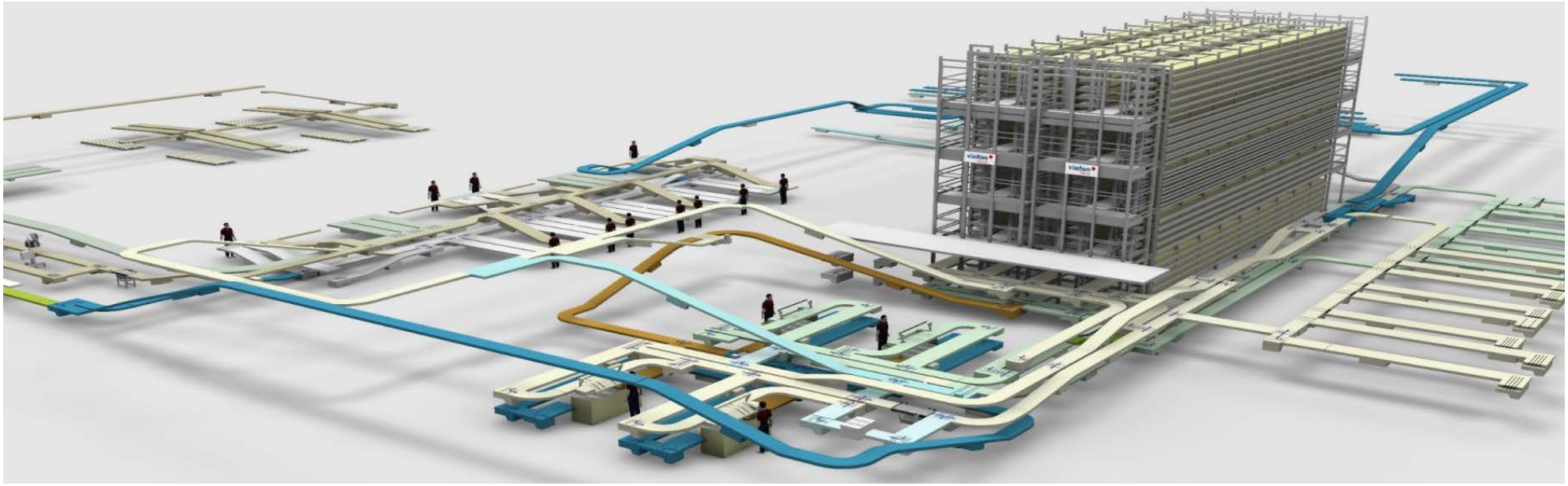

- Intelligent implementation of shipments
- Real time control and coordination of the complete material flow
- Management by  SAP EWM-MFS

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# Intelligent Implementation of shipments

- Shipment priority: Dynamic priorization of shipment lines
  - Shipment Loading Date
  - Shipment  Loading Time
  - Delivery Type
  - Shipment Terms
  - Additional Requirements based on pro

| Typ | Meldungstext |
|---|---|
| | Datum: 11.08.2016 Uhrzeit: 12:38:20 |
| | Verarbeitung ZWEWM_OUTB_PRIO_PPF wird gestartet |
| | Lieferung 312456 Position 10 wird bearbeitet |
| | Lieferung 312456 Position 10 ist bereits einer Welle zugeordnet |
| | Start der Lieferprioritätenermittlung |
| | Pos. 10 / Belegbezug: 45 von 45 Bewertungspunkte |
| | Pos. 10 / Zeitbezug: 30 von 40 Bewertungspunkte |
| | Pos. 10 / Prozessbezug: 0 von 20 Bewertungspunkte |
| | Pos. 10 / Prio ( 50 ) = Max. Bewertung ( 105 ) - Bewertung( 75 ) + 20 |
| | Ende der der Lieferprioritätenermittlung |
| | Lieferpriorität 050 zur Lieferung 312456 ermittelt |

- Cyclical control and adjustment of the shipping priority
- Automatic wave management

# SALT-Scheduler: Software to manage and coordinate complex material flow

- Load oriented orchestred small parts warehouse / Shuttle / Picking and Packing Management
  - Creation and approval of storage tasks / Queue-Assignment
  - Proof of capacity of the system and implementation of transport orders
  - Compliance and merge of different shipment combinations from other storage areas including manual processes
  - Planning and execution of replenishment process
- Creation of continuos running material flow

# SALT KEP-MONITOR FOR INTEGRATION OF LOGISTIC SERVICE PROVIDER

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## Lean and efficient shipment processes by SALT Add-On KEP monitor

- Integration of SALT Add-Ons KEP-Monitor in SAP EWM
  - Connection of all logistic service providers and shipping agents in SAP
  - „Inline“ label printing in high dynamic material flow process on container conveyor system
  - Daily closing by Data transmission and manifest
  - Complete transparency in SAP ERP (shipment) by replication of handling unit Data (e.g. Tracking number)
- Increase of efficiency and performance in the shipping area by usage of the KEP monitor.

# SYSTEM ARCHITECTURE
## SICK DISTRIBUTION CENTER

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### 4.770 SICK products ensure a smooth process:

- Bar code readers CLV650, Lector 654
- Handheld scanners IDM261 Bluetooth
- 3D Smart Camera Trispector
- Master Data Analyzer
- Pick to light curtains
- Safety light curtains mac4, minitwin2
- Measuring automation light grids MLG
- Incremental encoders DBS60 Core
- Miniature photoelectric sensors W4-3 G6
- Inductive proximity sensors IME18, IM18, IQ10
- Multitask photoelectric sensors PowerProx
- Safety locking devices i110 Lock
- Small photoelectric sensors W12L-2 Laser, W9-3
- Linear measurement sensors OLM100 Hi

- Electro-mechanical safety switches i16S, i11OR
- Small photoelectric sensors W14-2, W18-3
- Inductive safety switches IN3000 Direct
- Absolute encoders A3M60 Profibus, AFS/AFM60 SSI
- Mid range distance sensors DT35
- Inductive proximity sensors IME12
- Multiple light beam safety devices M4000 Advanced
- Small photoelectric sensors G10, W9L-3
- Ultrasonic sensors UM30

# Quality and efficiency in the shipment process by innovative technology.

- Pick-it-Easy working places
- Multi-Order-Commissioning
- Traceability / barcode reading for safety products
- Employees are supported by instruments (weighing machines, light curtains and pick to light)

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# Analytics Solutions

**A suite of industry-tailored software solutions that analyze data and images collected from intelligent sensors.**

# MANY THANKS FOR YOUR ATTENTION.

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Luca De Vincenzi
Cell. 366 / 6953441
luca.devincenzi@sick.it