



Ford Model T to IoT: The Next Automobile Revolution - Digital, Connected and Personal



From the Ford Model T to IoT

Automobiles sparked the first industrial revolution, forever changing industry and lifestyles

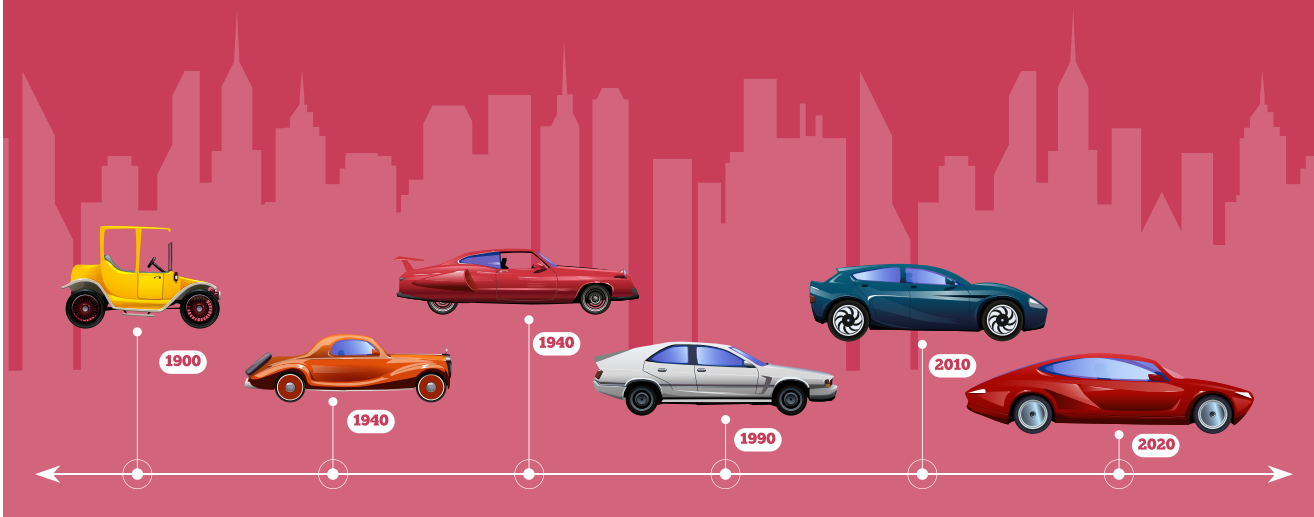
In the early 1800s, the first 'horseless carriages' were regarded as works of magic and wonder. Then came Karl Benz's first three-wheeled vehicle, and after this, motor cars became popular.

However, it was the Ford Model T that heralded a revolution in transport. It was the first mass-produced, affordable car targeted at the masses.

Pioneering moving assembly lines in automobile manufacturing, Ford was able to produce 10000 cars per day, sparking a revolution in the manufacturing industry.

Moving assembly lines marked the beginning of automation, productivity gains, and quality processes enabling mass production. This level of automation also made the Ford Model T the first 'World Car' – one that could be sold across the world with only minor modifications.

It changed lifestyles forever, making cars a necessity rather than a luxury, offering unprecedented freedom from public transport, and connecting those in rural areas.



Forward to over 100 years later. The next automobile revolution is now, and it is powered by digital technology



- ✓ Today, digital technology is redefining the dynamics between all players in the automobile ecosystem, from vehicle owners and manufacturers to sales and service.
- ✓ The Fourth Industrial Revolution or Industry 4.0 sets the context for the next revolution in automobiles.
- ✓ Industry 4.0 heralds the potential of physical equipment and advanced digital technologies combined through the Internet of Things (IOT).
- ✓ Digitalization is taking automation, productivity, and safety to the next level on the shop floors.
- ✓ And unlike before, smart vehicles allow manufacturers to have an ongoing direct relationship with customers, partnering them along the ownership experience. Automobile companies also benefit from the vast amounts of vehicle data and data on driving behavior to inform their future developments and business strategy.



Digitalization is re-defining mobility



Digitalization is re-defining mobility, right from the way automobile companies manage their operations, to the way people interact with their vehicles. It is creating new business models, and reshaping customer expectations. Digitalization is also shaping commercial and public transportation.

The future is evolving, with connected and autonomous vehicles, electric vehicles, and shared mobility making advances in technology. Today urban thinkers and city planners are factoring in these trends into the vision of transportation for the future.



Uber is widely quoted as an example of digital disruption, where the world's largest taxi operator doesn't own a single vehicle. Ride sharing and car-pooling are other examples of new mobility solutions enabled by digital technologies.



In-vehicle experiences are becoming more digital, with cockpit and passenger experiences centered on screens and displays. Connected vehicles change cars into information and entertainment hubs, and seamlessly connect users with service and maintenance.



The constant flow of data from consumers at every touchpoint allows vehicle manufacturers to reimagine their operations, feed valuable insights into their R&D, and put in place new partnerships, business models, or experiences for consumers.



In order to meet NetZero targets of carbon emissions, countries are encouraging the growth of electric vehicle penetration. [Electric vehicle sales will expand from over 11 million in 2020 to almost 145 million vehicles by 2030](#), an annual average growth rate of nearly 30%.

Managing operations, from product design to sales, digitally



For automotive players, digitalization is changing all aspects of business, from processes to functions. Automobile manufacturers are applying digital technologies across product design, production, and supply chain, all the way to sales and marketing, service and customer engagement. This is helping them reap many benefits such as cost savings, faster scale and market differentiation.

Product design and manufacturing

In the past, machines automated production lines; today, automobile companies are digitalizing their manufacturing using digital twins and simulation technologies. Digital manufacturing closes the gap between product design and manufacturing feasibility, as virtual prototypes can be verified easily and at less cost than physical ones. This leads to faster production cycles, reduces the cost of R&D, and helps manage complexities.





Supply chain processes

Supply chain management and logistics have changed tremendously in the past few years, especially with the application of IoT. Now termed [Supply Chain 4.0](#), several solutions are helping organizations become more automated and efficient. The use of [advanced analytics based forecasting models](#) has improved forecast accuracy by around 20-30%, which has helped lower inventory holding costs, and contribute to 2-3% growth.



Dealers and service networks

Digital technologies have also brought automobile companies closer to their dealer and service networks. The [traditional role of a dealership has begun to change](#). Today customers rely on online sources for research, quotations and even prefer to sign and pay digitally. The dealership has changed its role to become a customer experience touchpoint, and an opportunity to combine digital technologies and physical experiences to create an unforgettable test drive.



Sales and marketing

Consumers have moved to digital buying experiences, and like other industries, automotive retail is facing [omnichannel transformation](#). They are embracing new technologies to improve the customers' overall car buying experience, including a high degree of personalization. A number of manufacturers are adopting a ["no haggle" approach](#) with clear and transparent pricing and other related parameters.

Digital shifts in personal mobility – changing the way people interact with their vehicles

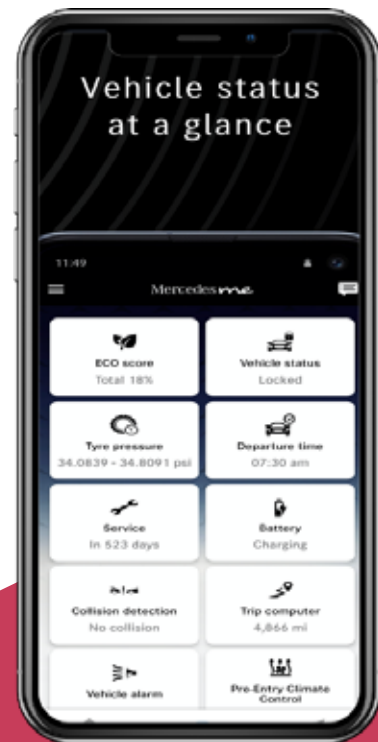


The relationship that people have with their vehicles is now defined by a digital overlay of their entire journey, from purchase to ownership. Vehicle manufacturers can use technology to shape these experiences and hold long-term, meaningful, two-way relationships with their customers. This enables customers to have a smooth ownership experience that builds brand loyalty.

- ✓ **Discovery and purchase** – Potential buyers use a mix of digital and physical channels, peppered with social inputs through reviews and influencers. [Surveys](#) have shown that almost 60% of car buyers aged under 45 years and 45% of those aged above 65 years prefer buying their vehicles online. To attract hyper-informed buyers and create value for dealers, automotive players are turning to digital and mobile channels with targeted campaigns.
- ✓ **Driving experience** – Customers are looking for digital interactions with their vehicle. They want their vehicle to respond to them, communicate with them, and become a part of their personal spaces. Digital transformation is also taking place in a big way in autonomous driving. “Smart cars” are able to improve the driving experience by collecting data on destinations, preferred routes and traffic patterns, offer parking assistance. They come with a host of in-built driving and safety features, such as detecting drivers’ sleepiness, giving speed limit or air pressure warnings etc.



- **'Mercedes Me'** app connects the Mercedes-Benz car with the customers' smartphone, their home and offers a range of mobile services to deliver best-in-class digital services. Vehicle owners can use the app to control vehicle functions and keep an eye on it even when not in physical proximity to it. With the Mercedes Me Adapter, owners of vehicles manufactured in 2002 or later can enjoy the digital benefits of 'Mercedes Me'.



- **M.G. Motor India's Hector** was touted as India's first Internet car. With 'Internet Inside', the vehicle offered more than 50 connected features for compelling, personalized and relevant customer experience. The automobile major also developed a platform to integrate existing applications, thus delivering an omni-channel customer experience.



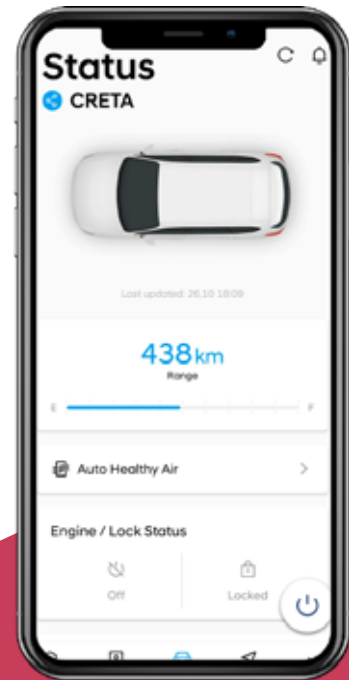
- ✓ **Maintenance and ownership** – Automotive players can rely on digital technology to achieve customer satisfaction throughout the ownership journey. Apps can monitor the vehicle’s performance and health through predictive maintenance and advanced self-diagnostic systems. Manufacturers can also streamline insurance and re-selling options for their customers through these apps. Some even offer mobility-as-a-service, or their own ride-sharing apps.
- ✓ **In-car entertainment** – Cars today are being reimagined as “experience platforms” and come loaded with digital assistants and a host of apps, with an aim to provide the best, personalized in-car experience. In-car assistants are also being in-built to offer infotainment and telematics services to improve in-car conveniences, apart from offering round-the-clock roadside assistance, vehicle tracking and security.

- **S-Assist app**, an Artificial Intelligence-based 24×7 virtual car assistant app, was launched in September 2021 by Maruti Suzuki India Ltd. The app provides multi-media content, including Do-It-Yourself videos and workshop assistance. Engineered keeping in mind vehicle owners’ convenience, one can simply scan part of the car, speak to the voice assistant or chat using the smartphone.





- **Bluelink** is an Artificial Intelligence –based technology platform that now comes in-built with Hyundai’s various car models, offering several safety, security and convenience features. From Auto Crash Notification, Road Side Assistance, Stolen Vehicle Tracking, Find My Car Location, to Pro-Active Vehicle Status Alert, the platform is designed to improve the connected driving experience.



- **Apple Inc.'s CarPlay** is touted as an all-round in-car solution that is able to provide content for multiple screens in the vehicle for an unified and consistent in-car experience. **Android Auto**, developed by Google, mirrors the smartphone on the car’s infotainment unit. The Google Assistant assists the driver from navigation, making calls and sending messages, to playing music and listening to audio books
- Over the past decade, **digital dashboards** have grown to become intuitive, making access to any information easy and simple. Tesla Motors’ 2020 Model S is one such car with a futuristic digital dashboard that includes a speedometer, odometer and the vehicle’s energy efficiency rating, apart from a 2D map for navigation and a live animation of the vehicle.

Digitalization is also shaping commercial and public transportation



As our cities grow, so does the need for a comprehensive public transport system. Today, efficient public transit systems need to be seamless, low-touch and offer digitally connected options to commuters. Private transport providers have already invested in digital systems such as online ticketing, payments and tracking. Now public transport operators and city planners are working towards digital integration by developing [transit mobile apps](#), which will benefit commuters and offer a hassle-free intra-city transport experience.

- ✓ **Public transport optimization** – Digitalization offers public transport utilities a chance to streamline all modes of transport, to make it the most popular choice of transportation. From last-mile solutions to public busses, trams and intra-city trains, it is possible to offer a citizen the means to plan their entire route, purchase common passes and manage boarding with mobile e-passes. Real-time monitoring and analysis of the data now can help operators identify areas that need to be improved, deploy more vehicles on popular routes and optimise their pricing.





- ✓ **Fleet management** – The manual task of fleet management, i.e. tracking the vehicles, managing the staff etc., is now on its way out with digitization. Fleet management can now be centralized and monitored more efficiently. With improved monitoring, fleet managers are able to ensure that all the vehicles in the fleet are utilised optimally with better route planning, apart from bringing down vehicle maintenance costs.



- ✓ **Driver safety** – For public transport operators, monitoring drivers and the way they handle the vehicles is important. For this, they have turned to telematics that helps them remotely monitor the vehicles, driver behavior patterns. It also alerts reckless vehicle handling, which helps reduce vehicle wear and tear, apart from bringing down chances of accidents. Operators are also now offering incentives, training and health and wellness programs for their drivers.



- ✓ **For the American Automobile Association Inc., Robosoft developed Connect Suite** - an integrated set of web-based applications with several features, including Comment Tracking System, Payments integration at PoS, sales automation, members' relation management, among a host of others.
- ✓ Robosoft developed **a digital platform and app – Unisys AirSewa – in collaboration with the Government of India** to cater to the needs of Indian air travelers. The portal and app offers chatbot support, gives users real-time flight status, flight schedule in order to provide them with a personalized travel experience.
- ✓ Robosoft has developed a **personalized and inclusive platform for Akasa Air**, which reimagines the airline experience for both first-time flyers and frequent flyers. The platform, which has multi-lingual options, offers flexible interface through which flyers can search for a flight, access the interactive fare calendar, get notifications about flight status etc. The platform may be used even post-arrival to book further travel, accommodation, search/ explore nearby restaurants, cafes, hospitals or even popular activities.
- ✓ **Brightline, a high-speed passenger rail system, is working with Robosoft to relaunch its end-to-end rail services.** Brightline is working on offering travelers an eco-friendly way to travel across the United States of America. Robosoft is developing the frontend user experience for the web, mobile app and kiosk, besides developing a scalable and extendable micro-services platform.
- ✓ An **app was developed for Delta Airlines** featuring some cutting edge options. The app allows flyers/ users to customize their profile, view transactions and access their Sky Miles account. The unique Glass Bottom feature of the app also allows users to see an aerial view of the map as they fly from one destination to the other.
- ✓ Along with **TripHobo, a trip planning application**, Robosoft developed the auto-optimize feature that ensures travellers are able to get the most out of a trip. It allows travelers to customize their itinerary and plan their trips down to the last detail.



Digital mobility of the future needs design for the future

The next decade will see an entirely new landscape develop for the automobile sector. The pace of digitalization is matched by changing consumer preferences, and influenced by new ideals of a sustainable and better world. The transformation of the automobile industry will be the next biggest shift after automation produced the Ford Model T. Only this time, it needs collaboration and partnership to properly understand the opportunities and create a sustainable industry.

- ✓ **A world with electric vehicles** – The automobile industry leads the way towards the world's NetZero emission goals; by 2030, one in four cars sold will be electric.
- ✓ **Connected vehicles** – Customers are expecting a digital experience with electric vehicles, fully connected from their mobile phones to interactions with in-car assistants.
- ✓ **Shared mobility** – Car ownership has reduced in popularity, with shared mobility such as ride-sharing, car-pooling and cab-hailing becoming preferred.
- ✓ **Autonomous vehicles** – With advanced driver-assistance systems preparing customers to relinquish control, as technology and regulation aligns, autonomous vehicles will herald a complete shift to a new era of transportation.







We make digital simple









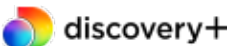

With over two decades of experience in software development, Robosoft has witnessed and helped companies take advantage of dramatic shifts in the digital world. We have been instrumental in bringing alive technologies that have re-shaped the way we live, work and play.

As the automobile industry transforms, technology is at its heart. However, we believe brands which understand human emotions and craft services that are anchored in powerful customer insights will have an edge in the market.

At Robosoft we combine a deep understanding of customer needs with expertise in crafting technology solutions. We design & develop digital journeys that simplify lives. Our experience in product strategy, design, engineering and analytics make us a full-service digital company.

 Advisory: Charting digital roadmaps with a holistic approach	 Design: Crafting human-centred designs for seamless experiences
 Engineering: Elevate the design experience through software and emerging technologies	 Analytics: Analyzing user data for actionable insights and personalization

Select Clients

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