

# LOGISTICS PROVIDERS INTEGRATING THE NETWORKED INDUSTRY 4.0

PROF. DR. ANDRÉ LUDWIG

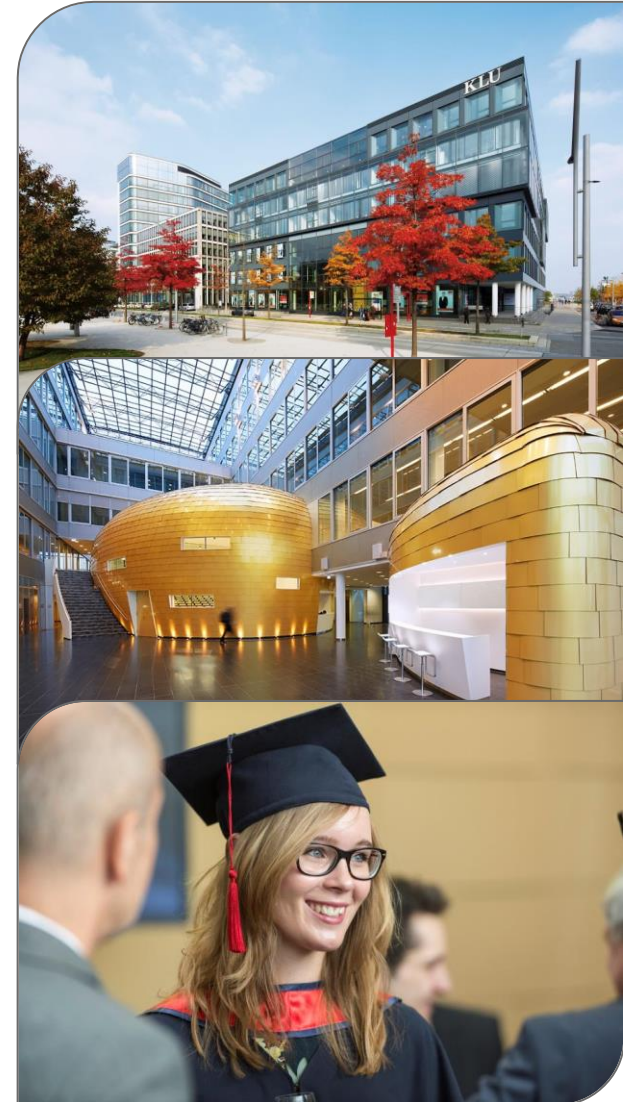
TALLINN, MAY 12, 2015

# KÜHNE LOGISTICS UNIVERSITY



*„Educating the leaders of tomorrow“*

- Independent, state-approved, private university funded by the Kühne Foundation
- Top ranking scores in research/education
- Teaching
  - BSc Management
  - MSc Management, MSc Global Logistics
  - Executive Education, summer schools etc.
- Research
  - Dep. of Logistics
  - Dep. of Management and Economics



# WITH DIGITAL TRANSFORMATION...



... SOON EVERYTHING WILL BE SMART.

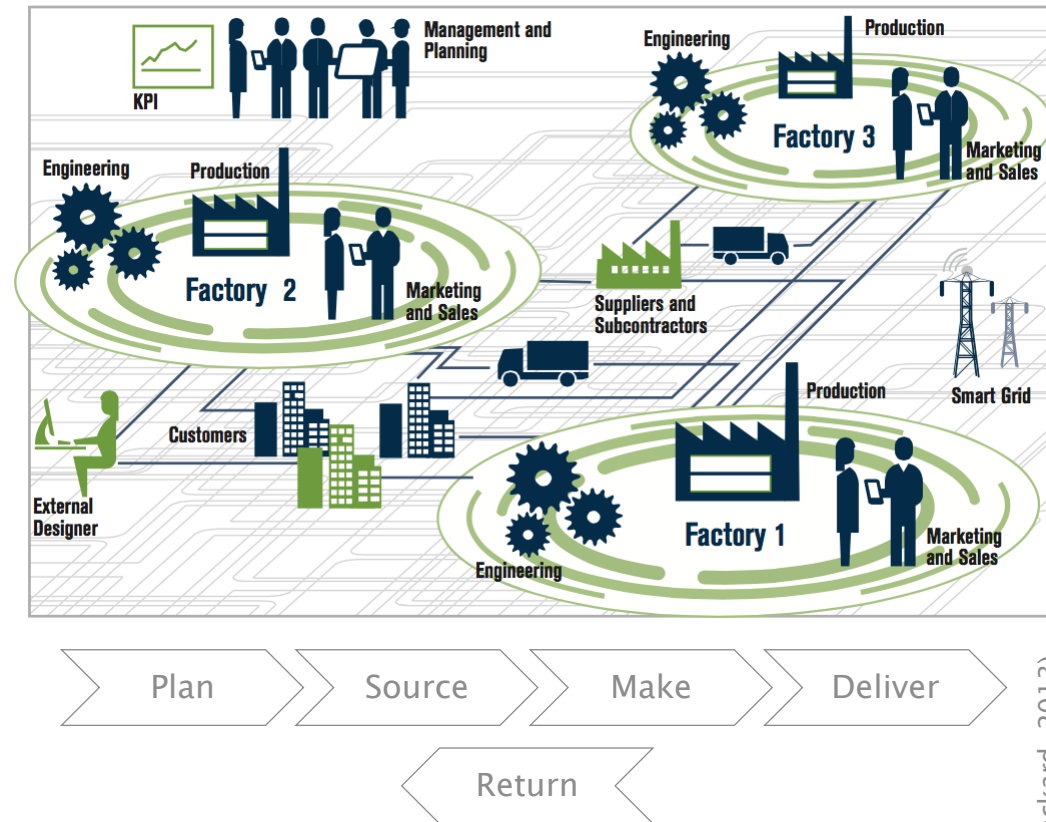
# SMART PRODUCTS AND SERVICES PAVE THE WAY FOR MANIFOLD OPPORTUNITIES AND CHALLENGES ...

## *Social/business drivers:*

Volatile markets  
Production networks  
Product individualization  
Service-based products

## *Technology enablers:*

Sensors, Auto-Id, LBS  
Intelligent objects  
Ubiquitous connectivity  
IoT platform / big data  
Mobile devices



... AND WILL LEAD TO HIGHLY INTERCONNECTED SUPPLY NETWORKS.

# LOGISTICS PROVIDERS – INTEGRATORS ACROSS THE NETWORKED INDUSTRY 4.0



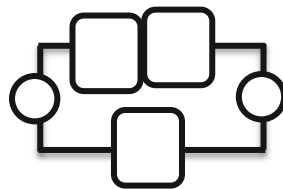
## *4.0 Principles:*

- Ubiquitous connectivity and sensing
- Decentralized intelligence, autonomous behaviour
- Fine-grained processes
- Real-time decision making

Digital workflows and platforms



E2E process management



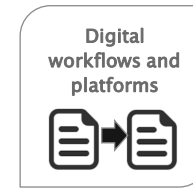
Smart assets and human interaction



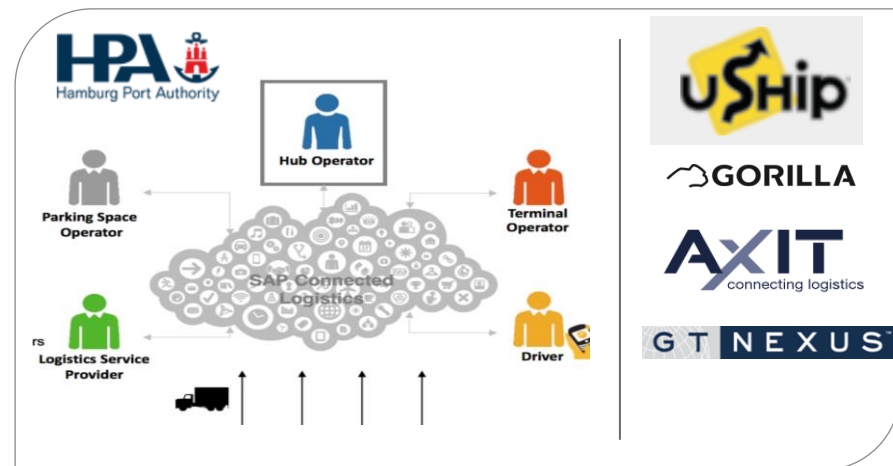
3D printing & virtualization



# DIGITAL WORKFLOWS AND PLATFORMS

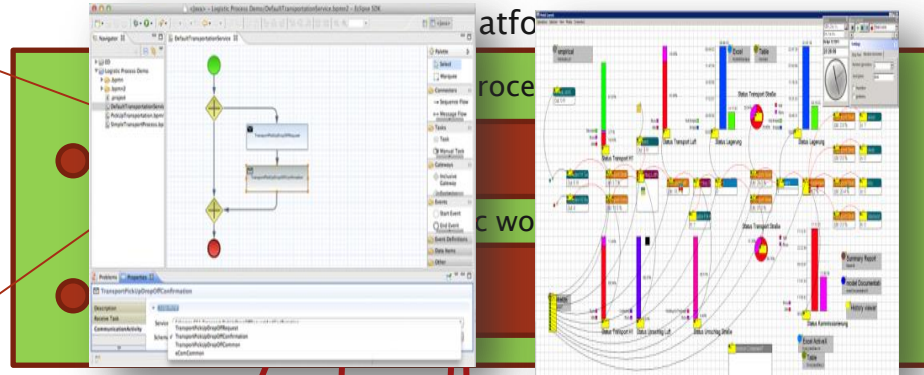
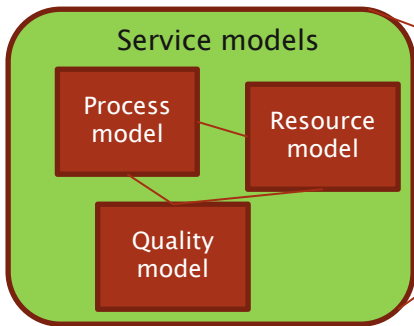


- Digital workflows enable:
  - E2e information flows
  - Transparency on all process steps
  - Real time decision making
- Example: Smart Port Logistics @ HPA
- Digital platforms enable value added services:
  - Freight exchange
  - Tendering
  - Virtual dispatching
  - SCM

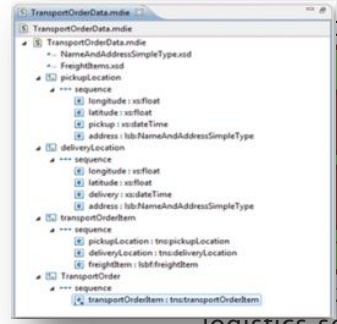


# PROCESS RE-ENGINEERING

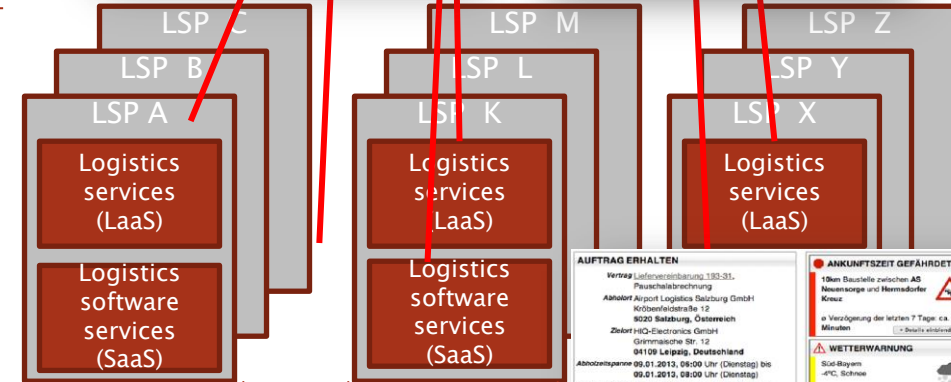
## Logistics service modeling



Customer-specific BP (E2E PaaS)



Service map  
Logistics service portfolio



Logistics services (LaaS, SaaS)

Formalization Standardization  
Logistics service instances

**AUFTRAG ERHALTEN**  
Vertrag Liefervertragsnr. 130-31.  
Pauschalabrechnung  
Abholer Airport Logistics Salzburg GmbH  
Kobenzelstraße 12  
8020 Salzburg, Österreich  
Zielort HQ-Electronics GmbH  
Grimmlstraße Str. 12  
94109 Leigsdorf, Deutschland  
Abholzeitspanne 09.01.2013, 09:00 Uhr (Dienstag) bis 09.01.2013, 08:00 Uhr (Dienstag)  
Lieferzeitspanne 09.01.2013, 16:00 Uhr (Dienstag) bis 09.01.2013, 18:00 Uhr (Dienstag)  
Waren 112 Wareneinheiten  
auf 28 Europaletten  
(ca. 11,2 Lademaß)

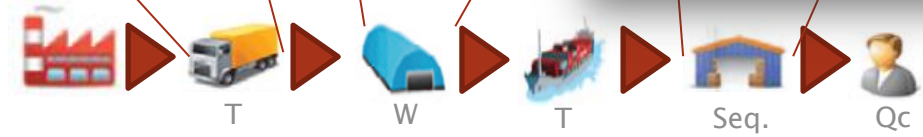
**ANKUNFTSZEIT GEFÄHRTET**  
18km Baustelle zwischen AS  
Reisezeit und Normaleinfahrzeit  
Verzögerung der letzten 7 Tage: ca. 42 Minuten

**WETTERWARNUNG**  
Süd-Boymen  
-4°C, Schnee

**ROUTENINFORMATION**  
Entfernung ca. 508 km  
Dauer ca. 69:30h  
bei aktueller Verkehrslage ca. 15:30h  
Lenkzellen beachten! 2 Fahrer notwendig

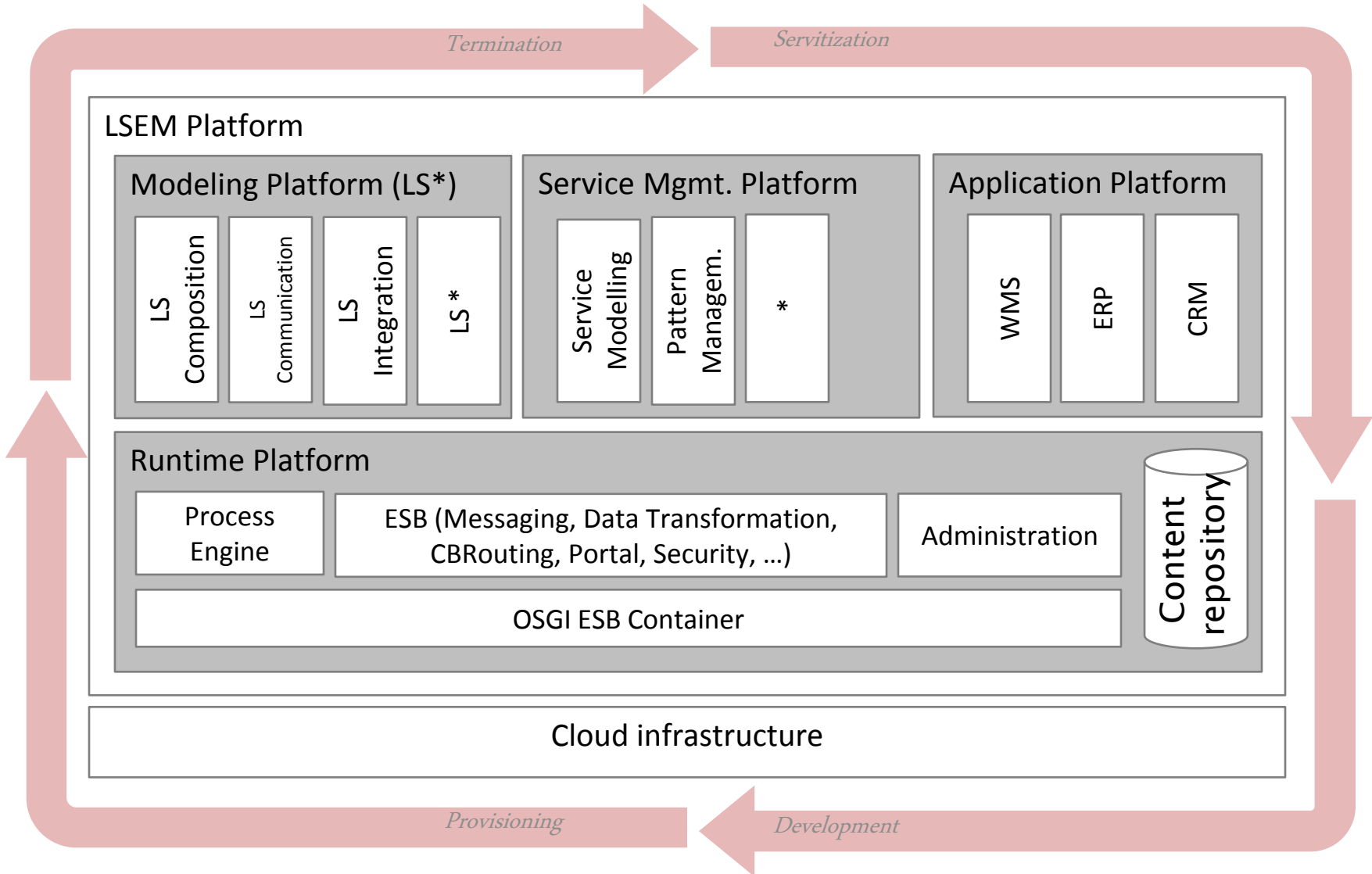
Auftrag annehmen Auftrag ablehnen

- Legend:
- LSEM-platform services
  - Logistics services (LaaS)
  - Logistics software services (SaaS)



Supply chain

# PROCESS RE-ENGINEERING

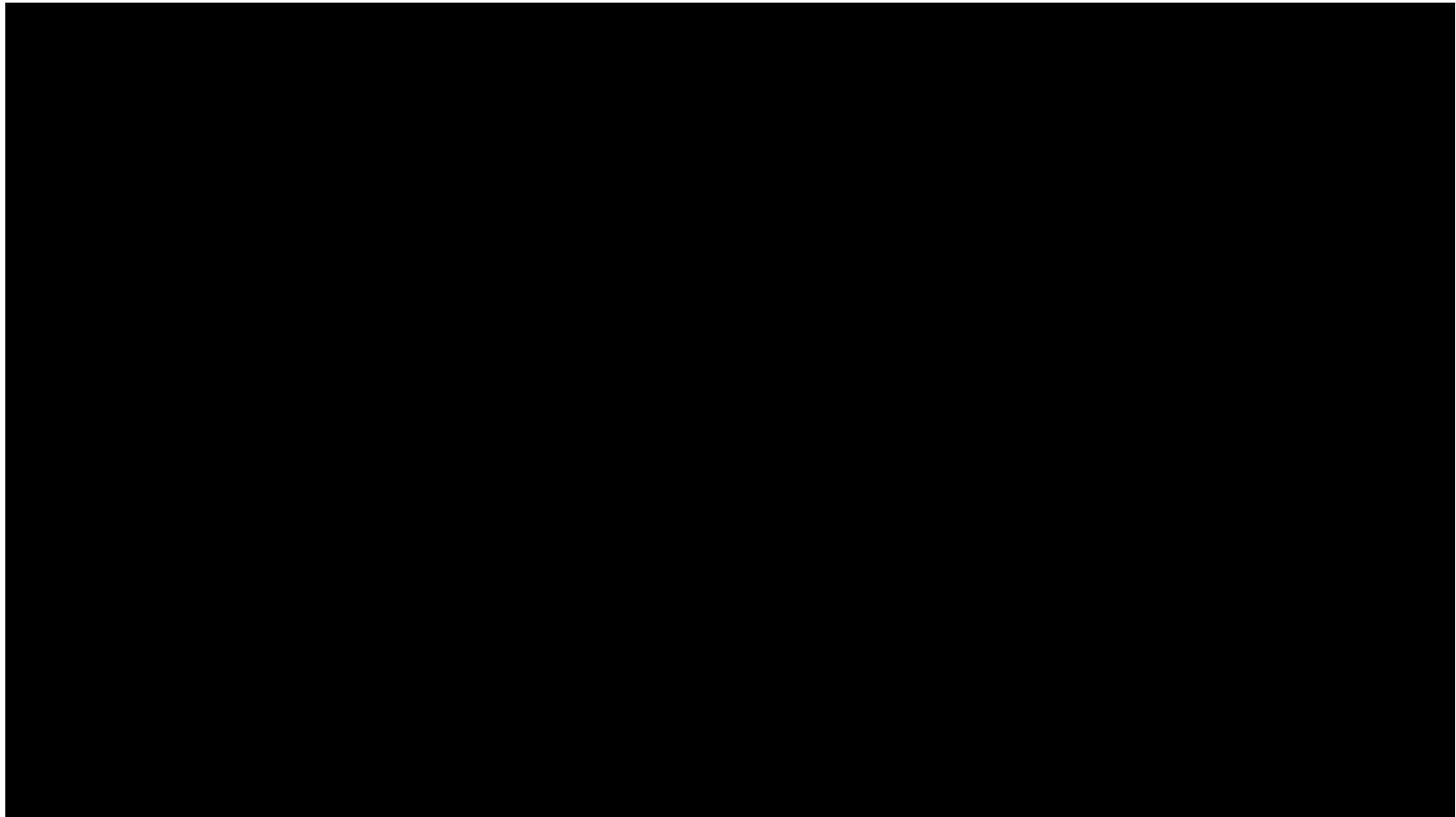




# SMART ASSETS & HUMAN INTERACTION



- Smart assets for efficient logistics fulfilment
- Example: iTiZZiMO

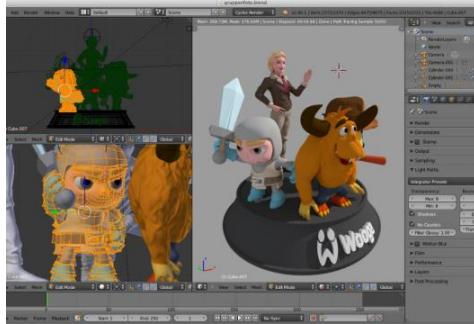


# SMART ASSETS & HUMAN INTERACTION

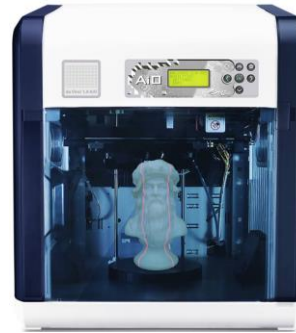
- Smart assets for efficient logistics fulfilment
- Example: Future Truck 2025



# 3D PRINTING – FROM 3D-MODELS ...



3D-Modelling



3D-Printing



Solid objects

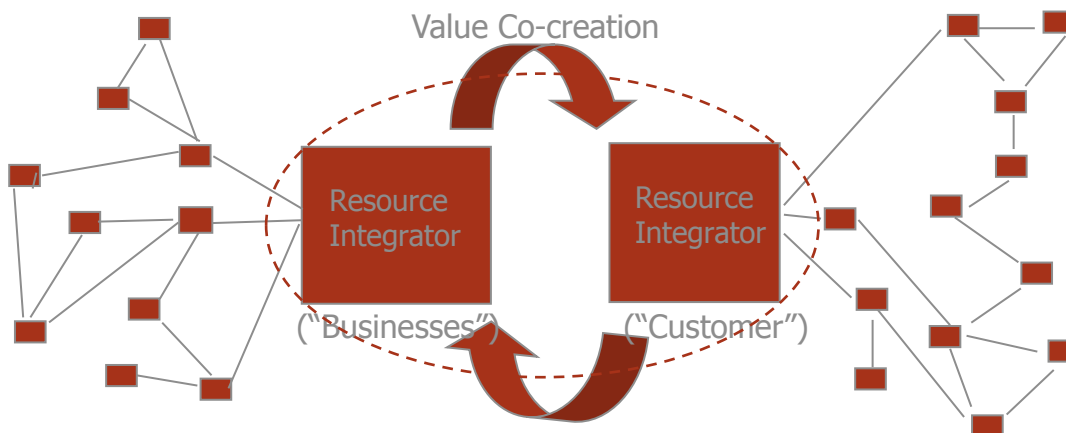
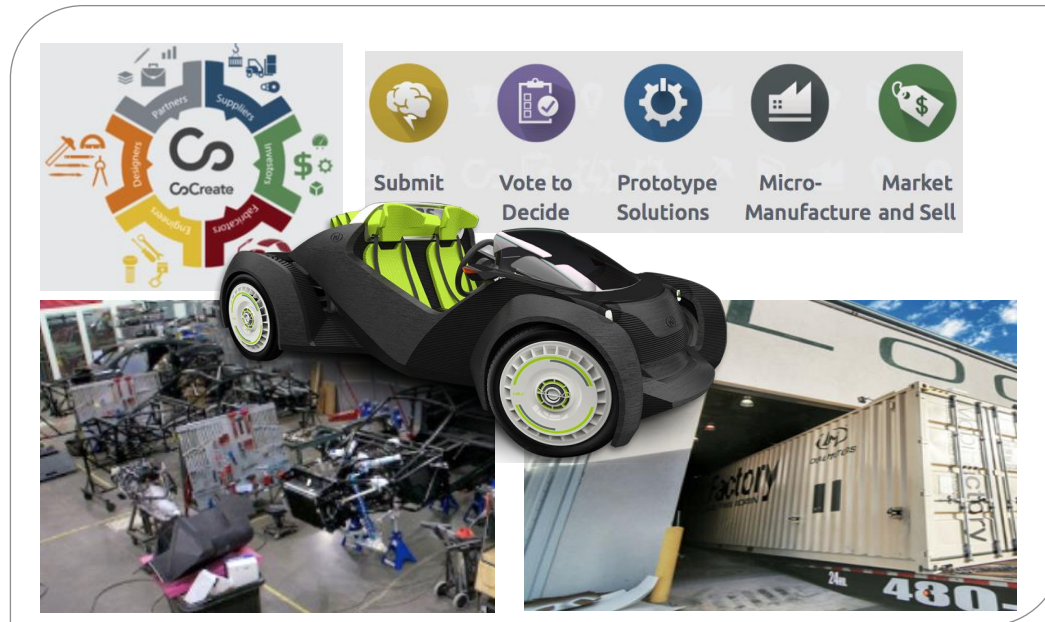


First 3D-printed car:




... TO NEW LOGISTICS SERVICES AND BUSINESS MODELS ...


# ... THAT BUILD UP ON SERVICE SYSTEMS, CO-CREATION AND USAGE-BASED VALUE.





## WHO IS YOUR REAL COMPETITOR?


**Google Express**  
 Delivering more free time

**U B E R**


**mytaxi**





## SUMMARY

- Everything that can be digital will be digital
- 4.0 is more than technology but also new processes, structures and business models
- 4.0 builds up on integrated thinking: digital, collaborative, automated, human-centred, value co-created
- 4.0 facilitates a new role of logistics

### Challenges:

- Inter-disciplinary perspective and thinking
- Missing standards for process and information management
- Complexity of data
- Role and integration of humans into processes

# CONTACT

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