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Vice President
Head of Innovation AP
DHL



DRIVING INNOVATION @ DHL: LOGISTICS TREND RADAR



THE DIGITAL OPPORTUNITY IS HUGE...



TECHNOLOGY

40%

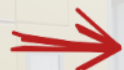
of all data generated
by 2020 will
come from
connected sensors

Frost & Sullivan

**25
Billion**

**Connected
„Things“**
will be used in
2020

Gartner



VALUE

**\$163
Billion**

**Worldwide
IoT
Market by
2020**

IDC

**\$12.4
Billion**

added to the global
GDP by the
„Industrial Internet“
market within the next
20 years

GE



OPPORTUNITY

**25%
Reduction**

in **maintenance
costs** through IoT

U.S. Department of Energy

**133
Million**

Jobs will be created by
2022 by digitalization
and technology
progress

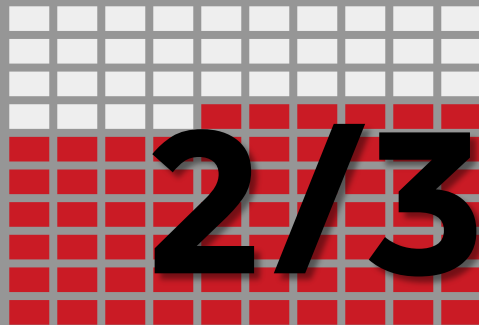
WEF

...BUT WHAT ABOUT **SUPPLY CHAINS?**

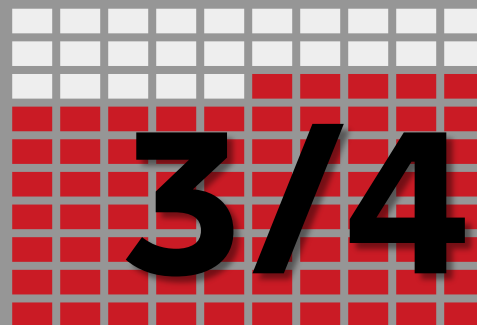
The biggest future impact on revenue and EBIT growth is set to occur through the digitization of Supply Chains.

McKinsey

Revenue growth
through full digitization (10.2%)



EBIT growth
through full digitization (12%)



→ Through **digitization of Supply Chains**

SUPPLY CHAIN OPPORTUNITIES RECOGNIZED BY THE MARKET



48%

Paper-based Air Waybills



80%

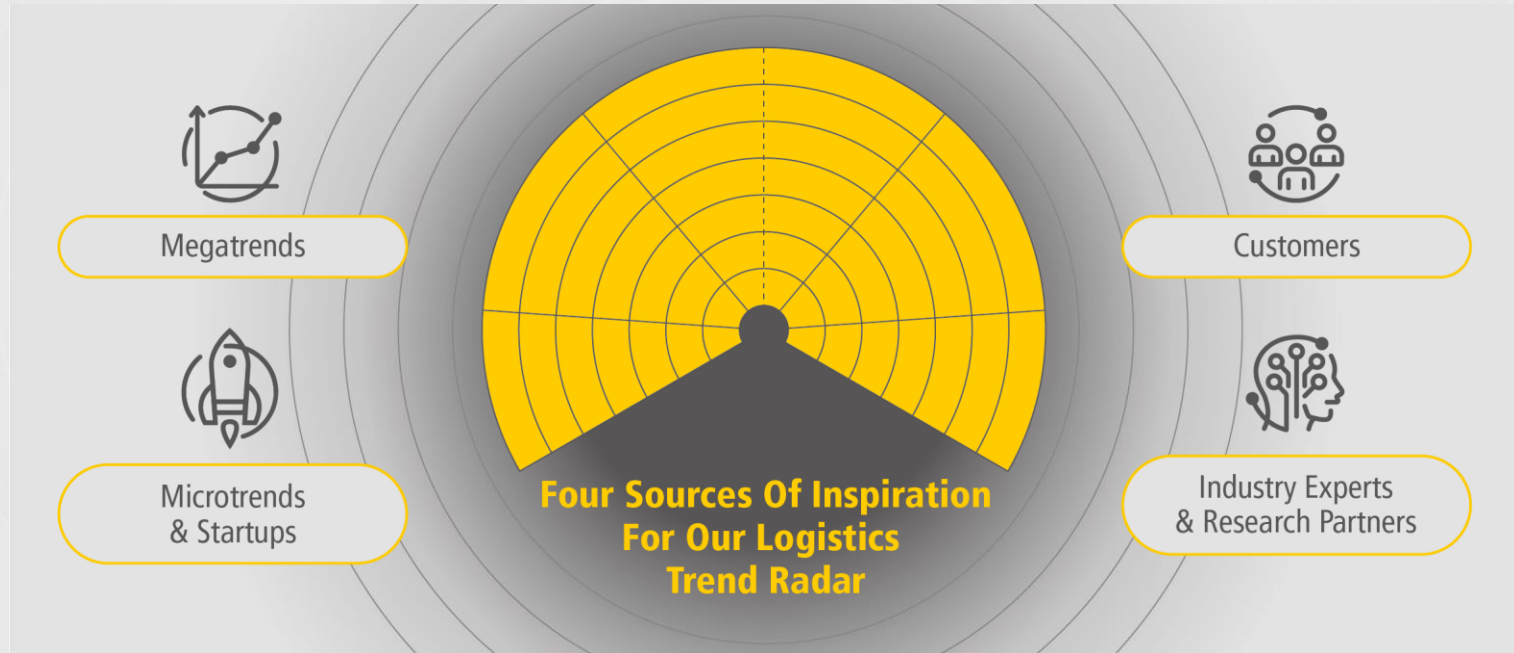
Share of manually
operated warehouses

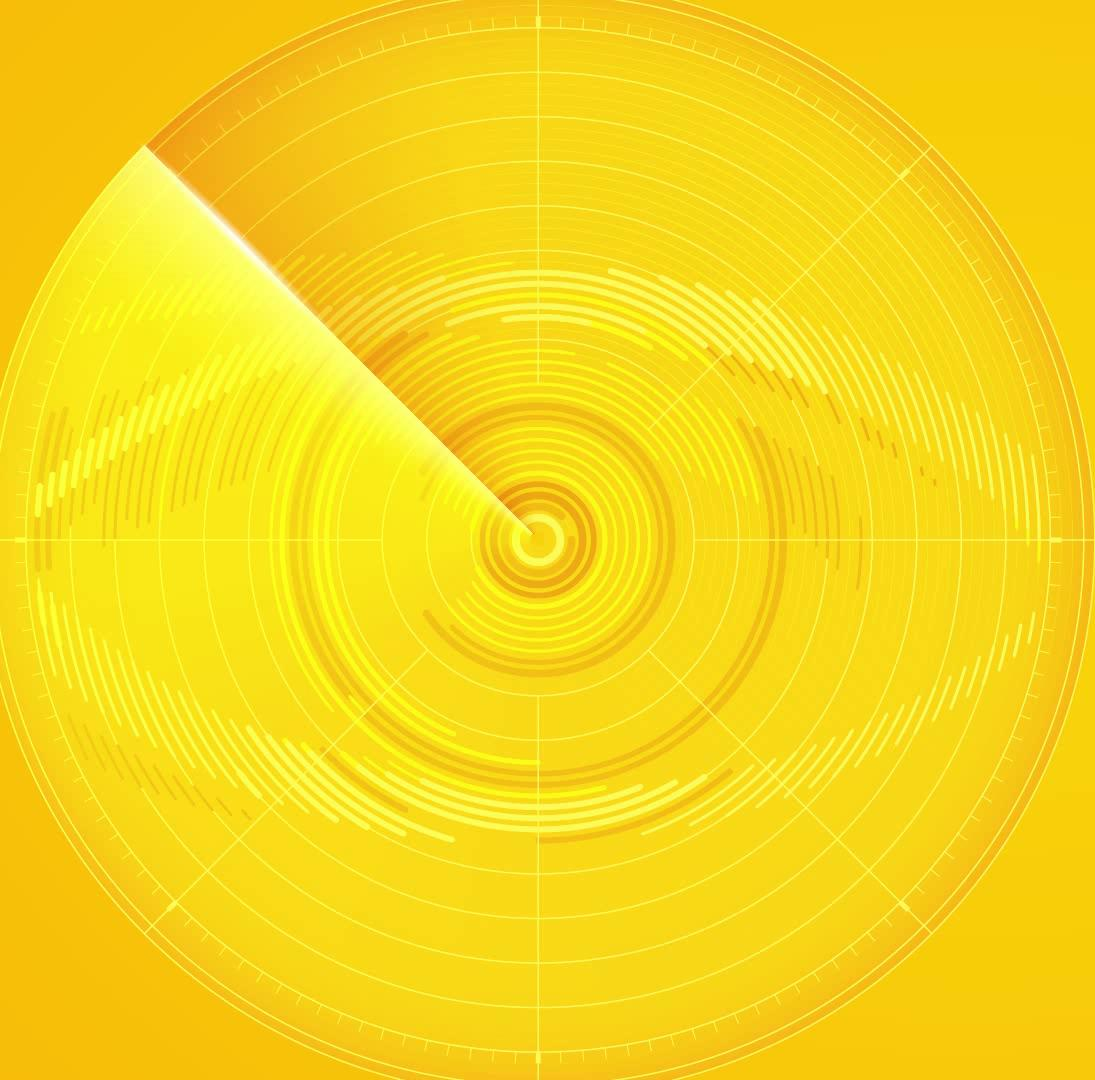


55 yrs

Average age of workers
in Transportation &
Logistics

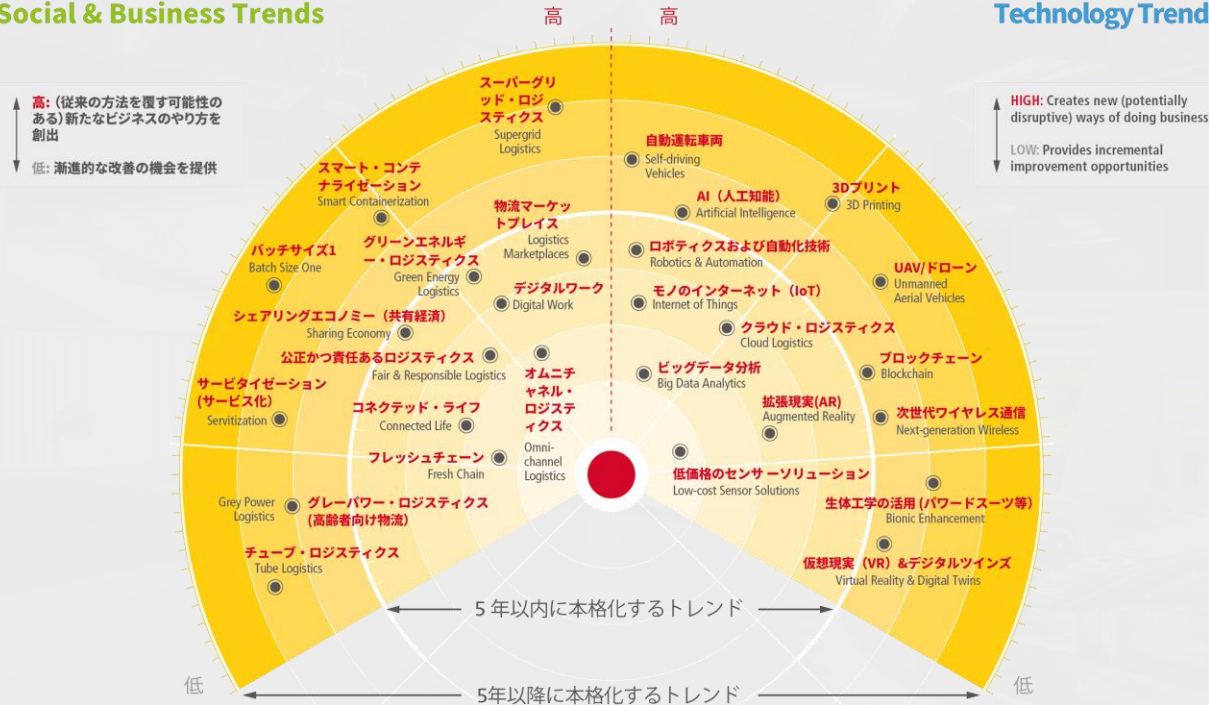
HOW WE IDENTIFY TRENDS?





社会・ビジネスに関するトレンド Social & Business Trends

テクノロジーに関するトレンド Technology Trends



INNOVATION VALUE CHAIN

1

Trend Radar



2

Trend Report



3

Innovation Center Exhibit



4

Proof of Concept



Commercialization



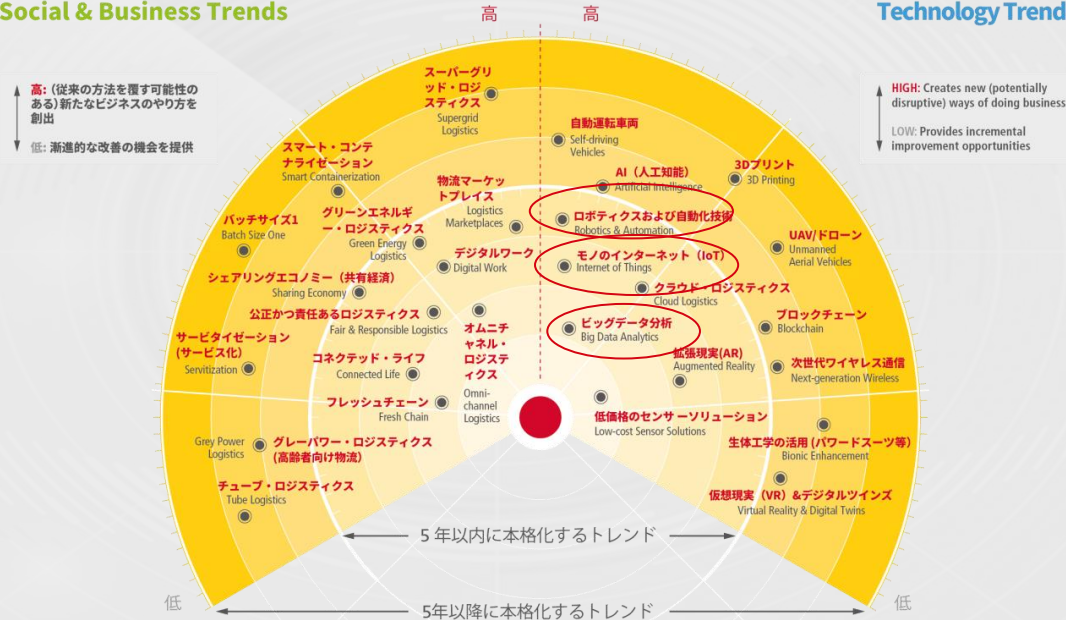
Initiate Global Accelerators



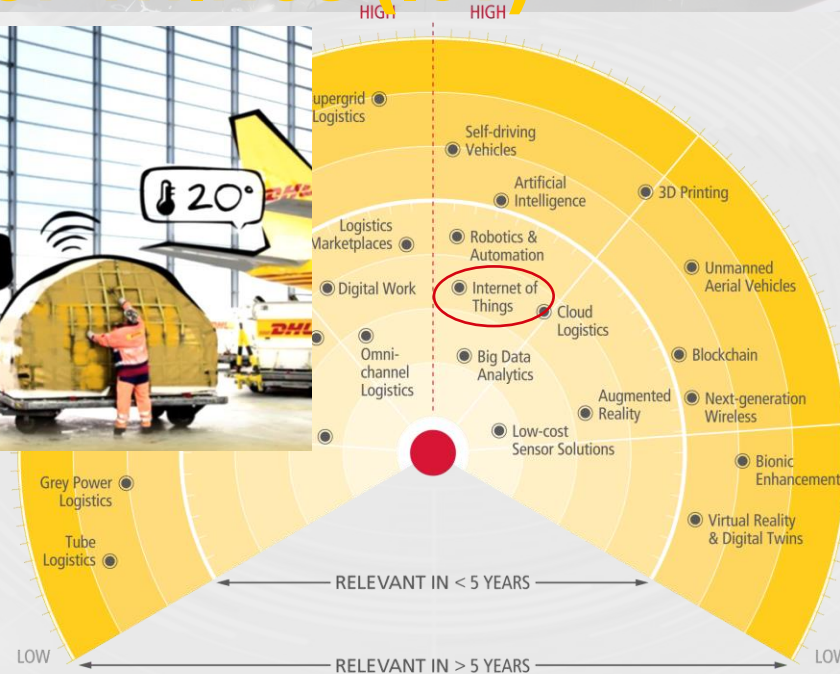
THE DHL LOGISTICS TREND RADAR 4.0

社会・ビジネスに関するトレンド Social & Business Trends

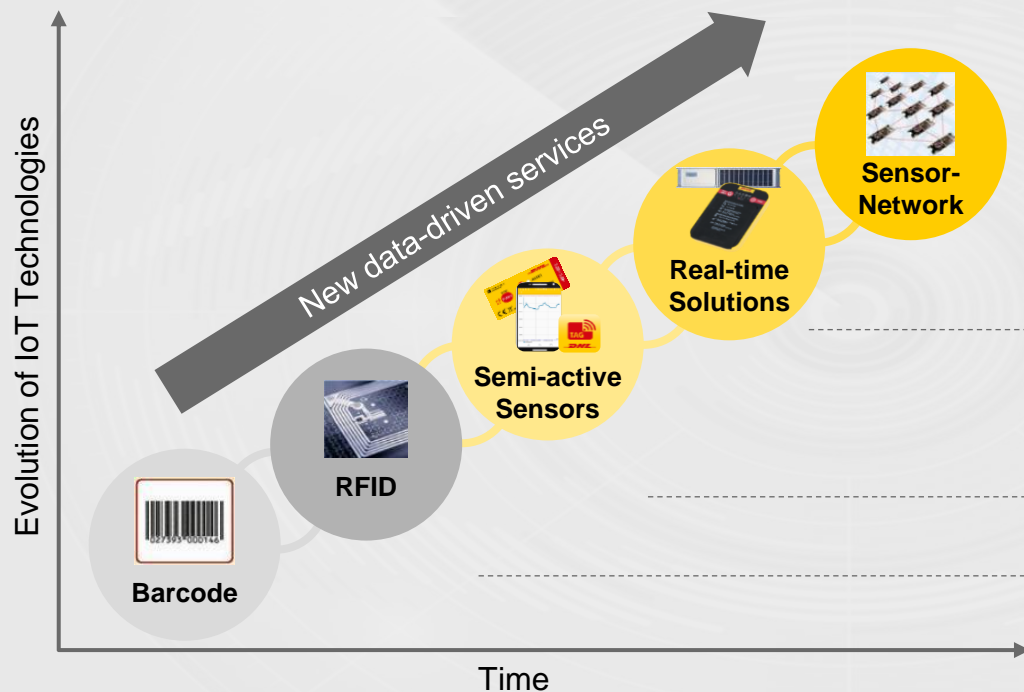
テクノロジーに関するトレンド Technology Trends



NEXT-GEN CONNECTIVITY WITH INTERNET OF THINGS (IoT)



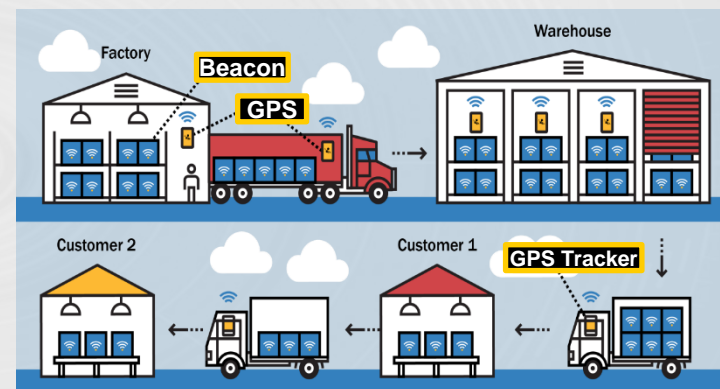
DHL HAS ALREADY STARTED ITS IOT JOURNEY



IoT Solutions @ DPDHL

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

FROM 2G TO 3G TO FUTURE SENSOR NETWORKS

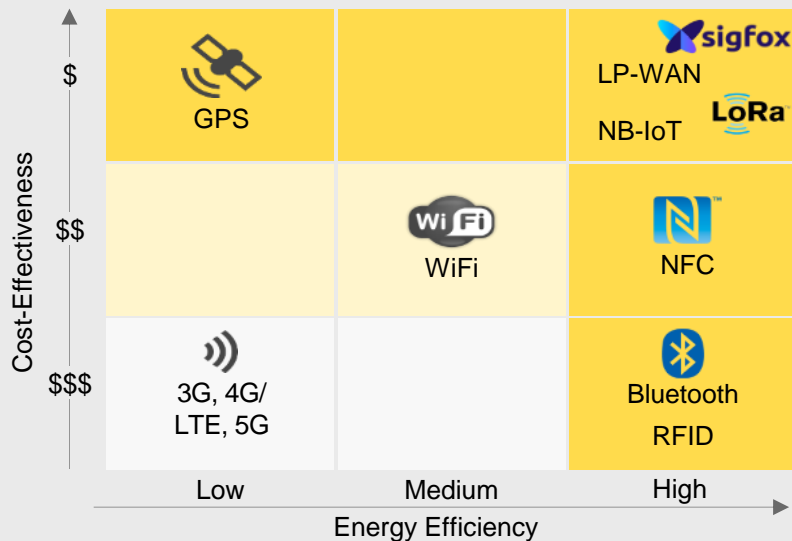


NEW USER **EXPERIENCE** WITH BYOD



EMERGING IOT NETWORKS OPEN NEW POSSIBILITIES

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



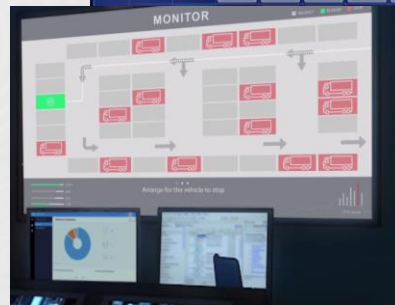
29% increasing in unloading process



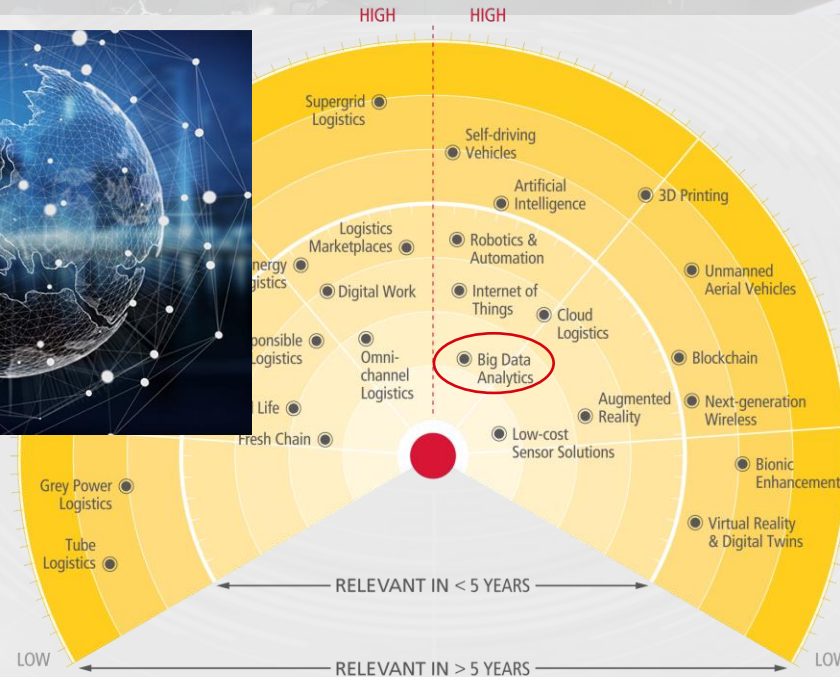
50% reduction in onsite dispatcher input



30% increase in On-time delivery



ADVANCE DATA ANALYTICS JUST FOR YOU



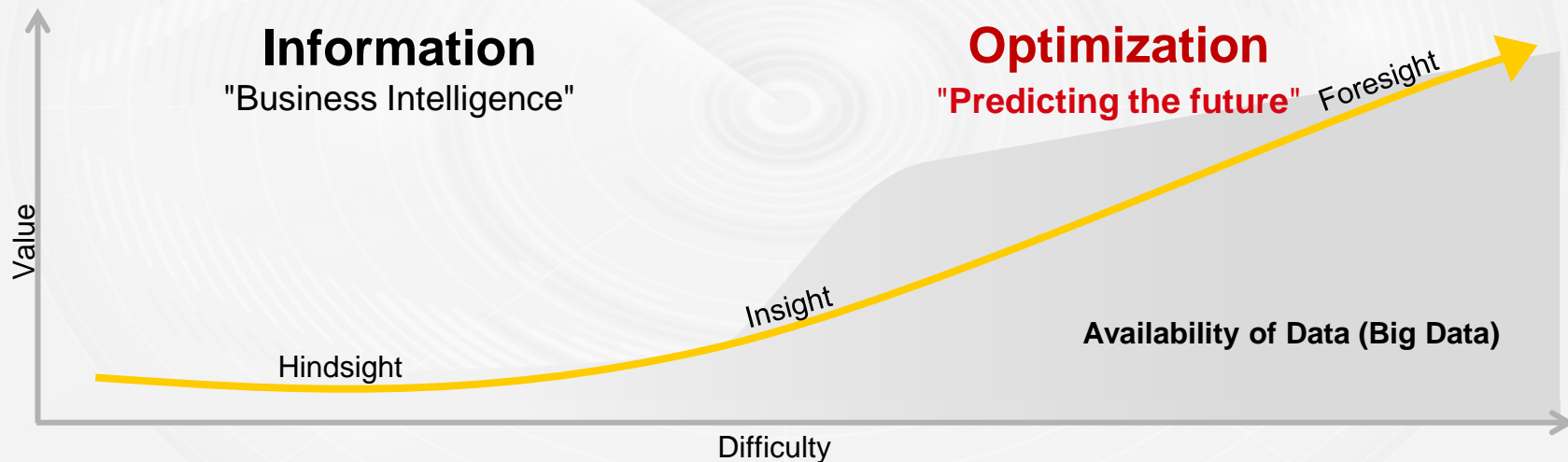
UNLOCKING NEW VALUE WITH DATA ANALYTICS

Descriptive Analytics:
What happened?

Diagnostic Analytics:
Why did it happen?

Predictive Analytics:
What will happen?

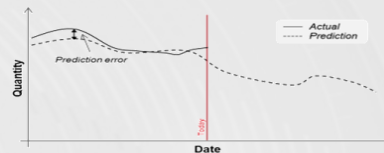
Prescriptive Analytics:
How can we make it happen?



DEMAND PREDICTION AT THE CUSTOMER LEVEL TO DRIVE FILL-RATE



+10% Forecast
Accuracy Improvement



						
Name	Home Brew	20 Litre	Pony Keg	Slim 30	Import / Micro	Full Keg
Dimensions	23"h x 9"w	24"h x 10"w	14"h x 17"w	24"h x 12"w	21"h x 17"w	24"h x 17"w
Litres	18 Litres	20 Litres	30 Litres	30 Litres	50 Litres	58.7 Litres
Imp. Oz	634 oz	704 oz	1056 oz	1056 oz	1760 oz	2065 oz
Weight	49 lbs	58 lbs	87 lbs	82 lbs	139 lbs	161 lbs
Height with Coupler	29"	30"	20"	30"	26"	30"

€ 4.6M (37%)

Working Capital Savings

23%

Storage Space Reduction

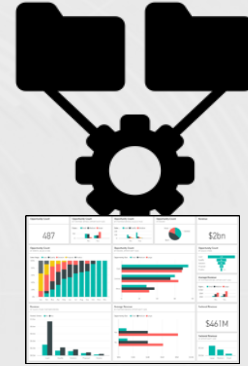


AUTOMATED INSIGHTS GENERATION

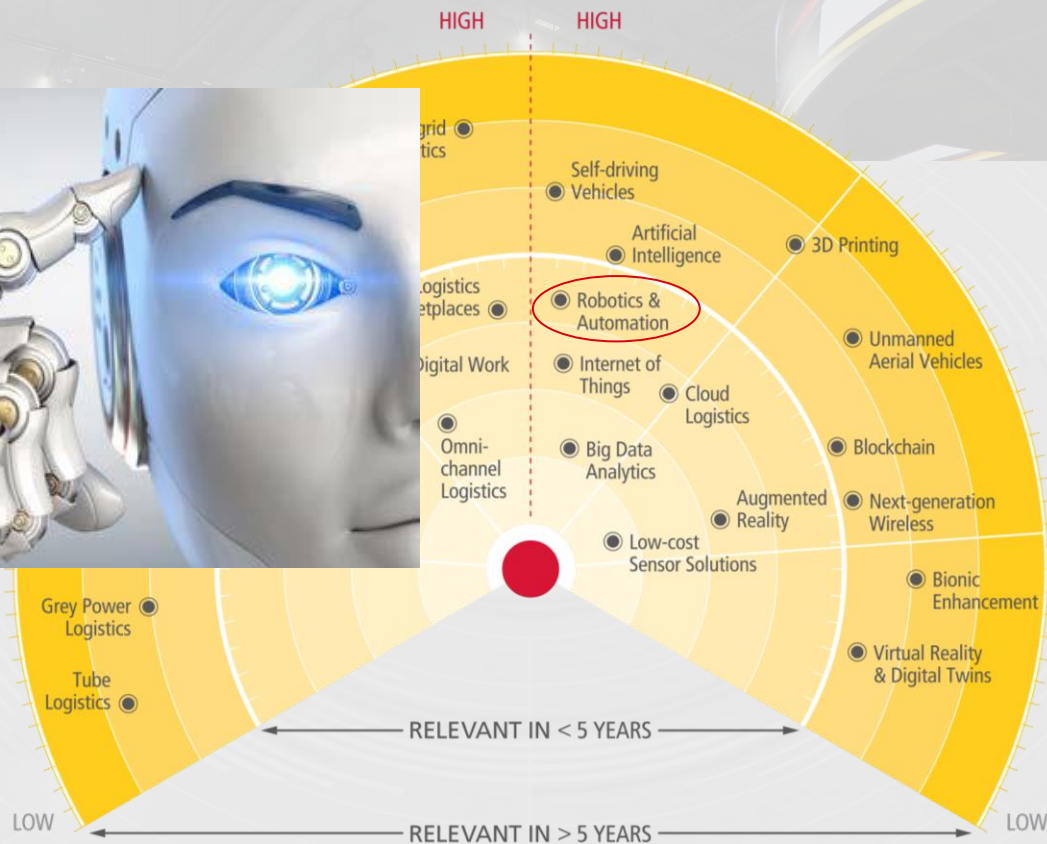
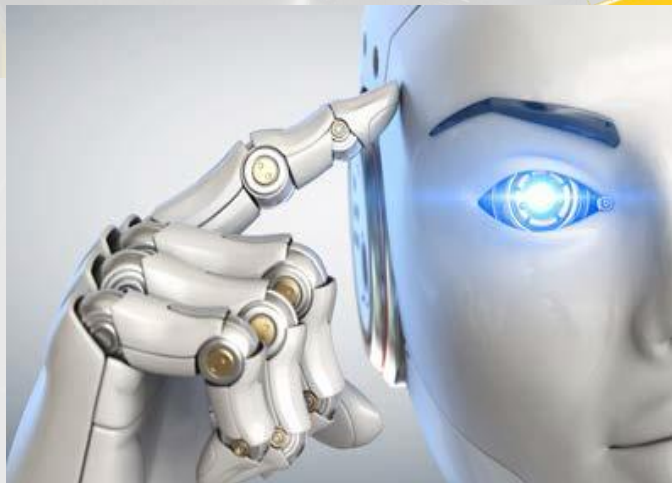


10 man
days

- 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

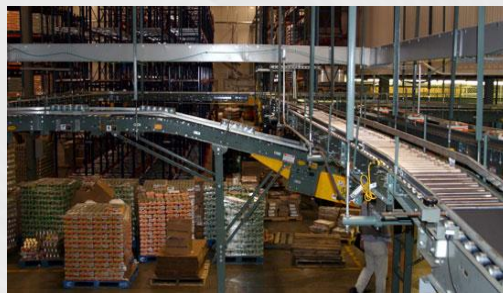


WHY **ROBOTICS** IN LOGISTICS?

80%
manual



15%
mechanized



5%
automated



AUGEMENTING THE WORKFORCE: CO-BOTS



ROBOTICS IN **LAST MILE**

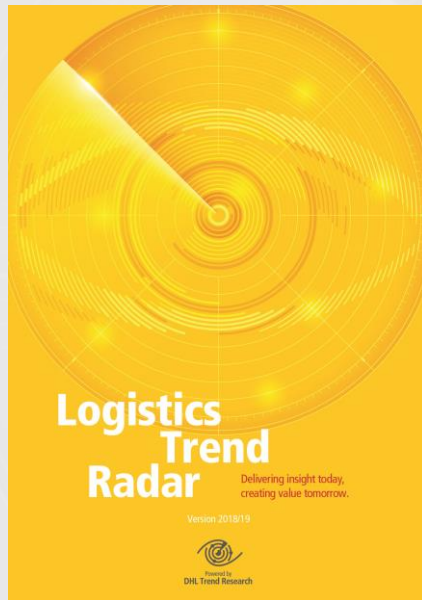


ROBOTICS AND AI: **AUTONOMY** IN LOGISTICS



DHL LOGISTICS TREND REPORTS

[dhl.com/innovation](https://www.dhl.com/innovation)



GLOBAL ECOSYSTEM AND EARLY ENGAGEMENT

