

AOSS 2026

From Open Source to Market – Commercializing Eclipse S-CORE

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Agenda

- 01 The Industry Shift**
- 02 Eclipse S-CORE & Qorix's Role**
- 03 The Commercial Model**
- 04 The Road Ahead**

The Industry Shift

The Vehicle is Getting More Complex. Fast.

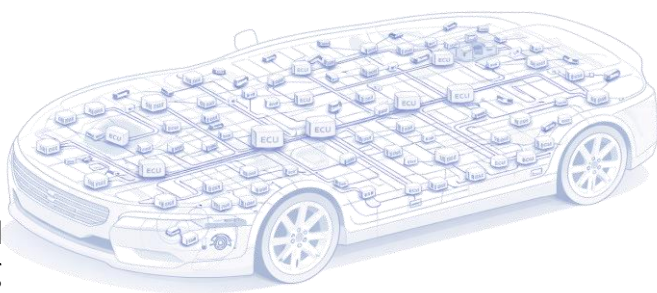
Majority of today's vehicles

Vehicles with > 100 individual **computing units**

Limited scalability and **connectivity**

Inefficient resource utilization


High cable and manufacturing costs



Cars of the future with centralized middleware

≤5 high-performance **computing units**

Cross-domain consolidation and **efficient communication**

Scalable open architecture enabling up-integration




Low cable and manufacturing costs



1

Distributed ECU
(> 100 ECUs per vehicle)

2

Centralized Domain Controller

3

Centralized Computes with Mixed Criticality

Complexity

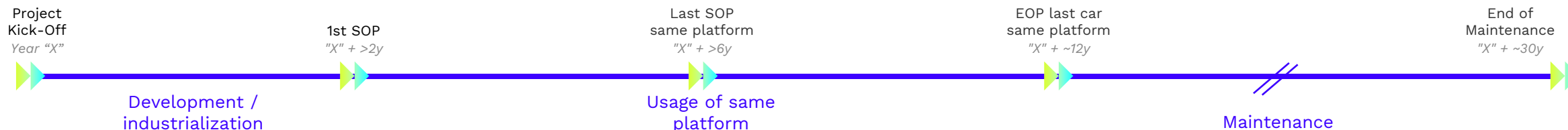
The **ever-increasing complexity** of vehicles and the shift toward **centralized computing** require **high-performance middleware** solutions to ensure **efficient communication** between systems

1) The SAE (Society of Automotive Engineers) levels (L0-L5) define a standardized framework to classify the degree of vehicle automation

Own the Platform. Not the Risk.

▶▶ The question is not whether to own the platform. The question is how to do it without carrying all the risk.

SW LIFECYCLE IN AUTOMOTIVE: ~30 YEARS



CHALLENGE: The 30-Year Burden

- ▶ Automotive SW lives for 20–30 years.
- ▶ Maintenance often exceeds initial dev effort.
- ▶ Safety & cybersecurity continue post-SOP.
- ▶ OEMs become responsible for sustaining engineering over multiple product generations.



RISK: Proprietary Lock-In

- ▶ Reuse becomes dependent on a single supplier.
- ▶ Supplier changes become expensive.
- ▶ Platform evolution slows down.
- ▶ Innovation is constrained by proprietary roadmaps.



Benefit of Open Source

- ▶ Build once, reuse across programs.
- ▶ Reduce dependency on proprietary suppliers. Improve software quality through continuous evolution.
- ▶ Create a common software foundation across brands and vehicle lines.



Eclipse S-CORE

- ▶ Open foundation.
- ▶ Full SW ownership.
- ▶ No supplier lock-in.
- ▶ Ecosystem-driven.
- ▶ Regulated co-development
- ▶ Compliancy enabled



Qorix Performance

- ▶ Commercial bridge.
- ▶ Certification, LTS, liability
- ▶ Production-ready

+

Eclipse S-CORE & Qorix's Role

Specifications Define Goals. S-CORE Delivers Working Code.

Code is the standard.

- ▶ Eclipse S-CORE delivers an 'implemented standard', not a paper one.
- ▶ Code-first removes ambiguity. No room for interpretation.
- ▶ No duplicated work. No incompatible variants.

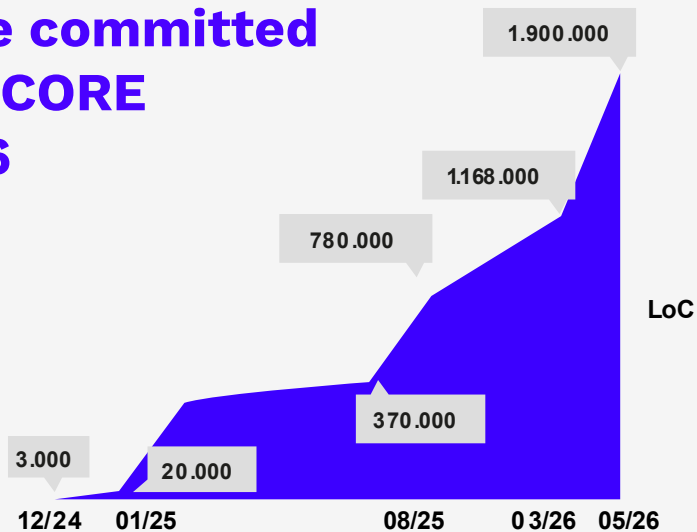
Founding members:

BMW
GROUP

Mercedes-Benz
Tech Innovation

QORIX
accenture
ETAS

Lines of code committed to Eclipse S-CORE in 2025/2026



Source: Eclipse Foundation

>20

Active member companies
contributing to the code base
in the last quarter.

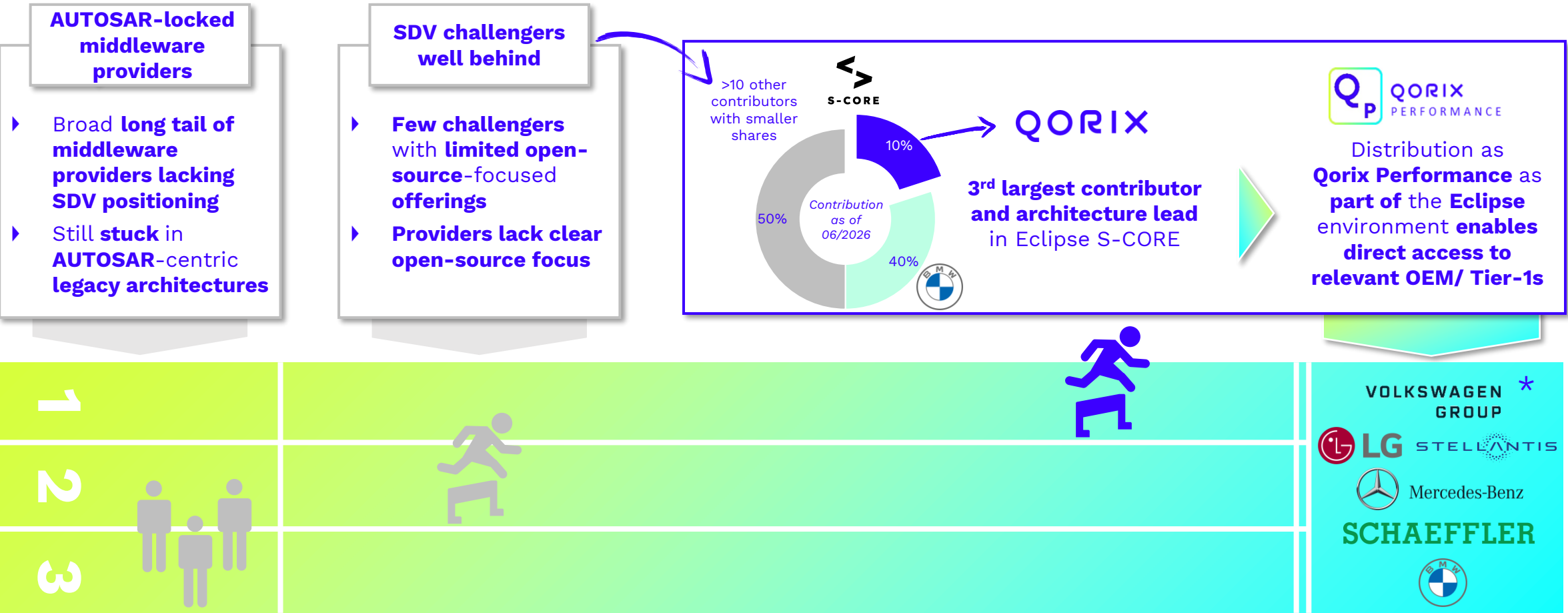
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Individual contributors
committing code in the last
quarter.

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Contributing to S-CORE Opens Doors

Race to SDV ready middleware



4 Partners. 4 Platforms. 4 Use Cases.



ecarX

▶ Technical Set-Up of Demonstrator

- ▶ **SoC:** Qualcomm Snapdragon SA8797P
- ▶ **ECU:** ECARX ref. platform (dual-domain set-up)
- ▶ **OS:** Android + QNX 8.0 (Dual-OS scenario)
- ▶ **Middleware:** Qorix Performance
- ▶ **Applications:**
Cockpit domain: Android-based UI and
ADAS domain: Real-time driving function

▶ Cockpit and ADAS, united on one ECU.

With Qorix Performance, real-time driving functions and infotainment run smoothly together on Qualcomm's next-generation platform – showing how future SDV architectures will operate.



 **Red Hat**

▶ Technical Set-Up of Demonstrator

- ▶ **SoC:** Qualcomm Snapdragon SA8775
- ▶ **OS:** Red Hat In-Vehicle OS (RHIVOS)
- ▶ **Middleware:** Qorix Performance
- ▶ **Applications:** Adaptive Cruise Control

▶ Mixed-criticality on Linux — enabled by Qorix Performance + Red Hat RHIVOS.

A fully open-source-based SDV platform that demonstrates deterministic orchestration, functional separation and a developer-friendly Linux workflow for OEM SDV programs.



KPIT

▶ Technical Set-Up of Demonstrator

- ▶ **SoC:** Qualcomm Snapdragon Ride™ SA8775
- ▶ **OS:** Red Hat AutoSD
- ▶ **Middleware:** Qorix Performance
- ▶ **Application:** KPIT Adaptive Cruise Control
- ▶ **Switch:** Technica's FLYNC configuration tool (2 HPCs, 1 board)

▶ Two hardware platforms, one consistent middleware.

KPIT's ACC orchestrated by Qorix Performance –predictable, portable, and ready for real ADAS workloads.



 **ZF**

▶ Technical Set-Up of Demonstrator

- ▶ **Hardware:** ZF Parking ECU with TI TDA4 SoC
- ▶ **OS:** Red Hat In-Vehicle OS (RHIVOS)
- ▶ **Middleware:** Qorix Adaptive + Qorix Performance Orchestrator
- ▶ **Applications:** ZF Adaptive Cruise Control

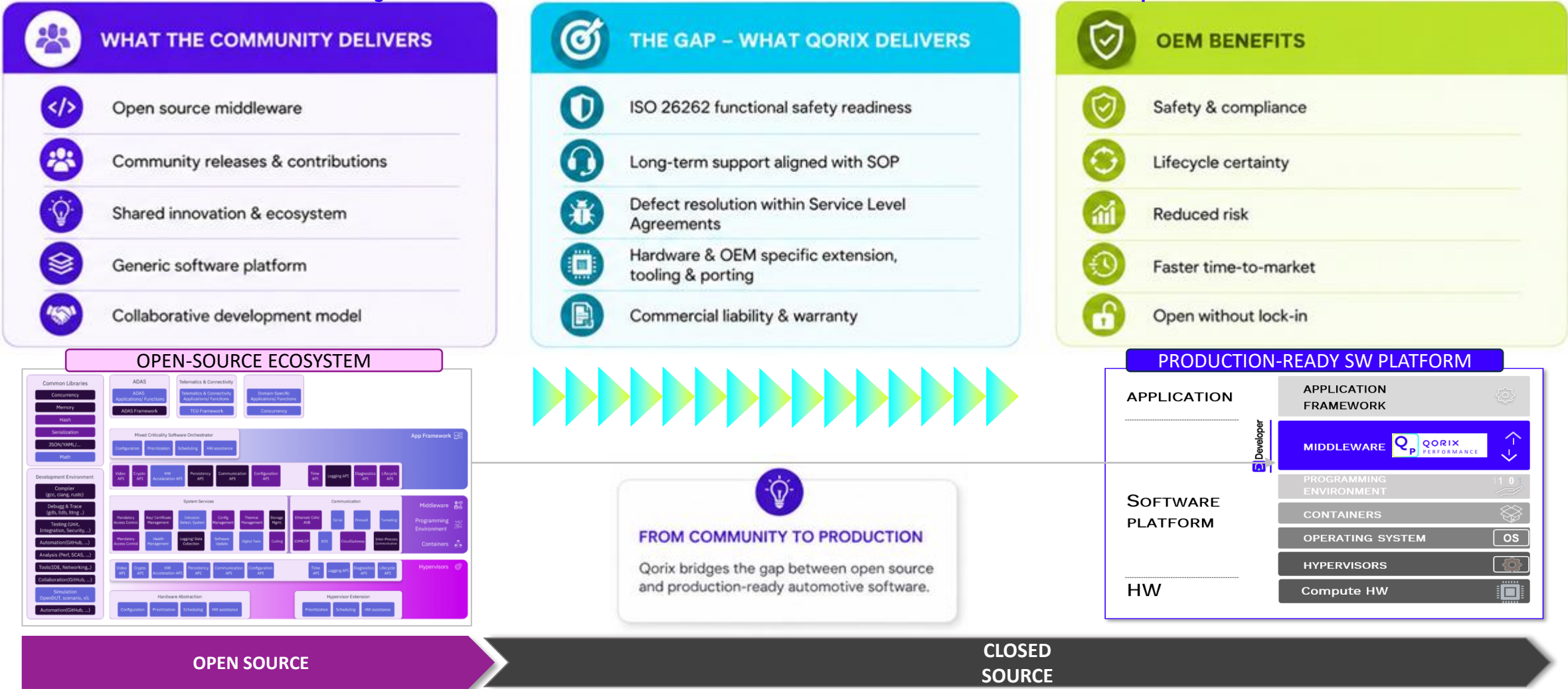
▶ Mixed-criticality on a safety-informed SDV platform – orchestrated by Qorix Performance.

Predictable, safety-aligned runtime execution on automotive-grade hardware.

Qorix Performance turns Eclipse S-CORE concepts into real, automotive-grade middleware – ready for OEM programs with full lifecycle support.

Open Source Does Not Ship Cars

What the community delivers – and what OEMs still need on top of that



Ship Faster. Configure Smarter.

AI-powered tooling for the full SDV middleware stack – in VS Code and the cloud.

5

Stacks
Unified

AI

Natural
Language

0

Toolchain
Fragmentation

What Qorix Developer Delivers



AI-Assisted Configuration

Natural language → validated configuration drafts across Bootloader, Classic, Classic Lite, Adaptive & Performance



Deterministic & Safe Output

AI assists; final configurations remain user-approved, deterministic, and aligned with safety-critical workflows.



Plug & Play Integration

VSCode extensions, Designer-based, Git-native collaboration, and CI/CD-ready artifacts.



One Tool for the Full Stack

Single environment for the entire Qorix middleware portfolio – zero toolchain fragmentation.

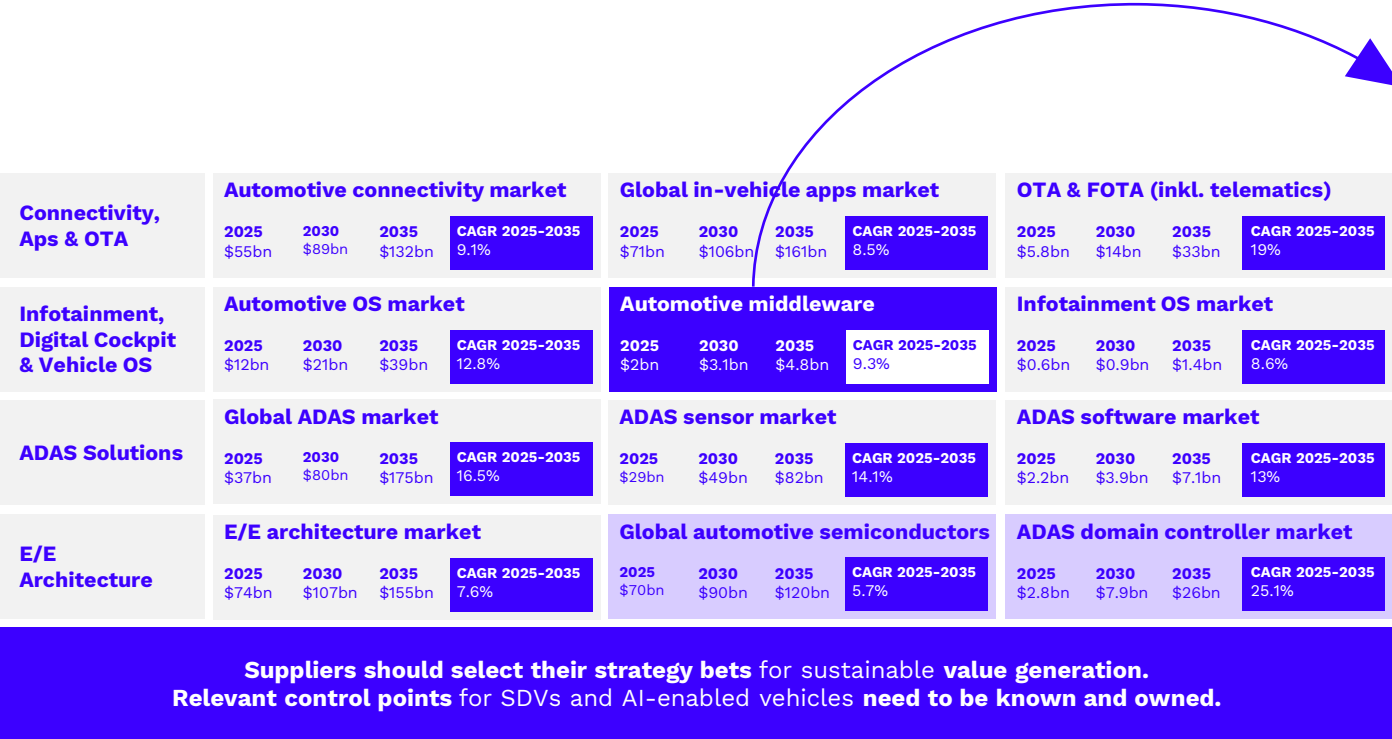
Our Differentiators

- Explainable AI recommendations – the tool tells you why, not just what
- Cross-stack alignment: Classic ↔ Adaptive ↔ Performance – automated, real-time
- Automated conflict detection, cyclic dependencies, invalid scheduling patterns
- OEM-scale variant support with full change traceability for CI pipelines



The Commercial Model

Addressable Market of Automotive Middleware



Automotive middleware

2025	2030	2035	CAGR 2025-2035
\$2bn	\$3.1bn	\$4.8bn	9.3%

Lessons Learned from Automotive Middleware

1. **Middleware is a strategic asset:**
It has become a key control point between applications, operating systems, and semiconductors.

2. **Open ecosystems outperform proprietary solutions:**
OEMs want flexibility, portability, and reduced vendor lock-in.

3. **Lifecycle matters more than development:**
Long-term support, updates, cybersecurity, and maintenance are critical for 15–30 year vehicle lifecycles.

4. **Hardware independence is essential:**
Middleware must run across multiple SoCs and compute platforms.

5. **Safety, determinism, and scalability are mandatory:**
Future SDVs require middleware that combines real-time performance, functional safety, and centralized HPC architectures.

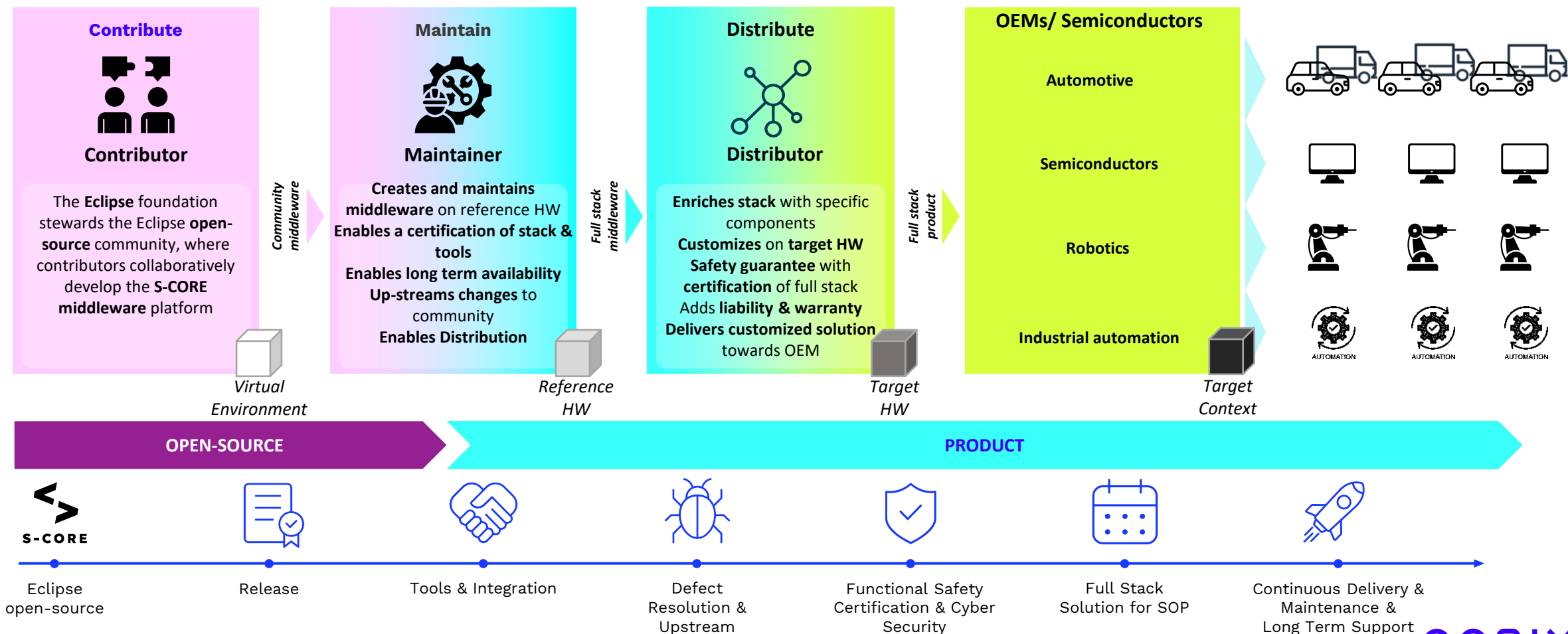
OEMs want to own the software platform, but not the complexity of building and maintaining it themselves.

Source: MHP, 2026 (SDV: Today and the vision for the future)

How Open Source Creates Commercial Value

Open-source software is **collaboratively** developed with **publicly accessible** code and is generally **not monetized** through traditional **licensing models**

Closed-source software is **proprietary** and vendor-controlled, allowing **Qorix** to **monetize** a middleware stack for OEMs through **extensions and integration** on top of an **open-source foundation**.



The Open Source Flywheel

Commercial success sustains the ecosystem.



Advantages for Distributors

- ▶ **Larger addressable market** through growing S-CORE adoption.
- ▶ **Lower development cost** by leveraging community innovation and shared investments.
- ▶ **Faster product development** from a continuously improving technology base.
- ▶ **More customer opportunities** as OEM confidence and adoption increase.
- ▶ **Scalable business model** through licensing, support, certification, and integration services.

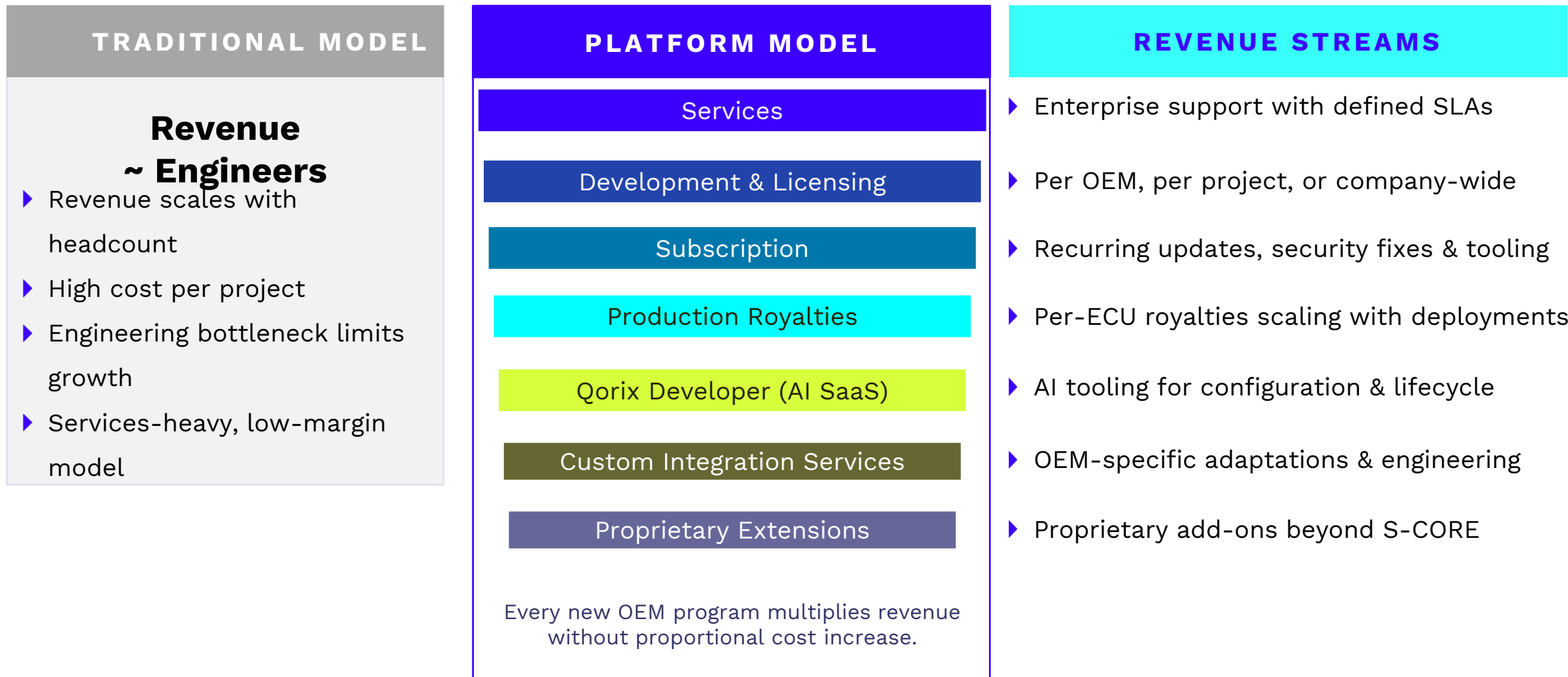
Advantages for OEMs / Customers

- ▶ **Better technology** through contributions from a broad ecosystem.
- ▶ **Reduced risk** with a proven and widely adopted platform.
- ▶ **Faster time-to-market** due to mature middleware and shorter integration cycles.
- ▶ **Lower total cost of ownership** through shared development and software reuse.
- ▶ **No vendor lock-in** thanks to an open-source foundation and multi-supplier ecosystem.

Customers benefit from **better, lower-risk technology** Distributors benefit from a **larger market, recurring revenue, and shared innovation**.

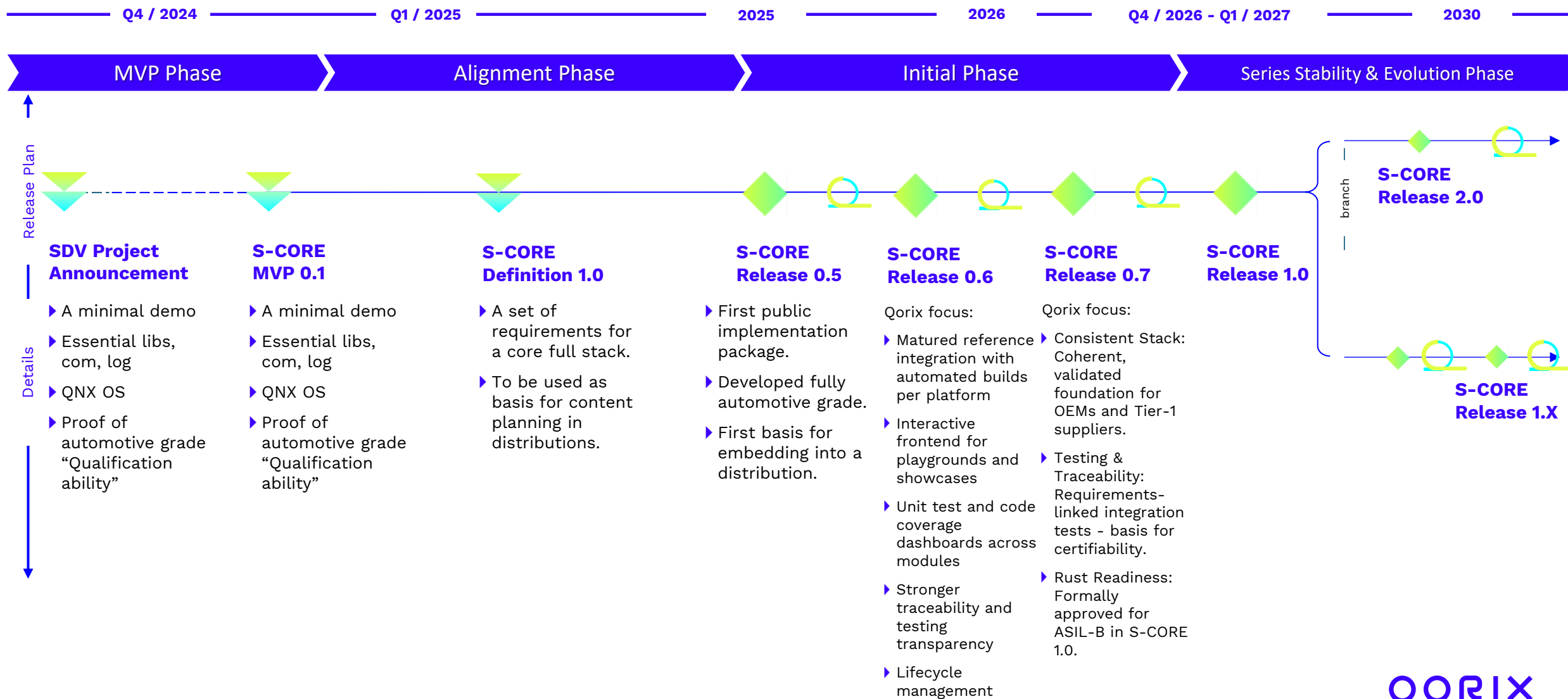
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From Engineering Company to Platform Company



The Road Ahead

Eclipse S-CORE Project Roadmap with Qorix Focus



What Qorix Has Driven in Eclipse S-CORE.

Release 0.5



WHAT HAPPENED

First buildable S-CORE stack. Logging & Tracing, Persistency, Orchestration delivered.

QORIX ROLE

Primary developer of the Orchestration module. Note: Qorix contributions in R0.5 extend significantly beyond Orchestration and Storage, including **architecture leadership, testing governance**, and multiple feature increments.

CUSTOMER BENEFIT

Scalable, deterministic execution of mixed-criticality apps. Architectural foundation for series production.

Release 0.6



WHAT HAPPENED

S-CORE 0.6 advanced developer experience and integration maturity. Automated builds per platform introduced, new interactive frontend replaced manual setup, unit test and code coverage dashboards established.

QORIX ROLE

Drove **matured reference integration, testing transparency, and traceability.** Additional contributions to **Lifecycle Management and Rust enablement.**

CUSTOMER BENEFIT

Less friction for developers. **More visibility** into software quality. Stronger integration across automotive and embedded environments.

Release 0.7



WHAT HAPPENED

S-CORE officially defined as a **continuously consistent stack.** Integration tests now link directly to requirements. Rust formally approved for **ASIL-B.**

QORIX ROLE

Drove **consistent stack alignment.** Led **testing and traceability infrastructure.** Co-led **Rust readiness evaluation** covering toolchain qualification, compiler readiness.

CUSTOMER BENEFIT

Predictable integration, no architecture surprises. Certifiability foundation for **ISO 26262 and ISO 21434.** Future-proof safety through **Rust's memory-safe design.**

Eclipse S-CORE 1.0 Is Not the Finish Line



Eclipse S-CORE

Open Source Foundation

- Community-driven, vendor-neutral
- Safety-ready middleware standard
- Release 0.7 today – 1.0 on the horizon



Qorix Performance

Production-Ready Distribution

- Certified, supported, hardware-agnostic
- ISO 26262 aligned – certifiability-ready
- Long-term support across vehicle lifecycles



Automotive OEM Programs

Series Production

- Production-readiness proven across several platforms
- Faster time to market for every OEM program
- SOP-ready with S-CORE 1.0



Adjacent Markets

Beyond Automotive

- Industrial automation & robotics
- Medical & safety-critical embedded systems
- Any domain where safety-critical SW matters

The platform is designed to grow.

Beyond automotive, into any domain where safety-critical, real-time software matters.

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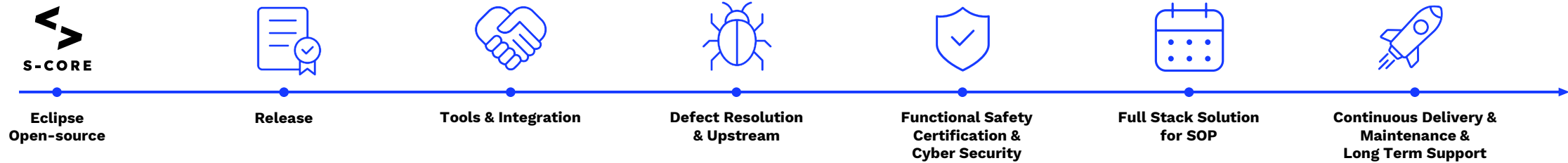
**Eclipse S-CORE provides the open foundation.
Qorix Performance makes it production-ready.**



Our Partner Landscape: Stronger Together



Key Take-Aways



- ▶ **Open source does not ship cars** – safety, support, certification, and liability are still required.
- ▶ **SDVs need a shared software foundation** – no company can build it alone.
- ▶ **Eclipse S-CORE is that open foundation** for next-generation vehicle software.
- ▶ **Qorix Performance transforms that foundation as distributor** into a certifiable, supported, production-ready platform.
- ▶ **OEMs pay for risk reduction and faster SOP**, not for the code itself.
- ▶ Extension towards **horizontal markets**.

▶ **Eclipse S-CORE provides the open foundation.**
Qorix Performance makes it production-ready.



Thank you.

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