

FORWARD-THINKING, INTELLIGENT HEALTHCARE



SECTOR DEVELOPMENTS SUPPORTING THE DHL HEALTHCARE SYSTEM

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The background of the slide features a futuristic medical theme. It includes a close-up of a person's hand interacting with a transparent digital interface. The interface displays various medical icons: a brain scan, a network of nodes, and several human head profiles with internal glowing elements. The overall aesthetic is high-tech and clinical, with a blue and white color palette.

DHL Global Life Sciences & Healthcare Conference
2019, June 17-19, Miami

FORWARD-THINKING, INTELLIGENT HEALTHCARE



DHL

ACCELERATING MARKET DYNAMICS

Global Health

Global Spending

+2.9%  **+5.4%**
2013-2017 CAGR 2018-2024 CAGR

Spending per Person

 US **11,674 USD**
 Pakistan **54 USD**

Life Expectancy

2000 2016 2022

66.5 72.0 74.4

Life Expectancy in the US is 78.7,
but dropped in the last 3 years

Pharmaceutical 2024: **1,204bn**

Global Spending Prescriptions

+1.2%  **+6.4%**
2011-2017 CAGR 2018-2024 CAGR

Country 2018-2022 CAGR

 **+5.4%**  **+4.0%**  **+8.7%**  **+3.6%**

R&D Spending 2018

 **177bn**

R&D returns
declined to 1.9%
(2010: 10.1%)

Orphan Drugs in 2024

x2 20%

Double spending
and 20% of total
pharma market

Medical Devices 2024: **595bn**

Global Spending

2017-2024
CAGR **+5.6%**

Neurology **+9.1%**
Diabetes Care **+7.8%**
...
Diagnostic Imaging **+3.7%**

R&D Spending

2024: 39bn

6.5% of sales

MARKETS IN TRANSFORMATION

**CAR-T Cell Therapy Market
expected at USD 2.99
Billion by 2026**



**Digital health firms prepare
for multi-billion dollar IPOs**



**Cost pressure drives
uncertainties on future
healthcare systems**



**'Meet PillPack': Amazon
rolls out Rx delivery direct
marketing**



**M&A are preferred growth
vehicle for 44% of healthcare
executives in 2019**



**Changing Regulation and
Global Trade – Directives,
BREXIT and Tariffs**



SUPPLY CHAIN HOT TOPICS

2018		
1	Temperature Control/Cold Chain	
2	Digitalization of SC / Data Analytics	+1
3	Cost Efficiency	-1
4	New Technologies in Supply Chain	+2
5	Network Optimization/ DC Consolidation	-1
6	Serialization	+1
7	Regulation/ Compliance	+3
8	Transport Mode Optimization/ A2O	-3
9	Supply Chain Transformation via LLP	-1
10	Supply Chain Resilience	New

Source: Industry Survey LS&HC Conference 2018



GLOBAL TRADE BAROMETER



Overall GTB index for **global trade** falls by -7 points to 49 compared to March, **signaling moderate decline**

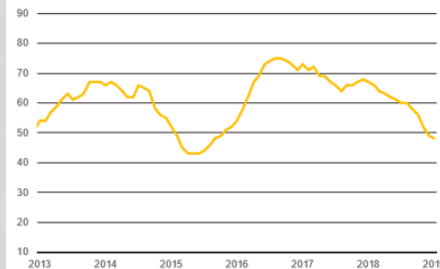


Outlook for **global air trade** is **sluggish**, dropping by -5 to 50 points



World **ocean trade** **slowing down**, reflected in an index value of 49, a decrease by -7

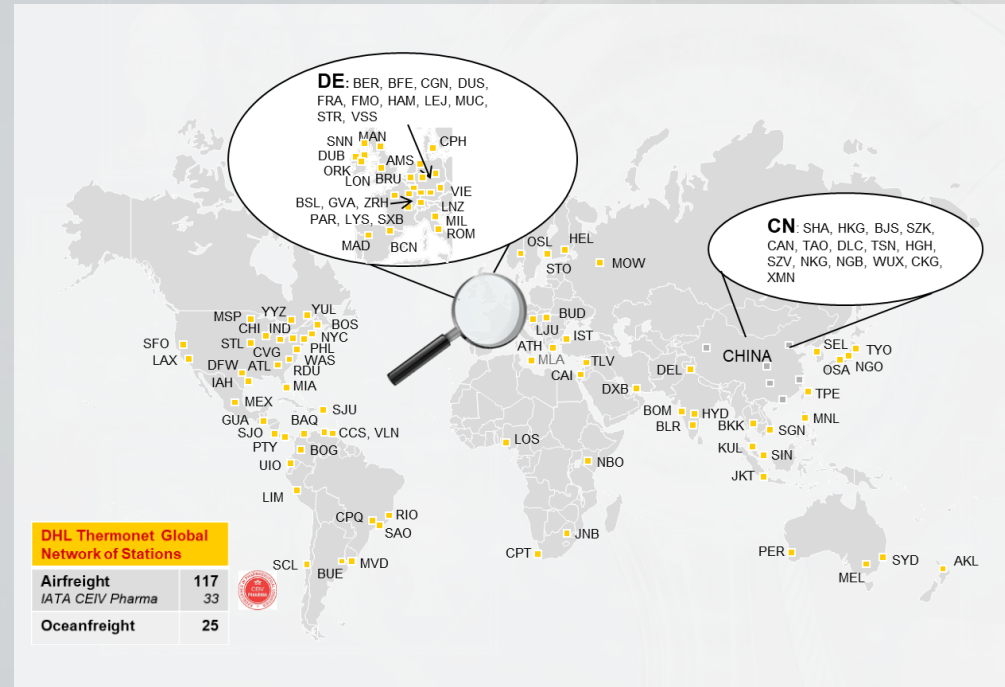
DHL Global Trade Barometer – World
Index 2013 – present, 50 = no change



DHL Global Trade Barometer – World
Indexes – latest three months

	Mar'19	Apr'19	May'19
World Trade	56	52	49
Air Trade	55	51	50
Ocean Trade	56	52	49

DHL THERMONET STATIONS



FRANKFURT – APRIL 2019

GDP / CEIV

2,470 m²

+15°C up to +25°C

+2°C up to 8°C

VIENNA – MAY 2019

DHL Campus for
Air & Road Freight

1,200 m² space
dedicated for LSH

NEXT: INDIANAPOLIS Q3 2019



TRANSFORM BIG DATA INTO INTELLIGENCE

Big Data

- IoT
- Trade Lane Risk
- Temperature
- Packaging specifics
- Weather



Intelligence

- Mobile & Web data Visualization
- One Source for Collaboration
- Trend analysis and Predictions



Customer Case



Problem: Cost/quality analysis of temp-controlled packaging options

Solution: Active to passive packaging based on risk analysis

Outcome: Cost savings(+1M), improve supply chain visibility

RESEARCH & DEVELOPMENT LOGISTICS

Clinical Trials

2026: **68.9bn** **+5.7%**
CAGR

- Globalization of Clinical Trials
- New Personalized Treatments
- Digitalization of R&D processes

CLINICAL TRIALS LOGISTICS OUR WORLD CLASS DEPOT NETWORK Powered by iNEBU



Unrivalled global network with 27 GMP graded strategically located depots dedicated to Clinical Trials

Continuous investment in Clinical Trials solutions

- Medical Express Re-usable Packaging
- Refrigerator installations in Asia Pacific
- Network Expansion Brazil and Mexico to the US
- Preconditioned TCP at key DHL Same Day locations

LSH WAREHOUSING INVESTMENTS US

Expanding Capabilities

- Opening of nine new multi-client facilities in the US
- Pharma, Clinical Trials and Medical Device distribution and packaging services

Manchester, PA (Aug 2019)



- 1,000,000 sq. ft
- Multi-Client Distribution Center

● Dedicated ● Multi-client ● Clinical Trials ✦ 9 New Locations (2019)

Regulatory Compliance

- GMP, VAWD, FDA, DEA
- ISO9001:2008
- PHARMA, Haz Mat
- ISO13485:2003, State & local licenses

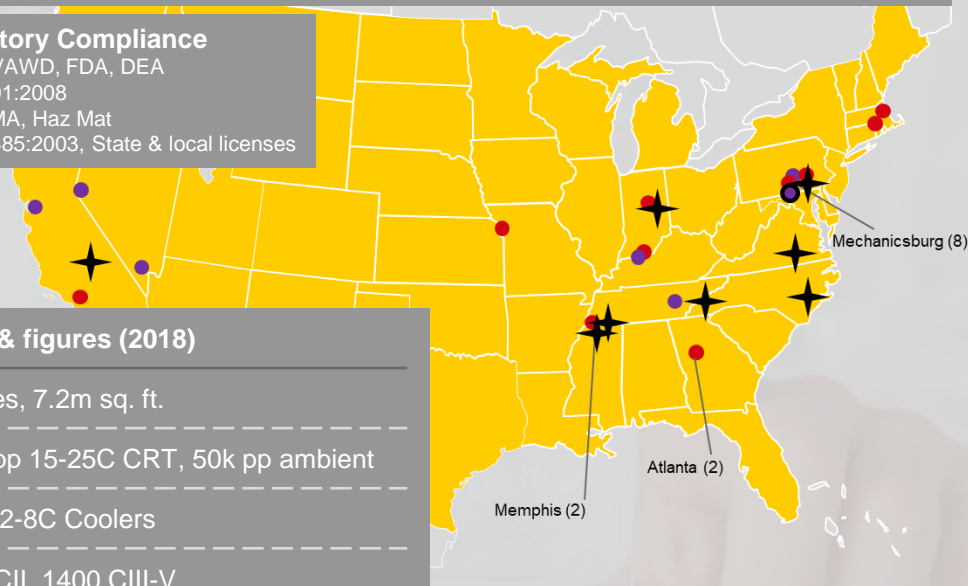
Facts & figures (2018)

28 sites, 7.2m sq. ft.

600k pp 15-25C CRT, 50k pp ambient

8k pp 2-8C Coolers

1900 CII, 1400 CIII-V



DIRECT TO HOSPITAL / PATIENT

LSH Campus Nijmegen,NL



300
FTE



55,000 sq.m.
Warehouse



20
Loading docks



-80°C, -40°C, -20°C,
2-8°C, 15-25°



50,000+
Pallet positions

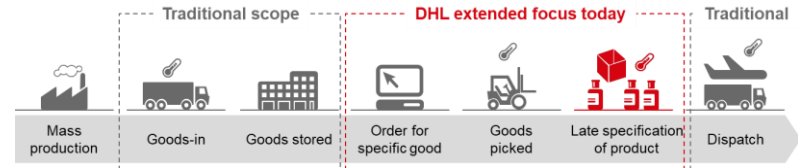
- Warehousing & Distribution
- Order To Cash Services
- Secondary Packaging & Labelling
- Shared GMP Area
- Cell & Gene Therapy operations
- Cryogenic Warehousing
- Clinical Trials Logistics

Case: Secondary Packaging



Orphan Drug Postponement solution

- Manufacturing of final presentations
- Regional distribution towards hospitals across EMEA & Export markets

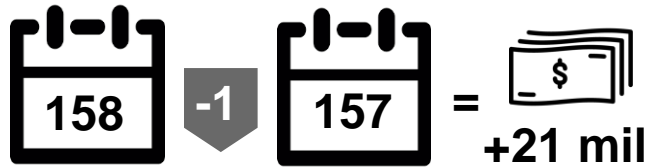


MEDICAL DEVICES

Common industry challenges

- Low visibility on stock levels and high inventories
- Leading companies with 116-185 days in inventory (Tech: 6-9 days)

Case Example: Reduction Days in Inventory by one generates **21.2 mil USD in cash flow**

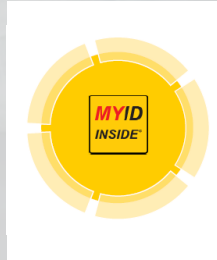


Device Final Mile



- Consignment stock from hospital to central FSL
- Reduced field inventory and waste

MYiIDENTIFICATION

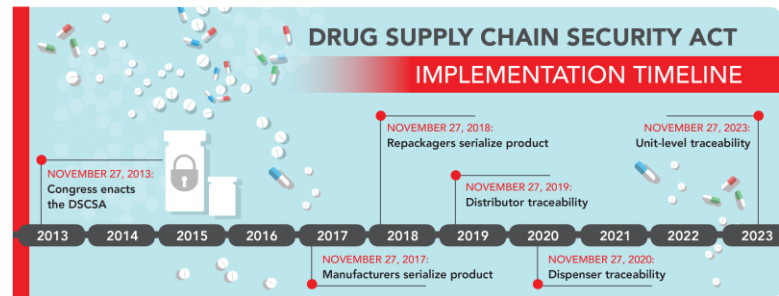


- Digital asset and patient management
- Tracking and real-time visualization of medical device kits and hospital equipment

SERIALIZATION

Preparing your Supply Chain

- EU Falsified Medicine Directive fully applied in Feb 2019
- DSCSA implementation in multiple steps until 2023
- DHL Serialization Platform launched to ensure supply chain compliance
- Leveraging lessons learned from Europe for US implementation



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VISIBILITY & RISK MANAGEMENT

RESILIENCE360

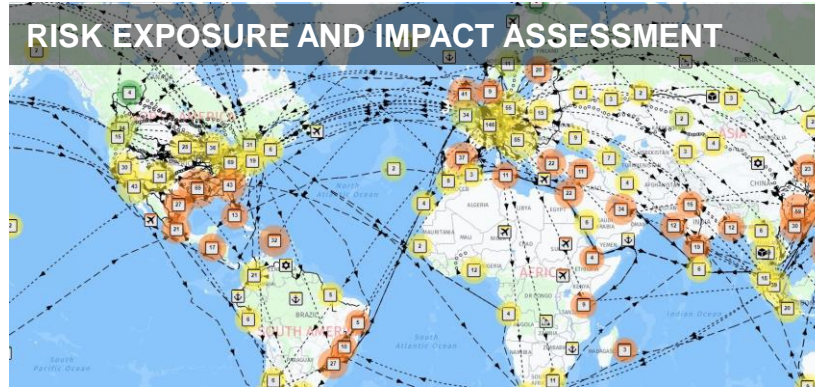
CASE: BIOTECH CUSTOMER

Simplifying enterprise wide supply chain risk management

Objective:

Lower the Supplier Risk Rating through Enterprise Solution

- 19 business units
- 200+ sites
- 16,000+ suppliers



Supply Chain Risk Assessment



Transparency Portal



Enhanced Analytics



Incident Monitoring

DIGITALIZATION & INNOVATION

IoT & Sensors

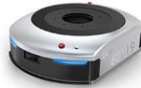


- SmartSensor NFC Technology
- New gen of passive temperature loggers
- Test it: „Control your ambient temperature“

Warehouse of the Future



Assisted Picking Robotics



Goods To Person Robots



Wearable Devices



Vision Picking

Workforce of the Future



- Changing expectations
- New skills required
- New roles arising
- Labor shortage

ZERO EMISSIONS 2050



By 2025 ...

...increase our **carbon efficiency** by **50%** over 2007 levels

... deliver **70%** of our own **first and last mile** services with clean pick-up & delivery solutions.

> **50%** of our **sales** will incorporate Green Solutions
>**80%** of our employees to become certified **GoGreen**



TRAILAR

- Solar technology to harvest energy for power tail lift and ancillary equipment
- Reduction in carbon emission and fuel consumption by 5%

