S&P Global
Mobility

AutoTechInsight Insights
September 2025

Understanding the rise of software-defined vehicles – Interview with KPIT Technologies

22-Sep-2025 15:09 GMT

Matthew Beecham
S&P Global
Supply Chain and Technology, Automotive

Q&A with KPIT

Software-defined vehicles (SDVs) are reshaping the automotive landscape, marking a significant departure from traditional vehicle design and functionality. This transformation is fueled by a growing demand for enhanced connectivity, automation and user-centric features. As cars increasingly rely on software to operate, capabilities such as autonomous driving, advanced infotainment systems and vehicle-to-everything (V2X) communication are becoming standard.

The SDV ecosystem is structured around a layered software architecture that includes cloud services, application platforms and critical cybersecurity measures. Companies like KPIT are pivotal in this evolution, offering solutions that span multiple layers — from electrical and electronic architecture to middleware services. Their involvement is essential as manufacturers grapple with the complexities of integrating sophisticated software with hardware while ensuring robust security protocols are in place.

Regional dynamics further complicate the SDV landscape. In China, a rapid pace of innovation is driven by a focus on customer experience and cutting-edge features. European manufacturers, on the other hand, are emphasizing standardization and safety, while in the US, the spotlight is shifting toward AI-enhanced capabilities. As the market continues to evolve, the interplay of technological advancements, regulatory shifts and changing consumer expectations will shape the future of mobility.

To learn more, S&P Global Mobility analysts Owen Chen, Senior Principal Analyst; Manuel Tagliavini, Principal Analyst, SCT Software; and Apurva Thakre, software-defined vehicle research analyst, engaged with Sachin Tikekar, joint managing director, co-founder and board member, KPIT Technologies, and Omkar Panse, senior vice president & chief architect, KPIT Technologies.

Sachin Tikekar [Source: KPIT]

Omkar Panse [Source: KPIT]

Key takeaways:

- **Shift to solutions and products:** KPIT is moving from a traditional service model to one that emphasizes solutions and products. This shift aims to accelerate time to market and reduce cost with reliability by providing more customizable options for original equipment manufacturers, addressing the complex challenges they face in the automotive sector.
- **Regional and global strategy:** The company adopts a strategy that focuses on tailoring solutions for European OEMs while also considering global needs. This dual approach enables KPIT to respond to specific market conditions and regulatory requirements in Europe while maintaining a broader perspective.
- **Involvement in the software-defined vehicle ecosystem**: KPIT is engaged in the SDV ecosystem, offering solutions that span all layers, from E/E architecture, middleware, application integration, cybersecurity and connected services. The company collaborates with OEMs to address complex integration challenges within this evolving landscape.
- **Focus on the Indian and Chinese markets:** With global OEMs relocating R&D centers to India and China, KPIT aims to utilize local resources and expertise to develop vehicles suited for these markets. This focus on localization reflects India's and China's increasing importance in the global automotive industry.

The following is an edited transcript of the conversation:

Owen Chen: Could you please give us an introduction to KPIT, its core products and how the company positions itself in the software-defined market?

Sachin Tikekar: Absolutely and thank you for having us. At KPIT, our vision is to 'Reimagine Mobility for a Cleaner, Safer, and Smarter World.' This vision is not just a statement; it drives every aspect of our operations and strategy. We believe that to make a significant impact in the mobility ecosystem, we must collaborate with the entire supply chain, from chip to cloud, to assist OEMs in enhancing their vehicles.

Our approach is holistic. We recognize that the challenges faced by OEMs are complex and multifaceted, ranging from technological advancements to regulatory compliance and consumer expectations. To address these challenges, we are transitioning from a traditional services company to a solutions and product-oriented company. This transition is not merely a shift in our business

model; it reflects our commitment to innovation and excellence in the mobility sector.

In defining our offerings, we differentiate between solutions and products. Our definition of solutions involves assets that can be reused for customization, providing a 50% head start for specific OEMs. This means that when we develop solutions, we design them with flexibility and adaptability in mind, allowing OEMs to tailor them to their unique requirements. On the other hand, products are more than 90% ready for deployment, which means they can be quickly integrated into existing systems, minimizing time-to-market for our clients.

A significant part of our business strategy focuses on this transition, supported by building in-house capabilities, making strategic acquisitions such as Technica Engineering, investing in innovative ventures like N-Dream, and forming key collaborations, including our joint venture Qorix with ZF and Qualcomm to develop middleware solutions. Additionally, our partnerships with Chip-to-Cloud providers further reinforce our commitment to innovation and leadership in this evolving market.

We primarily serve about 25 clients across passenger cars, trucks and off-highway vehicles, ensuring we keep their best interests at heart to solve their complex challenges. We pride ourselves on our ability to adapt our solutions to meet their specific needs.

Owen Chen: I would like to follow up on KPIT's strategy in Europe. I've heard terms like "in Europe for Europe" and "in India for Europe." Could you clarify the best way to describe this strategy?

Sachin Tikekar: Certainly. From a passenger car perspective, we collaborate closely with all OEMs in Europe, with our offices strategically located near them, including a recent office in Sweden. Our approach is centered on understanding and acting in the best interest of our clients, which encapsulates the "Europe for Europe" strategy.

This strategy involves tailoring our solutions and services to meet the specific needs of European OEMs, taking into account the unique regulatory and market conditions they face. We recognize that the European automotive market is characterized by a strong emphasis on sustainability, safety and technological innovation. Therefore, our solutions are designed to align with these priorities.

Additionally, we have some solutions and products developed in Europe that cater to global needs, thus embodying a "Europe for Global" strategy as well. This dual approach allows us to leverage our European presence while also addressing the broader demands of the global market.

By combining local insights with global expertise, we aim to provide our clients with the best of both worlds, ensuring they remain competitive in an ever-evolving landscape.

Owen Chen: Moving on to the SDV ecosystem, Manuel, could you present our study regarding the layers in this ecosystem? Specifically, which layers are in scope and which are out of scope?

Manuel Tagliavini: Sure. We categorize the software stack from the cloud down to application platform services, cybersecurity, middleware services, automotive OS and hypervisor. Our focus is primarily on the layers above the application layer, as applications are more specific to individual domains.

In our study, we have identified various software suppliers that provide solutions for each of these layers. Our goal is to track the evolution of the software-defined vehicle ecosystem and understand how these layers interact with one another.

We assess the balance of in-house versus outsourced efforts for each layer across OEMs, understanding their activities related to customization and integration. This analysis helps us identify trends layer by layer, especially in areas like cybersecurity and hypervisors, where integration complexities arise.

For example, in the cybersecurity layer, we recognize the importance of robust security measures to protect vehicles from potential threats. This layer is critical, given the increasing reliance on software and connectivity in modern vehicles.

Owen Chen: What specific products or solutions does KPIT focus on within these layers?

Sachin Tikekar: That's a great question. Our philosophy is to be client-centric, understanding their needs comprehensively. We engage from the design architecture stage to the start of production, collaborating with various partners along the way.

Omkar can elaborate on our specific offerings across these layers.

Omkar Panse: One critical area where we support OEMs is electrical and electronic (E/E) architecture, which is the foundation for successful SDV programs. We provide both hardware and software products and solutions, from concept development to vehicle-level validation.

For example, Technica, now part of KPIT, is a pioneer in Automotive Ethernet technology. They have been instrumental in developing cutting-edge solutions that enhance vehicle connectivity, network security and performance.

We also partner with OEMs to develop platform services and middleware solutions, ensuring we are at the forefront of integration and product strategy. Our approach is to collaborate closely with our clients, understanding their unique requirements and delivering tailored solutions that drive efficiency and innovation.

In addition to our work in E/E architecture, we also focus on cybersecurity, where we provide expertise in testing and validation. Our dedicated blue and red teams help OEMs strategize their cybersecurity approaches, ensuring that vehicles are protected against emerging threats and remain secure till the end of life.

Owen Chen: Can you share some major customers KPIT is working with in these segments?

Sachin Tikekar: While we must respect confidentiality, I can share what is already in public domain. We are the development partner for Honda's and Renault's first-generation SDV, handling extensive software integration. This partnership exemplifies our commitment to delivering comprehensive solutions that meet the needs of our clients.

We also work with BMW on e-powertrain projects amongst other things, where we provide critical support in developing efficient and sustainable solutions. Our partnerships extend across various OEMs in Europe and North America, including JLR, Stellantis, General Motors and PACCAR.

These collaborations highlight our ability to adapt our solutions to meet the specific needs of our clients, ensuring they remain competitive in a rapidly evolving market.

Owen Chen: I'd like to explore regional differences in SDV development among China, Europe, and the US. What insights can you share?

Omkar Panse: The trajectories of SDV development differ significantly by region. In China, new OEMs have focused on customer experience and features like autonomous driving and connectivity. This approach has allowed them to rapidly innovate and bring new features to market. The sustainability and scalability of this will need strong architecture foundation.

In Europe, there is a strong push towards standardization and collaboration, as seen with initiatives like the SDV Alliance projects. European OEMs are keen on creating a robust software ecosystem that addresses safety, security, and interoperability challenges.

The focus is also shifting towards AI-defined vehicles, driven by tech giants like NVIDIA and Qualcomm. This trend reflects a growing emphasis on leveraging artificial intelligence to enhance vehicle capabilities and user experiences.

Indian OEMs seem to be blending these approaches, learning from both the successes and challenges faced in other regions. They are keen to adopt cutting-edge technology while keeping costs manageable, positioning India as a significant player in the SDV landscape.

Owen Chen: Lastly, regarding the ecosystem and partnerships, how do OEMs balance in-house development with external partnerships?

Sachin Tikekar: There's no one-size-fits-all answer; it varies by OEM and evolves over time. Some OEMs, like Toyota, have built extensive in-house ecosystems, while others may rely on partnerships.

The trend is towards maintaining control and ownership over key differentiators while leveraging partners for specific expertise. This dynamic is influenced by market conditions and the desire to avoid vendor lock-in.

For example, many OEMs are now focusing on building their own software capabilities to ensure they can quickly adapt to changing consumer demands. However, they also recognize the value of collaborating with external partners who can provide specialized products, solutions, knowledge and resources.

Omkar Panse: Exactly. OEMs are increasingly looking to manage their architecture while collaborating with partners for specialized solutions, ensuring they remain agile and competitive. This approach allows them to focus on their core competencies while benefiting from the expertise of their partners.

Manuel Tagliavini: Additionally, areas like AI development and cybersecurity often require continuous investment, making external partnerships essential. OEMs understand that they cannot do everything in-house, especially in rapidly evolving fields like AI and cybersecurity.

Apurva Thakre: From the Indian market perspective, we've seen global OEMs shifting their R&D centers to India. How do you see this trend evolving?

Sachin Tikekar: India is rapidly building its own mobility ecosystem, with global OEMs now aiming to create vehicles tailored for the Indian market. We are witnessing a shift towards localizing production and innovation, which is crucial for meeting the unique demands of Indian consumers.

This trend is not just about cost savings; it's about leveraging India's talent pool and technological capabilities to develop solutions that resonate with local consumers. As global OEMs recognize the potential of the Indian market, we expect to see more investments in R&D and innovation.

Omkar Panse: Indeed, Indian OEMs are keen to adopt cutting-edge technology while keeping

costs manageable, positioning India as a significant player in the SDV landscape. The collaboration between local and global players will be key to driving innovation and ensuring that India remains at the forefront of the automotive industry.

Sachin Tikekar: Moreover, we are seeing a growing interest from Indian conglomerates in the mobility space. They are looking to integrate various components from different sources, including technology from China and Europe, while relying on partners like KPIT to bring everything together and ensure successful vehicle launches.

CONTACTS

The Americas
+1 877 863 1306

Europe, Middle East & Africa
+44 20 7176 1234

Asia-Pacific
+852 2533 3565

www.spglobal.com/mobility