

INNOVAZIONE, TECNOLOGIE E TRENDS NELLA LOGISTICA FARMACEUTICA. DALLA ROBOTICA AI VEICOLI AUTONOMI.

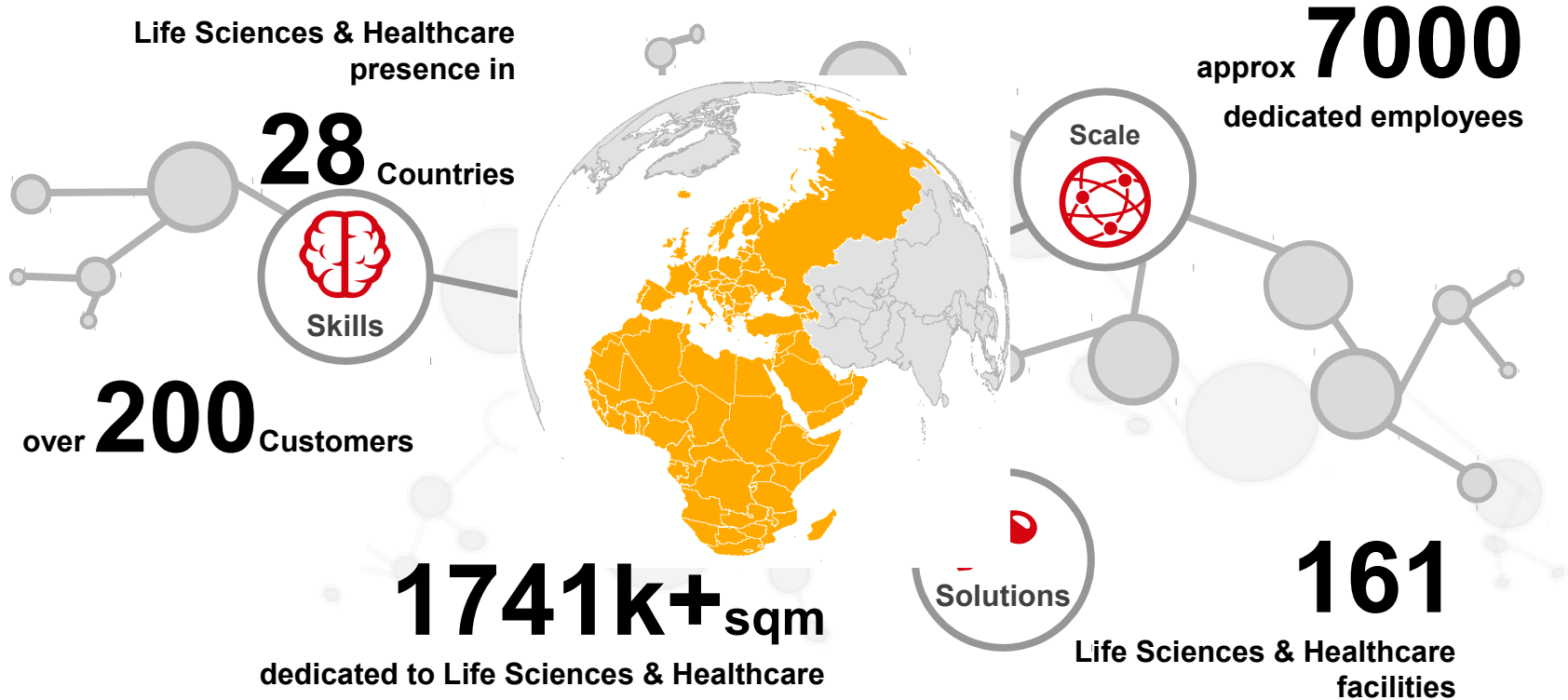
Pina Putzulu

Business Development LSHC & Innovation Director

L'efficienza della gestione dei processi sanitari

Milano, 8 Novembre 2017

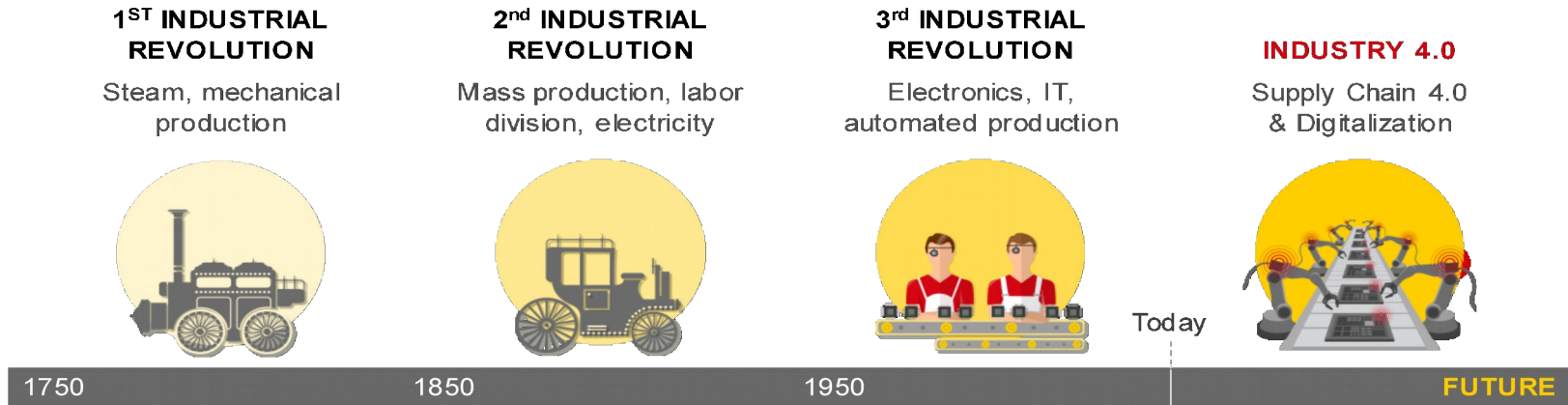
Connecting you to your patients




Ready for Industry 4.0

The supply chains of the future will be fully digitalized, enabled by technology and standardized processes

Today, we are already crossing over from the 3rd Industrial Revolution to Industry 4.0. Industry 4.0 will have implications on supply chains of the future and we are already incubating innovations we believe will support our transition to Supply Chain 4.0.



A person's hands are holding a tablet computer in the foreground. The tablet screen displays text about Industry 4.0. The background is a blurred industrial setting with orange and white robotic arms and machinery.

**The idea behind
Industry 4.0 is to
connect human
resources, data, and
physical machines in a
cyber-physical
network.**

Manufacturing Chemist Pharma 4.0

The Digital Revolution

The digital transformations is part of corporate strategies



The first wave of the digital revolution focused on using **technology platforms** and **data analytics** to better understand patients in order to increase engagement and develop **new go-to-market approaches**

the next wave of the digital revolution is about **transforming operations**

Life Sciences & Healthcare Supply Chain challenges

Fast

Flexible supply chain models adapting to industry dynamics

- *Product lifecycle*
- *Emerging markets*
- *New services & products*

Competitive

Customer centric supply chains at high cost efficiency

- *Multi channel distribution*
- *Technological Expectations*
- *Personalized medicine*

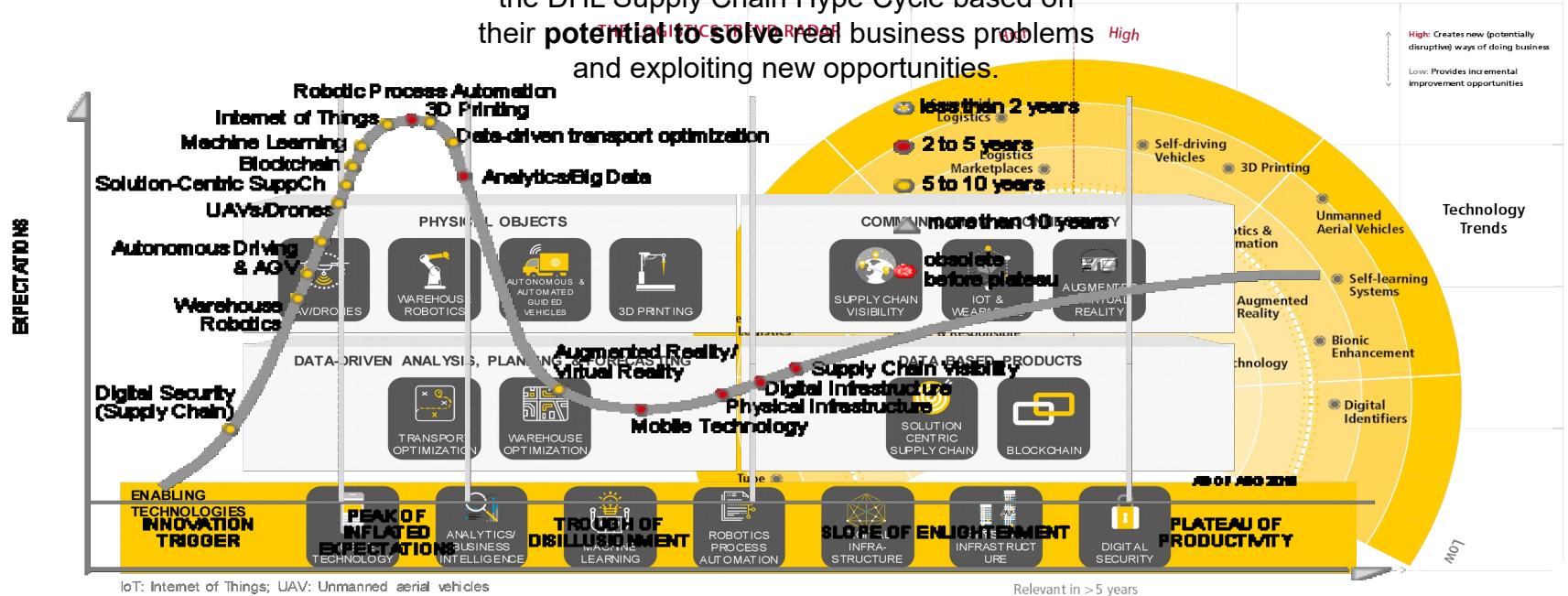
Complex

E2E managed global supply chains with high visibility and reliability

- *Outsourcing partnerships*
- *Compliance*
- *Resilience*

Trends which will transform supply chains - Opportunities

Key technology trends have been mapped onto the DHL Supply Chain Hype Cycle based on their **potential to solve real business problems** and exploiting new opportunities.







WAREHOUSE ROBOTICS



Robotics in logistics – Why now?

Market Challenge

- Double-digit growth rates in intensive
- Ageing society and lack of s workers

New Business Impa

- Increasing number of start-u seed-investment (e.g. Maga
- High investments from playe as Amazon or Google (e.g. invest)

Overcoming Barriers



Robotics in logistics - Near future examples



Trailer and container unloading robots



Mobile piece picking robots



Assisted Order Picking



Co-packing and VAS (baxter)

Robotics in Life Sciences & Healthcare supply chain





Yumi Robot

www.dhl.com



DIGITAL IMAGING & AUTOMATION



Image Serialization Service



New technology for the safety of drugs and patients

10% of drug sales in the emerging markets, and
1% of sales in the developed markets are represented by

counterfeited drugs



INNOVATION AT WORK:
IMAGE SERIALIZATION SERVICE



UAV / DRONES



Aerial drones trials for new formats of delivery



- Parcelcopter 3.0 flies autonomously between Skyports and automatically feeding in parcels into “Packstations”

DHL PARCELCOPTER

GLOBALLY UNIQUE STAGES OF DEVELOPMENT IN TECHNOLOGY AND LEVEL OF PERFORMANCE

PARCELCOPTER 3.0

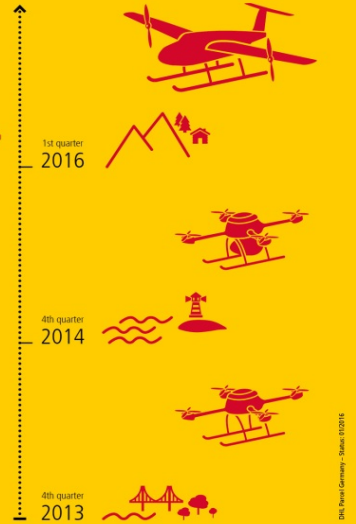
Aircraft: Tiltwing Aircraft
Dimension: 2,200 mm
Payload: up to 2 kg
Airspeed: approx. 70 km/h
Control system: autonom
Flying area: Mountainous region
Location: Ret im Winkl/Winklmoosalm
Flight distance: 8.3 km
Altitude difference: approx. 500 m

PARCELCOPTER 2.0

Aircraft: Quadcopter
Dimension: 1,030 mm
Payload: up to 1.2 kg
Airspeed: approx. 43 km/h
Control system: autonom
Flying area: open sea
Location: Norddeich/Just
Flight distance: 12 km
Altitude difference: none

PARCELCOPTER 1.0

Aircraft: Quadcopter
Dimension: 1,030 mm
Payload: up to 1.2 kg
Airspeed: approx. 43 km/h
Control system: manual
Flying area: River crossing
Location: Barm
Flight distance: 1 km
Altitude difference: none



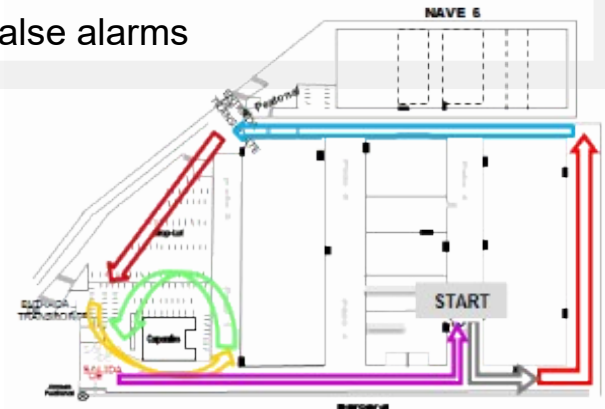


Current Aerial drones applications

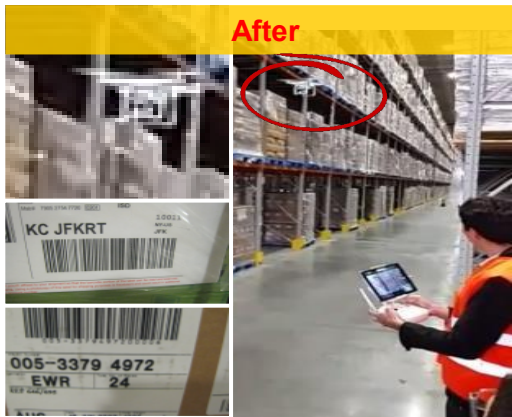
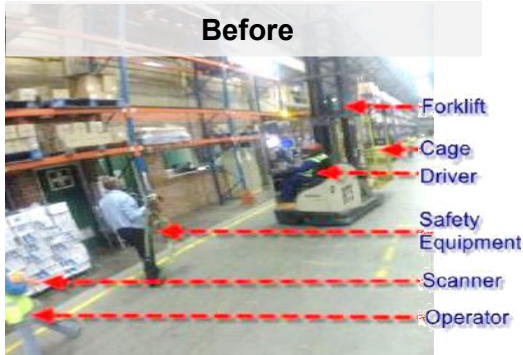


NIGHT SURVELAINCE

- Patrolling a 250,000 m² in less than 1/2 hr
- Providing pictures and live video-feed to Security back-office
- Minimize time wasted for false alarms



Current Aerial drones applications



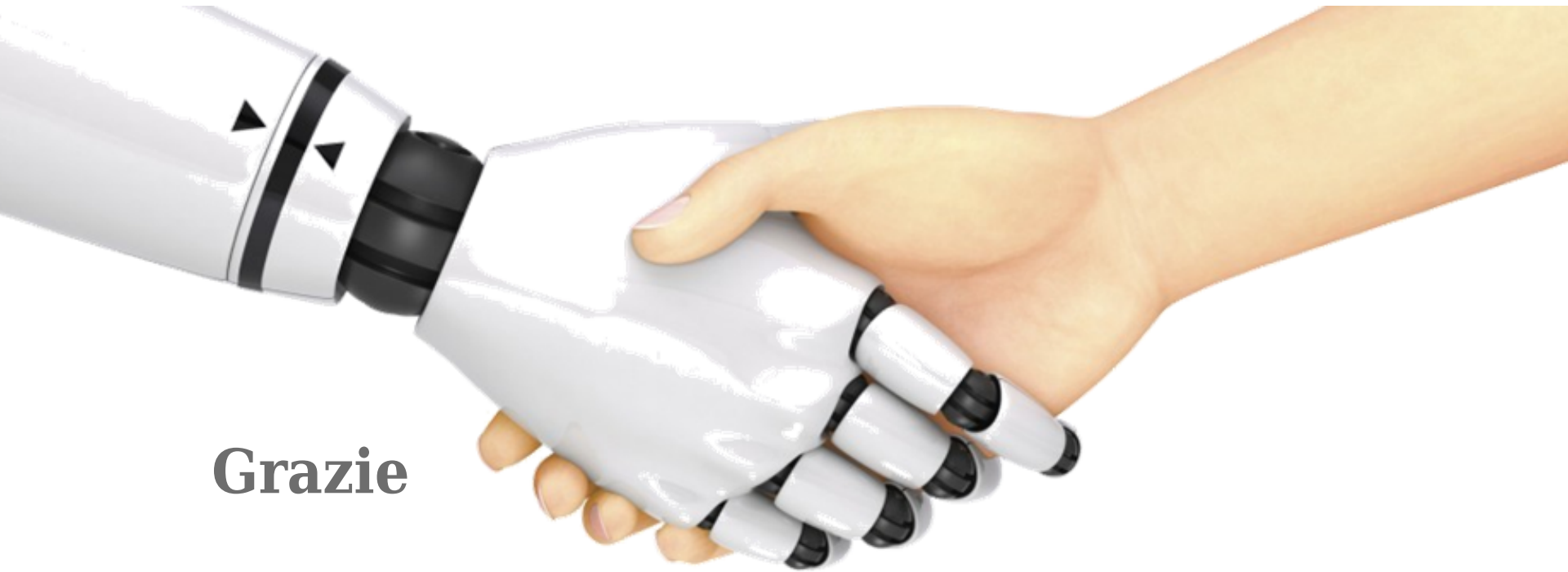
INVENTORY COUNT

- Increase efficiency of inventory stock-taking
- Reduce e Labor intensive low value tasks
- Saftety : No operators on high platform above ground level



THE FUTURE OF LIFE SCIENCES AND HEALTHCARE LOGISTICS





Grazie

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