AVNET

THE FOUR DIMENSIONS OF ENGINEERING FOR CONVERGENCE

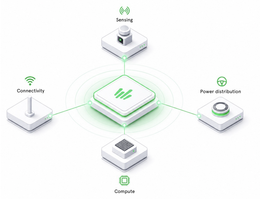
Modern transportation platforms depend on tightly coordinated systems. As power, compute, sensing, connectivity, software, and control become more interdependent, engineering decisions carry broader consequences across the product lifecycle.

Bottom line: The engineering challenge is system coordination.

1 Integrated hardware and software

Compute, sensing, connectivity, and power distribution now have to function as one coordinated environment. System behavior is shaped across hardware and software together, not within isolated components.

Bottom line: Platform performance depends on tight hardware-software coordination.



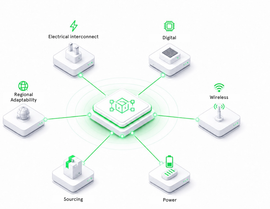
By 2025, mid-class cars carried more than 200 sensors for driver-assistance features.

More sensing, more data, and more compute raise the need for tighter coordination across hardware and software.

2 Cross-functional system design

Electrical interconnect, digital, wireless, power, and system-level decisions now affect more than technical performance. Architecture choices shape sourcing flexibility, regional adaptability, and long-term resilience earlier in the design process.

Bottom line: Design choices now influence resilience as much as performance.



Global electric medium- and heavy-duty truck sales exceeded 90,000 in 2024, up almost 80% year over year.

As transportation platforms scale across categories, architecture decisions increasingly have to account for sourcing, deployment, and long-term support.

3 Support across the product lifecycle

Transportation systems do not need the same kind of support at every stage. Early development demands design help and prototype speed. Production brings supply planning and logistics into focus. Mature platforms need lifecycle services, EOL mitigation, and preparation for the next generation.

Bottom line: Engineering continuity depends on support that evolves with the product lifecycle.

ACCELERATE

Bring efficiency and speed to early design and prototype work.

- Hardware & software support
- Design tools & services
- Prototype support

SCALE

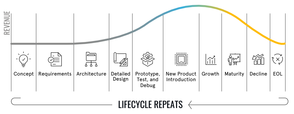
Add flexibility as the program moves into production.

- Supply chain planning
- Inventory programs
- Global logistics infrastructure

EXTEND

Support mature products and prepare for the next generation.

- EOL risk mitigation
- Global lifecycle services
- Design enhancements



Engineering support continues after launch.

As transportation platforms move from concept to scale and into field life, sourcing, logistics, lifecycle services, and redesign support affect long-term viability.

4 Ecosystem-wide engineering

Transportation systems depend on more than the product itself. Success is shaped by supplier coordination, communications infrastructure, software platforms, service networks, and broader deployment conditions. Engineering teams have to account for how the system fits into a larger operational ecosystem.

Bottom line: Scalable deployment depends on ecosystem alignment.



Public EV chargers worldwide have doubled since 2022 to reach more than 5 million.

Vehicle readiness is tied to infrastructure readiness. As electrified transportation scales, deployment is shaped by the surrounding charging ecosystem as much as by the platform itself.

Electric car sales exceeded 20 million worldwide, representing more than one-quarter of all cars sold in 2025.

Engineering challenges extend beyond the vehicle as volumes rise. Charging access, software support, service networks, and broader deployment conditions determine whether a platform can scale successfully.

A shared shift across transportation

Transportation categories may differ in form and use case, but many now rely on the same deeper engineering stack. Power, compute, sensing, connectivity, and software/control increasingly shape how platforms perform, scale, and hold up over time.

Bottom line: Different vehicle types, shared engineering pressures.

EXPLORE TRANSPORTATION SYSTEM DESIGN WITH AVNET

See how Avnet supports transportation teams with technical resources, platform insight, and technologies that help move programs toward deployment with greater confidence.

EXPLORE TRANSPORTATION RESOURCES

ABOUT AVNET

As a leading global technology distributor and solutions provider, Avnet has served customers' evolving needs for more than a century. Through regional and specialized businesses around the world, we support customers and suppliers at every stage of the product lifecycle. We help companies adapt to change and accelerate the design and supply stages of product development. With a unique viewpoint from the center of the technology value chain, Avnet is a trusted partner that solves complex design and supply chain issues so customers can realize revenue faster.

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