Prospects for Hungarian suppliers in the transition to electric car production

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- The research was based on **semi-structured interviews** conducted among automotive companies in Poland, Czechia, Hungary and Serbia
- This presentation is about the Hungarian part of the research
- The main objective of the research is to examine how the transition to electric car production affects the **relationship among the companies** participating in the supply chain, **their role in the supply chain**, and what the **technological consequences of the transition** are.
- Five automotive companies, both medium-sized and large organizations in the following car manufacturing activities:

C1: Aluminium die casting; C2: Trailer axles and suspension systems; C3: Car software and electronics division; C4: Electromobility and combustion technology products; C5: Steering technologies



Research questions

- Q1. What changes will the transition to electric vehicles make to the supply chain relationships of car manufacturers?
- Q2. How does electric car production modify the company's position in the supply chain?
- Q3. What opportunities does electric car production offer the company in terms of technological development?



Questions - How does the technological transition to electric car production affects your company?

SUPPLIERS-PARTNERS

- How much has the **scope of suppliers** changed?
- Has the **number of suppliers** decreased/increased/no change?
- Do you realize any changes in your partners? More foreign/domestic or more Chinese/Korean/Japanese ownership

EMERGENCE OF ASIAN COMPANIES

• How has your company been affected by the emergence of Chinese and Korean suppliers and OEMs?

TECHNOLOGY R&D

- Does the technology change provide your company with the **opportunity for technological upgrading**? What **investments** are being made to achieve this?
- Does the technology change offer your company the opportunity to **move up the supply chain**?





- The technology shift in the automotive industry will also lead to further significant changes in several dimensions of the sector's global supply chains.
- Researches focus among others on the entry of new players (Fedotov 2022, Rísquez & Ruiz-Gálvez, 2024, Tham & Neo, 2024), production and employment (Celasun et al. 2023, Environmental Defense Fund 2024), and the impacts on supply chain management (Soares et al, 2023). In addition, they focus on the availability of materials for the preproduction of electric cars, supply chain sustainability and recycling issues (Yao et al., 2023).





- Electric car production will also bring changes in the structure of **vertical integration of the industry**, including the **distribution of roles within the value chain** (Klug 2013, 2014; Ciarapica et al., 2014; Slowik et al., 2016; Stodola et al., 2019).
- The **battery pack** is a key part of electric vehicles (Küpper et al, 2020), accounting for more than 40 percent of the total cost (Carey & Lienert 2023). This is causing an appreciation of battery manufacturers' role, providing further impetus for a **transformation in the configuration** and **dependencies of the value chain** (Lampón & Muñoz-Dueñas, 2023; Rísquez & Ruiz-Gálvez, 2024; OECD 2024).



Results - SUPPLIERS-PARTNERS / ASIAN COMPANIES

- The linkages depend on the product made by the supplier, i.e. productspecific factors. A significant part of the car does not change, the suppliers are still involved in the supply chain (C2)
- Does the supplier have the possibility to and does he want to establish links with new partners (C1, C4)
- Battery value chain and new OEMs are decisive (C1, C4)
- At the same time, there is a risk that Chinese partners will obtain technology and then push out the original supplier (C3, C5)
- Indirect effect, existing partners are squeezed out of the market or lose market share (C1, C3)

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Results - TECHNOLOGY R&D

- Cars are changing in design, new products are needed if they want to remain suppliers they have to invest (C1, C3, C5)
- ICE cars were tier 1 suppliers, BEV cars are now tier 2 suppliers linked to the system integrator (C4)
- Technology development is in the parent company, but not yet in the Hungarian subsidiary (C2)
- If it has entered the battery supply chain, significant technology development is needed there. Different requirements e.g. Technical Cleanliness (TecSa) (C4)
- Previous supplier developments have been frustrated by the current OEM strategy. Weight reduction is not an objective (C5)



Key Takeaways

- an important limitation of the study is the low number of analyzed firms and their specific characteristics. the core activities of the interviewed automotive companies are quite diverse, which limits the conclusions
- companies have different perceptions of the impact of electric car production, which was evident not only in the responses but also in the attitude of the interviewee cooperative vs. indifferent
- technology change does not affect all parts of vehicles, product-specific factors play a role in the impact of electromobility
- technology change will increase competition and force companies to invest/develop further
- the presence of Asian companies has a significant direct and indirect impact on companies

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THANK YOU FOR YOUR ATTENTION



This research is part of an international project, entitled:







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