The power of vehicle systems working together

Unifying AI, ADAS and the digital cockpit before production begins



Built in silos but experienced as one

Before the production process starts, automakers are faced with a critical inflection point. Years of architectural decisions and feature development, including AI, have to converge into a single, coherent in-vehicle experience.

But most automakers still develop ADAS, digital cockpit, vehicle UX and connected services in separate environments, with separate data and workflows.

On their own these systems may perform well. But customers don't experience your systems in isolation. They experience one vehicle, one interface, one level of trust.

The last chance to fix inconsistencies

Any fragmentation, across UX, behavior or data quickly becomes a customer problem, eroding confidence in your brand by causing issues such as:

- → ADAS behavior conflicts with navigation guidance
- → Cockpit displays don't reflect real driving decisions
- → AI assistants lack awareness of driving context
- → Connected services feel disconnected from the core experience

At the same time, the underlying systems across digital cockpit, ADAS, automated driving and AI assistants have never been more complex:

- → ADAS is shifting from rule-based logic to AI-driven decision-making
- → Digital cockpit systems are becoming software-centric brand environments
- → AI assistants are evolving into context-aware copilots

Making complexity visible

The myriad systems behind vehicles in separate environments, with separate data and workflows, don't just hide issues, they can actually cause them



The cost of getting it wrong

As vehicles become more automated (especially at L2/L2+), consistency, not capability, drives trust. Fragmentation of underlying systems can lead to:

- → Inconsistent UX and behavior
- → Reduced trust in automated features
- → Increased integration costs late in the cycle
- → Slower rollout of new capabilities

What needs to change

Before production begins, automakers need to shift from integration to orchestration. Ideally, automakers should have:

- → A shared source of truth across all systems
- → An aligned AI lifecycle (training → validation → deployment)
- → A consistent experience across all domains

Consistency is the new premium

In the software-defined era, premium is no longer defined by features alone. It's defined by how systems behave together, how predictable automation feels and how seamless the experience is. This is especially critical as the industry moves toward end-to-end AI systems, where driving behavior is learned and not explicitly programmed.

What's changed?

Historically, premium manufacturing meant quality hardware, performance and reliability, and individual feature leadership. But in the modern era, premium is all about consistency across vehicle behavior, location data and user experience.

Premium vehicle behavior

→ ADAS decisions align with navigation routes
→ AI assistants understand driving context
→ Systems respond in predictable, human-like ways

Premium location data

All systems rely on a shared, trusted source of truth, including:

→ Lane-level information
→ Traffic rules and restrictions
→ Real-time conditions

Without this, inconsistencies may emerge. The vehicle's ADAS might choose one maneuver, navigation might suggest another or the digital cockpit might display information that contradicts vehicle behavior.

Premium user experience

To deliver a cohesive experience, AI models, ADAS logic and UX behaviors should be trained, tested and validated against the same understanding of the world.

Inconsistent UX patterns or logic across domains break the illusion of intelligence and reduce perceived quality. Drivers experience a single interface, assistant and vehicle personality, so your vehicles should reflect that.

The importance of getting it right

Enhances trust

- → Predictable, aligned behavior improves driver confidence
- → AI decisions feel more consistent and predictable

Differentiates brand experience

- → The cockpit, ADAS, and assistant act as one coherent system
- → The vehicle expresses a coherent experience

Accelerates time to market

- → Reduced integration friction
- → Faster validation through unified environments

Avoids costly rework

- → Issues identified before production instead of after launch
- → Fewer post-launch fixes and updates

How to build for cross-domain orchestration

To deliver consistency at scale, you need more than tools. You need a unified development foundation that helps teams connect data, systems and workflows across domains.

Delivering consistency across domains

Shared source of truth
Ensure all systems operate from the same understanding of the world by using a shared source of truth.

Alignment across AI, ADAS and experience
Continuity helps you to:

- → Train AI models with consistent, high-quality map data
- → Simulate and validate across domains
- → Ensure behavior matches UX expectations

Simulation at scale

Simulation is where ADAS decisions, cockpit behavior and AI responses are validated together, and not in isolation. Virtual testing allows you to benefit from:

- → Up to 7× more testing scenarios
- → Earlier detection of cross-system issues
- → An end to heavy reliance on physical prototypes

While increasing cross-team collaboration by ensuring:

- → ADAS, cockpit, AI, and data teams work in one environment
- → Shared tools, pipelines and workflows
- → Reduced silos and faster alignment

Retain full control over brand and architecture
Keep control over your data, system design and user experience while benefiting from faster development cycles (up to 70%) and lower R&D costs (up to 30%).

Start the conversation

Created in collaboration between Amazon Web Services (AWS) and HERE Technologies, SDV Accelerator allows automakers to speed up development and reduce complexity by designing, building, testing and validating — entirely in the cloud.

Discover how SDV Accelerator helps you create vehicles where AI, ADAS, cockpit and connected services operate as one consistent, branded experience.

- → Align AI, ADAS, digital cockpit and connected services
- → Validate full-system behavior at scale
- → Deliver consistency as a competitive advantage

Let's build vehicles where everything works as one.

Talk to us about supporting your pre-production architecture and validation strategy before constraints are locked in.

Get in touch

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