



Digital Supply Chain Forum

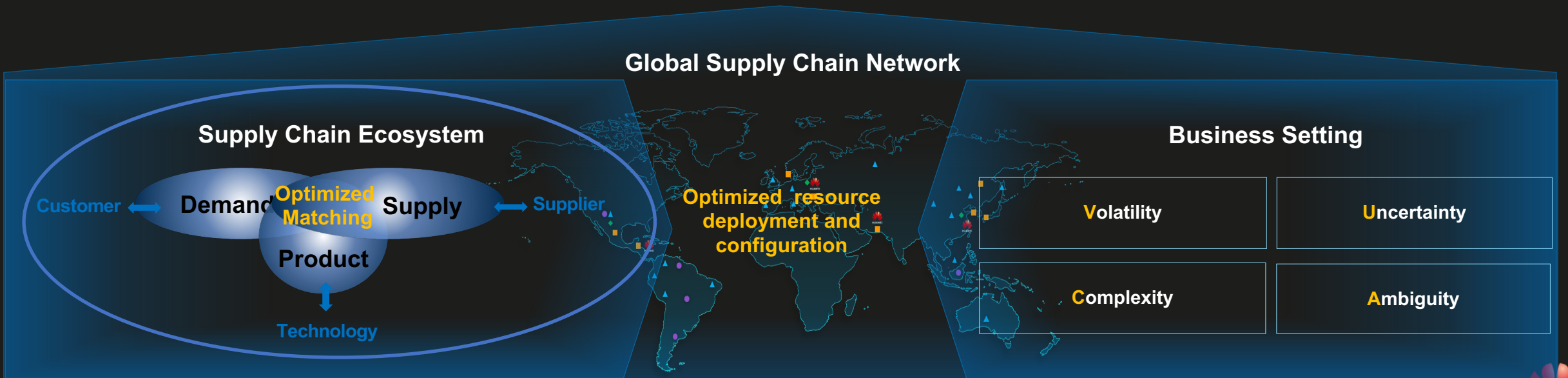
Digital Transformation of Huawei Supply Chain & 5G digitalization practice

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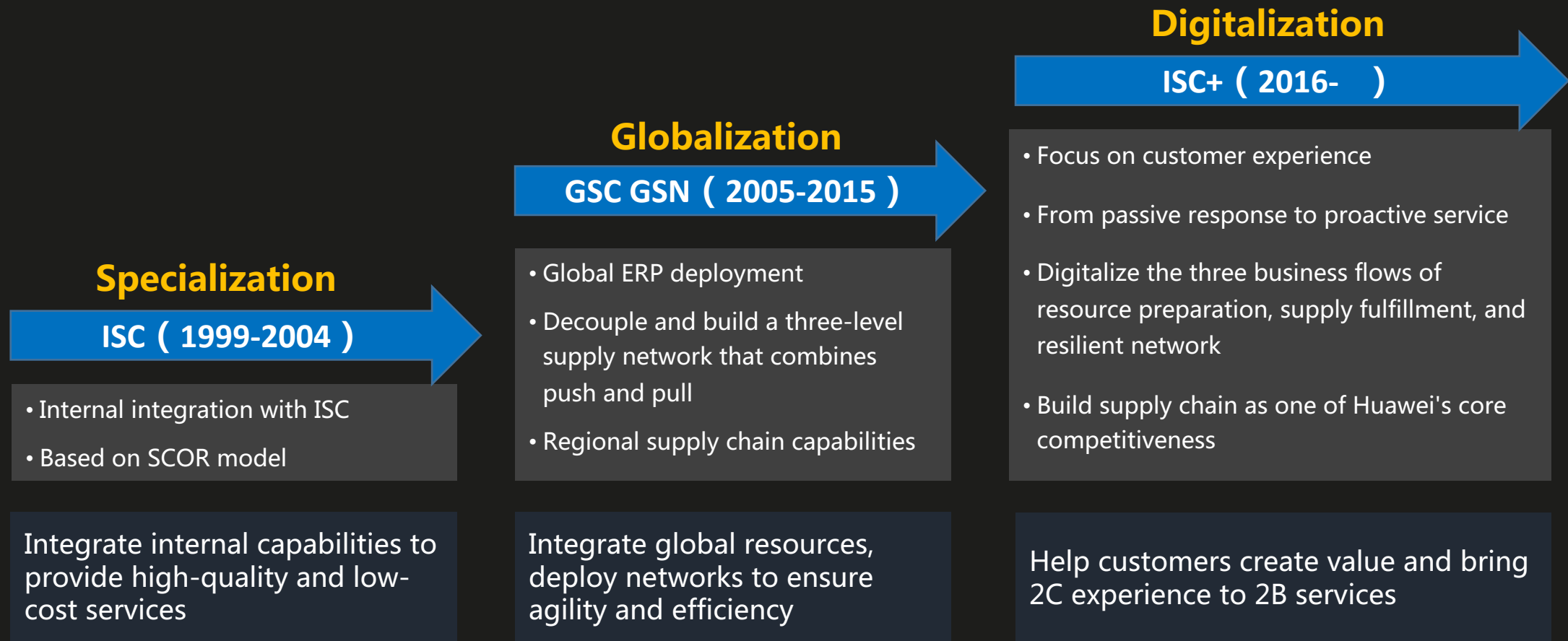


Digital Transformation of Huawei Supply Chain

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Digital Transformation of Huawei Supply Chain

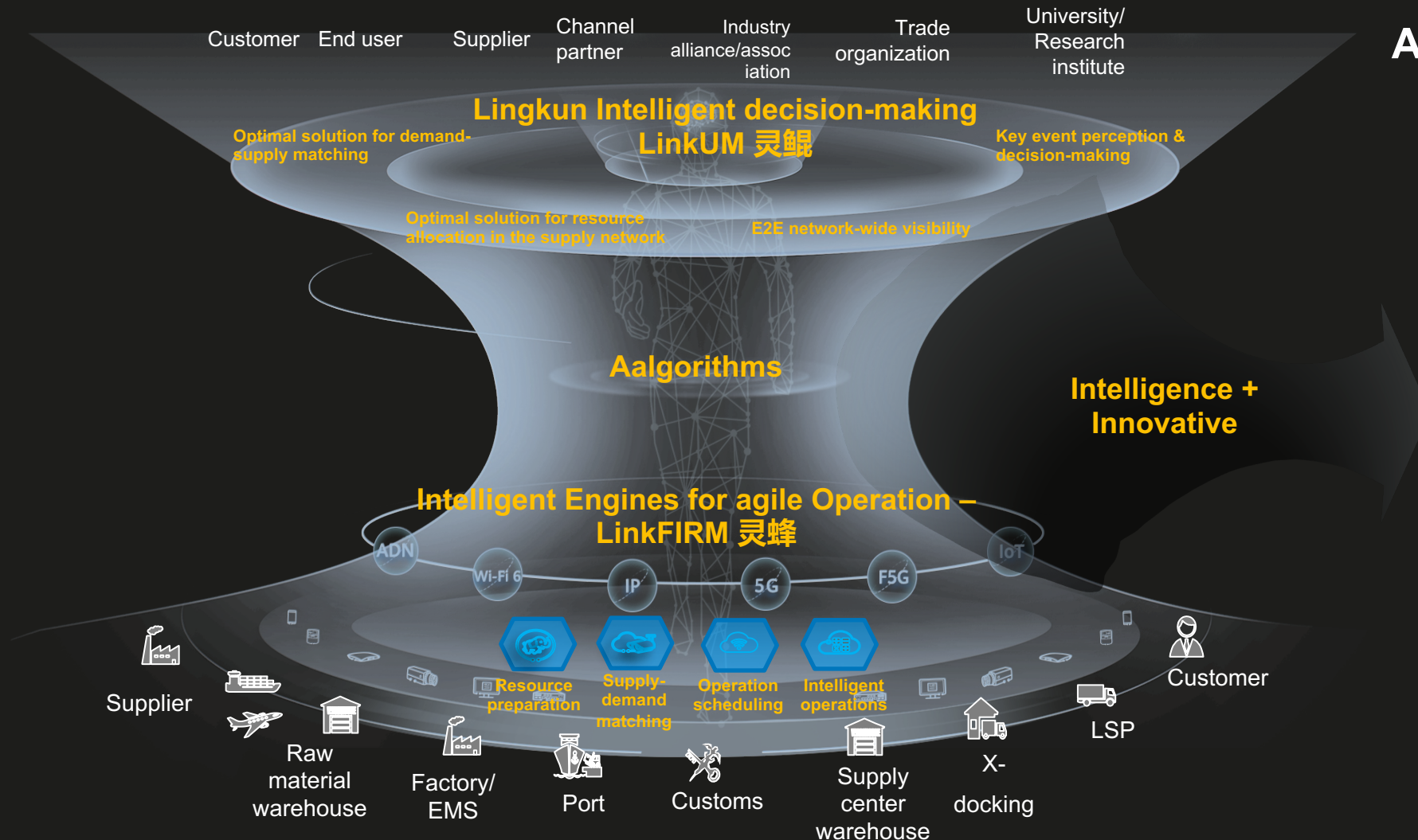


* **ISC**: integrated supply chain **GSC**: Global Supply Center; **GSN**: Global Supply Network **ISC+**: Integrated Supply Chain with Supplier and Customer

Digital Transformation of Huawei Supply Chain

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Supply Chain Intelligent twins



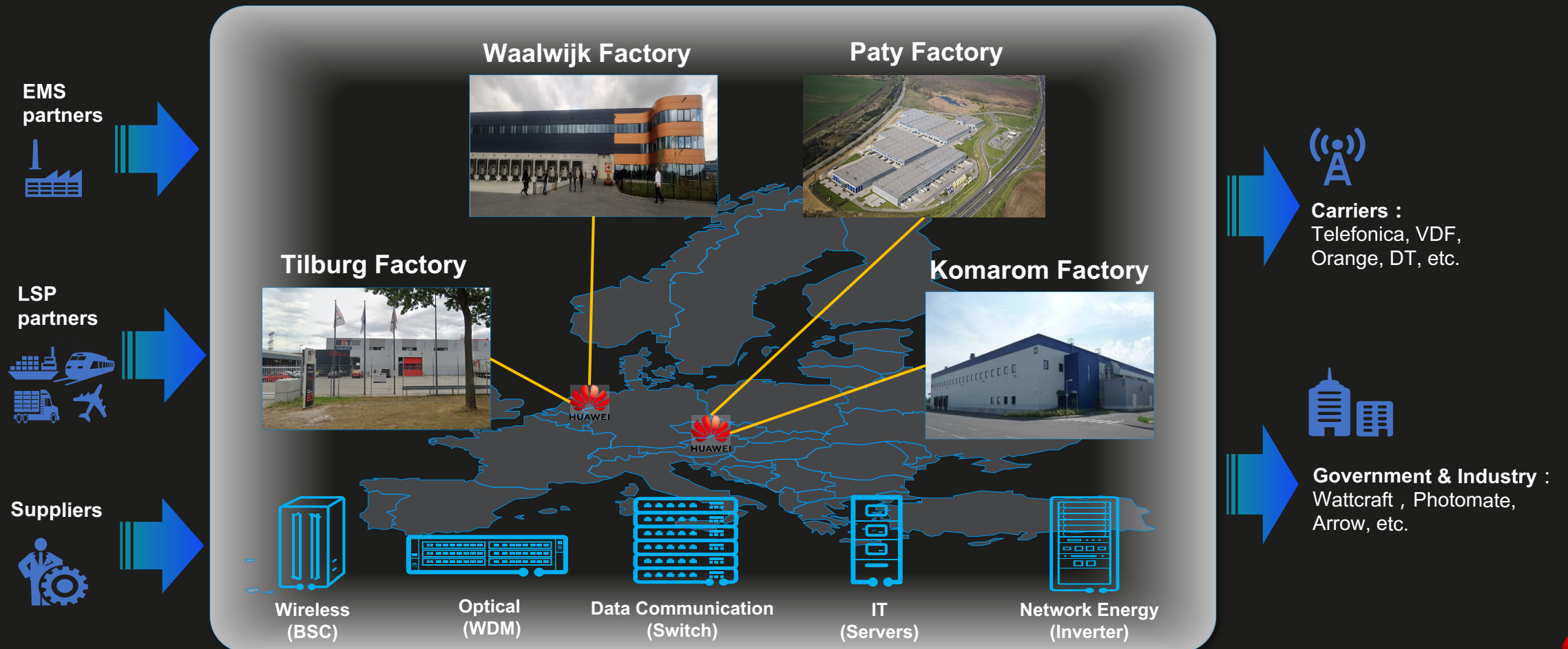
Adaptive Supply Chain

- Excellent Customer Experience
- Digital Decision-making Capability
- Ultra-simplified Business Operation
- Eco-cohesion
- Native Resilience
- Sustainability

Digital Transformation of Europe Supply Center

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Huawei Europe Supply Center (ESC) includes Hungary and Netherlands distribution centers with 3 factories of total 70K m² / 1000 HC, provide supply services of 5 ICT product lines (Wireless, Optical, Data Communication, IT, Network Energy) to European carriers, government and industry customers.



Digital Innovation Highlights: Order Management and Site Control Platform

Demand trend analysis

Order book analysis

KPI control

MFG site requirement risk analysis

WH and production line-capacity risk analysis

Special critical process and CSR* risk analysis

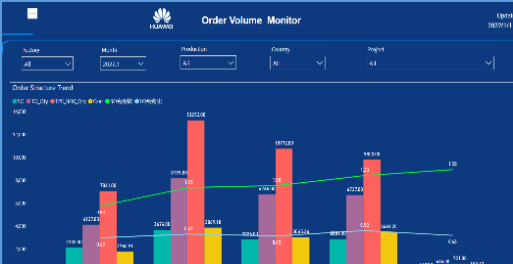
Customer Service

Performance control and Order analysis

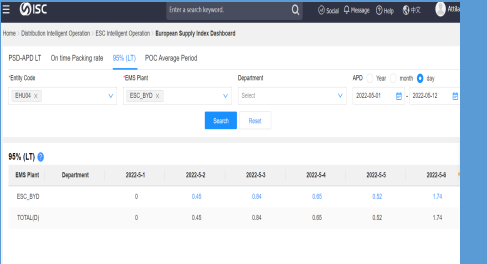
Customer demand trend analysis



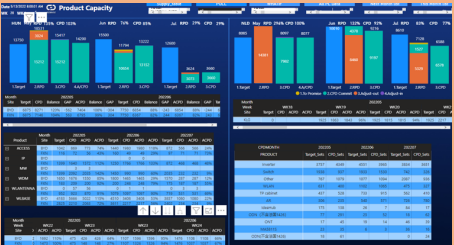
Order book / Order structure analysis



Real-time KPI control



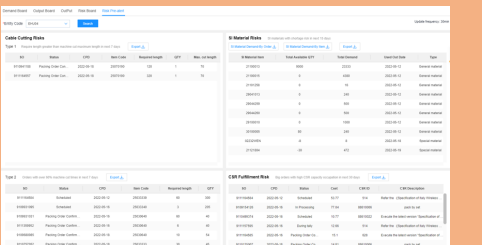
Site requirement risk warning



Capacity risk warning

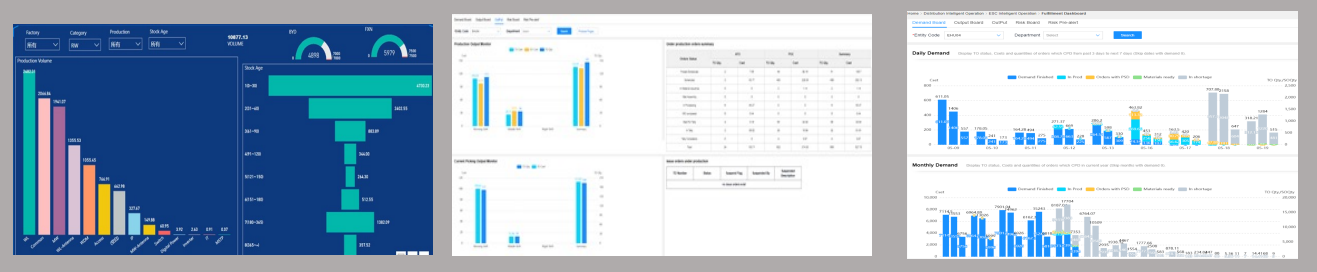


Special order fulfillment risk warning, CSR*



Site Risk warning platform

Warehousing and production control



Order Fullfillment progress visibility



Digital Innovation Highlights: Automation and 5G Factory

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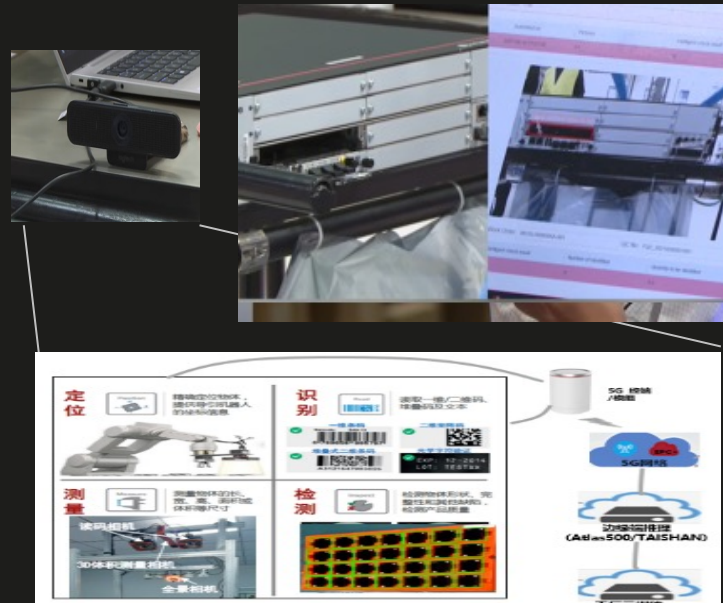
iAGV (5G Autonomous Guided Vehicle)



Component Distribution
Efficiency

20%

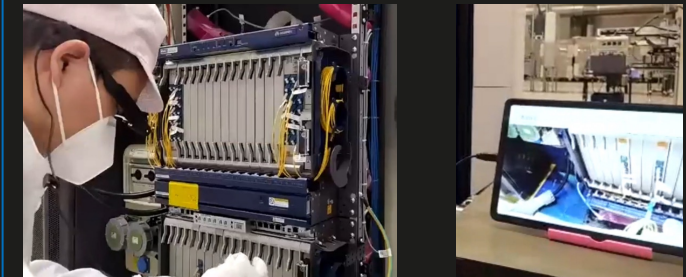
AI-based (Artificial Intelligence) Quality Control



Missing Alarm Rate

50%

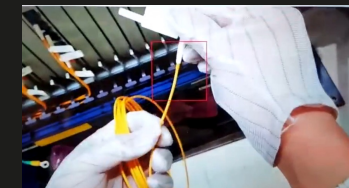
AR(Augmented Reality) Assisted Remote Inspection and Maintenance



Onsite Worker

Remote Assist

Proper Optical-
Cabling



No affect from machine failure during epidemic,
Reduce skill requirement for workers



5G Empowered Supply Center in Hungary

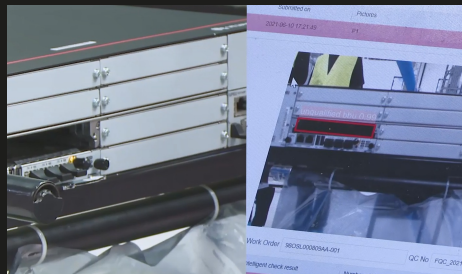
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Phase I – Commercial Deployed UCs (2021)

Warehouse AGV



AI based QC



AR remote assistant



Mobile workstation

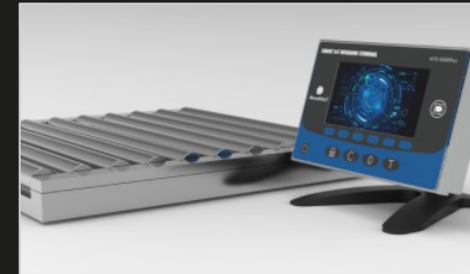


Phase II - Planned UCs (2022)

5G factory positioning



5G intelligent weight



AR helmet



AI detection & 5G monitoring



DL: 1.0Gbps



Low latency: 20 ms



Coverage: 15,000m²



UL: 100Mbps



Positioning: 1~3 m



Reliability: 99.99%

Project Start

Q4/2020

(2 months)

Network Set-Up

Q1/2021

(1.5 months)

UC Integration
Phase I

Q4/2021

(4-6 months)

UC Integration
Phase II

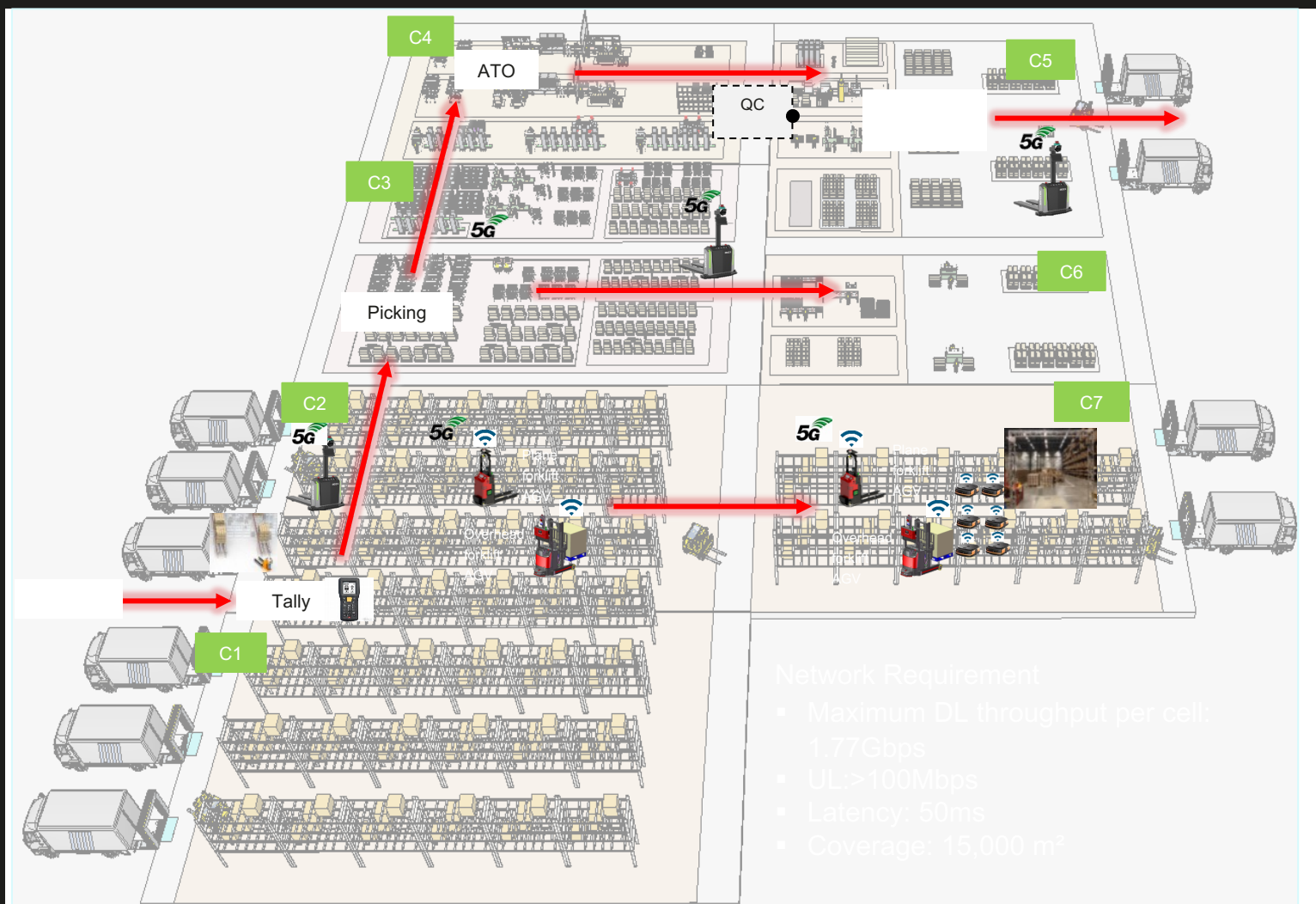
Q3/2022

(6-9 months)



HESC is one of the biggest Huawei Warehouse

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Challenge

- Low efficiency due to manually distribute product order by forklift
- High alarm rate for manually QC

Valuable 5G Use cases

- AGV
- AI based quality check
- AR remote assistant
- Mobile workstation

Business Benefits

3 y
ROI

20%
Efficiency
improvement

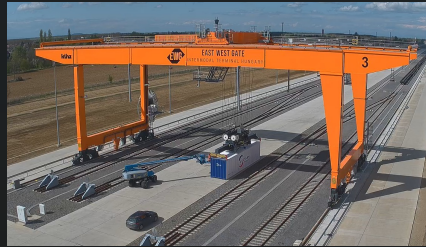
€500K
Cost saving

EWG: 5G Empowered Europe Largest Intermodal Rail Terminal



- Europe's **largest** rail Intermodal terminal with 5G, 1m TEU per year
- **Most modern rail terminal with 5G**
- Location: Fényeslitke, Hungary
- Size of area: 850k sqm

Key UC: Crane Remote Control



- Network is delivered with UL bitrate per cell up to **~280Mbps**
- 4 Cranes are in commercial trial

Phase 1 Other UCs

- Digital Twin: Moving sensor data on 5G,
- Fully automated tally: Image transmission over 5G w/o cabling

More UCs in Phase 2

New Warehouse to be built after the successful terminal launch

- AGVs: Efficient goods distribution

Manufacturing Case: M 5G Smart Factory

M Factory

- The largest appliance manufacturer in China
- Rank 288# in Fortune Global 500, 2021



5G MPN implemented in 2020 in one MC factory

- Area: 800 acres, 8 workshops, 59 assembly lines
- 390 pRRUs, 2 UPFs, 500+ terminals
- Contract revenue: **2.2M €** for 5 years

7 other factories ongoing and **20** factories in plan

Business Value Assessment

5G UC	Workshop	Business Value
AGV	• Sheet Metal • Injection-molding • Electronics	9k €
Forklift Dispatching	• Finished Product	19k €
Forklift Location		
AI Inspection	• Sheet Metal • Electronics • Assembly	1095k €
Cloud based PLC	• Assembly	206k €
Data Collection	• Sheet Metal • Injection-molding • Electronics	225k €
Intelligent Security	• Campus	25k €
Total		1.58M €/year

Automobile Case: B 5G Smart Factory

B Factory Introduction



- 1 factory ongoing (700 acres)
- Annual 310k vehicles in 2019
- Estimated network investment:
2.2M € for 3 years
- Other **3** factories in plan

Business Value Assessment(Est.)

5G UC	Workshop	Business Value
AR Remote Assistance	Stamping	0.14M €
Automatic Pick& Place Process	Welding	1.03M €
Welding Point Quality Check		
Visual Dispensing Inspection	Painting	
AI Vehicle Surface Inspection		
ECU Download	Assembly	0.21M€
Mobile Screwdriver		
Cloud Field Test	Field Test	
5G forklift Navigation	Logistics	3.5M €
5G+AGV		
Total		4.9M €/year

Thank you.

把数字世界带入每个人、每个家庭、
每个组织，构建万物互联的智能世界。

Bring digital to every person, home and
organization for a fully connected,
intelligent world.

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