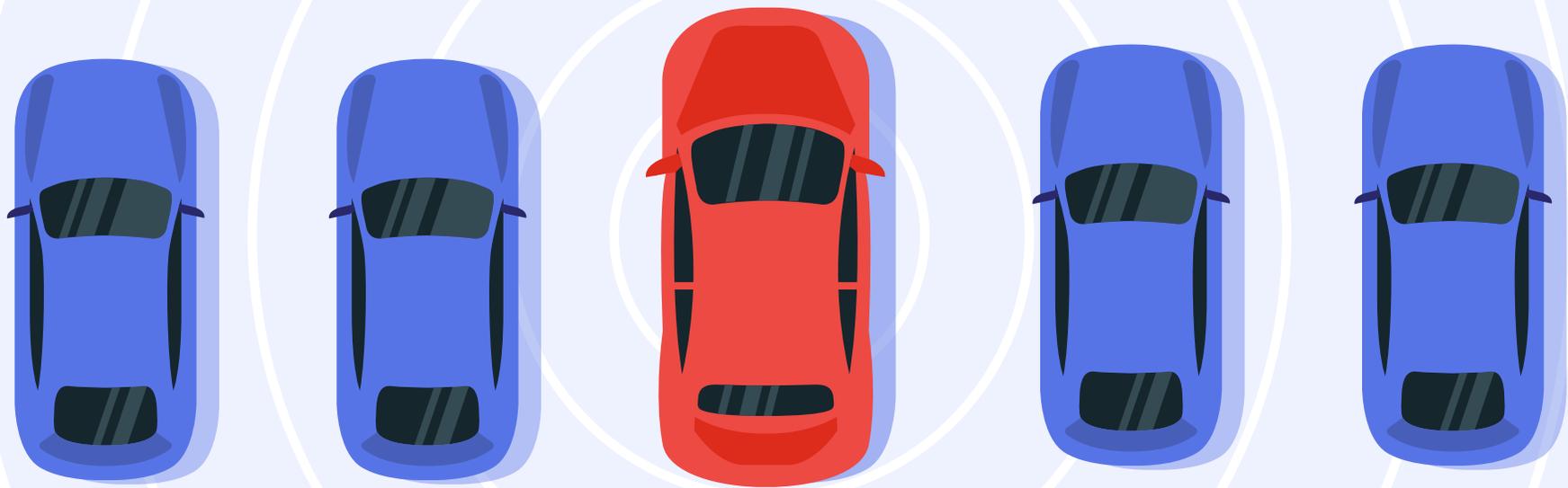
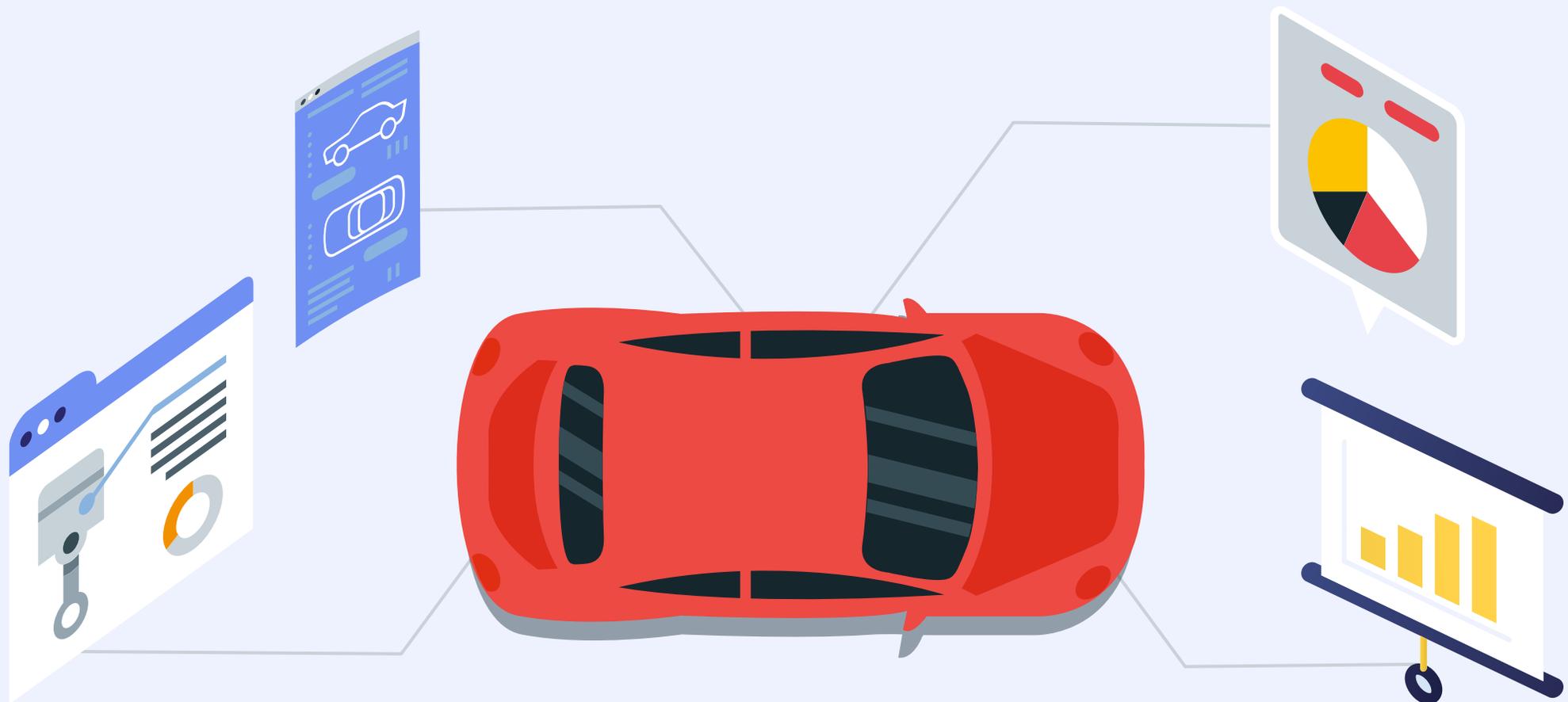


# Automotive Industry Trends: 5 Years' Overview



The automotive industry is facing the most significant disruption since the first cars were manufactured, and the pace of this progress accelerates every year. As a result, a car isn't just a means of transport anymore, but a computer on four wheels, which cannot but affect the automotive industry in general and automotive projects in particular.

What trends and challenges have shaped the domain over the past 5 years? Let's look at the industry's highlights in the table below.



2017	2018	2019	2020	2021
Zero-emission electric vehicles become popular	Electric vehicles gaining momentum	Electric vehicles: sales continue growth	Electric cars: electrification becomes a mandate in some countries	Electrification is a mandate in EU (the European Green Deal adoption); EV sales boom
Changes in consumers' attitude to mobility: usership instead of ownership	Subscription programs and ride-sharing services gaining popularity	Vehicle subscription services become more and more common	Shared mobility decline due to the pandemic	Shared mobility recovery: using electric vehicles by car sharing companies; Mobility-as-a Service; micromobility growth
Autonomous driving: ADAS systems available	Level 2 autonomous driving; semi-autonomous safety features are expected	Autonomous cars: testing autonomous shuttles and taxis	Autonomous driving: Level 2.5 available; derailed plans for further development due to the pandemic	Autonomous driving: further development
Connected cars: V2V communication available	Focus on customer centricity implemented in connected cars	Connectivity: V2V communication; V2I connection under development	Connectivity: the growth of advanced car features is expected	Connected cars: expecting benefits from 5G rollout; improved vehicle convenience, performance, and safety
Using new materials for producing lighter and safer cars	Active use of cloud technologies in car manufacturing	Manufacturing disruption (3D printing introduction)	Other pandemic consequences: car production and sales massive decline	Automakers partner with tech manufacturers in response to global chip shortage
The need for collaboration with tech companies				Wide use of technology: AI, blockchain, virtual and augmented reality
				Automotive digital retail

We can see gradual development of several trends threading through the outlined period: increasing popularity of electric vehicles, shared mobility instead of car ownership, active development of driverless vehicles, and connecting cars to other vehicles, gadgets, and city infrastructure to make driving experience as convenient and safe as possible.

This is confirmed by 2017 PwC research that predicted that “the automotive future is electrified, autonomous, shared, connected, and yearly updated”. Of course, the pandemic has negatively affected the automotive trends’ implementation, but the industry keeps moving forward towards its goal – creating a car of the future. [1-8]



# The Automotive Industry Outlook for 2022

## Electric Vehicles: Increase in Production and Sales

This year, car manufacturers will be focused on producing even more electric cars fitted with more advanced capabilities. EVs are going to gain higher market shares in Europe, the United States and China and outpace ICE vehicles sales. This will result in certain challenges automakers will have to deal with: reducing prices for EVs and batteries, recycling EV batteries, offering a wider selection of vehicle models, and improving charging infrastructure [9; 10].

## Autonomous Driving: Level 3 Self-Driving Private Car Becomes Available

Mercedes-Benz is going to start selling a Level 3 autonomous car (the one that can drive itself only under certain conditions). Its autonomous driving system has got the necessary approval granted by the United Nations' corresponding regulation body. For the time being, they are allowed to drive in Germany, but Mercedes is going to target the US and Chinese markets, too. [11]



### Connectivity: Cellular Vehicle-to-Everything Technology is Gaining Momentum

Further transition to Cellular Vehicle-to-Everything (C-V2X), especially in combination with 5G, is expected. For example, as recently as 2019, Ford has announced their commitment to deploy C-V2X in all their new models in the United States beginning in 2022 [12]. This trend poses certain challenges related to technology, data processing, and data security, let alone preparing the city infrastructure for the mass use of cars equipped with C-V2X technology.

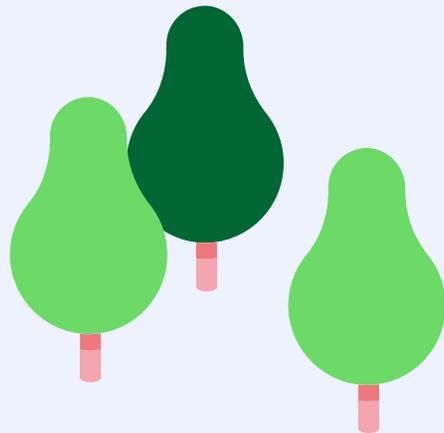
### Mobility-as-a-Service

In 2022, shared mobility trend will be marked by further development: more and more cities will offer shared mobility services, while consumers are expected to choose more flexible forms of mobility access – from subscription models to micromobility options. In addition, MaaS as mobility on demand, which makes it possible to use various means of transport (e-scooters, cars, public transport) depending on various demands via one platform and payment channel, is expected to gain momentum [13].



### Advanced Safety Features Will Become a Mandate

According to the European Unions' Regulation, all the cars sold in the EU will have to be equipped with advanced safety systems. Intelligent speed assistance, driver drowsiness and attention warning systems, emergency stop signals, alcohol interlock installation facilitation, and others will be mandatory for all motor vehicles. Only cars and vans will require additional safety features: advanced emergency braking systems, emergency lane-keeping systems, and enlarged head impact protection zones. The above-mentioned features will become mandatory for all new models launched from mid 2022.



## How These Trends Affect Automotive Project Management

### Increasing number of initiatives

Recent unprecedented disruption in the industry leads to the increasing number of projects year after year. Besides, to stay competitive on the market, automotive manufacturers will attempt to produce more and faster as well as implement complex technological developments. All this will result in adding more and more projects that automotive companies will have to work on simultaneously.

### Dealing with uncertainty

There are a lot of external factors that add to uncertainty in the automotive industry, e.g., the ongoing pandemic, continuing global chip shortage, the application of advanced manufacturing technologies, etc.

### Limited budget

Recent automotive trends require significant investment into the vehicles being manufactured. In addition, the industry still has to deal with the pandemic consequences, such as massive production decline or global chip shortages. Consequently, automotive projects may be characterized by significant budget limitations.



### Lack of resources

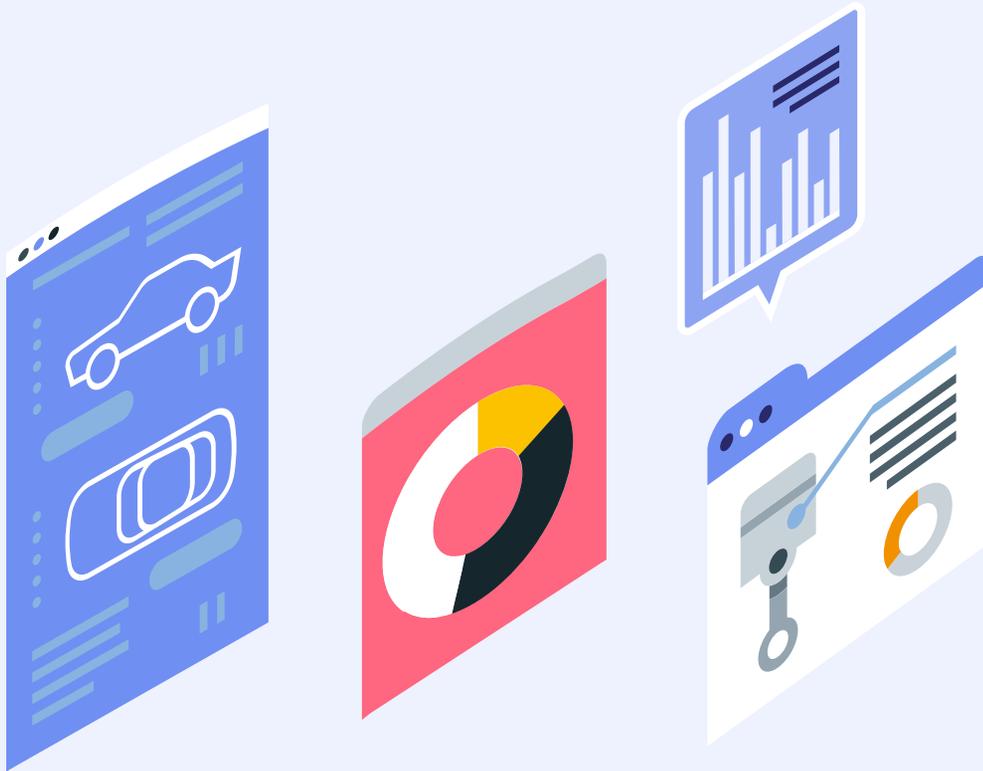
This challenge is explained by revolutionary changes in technology, business model, and consumer preferences in the industry as well as rapid growth and development of automotive companies. In addition, as companies become loaded with new complex projects, they may find it difficult to staff them as quickly as needed.

### The need to shorten the product development time

This is explained by the need to produce more and faster to maintain positions on the highly competitive market. Also, as long as modern cars have become a combination of software and hardware parts, automotive manufacturers will have to produce hardware faster to keep pace with software development progress.

### Globally distributed teams, equipment, and facilities

Managing human and material resources located across the globe is rather challenging as they are miles away, but a project/resource manager has to keep track of all of them and make sure that they are utilized with maximum efficiency. When it comes to large projects running simultaneously where hundreds or even thousands of people are involved together with various equipment, this task becomes twice as challenging.



## Tips on Addressing Challenges in Automotive Projects

### 1 Prioritize projects and tasks

Prioritization is the key to cope with the increasing number of initiatives. To ensure fruitful work on several projects simultaneously, it's important to prioritize the tasks across the whole multi-project environment to know what should be managed first. In addition, prioritization makes it possible to fight bad multitasking and overload and increase employees' efficiency. Finally, when a new project comes in, it's important to analyze if it's reasonable to start it right now or to postpone it, if there are enough available human and material resources to complete it, and how it will affect the whole multi-project environment.

### 2 Be ready for uncertainty and risks

As for uncertainty, you can prepare for it by establishing a time and budget buffer. In this case, even if something goes wrong, there will be more chances to deliver a project on time and within budget. In turn, proper risk management can provide better predictability of project outcomes, provides timely detection of any arising issues, and makes it possible to respond to them properly.

### 3 Utilize available resources to the full

- ▶ Plan resources' capacity – this will give an idea of required vs available resources.
- ▶ Create cross-functional teams of interchangeable employees with a wide range of skills.
- ▶ Apply the resource leveling technique if possible: when available resources are limited, you can adjust a project's timeline in accordance with the critical employee's availability.
- ▶ Manage the employees' workload properly so that they can work with maximum efficiency.



4

### Use Agile frameworks for product development

Agile is adaptive to changes and promotes frequent value delivery in collaboration with customers based on their feedback. So, its approaches will allow car manufacturers to respond to consumers' changing needs quickly and efficiently and reduce the vehicles' time to market.



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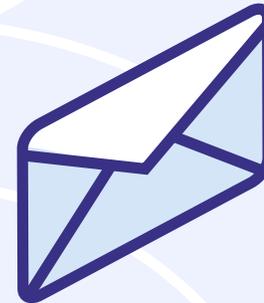
### Take advantage of a modern multi-project resource management solution.

- ▶ It's capable of automatic project and task prioritization; in addition, it recalculates priorities automatically when any changes in the system occur.
- ▶ You can monitor the state of all projects in a multi-project environment.
- ▶ It can suggest options for informed resource allocation decisions based on the analysis of employees' skills and capacity.
- ▶ It brings siloed and distributed teams together.
- ▶ It provides opportunities for bottlenecks' forecasting based on historical and real-time data.
- ▶ You can simulate project flow changes for more informed decision-making.
- ▶ It allows you to keep information on material resources used in projects.
- ▶ It makes it possible to optimize employees' workload.
- ▶ Finally, it keeps project and enterprise data safe and secure.

## References

1. Gao, P. et al. (2016). Disruptive Trends That Will Transform the Auto Industry. Retrieved from: <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/disruptive-trends-that-will-transform-the-auto-industry>
2. 2017 Automotive Industry Trends. (2017). Retrieved from: <https://www.pwc.ru/ru/publications/assets/2017-Automotive-Industry-Trends.pdf>
3. Robinson, Ryan, & Srinivasa Reddy Tummalapalli. (2018). Plugging Into the Future. Electrifying the Global Automotive Industry. Retrieved from: [https://www2.deloitte.com/us/en/insights/industry/automotive/vehicle-electrification-global-automotive-industry.html?id=us:2el:3lk:4di\\_gl:5eng:6di&range=4/7/3/1/3/39/25/0:38,4/7/3/1/3/39/25/0:284](https://www2.deloitte.com/us/en/insights/industry/automotive/vehicle-electrification-global-automotive-industry.html?id=us:2el:3lk:4di_gl:5eng:6di&range=4/7/3/1/3/39/25/0:38,4/7/3/1/3/39/25/0:284)
4. Butler, Don. (2019). How 'Talking' and 'Listening' Vehicles Could Make Roads Safer, Cities Better. Retrieved from: <https://medium.com/cityoftomorrow/how-talking-and-listening-vehicles-could-make-roads-safer-cities-better-f215c68f376f>
5. Singh, Sarwant. (2019). Top Automotive Trends in 2019: the Year of Wows and Woes. Retrieved from: <https://www.forbes.com/sites/sarwantsingh/2019/02/11/top-automotive-trends-in-2019-a-year-of-wows-and-woes/?sh=6a809fad1be8>
6. Singh, Sarwant. (2020). Top 20 Post-Covid Automotive Trends. Retrieved from: <https://www.forbes.com/sites/sarwantsingh/2020/08/05/top-20-post-covid-automotive-trends/?sh=5b5b5a102933>
7. Singh, Sarwant. (2021). Top 10 Global Automotive Trends, 2021. Retrieved from: <https://www.forbes.com/sites/sarwantsingh/2021/01/27/top-10-global-automotive-trends-2021/?sh=bfc1b9e605b5>
8. Trends and Developments in Electric Vehicle Markets. Retrieved from: <https://www.iea.org/reports/global-ev-outlook-2021/trends-and-developments-in-electric-vehicle-markets>
9. Gartner Forecasts 6 Million Electric Cars Will Be Shipped in 2022. (2022). Retrieved from: <https://www.gartner.com/en/newsroom/press-releases/2022-01-26-gartner-forecasts-6-million-electric-cars-will-be-shipped-in-2022>
10. Mobility's Rebound: An Industry Recovers, but Where Is It Heading? Retrieved from: <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/mobilitys-rebound-an-industry-recovers-but-where-is-it-heading>
11. Mercedes-Benz Receives World's First Internationally Valid System Approval for Conditionally Automated Driving. Retrieved from: <https://media.daimler.com/marsMediaSite/en/instance/ko/Mercedes-Benz-receives-worlds-first-internationally-valid-system-approval-for-conditionally-automated-driving.xhtml?oid=52173961>
12. 7 Technology and Connectivity Predictions for 2022. (2021). Retrieved from: <https://www.automotive-fleet.com/10157067/7-technology-and-connectivity-predictions-for-2022>
13. Marr, Bernard. (2022). The Three Biggest Future Trends in Transportation and Mobility. Retrieved from: <https://www.forbes.com/sites/bernardmarr/2022/01/20/the-3-biggest-future-trends-in-transportation-and-mobility/?sh=5996a88a3783>





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