Secure device and data management for millions of vehicles

Use case

Advanced cloud, communications, and networking technologies can transform cars into fully connected devices and change the way automotive companies engage with customers, partners, and suppliers.

Automakers, original equipment manufacturers (OEMs), and dealers gather massive amounts of data on vehicles and their components. But much of this data remains locked away in vehicle systems or isolated in silos, so it delivers only a fraction of its possible value. The Nokia IMPACT IoT platform helps you use all the value in your data to fuel innovation, strengthen customer relationships, and generate new revenues with services for the connected car.
Challenges

Using a vertical approach for lifecycle management can result in complexities that limit your service delivery capabilities. To succeed with services for the connected car, you need an infrastructure that can securely and reliably manage the “car as a device.” This infrastructure must support ongoing digital innovation after vehicles are equipped with networked applications and services. It must also meet the connectivity needs of different connected car stakeholders. For example:

- Governments and regulators need connectivity to support automated emergency calls, automated traffic monitoring, and toll payments.
- Carmakers and OEMs need connectivity to monitor warranties, assess vehicle and subsystem wear, collect insights into driver behavior, measure fuel consumption, and improve safety.
- Makers of consumer applications need connectivity to deliver weather, traffic, communication, and other services to drivers and passengers.

By deploying solutions that address these challenges, you can quickly, securely, and profitably deliver innovative services to millions of connected cars.

Figure 1. Vertical silos make lifecycle management difficult

How we help you

Our standards-based IMPACT solution provides a horizontal use case-driven approach that lets you support connected cars with end-to-end device and data management capabilities—from device activation to comprehensive care and analytics. It ensures that your data is safe and secure so you can take full advantage of over-the-air monitoring, software updates, and continuous communications with vehicles and drivers.
IMPACT enables you to deliver high-value services and applications to millions of virtual vehicles by supporting:

- Comprehensive cloud- and network-based security and management capabilities
- Reliable, high-performance connectivity from a device-agnostic management platform that can be securely accessed by multiple departments or partners
- Secure protocols that can be used to relay commands to in-car actuators and collect data from in-vehicle sensors
- Secure over-the-air software and firmware updates for electronic components in vehicles
- Integrated real-time visibility and analytics

Figure 2. A horizontal approach lets you scale, monetize, and secure connected car applications

**Applications**

<table>
<thead>
<tr>
<th>App 1</th>
<th>App 2</th>
<th>App 3</th>
<th>App 4</th>
<th>App 5</th>
<th>App 6</th>
</tr>
</thead>
</table>

**Scalability**

**Monetization**

**Security**

IMPACT supports secure connected services for vehicles and fleets

**Services for vehicles:**
- Remote vehicle and component management
- Remote fault management
- Vehicle data collection and management
- Remote software updates and management
- Security management
- Automated registration and inventory management

**Services for fleets:**
- Fleet monitoring
- Real-time vehicle tracking
- Alarms and alerts for low battery charge, exceeding speed limits, or crossing geo-fences
- Optimized vehicle routes
- Eco-driving education
- Driver behavior monitoring
How you benefit

Driver demands and technology trends are paving the way for the connected car to reach its full market potential. Our IMPACT solution allows you to use proven technologies and best practices to deliver innovative services to millions of cars with maximum security and minimal operational risk. With IMPACT, you can support multiple connected vehicle services and applications that lower costs, increase revenues, and boost customer loyalty.

How our approach is different

Nokia is working with vehicle makers, vehicle suppliers, telecommunications service providers, and governments to enhance communications infrastructures and services for connected vehicles. We have extensive experience helping telecom operators bring services to connected devices. We are confident that we can help automotive companies seize new opportunities with applications and services for the connected car.

Our IMPACT solution delivers industry-leading device management, security, and analytics capabilities with a horizontal platform that lets you manage and analyze data across multiple IoT applications. This unique approach enriches each application and gives you more valuable insights. With our help, you can roll out high-value services and business models while keeping data secure and optimizing the efficiency of your network infrastructure.

To learn more about how Nokia can help your company succeed in the connected car market, visit https://networks.nokia.com/automotive.