FATHI TLATLI

- President, Global Auto-Mobility Sector,
- DHL Customer Solutions & Innovation

Powering the future of Auto-Mobility Logistics





AUTO-MOBILITY

As part of a fast changing world

Sustainable Development





Product Innovation

Continued Globalization



Process Optimization



Digitalization





Business Models evolutions



PRODUCT INNOVATION

Requires adapted Logistics solutions & set-ups



170 (1)

Automotive R&D and Design Centers in Turkey



New suppliers and products entering the Auto-Mobility supply chain



Electrified vehicles



The challenges of Lithium Batteries management 29%(2)

of the vehicles sold in Turkey will be **electrified by**2030

Autonomous driving and connectivity

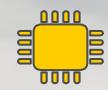


The future of both
Automotive and logistics
industries

Local Autonomous Vehicle starts testing in **Istanbul** in **July 2019** (3)



BATTERY LOGISTICS





The challenge of Lithium batteries management

1 Battery Cell/Pack Manufacturing **2** EV Manufacturing & Aftersales **3** Battery End-of-Life Cell manufacturing RM/SRM suppliers Battery pack assembly Production warehouse EV assembly Dealers Battery dismantling Battery disposal Products in transit: Test & repair center Raw materials Aftermarket warehouse New batteries Pack return = ◆ Battery return Battery cells/packs Cell return -End-of-life Use/damaged batteries, end-of-life (FoI) Materials recovery

Sourcing Challenge

More than

Battery cells produced in **China and Korea**





Complex and Inconsistent Regulations

Product characteristics

Heavy

More than 300kg



Up to 50+% of an EV price

Societal challenges

Finite ressources require recycling (e.g. Cobalt)



DHL & FORMULA-E



Leveraging real life expericence to develop innovative solutions



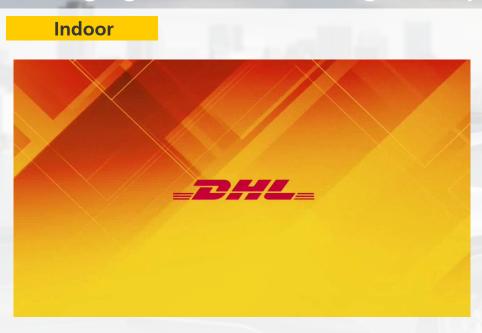




AUTONOMOUS DRIVING

Bringing efficiencies to Logistics operations









PROCESSES OPTIMIZATION

Benefits both automotives companies and logistics

providers





Leverage technology to gain insights and improve reactivity

o different



Turkey's **Vehicle Exports** grew at **16% CAGR** from 20012017 (1)



Inbound process automation



Enabling lean & Just in time assembly strategies

Burn less, burn clean



Reduce environmental footprint through clean transport and waste reduction

\$2-\$3 billion annual investment to integrate industry 4.0 solutions into the manufacturing

process (2)

Government aim: produce 30% of the country's electricity demand from renewable energy

sources (3)



END TO END VISIBILITY

Benefits both automotives companies and log

Shipment

Visibility

Incident

Monitoring



Collaboration

Center



Transparency

Portal

Analytics

RFSILIENCE360

VISUALIZE MONITOR ANALYZE MITIGATE Visualize Track Collect Act Manage Locate Locate Detect Assess Supplier on Real Supply Partner Supply Product Shipment Events Risk Chains Distress Insights Chains Data Where are Where are Where is our What's Are my Am I How What should How do we we? stuff? going on? partners OK? exposed? prepared we do? solve the mγ materials? are they? problem?

Supply

Watch

Risk

Assessment



Network

Visualization

Bill of

Materials

END TO END VISIBILITY

Benefits both automotives companies and logistics provider

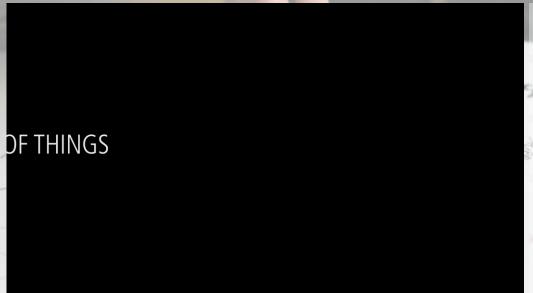




CONNECTED INBOUND SOLUTIONS



Enabling lean & Just in time assembly strategies





A potential line stoppage is Identified due to low inventory level



Info transmitted to ERP and yard management system for re-prioritization



Thanks to NB-IOT sensors, available docks are identified in real time



Driver receives **unloading Info update** in real time on an **app**



Line Stoppage avoided and driver waiting time halved on average



BURN LESS, BURN CLEAN



Multiple transport technologies support emission reduction



100%

Electric delivery van

20,000

Units production capacity as of 2018



BURN LESS, BURN CLEAN

~ 4.5 t CO₂ reduction p.a. per ovehicle



TraiLar – Mobile Solar Transport Solutions

TRAILAR

DHL Solar Panel fitted trailer for energy efficiency





TRAILAR Solution

ROI 12-18 Months



Sustainable Solar – reduction in **material consumption**



Significant Reductions – over 8000 tons CO₂ less per 2000 vehicles and ~5% Fuel Saving

HOW DOES IT WORK?

- Apply ultra-thin solar matting to the vehicle roof
- Connect the matting to a charger controller which interfaces with the vehicle battery and alternator





BUSINESS MODELS EVOLUTION

Drives logistics adaptation on the last mile



Customer centric aftersales services



Get closer to the demand to offer higher service levels

3.8 bn € Total aftermarket volume ~70 % owned by **independants**



E-commerce



Serve anyone, anywhere, anytime

eCommerce revenue expected to grow to \$9.67 billion by 2021

Mobility as a Service & fleets



Ensure availability and convenience of MaaS and fleet offerings

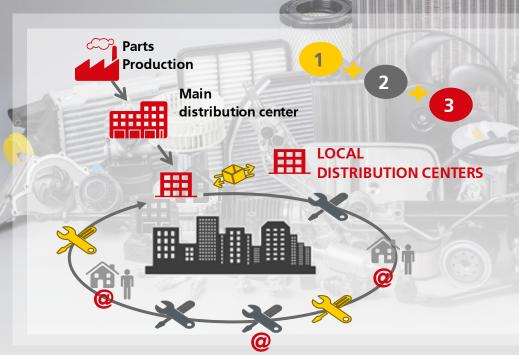
Uber will acquire Careem's businesses across the **greater Middle East region**



OMNI CHANNELAFTERSALES



Shared & high service level set ups for traditional & online channels





Local distribution strategies allow higher customer service level and inventory optimization at dealer's location



Shared operations dramatically reduces the cost of aftermarket distribution in urban environments



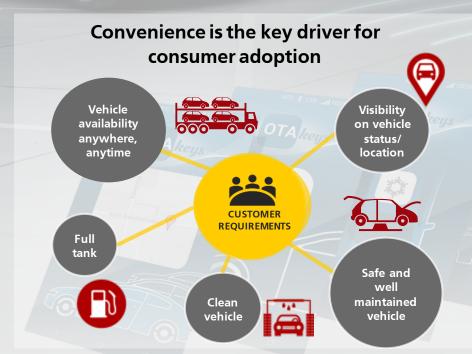
End consumer proximity offers opportunities to develop B2C as well as B2B e-commerce channels



MOBILITY AS A SERVICE AND FLEETS



New usages create new logistics requirements





New consumer expectations translate into new logistics challenges



"Nothing remains constant except change itself."

Heraclitus