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Software-driven transformation will be a key differentiator for automotive manufacturers in the next decade

Original equipment manufacturers harnessing the full potential of software will gain significant competitive edge as software-based features and services is projected to be a USD $640 billion market by 2031.

Paris, September 8, 2021— Software-driven transformation is expected to help leading original equipment manufacturers (OEMs) in the automotive industry gain 9% higher market share over their peers by differentiating themselves with unique software-based features and services, according to a new report from the [Capgemini Research Institute](). The research highlights how software-driven transformation is expected to deliver significant benefits for automotive OEMs in the next five years, such as improving productivity up to 40%, reducing costs by 37%, and improving customer satisfaction by 23%. Despite this, nearly half (45%) of OEMs currently do not offer any connected services, and only 13% are monetizing connected services to their benefit.

The report, "*[Next Destination: Software — How automotive OEMs can harness the potential of software-driven transformation](),*" states that half of OEMs (51%) expect to be known for providing software features, such as Advanced driver-assistance systems (ADAS), self-driving, connectivity, and services as much as their automotive engineering excellence in the next five to ten years. In addition, on average, the share of new vehicles, per OEM, to operate on a unified, common software platform is expected to rise from 7% in 2021 to 35% in 2031.

But according to the report maturity in key areas remains low. Most OEMs (71%) are at the initial stages of their software-driven transformation, having only identified application areas. Just 28% have implemented a pilot or proof of concept based on use cases for advancing transformation in specific areas. The research finds that only 15% of OEMs are considered "frontrunners[1]" in successfully transforming themselves by exhibiting the maturity to implement software-driven transformation. Success requires a special set of skills and capabilities backed with the vision to deliver the transformation and the command on operational areas to deliver strong outcomes. Frontrunner OEMs believe that software-based revenue will account for 28% of their overall revenue by 2031.

A software-driven transformation will require robust architecture, ecosystems and strategic technology partnerships

To realize the benefits of software and gain a competitive edge, OEMs will need to transition from legacy architecture. Currently, 93% of OEMs have a traditional vehicle architecture, while only 13% have plans to decouple and separate the tightly integrated hardware and software architecture deployment. This translates into an inefficient mechanism for over-the-air (OTA) software updates and can lower the pace at which OEMs innovate. The research found that automotive executives expect the production of new

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[1] Highly mature "Frontrunners" are those automotive OEMs that have matured their transformation areas and enablers. The best practices that differentiate frontrunners from the rest of the OEMs include making concerted efforts to consolidate their software expertise, having strong governance practices, and investing heavily in software-driven transformation as compared to their peers.

vehicles supporting connected services and OTA updates to triple from 11% to 36% in the next five years, but only 4% of OEMs currently provide any kind of OTA update, suggesting more work is needed if OEMs are to take advantage of the potential growth.

OEMs will need to strike strategic partnerships with software and technology service providers to deliver value across the automotive software value chain. OEMs will also require a robust ecosystem strategy to effectively strike and scale partnerships to pursue standardization of architecture, as well as the collection, use, ownership, and processing of both vehicle and consumer data.

Data ownership and cybersecurity are still a concern

Data ownership and cybersecurity remain a concern, with less than half of OEMs struggling to collect data and translate it into actionable insights. Less than 10% believe they are well prepared to implement cybersecurity measures, while 60% find it difficult to ensure products from suppliers meet safety and cybersecurity regulations. Various data domains enabled by software have the potential to add "intelligence" to the automotive value chain, yet nearly half (47%) of the OEMs do not collect or analyze vehicle data.

The research notes that OEMs should focus on maturing and monetizing safety and security services as customers want these solutions and are willing to pay for them.

Workforce upskilling will be key to realize full potential

As customer needs evolve, OEMs will need to upskill a large part of their existing workforce in software skills and new ways of working. Currently, OEMs are faced with a skills gap of 40-60% in areas such as software architecture, cloud management expertise and cybersecurity, and there's a growing need for software capabilities within the industry. 97% of executives surveyed believe that within the next five years, as much as 40% of their talent will need to possess the necessary skills in-house to deliver software-driven transformation. To harness the full potential of software-driven transformation, OEMs will need to focus their attention on new competences, transform legacy culture, redefine their processes around software and attract new talent.

Alexandre Audoin, Group Industry Lead for Automotive at Capgemini, explains, "*Software is redefining mobility and disrupting the entire automotive value chain. While the competition for innovation and growth undoubtedly lies within the vehicle, automotive manufacturers must not overlook the need to create a culture of agility and collaboration within the business. The new automotive era goes well beyond the vehicle, and is unlocking new differentiators and opportunities in the manufacturing and business model. OEMs that want to succeed, grow their business and future-proof their organization need to adopt a broader lens – focusing as much attention on their internal operating model as well as software developments.*"

The report provides a six-point framework to help OEMs harness the full potential of their software-driven transformation by:
* Building a software-focused vision and strategy for the organization
* Leveraging software tool chains and agile methodology to foster greater collaboration across organizational units
* Forging long-term, strategic partnerships with software, technology, and service providers on key software frontiers
* Striving for software excellence by building and retaining software talent
* Tapping into the power of data to enable intelligent vehicles, intelligent operations and intelligent services

- Defining a clear roadmap for next-generation and standardized vehicle software architecture.

Methodology

Capgemini conducted a primary online survey of 572 senior executives working for automotive OEMs across the globe, as well as a series of in-depth interviews with 17 industry experts covering various aspects of the software-driven transformation. All of these executives have been either associated with or lead a software-driven transformation project**.** This primary data, combined with thorough secondary research informed the state-of the software and automotive markets as well as current developments and trends. In-depth interviews were also held with internal software experts from within the Capgemini Group to develop Capgemini's point of view on software-driven transformation.

To read the full report, please click here.

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