THE DIGITAL TRANSFORMATION OF AUTOMOTIVE SUPPLY CHAIN IN GERMANY AND CHINA

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The case study provides researchers' insights on how Industry 4.0 transforms innovation in the automotive industry supply chain in Germany and China

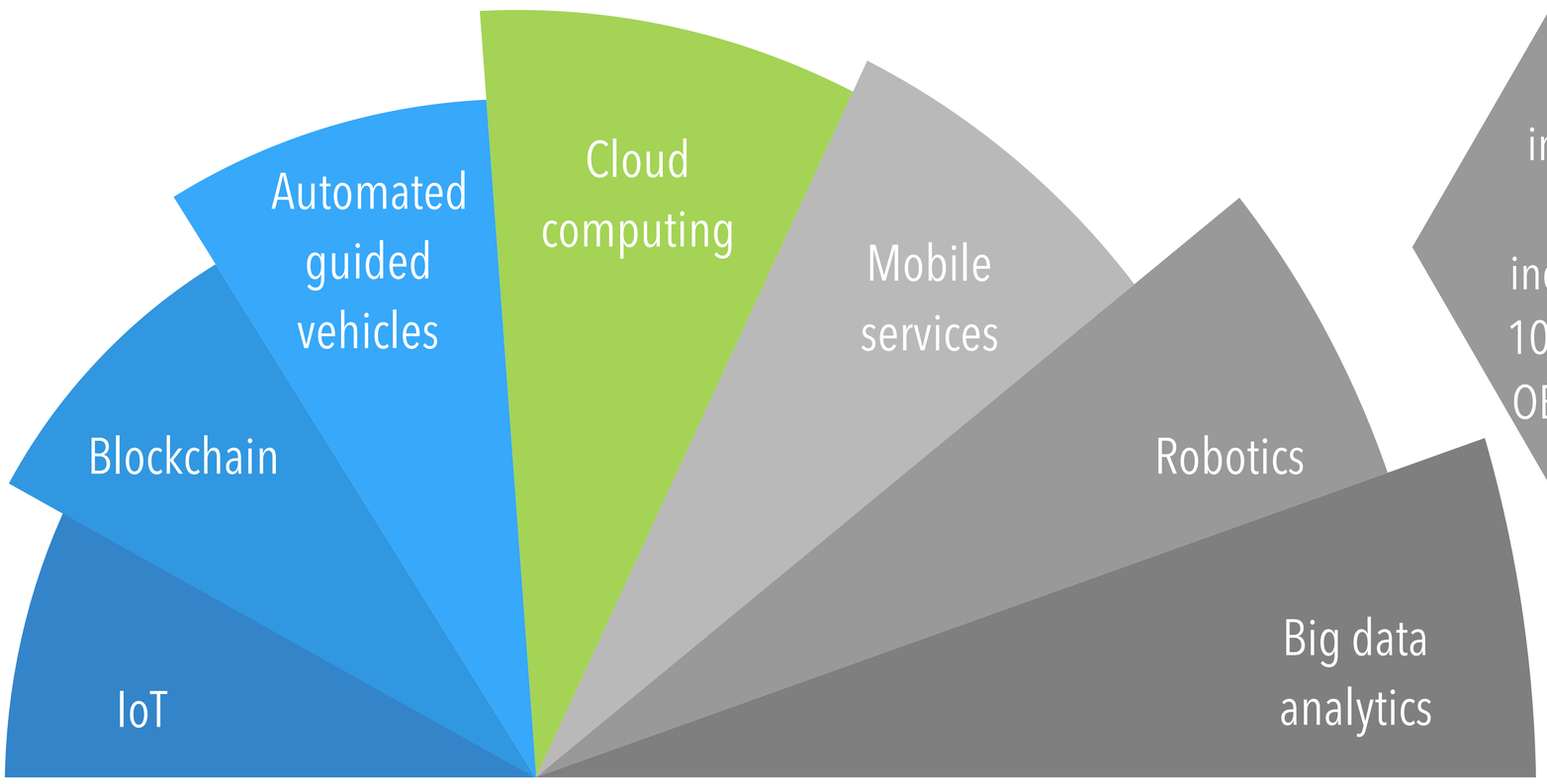
Topics covered

Industry 4.0, multinational enterprises, automotive supply chains

Methods

Semi-structured interviews with 27 industry experts, including leading carmakers and automotive suppliers

Key digital technologies in the automotive industry



Germany

Automotive is the largest industry sector, accounting for 20% of Germany's industrial revenues; home of 10 most valuable automotive OEMs and 19 of 100 biggest automotive suppliers

China

Largest manufacturing country and consumer market for automotive worldwide

Effects of these digital technologies on innovation practices

Multinational enterprises (MNEs) already use digital technologies to "digitise" their supply chains, resulting in:

Improved reliability - Agility - Effectiveness

Examples:

- Bosch started an idea crowdsourcing among all its manufacturing sites to develop innovative ideas how to digitalize the supply chain
- A Tier 2 supplier without sufficient data analytics capabilities shared data with its customer to jointly identify improvement potentials
- Volkswagen closely integrated its IT department with all business functions & business processes

Companies collaborate with start-ups and supply chain partners:

- BMW's "Startup Garage" to purchase start-ups' products
- Volkswagen's "Future Automotive Supply Tracks" (FAST) initiative to work closer with suppliers
- Daimler's engagement in the Blockchain in Transport Alliance (BiTA) to "lead in the blockchain for transportation space"

Main challenges to digitalisaiton

Standardization

- Various competing standards are common
- Standards often lag latest industry developments
- OEMs create their own standard and force them on their suppliers

Data security

- Data security must be considered across the whole supply chain
- Need of supportive regulatory framework for data servers

Employees' skills

- Need for data analytics and data management skills

Policy recommendations to support digitalisaiton

- Establish / support standardization bodies
- Support international cooperation of standardization bodies

- Develop data security recommendations
- Pass international anti-cybercrime laws

- Enhance digital skills in early education and support continuous education

Kern, J. and Wolff, P. (2019), "The digital transformation of the automotive supply chain – an empirical analysis with evidence from Germany and China: Case study contribution to the OECD TIP Digital and Open Innovation project".