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Short Communication

Incumbent car manufacturers and vehicle connectivity

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ABSTRACT

Over recent years, vehicle connectivity progressed considerably, pushed by technological advancements and pulled by more demanding consumers. This article explores the associated challenges and opportunities for incumbent car manufacturers. While connectivity opens opportunities to create additional profits, incumbents will only be able to capture these if they manage to close capability gaps and shorten vehicle lifecycles. Customers demand more recent vehicle technology to utilise connectivity features like continuous over-the-air vehicle updates effectively.

Keywords: automotive industry; incumbent car manufacturers; vehicle connectivity; digitisation; over-the-air updates

INTRODUCTION

The shift of connectivity and digitisation refers to the rapid change from a focus on the complex technical vehicle production to the car becoming a software-intense product, that is well integrated into our everyday life – Thinking about the car as a computer on wheels. New ways of approaching software-driven design are replacing traditional construction principles. Vehicle connectivity is in part legally required when we consider features such as e-call. The development is creating new challenges and requiring new capabilities from car manufacturers. Despite all digitalisation and connectivity, "software alone does not get our kids to school". While electrification is partly about social acceptance of the offering, vehicle connectivity is rather about social integration considering customers ecosystems. Especially among younger customers, the latest technology is decisive when choosing a vehicle.

Vehicle connectivity is about providing a real solution and not "just" a product. Tesla customers are describing their Tesla experience to be seamless and improving with every over-the-air vehicle update. They are referring to the integration of their vehicle with their smartphone, in-vehicle interaction experience, third party applications, charging infrastructure, and smart home systems. Through connectivity, the car is becoming part of a system of meta-systems, such as mobility, energy storage, smart city, smart home, smart health, etc. systems.

INCUMBENTS' STRATEGIES

Incumbents are investing heavily in connectivity-related talent and capabilities to complement their user behaviour knowledge of customers. They acknowledge those being an important potential source of competitive advantage. Besides, car manufacturers argue that some digital services and features are close to the vehicle in terms of capabilities required. Some digital services, like finding the right restaurant or paying fines via app, are not considered crucial, or core of the business and automakers partner with third parties for those. Car manufacturers also partner with technology companies, like Apple and Google, for their connectivity features. Uncertain remains to what extend those technology companies are going to enter in the vehicle hardware component of the offering.

Car manufacturers today have gaps in their vehicle connectivity capabilities and rely in part on partnerships. Capability gaps exist in areas such as intelligent use of software and artificial intelligence. The 5G Automotive Association is one association formed in recent years and aims at improving vehicle connectivity. The association of telecommunication, technology, software development and automotive manufacturing companies reflects the interdisciplinary nature of car connectivity and pools competencies in various areas involved.

One way of incumbents to strengthen internal skills around data and software is via coaching. For example, product owners are being trained to understand data and how to use it to some extent, so that they only need to contact the specialists for

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complex requests. All incumbents established IT subsidiaries for these specialists around data and software engineering.

Similar to the Apple app store ecosystems, automakers aim to create an ecosystem where some digital components are coming from the car manufacturer, and external developers are supplying others. In some markets, like for BMW in China, this is already working. BMW managed to create an advanced connectivity ecosystem, where services for their app are being developed to a large extend externally.

The development towards a more connected car also poses a challenge for car manufacturers in terms of interchangeability and protection of their work. While automakers have the intellectual property of their genuine internal combustion engines, the barriers to entry into vehicle connectivity are lower, interchangeability is higher, and development and life cycles are faster.

Long development cycles are a challenge for car manufacturers in terms of connectivity. Due to the three to four years from conception to market introduction for a passenger car, vehicles are usually equipped with four-year-old infotainment and connectivity features. A competitive advantage for manufacturers could result from shortening the time to market and implementing newer consumer technology in cars. This is one aspect where Tesla is superior to incumbent car manufacturers today. Tesla is quicker to market and better at using the latest technology, enabled by a shorter and cost-efficient product lifecycle.

WIDER CONTEXT

Apps are becoming more critical to consumers purchase decisions, especially in the Asian markets. The connectivity offer of a manufacturer is partly fundamental to the entire product offering. More and more especially younger customers are willing to change brands and to choose one model over another because of better connectivity. A few manufacturers are currently pilot testing search advertising through in-vehicle display and other digital channels. Connectivity enables businesses also to sell optional services over-the-air.

Some automotive stakeholders consider connectivity more broadly as digitisation. Digitisation on the shop floor level includes 3D printing and analytics, which lead to the automation of some backend and support processes. Besides, digitisation covers aspects related to the customer interface, sales, and customer experience more broadly. Massive amounts of data and various forms of artificial intelligence are being employed and developed for these areas. Digitisation opens profit pools in all digital products and services areas, going far beyond connectivity.

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