

Digital transformation redefines the automotive sector

“The new base case could mean that business in the personal-mobility landscape may look very different in the future. Value is likely to shift toward new, disruptive business models, with shared mobility and connectivity solutions potentially accounting for up to 25 percent of total automotive revenue in 2030.”¹

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Change is afoot

Dramatic changes are taking place within the automotive industry and throughout its expansive ecosystem. Digital transformation initiatives that are revitalizing and reinventing this industry sector also enable a deep realignment of processes—from the manufacturing lines to the overall driver experiences and post-sales support.

Automotive ecosystems—including parts suppliers, dealerships, end customers, and service centers—benefit from deeper collaboration, better communication, and disintermediation, made possible by digital tools and technologies. These changes are driven in part by a convergence of information technology (IT) and operational technology (OT) initiated by companies within the automotive ecosystem.

An industry that used to be dominated by a few well-known Tier 1 companies in Detroit, Michigan, now encompasses startups from around the globe providing new parts, systems, and applications required for autonomous cars. Through greater interoperability of components and integration with the infrastructures that underlie manufacturing lines, data insights inform operations strategy and unify processes. Industry 4.0 developments across multiple industries are particularly relevant for the automotive industry, in which intense competition compels automakers to embrace and adopt the latest technological advances.

At the forefront of this transformation, Red Hat is working collaboratively with leading automakers to add in-vehicle intelligence, safety features, automated capabilities, and telematics functionality to enhance customer experiences in modern-day motoring.

Disruptive trends accelerating

The rate of change in the auto industry is accelerating. An article posted by McKinsey states, “All four mutually reinforcing trends—autonomous driving, shared mobility, connectivity, and electrification—show signs of acceleration. Indeed, the entire industry shows signs of increasing momentum.”² As is the case in a number of industries where digital transformation is underway—such as oil and gas, retail, and telecommunications—much of the effort is focused on achieving a customer-centric viewpoint that applies technology in ways to best serve customers. The goal is to provide highly individualized services and anticipate customer needs based on behavior patterns.

Implementing solutions that achieve this goal requires the kind of thinking that has propelled Industry 4.0 ideas into the mainstream. Connected, intelligent industrial systems in the automotive sector rely on a mix of technologies that are reaching maturity, including artificial intelligence, machine learning, big data analytics for prescriptive and predictive analysis, [Internet of Things \(IoT\)](#) infrastructures that connect vehicles with automotive services, geo mapping resources, city services, infotainment, and emergency services. Properly designed Industry 4.0 solutions can benefit both the customers—with higher quality automobiles better suited to their needs—and the automakers, through greater efficiency and productivity.

¹ Heineke, et al. “[The automotive revolution is speeding up.](#)” McKinsey, Sept. 2017.

² *Ibid.*

Technology contributions

Red Hat offers solutions to facilitate digital transformation efforts within the automotive industry:

- [Red Hat® OpenShift®](#) is an enterprise-ready Kubernetes container platform with full-stack automated operations to manage hybrid cloud and multicloud deployments. It is optimized to improve developer productivity, promote innovation, enhance customer connectivity, and improve communication and collaboration with partners in the automotive industry.
- [Red Hat Middleware](#) enhances solution integration across complex network infrastructures, centralizing control, automating processes, and improving connectivity.

The rise of autonomous vehicles

The ultimate manifestation of the digitally enabled connected car is the autonomous vehicle, capable of driverless operation in complex environments. We have reached a stage where highly automated cars are hitting the road.

Autonomous vehicles rely heavily on IoT and strategic use of data, areas where Red Hat has contributed a number of technologies, including [hybrid cloud](#) architectures and agile, adaptable back-end technologies.

Looking forward

Digital transformation efforts in play at [BMW](#), [Porsche Informatik](#), [Volkswagen](#), and other automakers and suppliers are remapping the automotive landscape. By focusing more intently on customer solutions as part of a strong automotive ecosystem and dispensing with prior assumptions, manufacturers have an opportunity to increase their competitive stature in the industry and capitalize on modern IT infrastructures and forward-looking operational strategies.

About Red Hat



Red Hat is the world's leading provider of enterprise open source software solutions, using a community-powered approach to deliver reliable and high-performing Linux, hybrid cloud, container, and Kubernetes technologies. Red Hat helps customers integrate new and existing IT applications, develop cloud-native applications, standardize on our industry-leading operating system, and automate, secure, and manage complex environments. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500. As a strategic partner to cloud providers, system integrators, application vendors, customers, and open source communities, Red Hat can help organizations prepare for the digital future.



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