SHAPING THE FUTURE OF LOGISTICS

Mei Yee PANG
4th April 2019

2019 DHL Technology Conference

THE WORLD IS CHANGING...

ASIA PACIFIC
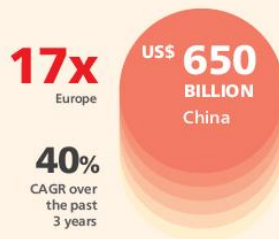# Smart Consumers embrace digital

Sharing economy
China – World's largest sharing economy in 2017

17x Europe

US$ 650 BILLION China

40% CAGR over the past 3 years

94% of Chinese internet users willing to participate in sharing economy

Mobile first
Smartphone users, 2017 & 2030F

MILLION

Bar chart showing smartphone users by region:
- US: 2017 ~220, 2030F ~300
- EU: 2017 ~420, 2030F ~450
- SEA: 2017 ~270, 2030F ~700
- India: 2017 ~340, 2030F ~870
- China: 2017 ~720, 2030F ~1,100

Y-axis: 0, 200, 400, 600, 800, 1,000, 1,200

☐ 2017 ☐ 2030F

Digital platforms

Go-Jek
70 MILLION downloads as of Dec 2017
900,000 bookings/per day

Grab & Go
- New in-car retail and sampling program
- New revenue opportunity for drivers

Grab
45 MILLION downloads in 2017

… AND SUPPLY CHAINS NEED TO EVOLVE

Source: CB Insights 2018

THE DHL LOGISTICS TREND RADAR 4.0

HIGH   HIGH

HIGH: Creates new (potentially disruptive) ways of doing business

LOW: Provides incremental improvement opportunities

Social & Business Trends

Technology Trends

Supergrid Logistics

Self-driving Vehicles

Smart Containerization **NEW**

Artificial Intelligence

3D Printing

Logistics Marketplaces

Robotics & Automation

Batch Size One

Green Energy Logistics

Digital Work **NEW**

Internet of Things

Unmanned Aerial Vehicles

Sharing Economy

Cloud Logistics

Blockchain **NEW**

Fair & Responsible Logistics

Omni-channel Logistics

Big Data Analytics

Servitization **NEW**

Connected Life **NEW**

Augmented Reality

Next-generation Wireless **NEW**

Fresh Chain **NEW**

Low-cost Sensor Solutions

Bionic Enhancement

Grey Power Logistics

Virtual Reality & Digital Twins **NEW**

Tube Logistics

RELEVANT IN < 5 YEARS

2018/19

LOW

RELEVANT IN > 5 YEARS

LOW

INNOVATION VALUE CHAIN

1 — Trend Radar

2 — Trend Report

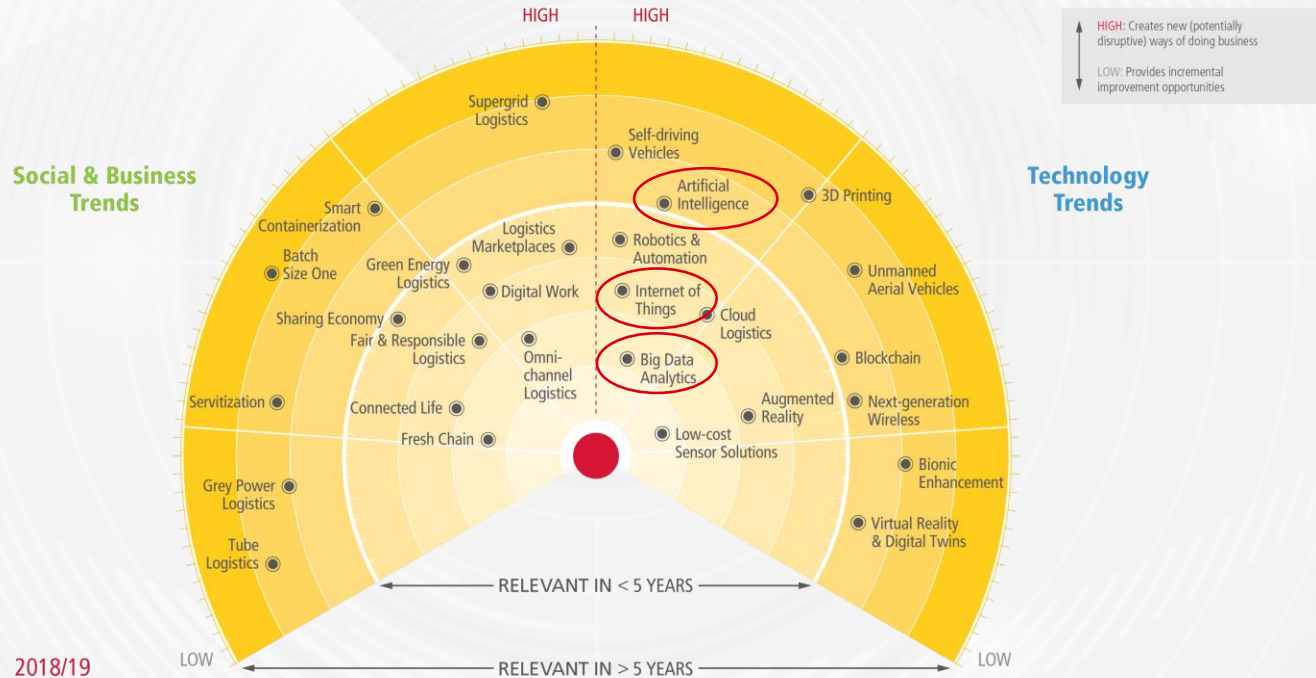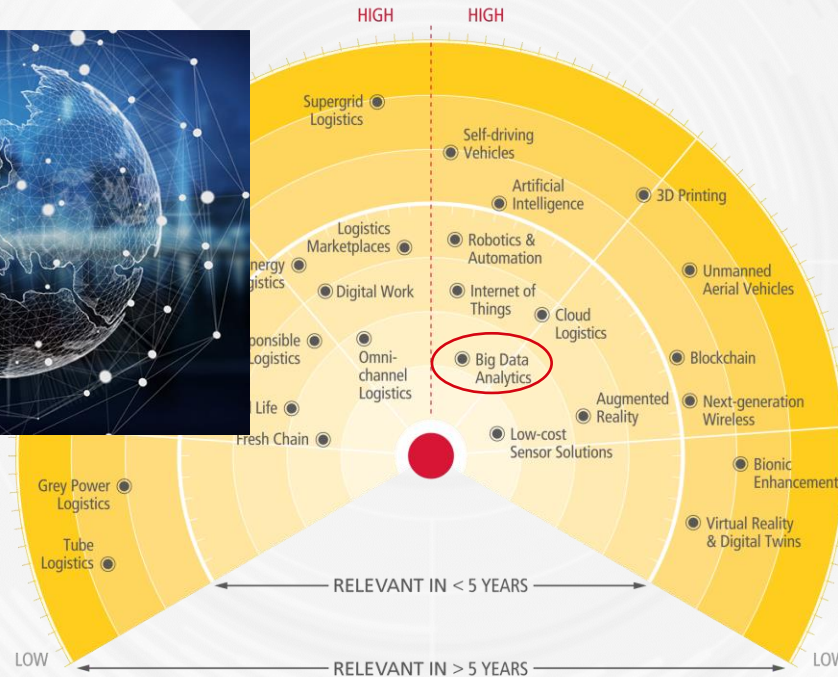3 — Innovation Center Exhibit

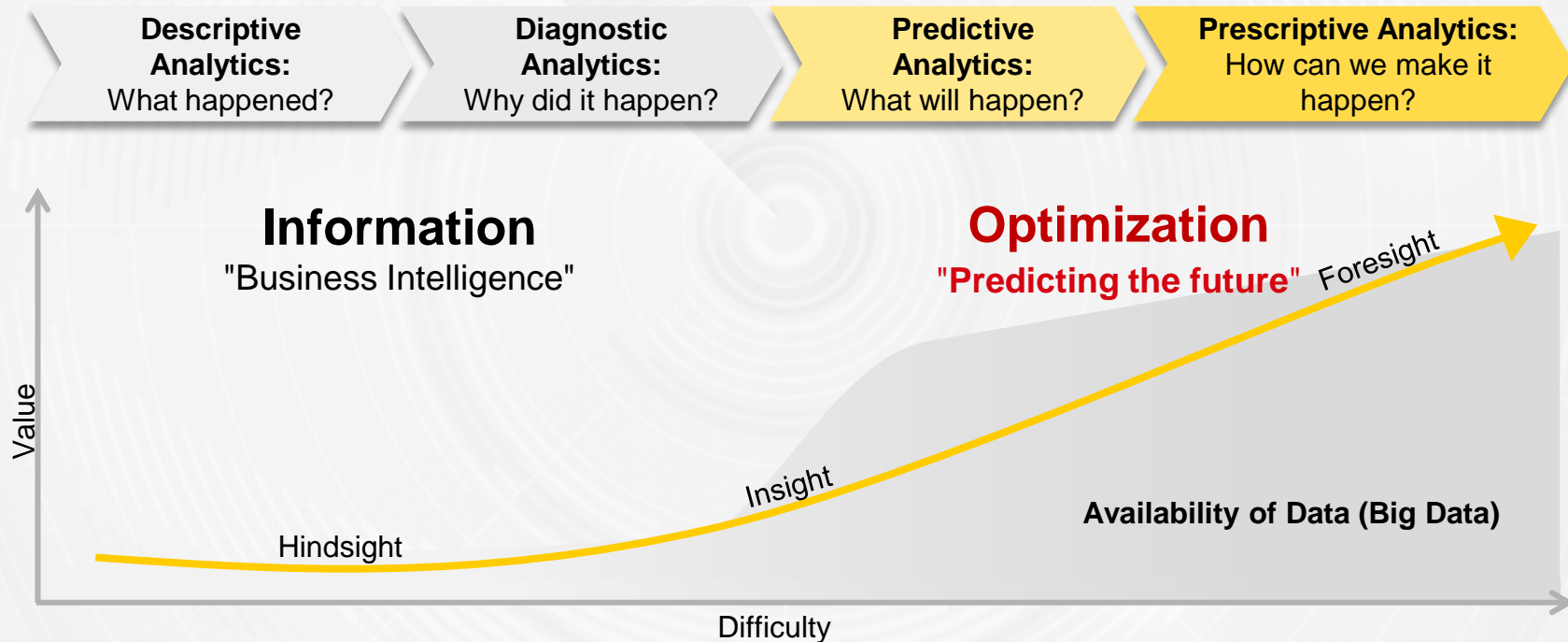4 — Proof of Concept

Commercialization

Initiate Global Accelerators

THE DHL LOGISTICS TREND RADAR 4.0

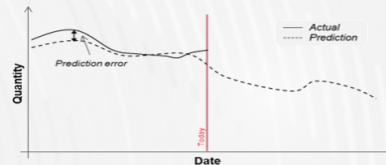# ADVANCED ANALYTICS CAPABILITY
CREATED JUST FOR YOU!

HIGH   HIGH

HIGH: Creates new (potentially disruptive) ways of doing business

LOW: Provides incremental improvement opportunities

Technology Trends

Supergrid Logistics

Self-driving Vehicles

Artificial Intelligence

3D Printing

Logistics Marketplaces

Robotics & Automation

Unmanned Aerial Vehicles

Energy Logistics

Digital Work

Internet of Things

Cloud Logistics

Responsible Logistics

Omni-channel Logistics

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Life

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RELEVANT IN < 5 YEARS

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LOW

RELEVANT IN > 5 YEARS

LOW

VALUE CREATION THROUGH DATA ANALYTICS

Descriptive Analytics: What happened?

Diagnostic Analytics: Why did it happen?

Predictive Analytics: What will happen?

Prescriptive Analytics: How can we make it happen?

Information
"Business Intelligence"

Optimization
"Predicting the future"

Foresight

Insight

Hindsight

Value

Difficulty

Availability of Data (Big Data)

DEMAND & INVENTORY 360 DIAGNOSTIC TOOL

+10% Forecast Accuracy Improvement

€ 4.6M (37%)
Working Capital Savings

23%
Storage Space Reduction

AUTOMATED INSIGHTS GENERATION

10 man days

- 4 man day effort
- 400 lines transformation instructions
- >250k rows excel data to process
- Cannot analyze long periods of past data; Excel limitations
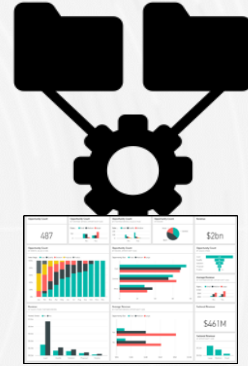
- 5 minute process
- Advanced dashboards for increased visibility across supply chain
- Enable predictive analytics

NEW FOCUS TOPIC – ARTIFICIAL INTELLIGENCE
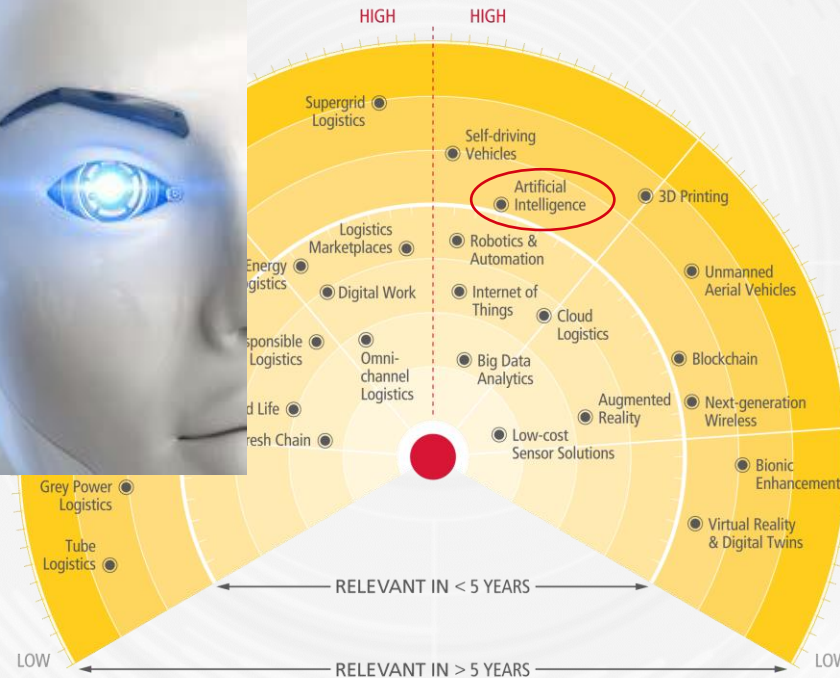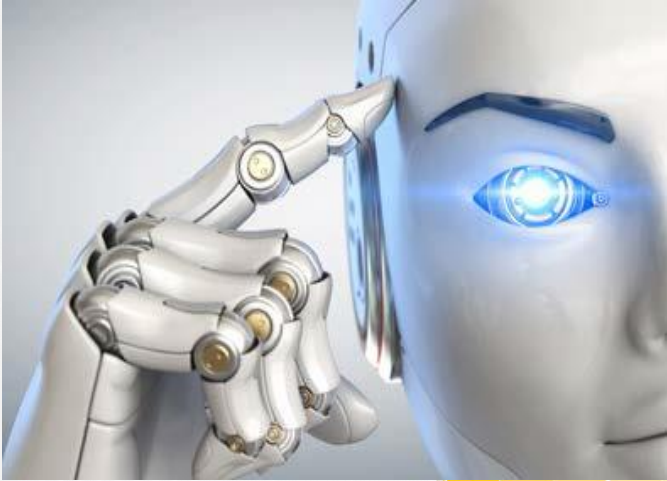
AI IN LOGISTICS:
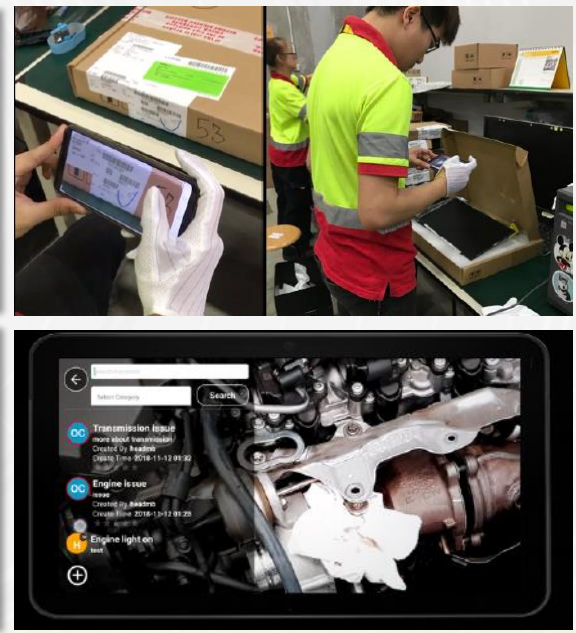# SPEAKING, SEEING & THINKING

Conversational WMS
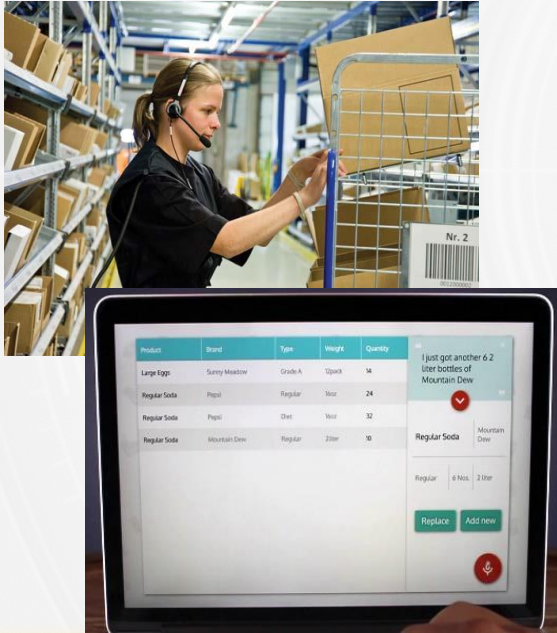
Visual Quality Control
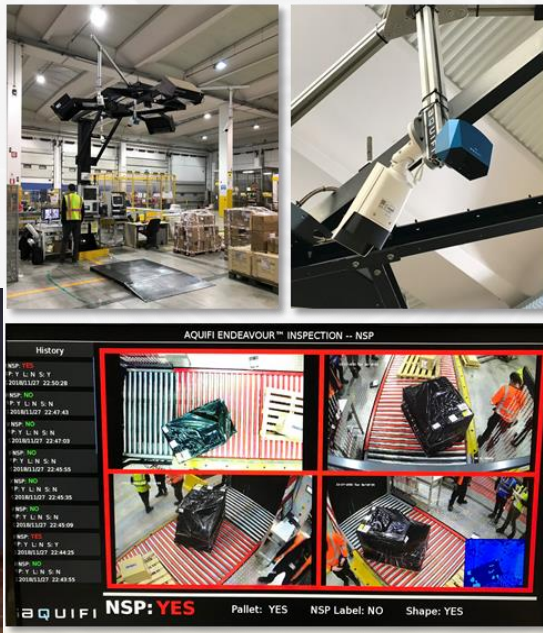
Visual Technical Assistance

VISUAL TECHNICAL ASSISTANCE:
POWERED BY AUGMENTED REALITY

1 Speed
- End to end technical process within single AR powered platform
- Easy onboarding of new staff

2 Consistency
- Higher quality of services across staff
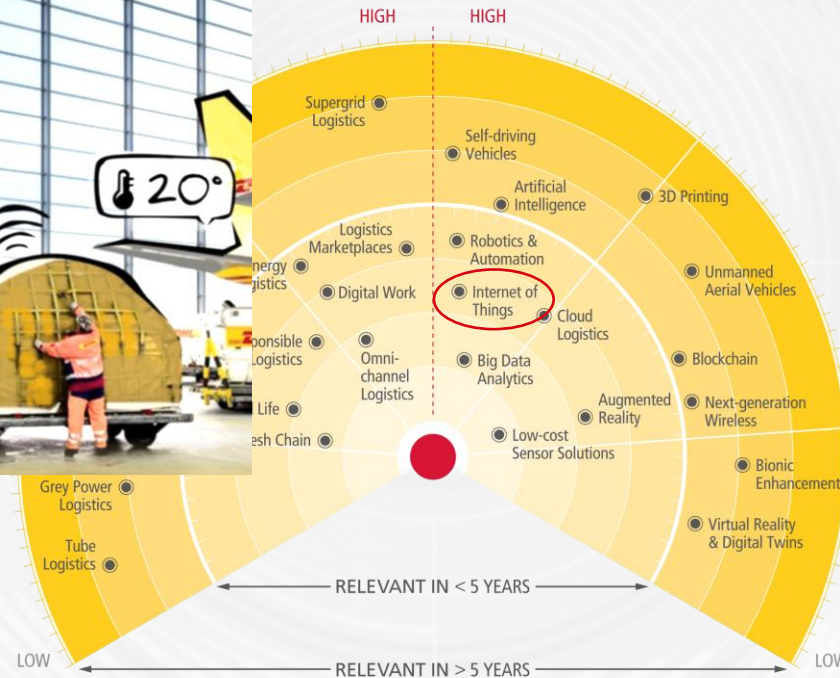- Consistent documentation of jobs

3 Self-Learning
- 3D Image recognition
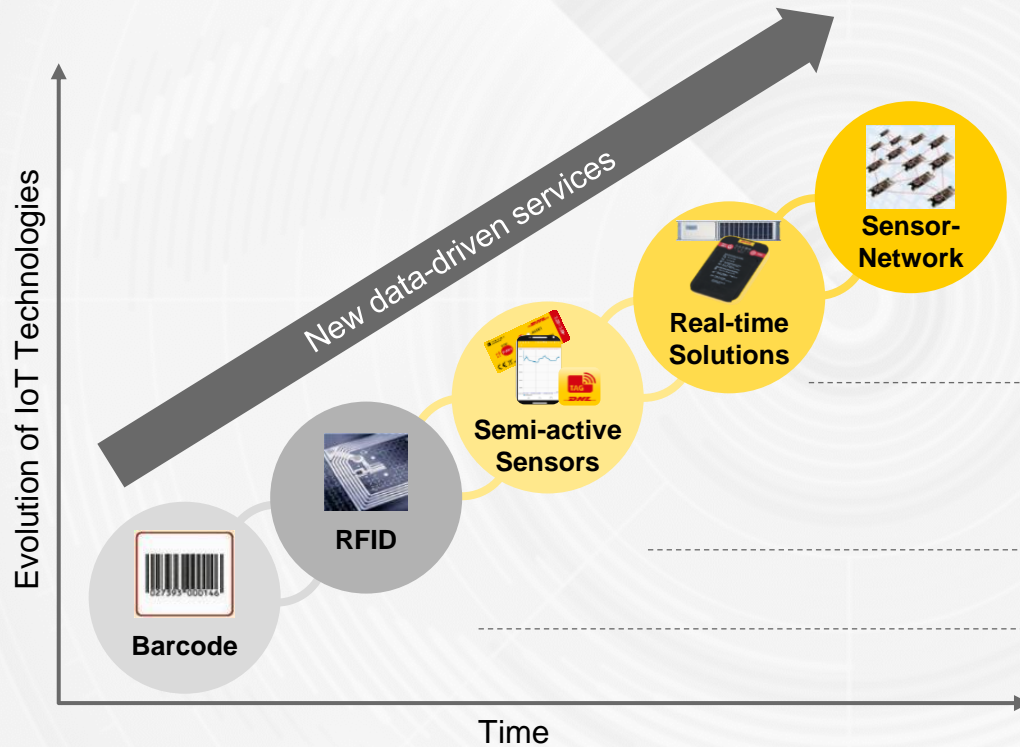- Intelligent troubleshooting

AI IN LOGISTICS: AUTONOMY

NEW ACCELERATOR – INTERNET OF THINGS

NEW DATA-DRIVEN SERVICES

Evolution of IoT Technologies

New data-driven services

- Barcode
- RFID
- Semi-active Sensors
- Real-time Solutions
- Sensor-Network

Time

IoT Solutions @ DPDHL

- DHL Ocean Thermonet: GSM
- Agheera GPS Solar: GSM
- DHL Air Thermonet: NFC/RFID
- Pharma Express: NFC/RFID
- DHL-MyiD: RFID

NEW USER EXPERIENCE WITH BYOD

FROM 2G-ONLY TO 3G-ENABLED TO FUTURE SENSOR NETWORKS

GPS/UMTS/HSPA

NEW Tampering

Temperature

Shock

Humidity

NEW Pressure

Light

NEW Rechargeable Battery

Airplane mode NEW

NEW Motion

Real-time location

RAIL & OCEAN FREIGHT TRACKING FROM EUROPE TO CHINA

General Information

- Client: DHL Global Forwarding – **Pharmaceutical Company**
- Use case: **Ocean Freight**
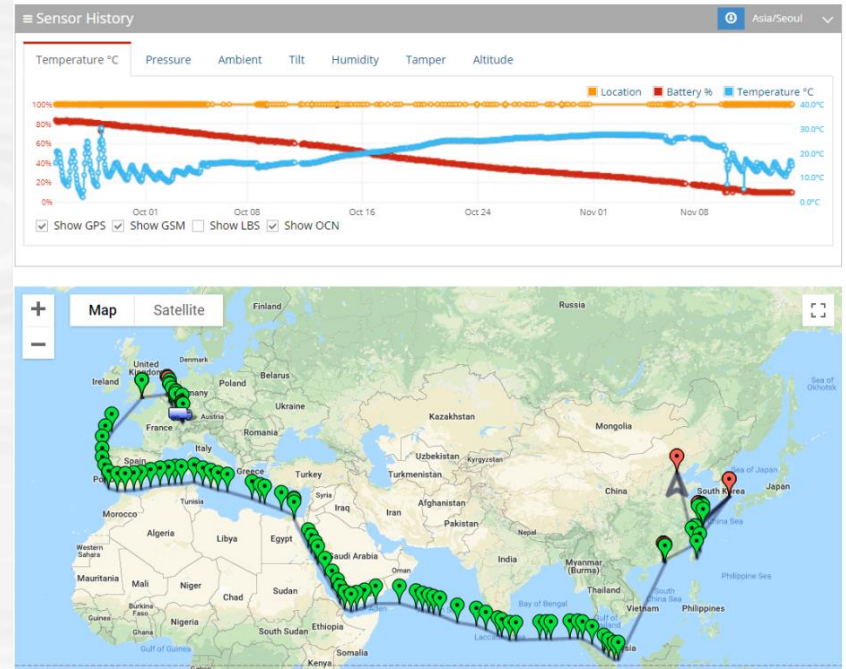- Shipment: **Europe to China**

Objectives

- Objectives**: Multi-Modal** end-to-end **Visibility** and shipment **monitoring**
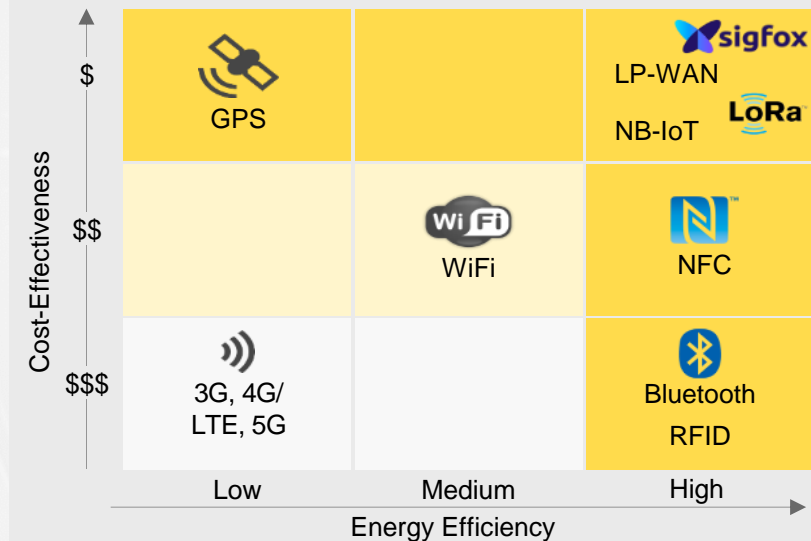- Notifications/alerts: **Waypoints, Temperature** and **delays**

Particularities

Automated **Shipment Creation**, in-transit **tracking** and battery-saving **Ocean Mode**

PROMISING
LOW-POWER-WIDE-AREA-NETWORKS

Overview	Availability

Sigfox
Industrialized nations and (Air)Ports

LORA
Industrialized and emerging markets

NB-IoT
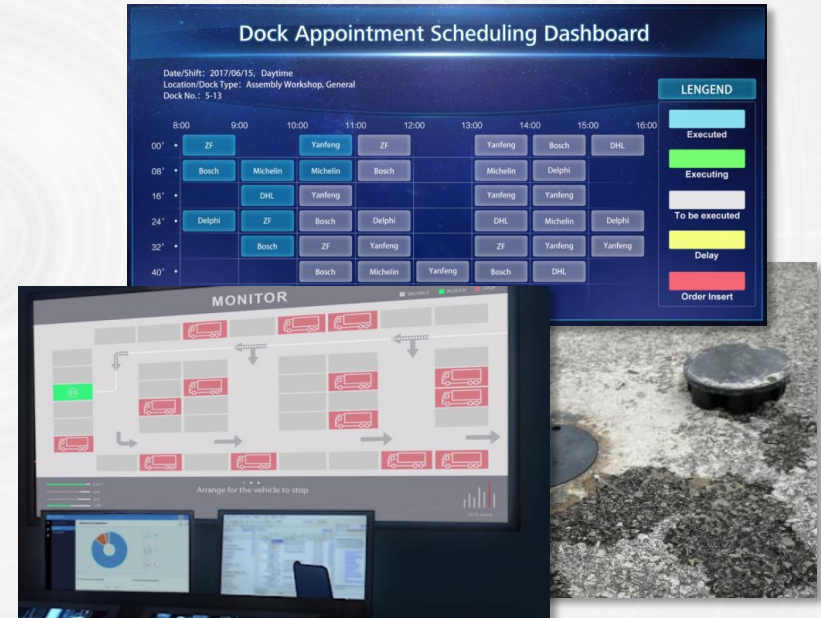*Europe, China and South Africa*

2G/3G/LTE/4G
Global

1) Standard for local and metropolitan area networks

DIGITAL YARD MANAGEMENT IN PARTNERSHIP WITH HUAWEI

Use case:

- Leading car manufacturer plant in China

- Traffic jams and lack of space at the inbound docks

- No visibility on the inbound process for a plant operating on JIT philosophy

OPEN INNOVATION APPROACH

ALL OUR TREND REPORTS ARE AVAILABLE FOR DOWNLOAD:
WWW.DHL.COM/INNOVATION

OUR INNOVATION CENTERS – GLOBAL PRESENCE

We are looking forward to welcoming you

DHL Europe Innovation Center
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53844 Troisdorf-Spich
Germany
eMail: innovationcenter@dhl.com
Phone: +49 (0)2241 1203 490

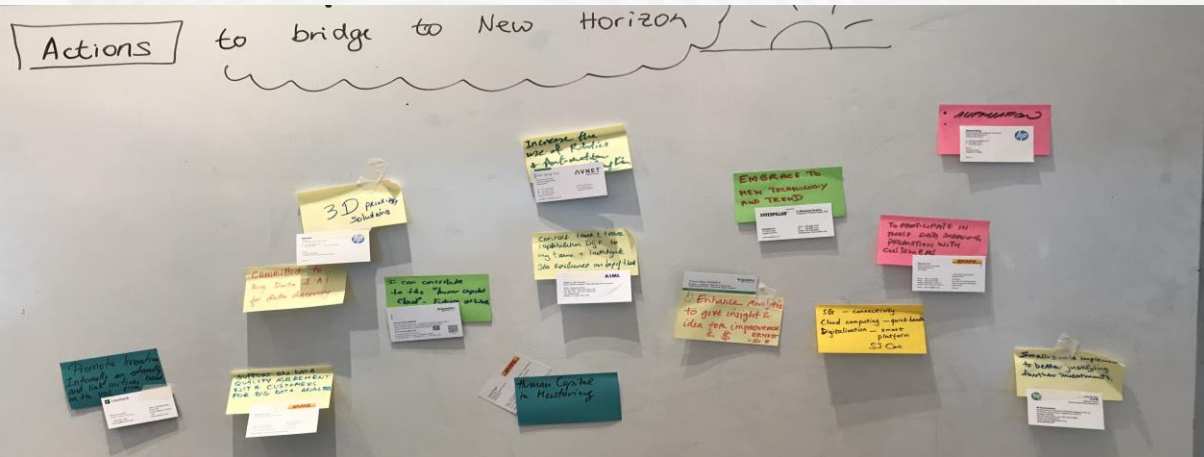**DHL Asia Pacific Innovation Center**
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DHL Americas Innovation Center
Chicago, USA
Opens in September 2019
eMail: amic@dhl.com

BRIDGING TO NEW HORIZONS TOGETHER!