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From Mobile to ADAS

Qualcomm's strategic journey into Automotive Tech

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Omdia commissioned research, sponsored by Qualcomm

Contents

A decade of strategic transformation

While the automotive sector has always attracted component and software suppliers, it has also presented unique challenges: lengthy design cycles, complex supply chains dominated by Tier 1 suppliers, margin pressure, and risk-averse OEMs.

The industry-wide shift toward software-defined vehicles is fundamentally reshaping power dynamics, with OEMs becoming more receptive to innovation and recognizing the value of over-provisioned vehicle systems that deliver post-sale value. However, intensifying geopolitical tensions and economic headwinds have significantly slowed this transition, forcing many technology giants to reconsider their automotive commitments.

Market Dynamics: Competitors Retreat While Qualcomm Advances

Recent market movements among key semiconductor players reveal a telling pattern:

- **Intel**: After prominently showcasing its "AI Everywhere" automotive strategy at CES 2024, Intel made the surprising decision to exit the automotive market entirely by mid-2025, abandoning years of investment.
- **AMD**: Despite positioning its Xilinx acquisition as a transformative move to create a formidable automotive technology powerhouse, the expected market impact and technological synergies have yet to materialize.

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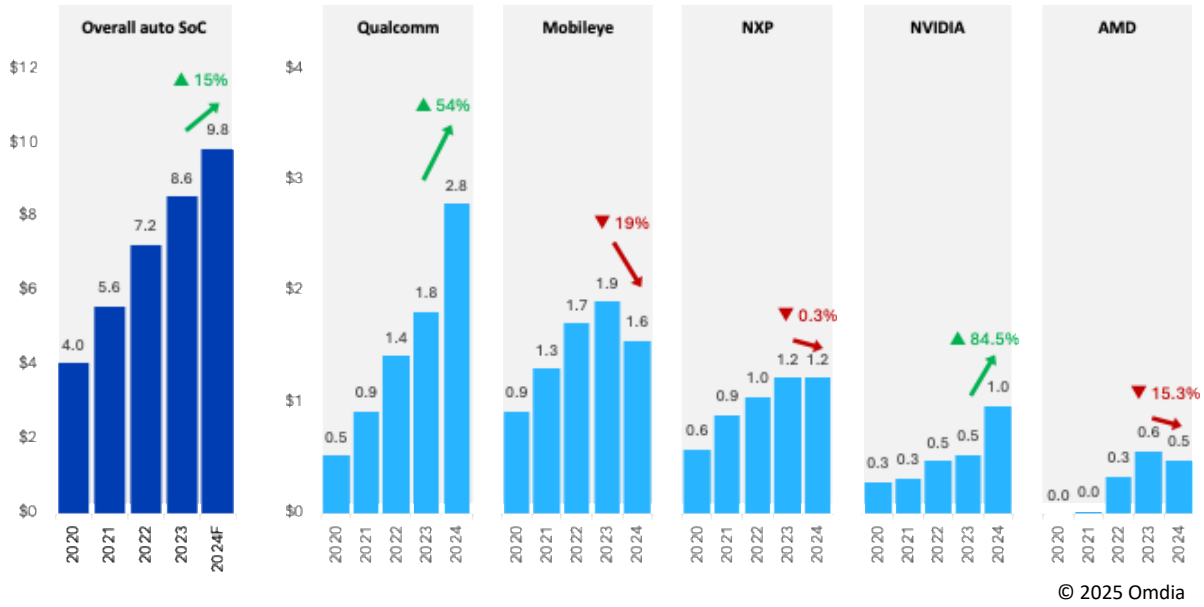
- **NVIDIA**: Despite its established and growing automotive presence, NVIDIA has noticeably reduced its focus in this sector.

Against this trend of retreat, Qualcomm has demonstrated persistence and commitment, methodically building an automotive technology portfolio that leverages its edge intelligence expertise. The results speak for themselves: Omdia research shows that Qualcomm has emerged as the leader in the expanding automotive system-on-chip market, generating $2.9 billion in revenue for 2024.

This momentum continues into 2025, with the company reporting $984 million in automotive revenue for Q3 FY2025—representing an impressive 21% year-over-year growth. For context, during the same period, NVIDIA's automotive segment generated $449 million, while industry veteran NXP reported $1.73 billion in Q2 FY2025. In 2022, Qualcomm set a target of reaching $4 billion in automotive revenues by fiscal year 2026, and the company reports that it is on track to achieve this goal approximately 12 months ahead of schedule.

Figure 1: Automotive SoC market by top 5 suppliers ($ billion)



Source: Omdia

Strategic Evolution: From Smartphones to Software-Defined Vehicles

Qualcomm's journey in the automotive industry began with telematics and evolved into infotainment systems—a natural extension of its smartphone expertise. Subsequently, the company has strategically broadened its focus to include Advanced Driver Assistance

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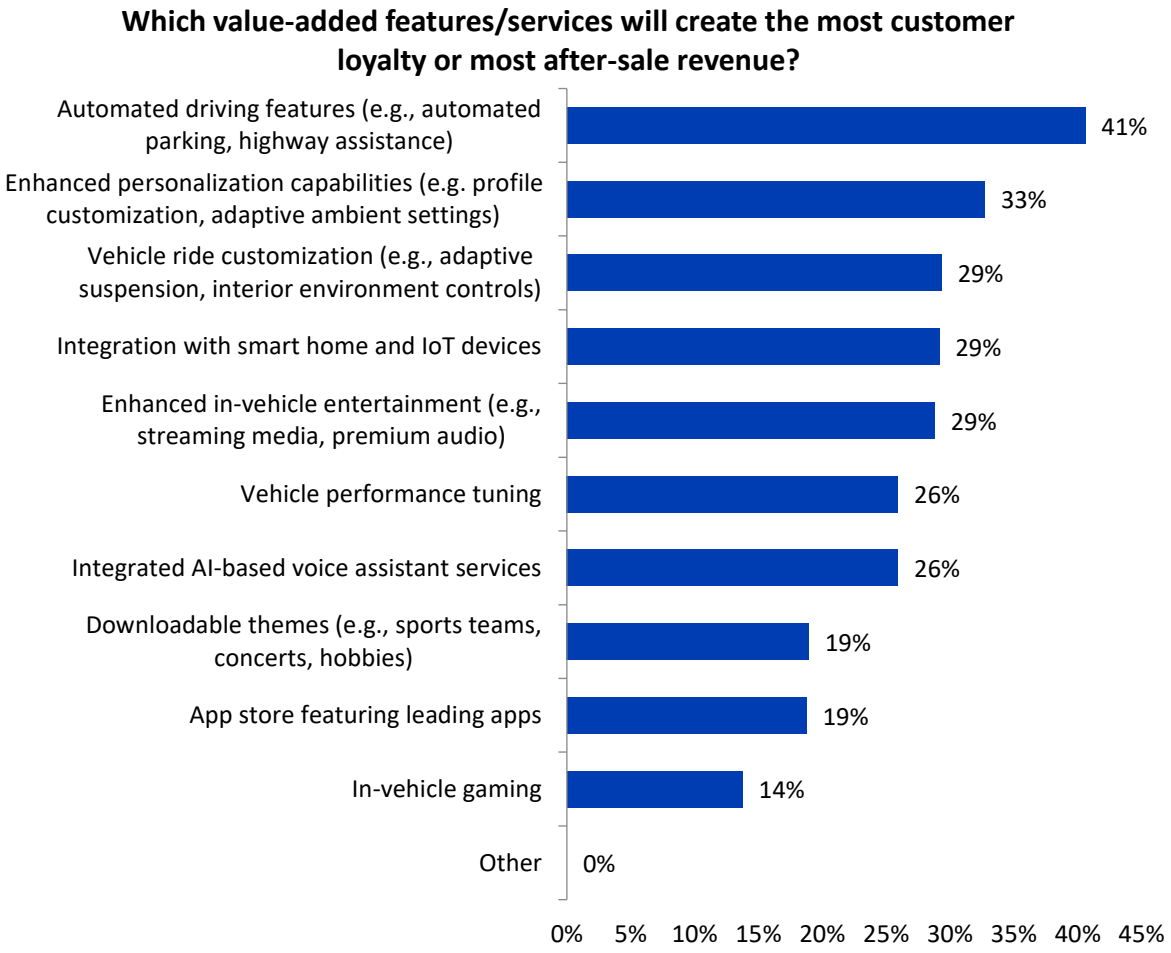
Systems (ADAS). This pivotal shift, initiated approximately five years ago, stemmed from Qualcomm's foresight that ADAS technology would become fundamental across all mobility platforms.

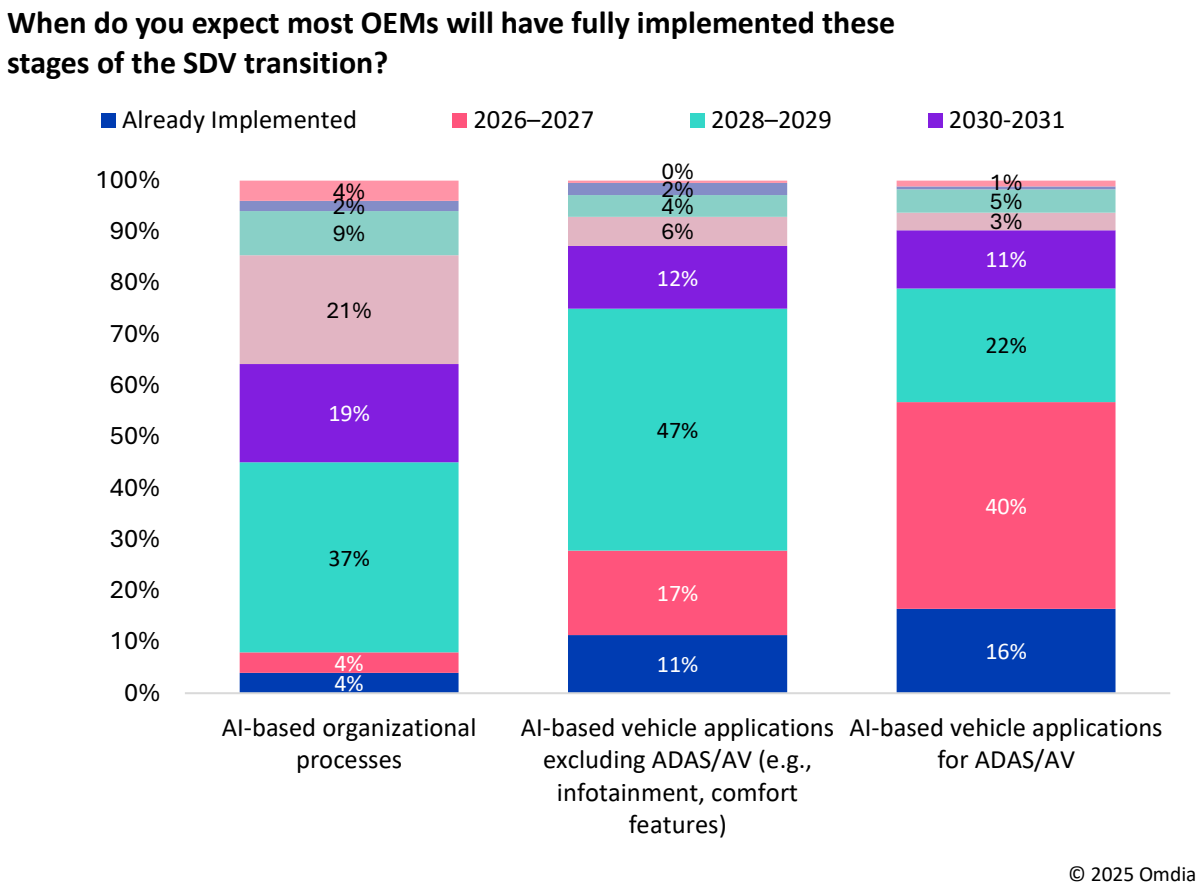
Figure 2: Survey results



Source: Omdia

Time has validated this strategic decision. According to a 2025 global automotive industry survey conducted by Omdia, automated driving features rank as the primary driver of both customer loyalty and revenue generation among all respondents. The research further reveals that, in the ongoing transition toward Software-Defined Vehicles (SDV), ADAS and autonomous driving capabilities will be among the first features to incorporate edge AI technologies.

Figure 3: Survey results



Source: Omdia

The Evolution of Software-Defined Vehicles

The transition to SDVs is revolutionizing vehicle architecture by consolidating electronic control units (ECUs) into centralized domains or central computing systems, often within variations of zonal Electrical/Electronic (E/E) architectures. This consolidation abstracts control and intelligence from the hardware, simplifying software development and enabling seamless software upgradability across vehicle systems. Centralized computing further optimizes computing resources and memory allocation, and facilitates cross-domain applications by merging data from multiple sensors.

These advancements naturally demand more sophisticated hardware platforms capable of efficient sensor fusion processing and executing increasingly complex AI algorithms with low latency and high reliability—particularly for mission-critical functions.

Furthermore, Zonal E/E architectures—which Omdia predicts will account for 68% of all software-defined vehicles (SDVs) sold by 2030—are creating an ideal environment for deploying cutting-edge AI technologies, including generative and agentic AI, within the vehicle. By connecting nearly all vehicle sensors within a robust computing framework and edge AI, these architectures are transforming cars into fully interconnected systems. In this new paradigm, AI is no longer just a component but the central orchestrator of vehicle functionalities, blurring the boundaries between traditionally separate domains, such as infotainment and ADAS.

This development positions Qualcomm at the forefront of two major shifts in the automotive industry: the rise of autonomous driving systems and the incorporation of advanced edge computing inside vehicles.

Building Automotive Credibility Through Learning

Qualcomm’s worldwide scale and deep ecosystem relationships, enhanced by its intelligent edge technologies refined through decades of mobile innovation and collaboration with industry leaders such as Samsung, have undoubtedly served as a competitive advantage in the automotive sector.

Qualcomm has transferred its expertise in high-performance, energy-efficient computing from smartphones to vehicles through its unified technology roadmap, accelerating the development of sophisticated automotive solutions while maintaining the reliability and scalability demanded by global automakers. However, Qualcomm's trajectory in ADAS stems primarily from critical lessons learned through its cockpit platform deployment in 2018.

Cockpit System-on-Chips (SoCs), by definition, distinguished themselves from conventional infotainment processors by integrating non-mission-critical infotainment workloads with mission-critical vehicle cluster functions. This fundamental integration necessitated strict compliance with automotive functional safety standards—introducing Qualcomm to the substantially higher performance, safety, and security requirements that differentiate automotive applications from consumer electronics.

Managing mixed-criticality environments — including working with hypervisors, separate virtual machines, and safety islands — represented an expansion of Qualcomm's traditional expertise. While competitors have cited functional safety experience as one of Qualcomm's potential weaknesses, the company approached this challenge with humility and commitment to learning and adaptation.

This experience fundamentally reshaped Qualcomm's automotive approach, with safety becoming the cornerstone of its automotive strategy. ‘Safety by design’ is the foundational premise of the company’s new Snapdragon Ride Flex architecture that enables a single chip to run infotainment, ADAS, or combinations of both, allowing customization based on specific needs.

The focus on safety appears to have resonated with automakers. Notably, a third of Qualcomm's estimated $45 billion automotive design pipeline now stems from ADAS.

Industry Convergence: Microprocessors and Microcontrollers

A notable emerging trend appears to be the convergence between traditionally separate domains, as microprocessor suppliers develop safety competencies that were once exclusive to microcontroller suppliers. Simultaneously, microcontrollers are becoming more sophisticated to handle workload distribution and processing capabilities in zone controllers, increasingly resembling low-tier microprocessors.

Intel pioneered this convergence by offering microcontrollers for zone controllers in zonal architectures through its acquisition of Silicon Labs. Nevertheless, with Intel's market exit, it will be interesting to see if Qualcomm follows the trend by expanding its portfolio in similar directions.

The ADAS Breakthrough: Strategic Acquisition and Partnership

Despite the internal learning curve, Qualcomm recognized that internal capabilities alone would not suffice in the specialized domain of ADAS; instead, it used its technical foundation as a springboard for two strategic moves: acquiring Arriver for specialized autonomous driving expertise and partnering with BMW for market validation.

The Arriver Acquisition and BMW Partnership

A pivotal development in Qualcomm's ADAS strategy materialized with the April 2022 acquisition of Arriver, complemented by a partnership with BMW. This collaboration has involved approximately 1,400 team members working together over a three-year period.

Qualcomm delivers its 360-degree surround computer vision stack while jointly developing the drive policy stack and safety guardrails with BMW's automotive systems specialists. This co-developed autonomous driving platform is scheduled for initial deployment across more than 60 countries, with planned expansion to over 100 countries by 2026. The first tangible outcome of this partnership will debut in the BMW iX3, launching in September 2025 at the IAA in Munich. This launch represents a critical milestone and a real-world test of Qualcomm's ADAS proposition, serving as a proof point of whether its scalable

platform—ranging from regulatory-compliant basic driver assistance to advanced, context-aware systems with highly automated driving functionalities—can deliver on its promise.

One of the partnership's most valuable aspects for Qualcomm is the global validation of its ADAS technology, as well as access to crucial driving data, addressing a current weakness compared to established players such as Mobileye and NVIDIA.

By blending internal expertise with external capabilities, Qualcomm established itself as a competitive player in automotive technology without attempting to develop all ADAS components independently—a strategic approach that reflects the industry's evolving direction. This methodology aligns with Qualcomm's broader strategy, as emphasized by Cristiano Amon, the company's President and CEO, during the November 2024 Investor Day event.

Figure 4: Qualcomm's Growth Framework, presented at the 2024 Investor Day event

Source: Qualcomm

Scaling Beyond BMW

As vehicles become increasingly software-defined, traditional supplier hierarchies are evolving into sophisticated collaboration and 'coopetition' models, creating competitive advantages for companies experienced in orchestrating complex technological ecosystems. Qualcomm's partnership with BMW exemplifies this forward-thinking approach, demonstrating how cross-industry collaboration can accelerate innovation in the automotive sector.

However, many automotive companies continue to grapple with these evolving relationship dynamics, hindered by the industry's deeply ingrained culture of intellectual property protection and historically siloed development practices. This raises a critical question: how will Qualcomm scale its partnership with BMW to broader applications?

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Qualcomm serves as the sole go-to-market partner for the platform, leveraging this collaboration to deliver a validated stack across multiple regions. This stack is designed to be adaptable for other manufacturers, accommodating diverse sensors and driving requirements.

The insights and experience gained through the BMW partnership will strengthen Qualcomm's ability to address the broader automotive market, enabling tailored solutions for other automakers through partnerships cultivated under its Snapdragon Digital Chassis platform.

As for BMW, the automaker benefits through accelerated time-to-market and reduced investment requirements—a model that represents the future of automotive technology development.

Qualcomm's Cross-Sector Technology Approach

Through internal technology synergies, Qualcomm has accelerated its automotive technology development cycle to more closely align with its mobile innovation timeline—a notable progress considering the automotive industry's traditionally longer adoption cycles.

The company is now extending this approach to IoT and robotics applications, a strategic direction also being pursued by competitors, including NVIDIA. The trend indicates growing convergence between autonomous vehicle and robotics development paths, with companies possessing expertise in one domain potentially gaining competitive positioning across multiple intelligent system categories.

In fact, many claim that vehicle automation technologies will represent foundational enablers of humanoid robotics, an emerging category that is gaining momentum, especially in China.

Looking forward

As vehicles continue to modernize and transition to software-defined architectures, Qualcomm is positioned as a key enabler of this transformation. The company's experience across multiple digitalized industries provides valuable cross-industry insights that benefit its automotive partners.

The BMW Neue Klasse vehicles will serve as physical proof of Qualcomm's ADAS capabilities. Interestingly, during this development journey with BMW, Qualcomm developed microcontroller capabilities as part of creating a safety island within the Snapdragon platform, along with in-vehicle communication capabilities in the vehicle processor.

Whether Qualcomm will fill the void left by Intel's exit from automotive by focusing on whole-vehicle solutions remains to be seen. However, the company has accumulated extensive automotive expertise and is preparing to offer strong competition to NVIDIA and Mobileye in ADAS.

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