



Becoming a software-defined vehicle manufacturer with an autonomous digital platform

The carmaker's journey to future-proof connectivity





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1. The carmaker's journey to future-proof connectivity

The global software-defined vehicle (SDV) market is expected to reach \$186.49bn by 2032¹. This is due to an explosion of in-vehicle connectivity and digital services, the rise of autonomous vehicles and the development of different types of transport solutions. This software-defined vehicle revolution is part of a much wider change in the automotive industry, with new players such as Tesla, Waymo and Uber disrupting the status quo and forcing traditional manufacturers to evolve quickly or face an uncertain future.

Fifteen years ago, Nokia, Ericsson and Motorola faced a similar juncture when internet connectivity called for new business models to harness the anytime, anywhere services that were reshaping the mobile phone market. Their struggle to make this transition created a gap that was quickly filled by iOS and Android operating systems, fundamentally changing the mobile landscape forever.

Nokia would eventually be bought by Microsoft, Ericsson by Sony and Motorola by Google and then, subsequently, Lenovo. Within a decade, the masters of the mobile universe had become bit players, hardware manufacturers left behind by connected digital services.

With the evolution of the software-defined vehicle inextricably linked to the rise of mobile communications, the challenge for car manufacturers today is to not make the same mistake as legacy mobile phone manufacturers. To achieve this, they need to respond to the threat of disruption by changing their culture, capabilities and structure, and repositioning themselves as software-led manufacturers before it's too late. Not doing so will lead to missed revenue opportunities and failure to deliver the kind of customer experiences that will secure their long-term future.



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1. <https://www.polarismarketresearch.com/press-releases/connected-car-market>

2. Platform approach

Vehicle-to-Everything (V2X) communications is central to the evolution of autonomous vehicles. It's more than just helping cars to become autonomous, V2X enables them to become autonomous digital platforms, capable of interacting with infrastructure, people and other vehicles, as well as the network itself. OEMs that achieve this can unlock a whole new world of exciting digital services.

The next few years are a crucial time for automakers as they balance the pursuit of monetising new channels with meeting the ever-increasing customer experience expectations. To succeed, they will need a level of software-enabled agility that few currently possess. They will also need to win a substantial piece of the software-defined vehicle market, which means

securing a place in the mobile ecosystem at a time when the emergence of 5G is advancing intelligent road infrastructure systems and autonomous driving at a rapid rate.

In paper – “The Value of Connectivity in the Automotive Sector” – Harvard Professor Bowman Heiden noted, “much of the growth in connected vehicle functionality is predicated on current and future advances in standardised cellular technology.”² While every car manufacturer will have its own view on market differentiation and business opportunities, there are three fundamental steps that they all need to take if they want to be among the disruptors rather than the disrupted.

2. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3521488



3. Consolidating Connectivity

Carmakers need to focus on embedded technologies, rather than the tethered or mirrored solutions that put smartphones at the centre of the connected vehicle ecosystem.

By 2030, around 95% of new vehicles sold globally will have embedded connectivity. This will enable them to integrate with gateways, software and sensors to provide a range of digital services but in-car systems will need to be reconfigured to make the most of them.

Software-defined vehicles typically have at least 70 ECUs (electronic control units) – more in premium models – each with its own software and hardware configurations, triggering thousands of different signals and alerts. By consolidating these ECUs, carmakers can move all software decision making and processing to a single view. Fewer units also simplifies supply chain management and allows manufacturers to focus more on user experience and new business opportunities.

Simply put, connectivity is not a feature of in-car services, it is the foundation for internal and external ecosystems, providing the bridge to develop innovative new business models and revenue opportunities.

Cubic³ is powering this future

Cubic³ Cloud – our intelligent connectivity management platform – is embedded in cars at the point of manufacture, simplifying vehicle deployment to global markets.

Our streamlined approach of one contract, one integration, one platform ensures SIM lifecycles, over-the-air updates and all connectivity needs are managed through a single access point while our global expertise takes the pain out of region-specific challenges, managing all regulatory and compliance requirements – no matter how complex. This delivers seamless, secure connectivity no matter where a vehicle is in the world.

Our advanced software solutions also integrate with next-generation technologies, such as 5G, VoLTE, Edge and satellite, not only reducing cost and resource barriers for automakers but enabling them to scale and maximise the potential of their software-defined vehicles.

4. Take control of software

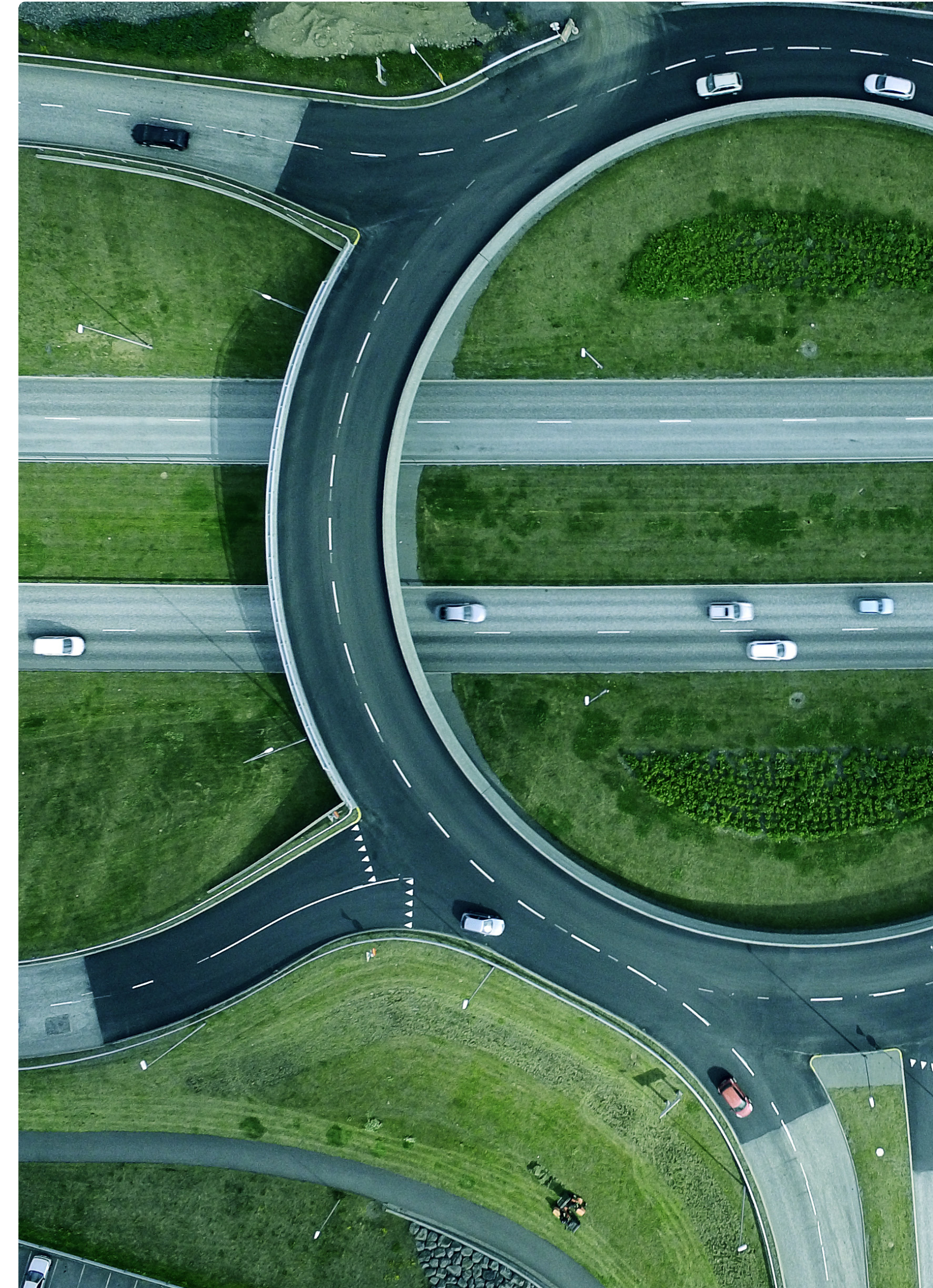
In the past, carmakers have relied on Tier One providers to make hardware/software recommendations and deliver solutions based on functional requirements. Often multiple vendors would be involved in these 15-year lifecycles of configuration and reiteration that depended on third parties to deliver. However, in a dynamic market where there is much greater urgency to innovate and monetise new services, this process does not work.

For automakers to compete and stay agile today, they must take back control of their software. To achieve this, they must create a single view architecture where high-performance computing runs multidomain functionality within the vehicle. Having full control and visibility over every element of the software-defined vehicle, will enable them to make changes and explore new opportunities quickly as they arise.

Giving OEMs complete control

Cubic³ Cloud provides car manufacturers with one centralised point of control, simplifying every aspect of connectivity management. Integrating easily with a manufacturer's backend systems, Cubic³ Cloud streamlines operations and enhances scalability so OEMs can maximise the power of the software-defined vehicle. For car makers this unlocks new opportunities for innovation and more personalised user experiences.

In addition, seamless over-the-air updates, live diagnostics and data collection and the ability to “adopt and drop” new features, also provide automakers with the flexibility to adapt quickly to market changes.



5. Unlock the value of data

To strengthen and build customer relationships – which are already divided between mobile phone manufacturers, operators and operating systems – automakers must harness their vehicle data and use this to add value for their users.

Insights from in-car data can add significant value, either as a means of cost reduction (OTA remote diagnostics, maintenance, recalls), revenue generation (infotainment advertising, tracking services, insurance partnerships) or better user experiences (VoIP, infotainment, advanced navigation, features-on-demand).

With biometric data about the driver also in the pipeline, the opportunities for automakers to provide even more personalised services in the future is endless.

One unified platform holds the key

Cubic³ Cloud provides automakers with one centralised point of control through which all SIM lifecycles, OTA updates and other connectivity needs are managed.

This single point of access, streamlines operations for OEMs while also unlocking advanced insights into vehicle performance, data usage and customer experience helping OEMs identify new opportunities and drive revenue.

An opportunity car manufacturers can't afford to miss:

For automakers to harness the power of the software-defined vehicle, cars must become autonomous digital platforms, capable of interacting with infrastructure, people and other vehicles, as well as the network itself. The potential benefits are extensive ranging from new business opportunities and revenue streams to improved vehicle performance and customer loyalty.

To achieve this however smart, global connectivity is essential. Cubic³ Cloud, our intelligent connectivity management platform, delivers seamless global coverage across 200+ countries and more than 550 networks. One centralised point of control, means SIM lifecycles, OTA updates and all connectivity needs are managed in real time through a single access point.

This not only streamlines operations but also, because of access to multiple data sources, unlocks valuable insights for OEMs, enabling them to scale and harness the true power of the software-defined vehicle.



About Cubic³

Cubic³ delivers advanced connectivity solutions for software-defined vehicles and other high-value mobile assets in over 200 countries around the world. We help leading automotive, transportation and agriculture OEMs solve the complexities associated with connecting vehicles and assets through different technologies, while complying with local and international regulatory mandates. With access to more than 550 mobile networks globally, our 'powerfully smart connectivity' enables OEMs to innovate, scale and multiply business opportunities, giving them the insights they need to drive operational efficiencies, create new revenue streams and ultimately thrive in a fast-paced world.



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