

New-Vehicle Tech is a Double-Edged Sword: Risky to Satisfaction—Yet Necessary for Future Adoption, J.D. Power Finds

Genesis Ranks Highest Overall for Tech Innovation; Hyundai Highest-Ranking Mass Market Brand

TROY, Mich.: 25 Aug. 2022 — Offering advanced technology content on vehicles often results in a steep increase in problems experienced, according to the J.D. Power 2022 U.S. Tech Experience Index (TXI) Study,SM released today. Vehicle quality, as expressed in problems per 100 vehicles (PP100), is a common measure within both the TXI Study, focused on advanced vehicle technology as it first comes to market, and the annual J.D. Power Initial Quality StudySM (IQS). Of the advanced technologies included in the 2022 TXI Study, 46% of them had at least one problem with a PP100 higher than the most problematic attribute included in the 2022 IQS, with some exceeding it several times over. A low PP100 score indicates better quality.

The notion that advanced technologies always lead to significant problems is a misconception. More concerning is that this could prompt automakers to slow their implementation of new technologies. This strategy could cause them to lose their competitive advantage, as not all encounter significant quality problems when integrating advanced technologies. In fact, the study findings indicate there can be a large variation in the number of problems encountered for a particular tech, meaning that some automaker executions are much better at meeting user expectations. For example, the rear seat reminder technology has a range of total problems spanning from 1.9 PP100 to 26.2 PP100, demonstrating that the tech can be developed with minimal owner complaints.

“Innovation is non-negotiable,” said **Kathleen Rizk, senior director of user experience benchmarking and technology at J.D. Power**. “The fact that the average PP100 for a technology is high should not discourage automakers from innovating, as there is often a wide range of total problems experienced for a technology across the brands. This means that some are innovating more flawlessly for a particular tech, while others struggle with their execution. Automakers should consider benchmarking brands that innovate well for a technology, which would allow them to identify and then integrate best practices. Effective innovators understand that new technologies can be introduced successfully with proper design and execution.”

The disruption from high-tech entrants such as Tesla and Polestar further accentuates the necessity for innovation. It is also essential because new-vehicle technology is a leading reason to purchase. When technology is executed effectively in a vehicle, it positively influences an owner’s decision to purchase another vehicle equipped with that same technology. One of the highest execution scores in the study is for the phone-based digital key, which also is ranked in the top three by owners wanting that technology on their next vehicle.

“J.D. Power transactional data shows that getting the right mix of technology features owners want is important to perception, profits and sales,” Rizk said. “When owners get the technology features they really want—and which meet their user-experience expectations—the results are positive and those owners tell their friends about the experience.”

Following are key findings of the 2022 study:

- **Fingerprint reader most problematic tech in TXI’s history:** Fingerprint reader, included in the study for the first time, is the lowest-performing technology across the key metrics of problems experienced (54.3 PP100) and has the lowest overall satisfaction score (6.08 on a 10-point scale). It

surpasses interior gesture controls, which previously held the record for being the lowest-performing technology in each of the past two years. The poor performance of the fingerprint reader technology—resulting in many owners not wanting it on their next vehicle—is a missed opportunity, as many owners have used the fingerprint technology to access their smartphone.

- **Tech desires reflect considerable regional differences:** J.D. Power TXI studies conducted in the United States, Japan and China include many of the same advanced and emerging technologies, but future interest in those technologies vary by country. EV-based technologies are among the top five most desired technologies in America. Owners in China have more interest in infotainment and connectivity technologies, while emerging automation techs rank in the top five among owners in Japan.
- **Dealers can add value to in-vehicle technology:** The result of a dealer demonstrating almost all advanced and emerged technologies results in owners being less likely to abandon a technology after trying it. When a dealer educates a new owner, it elevates the entire ownership experience. In fact, the average vehicle model Net Promoter Score (NPS)¹ is higher for those owners who received dealer training for their advanced technologies than those who learned about them from outside sources (88 vs. 81, respectively, on a scale of -100 to 100). This highlights the important role dealerships play in creating awareness and acceptance of advanced technologies.
- **Tesla's unofficial score is highest in study:** Tesla Motors is included in the industry calculation for the first time, with an Innovation Index score of 681 (on a 1,000-point scale). However, because Tesla Motors does not allow J.D. Power access to owner information in the states where that permission is required by law, Tesla vehicles remain ineligible for awards.

Highest-Ranking Brands

Genesis ranks highest overall and highest among premium brands with an Innovation Index score of 643. In the premium segment, **Cadillac** (584) ranks second and **Mercedes-Benz** (539) ranks third.

Hyundai ranks highest among mass market brands with a score of 534. **Kia** (495) ranks second, while **Buick** (482), **GMC** (482) and **Subaru** (482) each rank third in a tie.

Advanced Technology Award Recipients

The U.S. TXI Study analyzes 35 automotive technologies, which are divided into four categories: convenience; emerging automation; energy and sustainability; and infotainment and connectivity. Only technologies classified as advanced are award eligible.

- **Cadillac Escalade** is the premium model receiving the convenience award for camera rear-view mirror technology. **Subaru Ascent** is the mass market model receiving the convenience award, also for camera rear-view mirror technology.
- **Lexus IS** is the premium model receiving the emerging automation award for front cross traffic warning. **Mitsubishi Outlander** is the mass market model receiving the emerging automation award for reverse automatic emergency braking.
- **MINI Cooper** receives the award for energy and sustainability in the mass market segment for one-pedal driving.

¹ Net Promoter®, Net Promoter System®, Net Promoter Score® and NPS® are registered trademarks of Bain & Company, Inc., Fred Reichheld and Satmetrix Systems, Inc.

- **BMW X3** receives the award for infotainment and connectivity in the premium segment for phone-based digital key technology.

The 2022 U.S. Tech Experience Index (TXI) Study is based on responses from 84,165 owners of new 2022 model-year vehicles who were surveyed after 90 days of ownership. The study was fielded from February through May 2022.

The U.S. TXI Study complements the annual J.D. Power U.S. Initial Quality Study (IQS)SM and the J.D. Power U.S. Automotive Performance, Execution and Layout (APEAL) StudySM by measuring how effectively each automotive brand brings new technologies to market. The U.S. TXI Study combines the level of adoption of new technologies for each brand with excellence in execution. The execution measurement examines how much owners like the technologies and how many problems they experience while using them.

For more information about the U.S. Tech Experience Index (TXI) Study, visit <https://www.jdpower.com/business/automotive/us-tech-experience-index-txi-study>.

See the online press release at <http://www.jdpower.com/pr-id/2022107>.

About J.D. Power

J.D. Power is a global leader in consumer insights, advisory services and data and analytics. A pioneer in the use of big data, artificial intelligence (AI) and algorithmic modeling capabilities to understand consumer behavior, J.D. Power has been delivering incisive industry intelligence on customer interactions with brands and products for more than 50 years. The world's leading businesses across major industries rely on J.D. Power to guide their customer-facing strategies.

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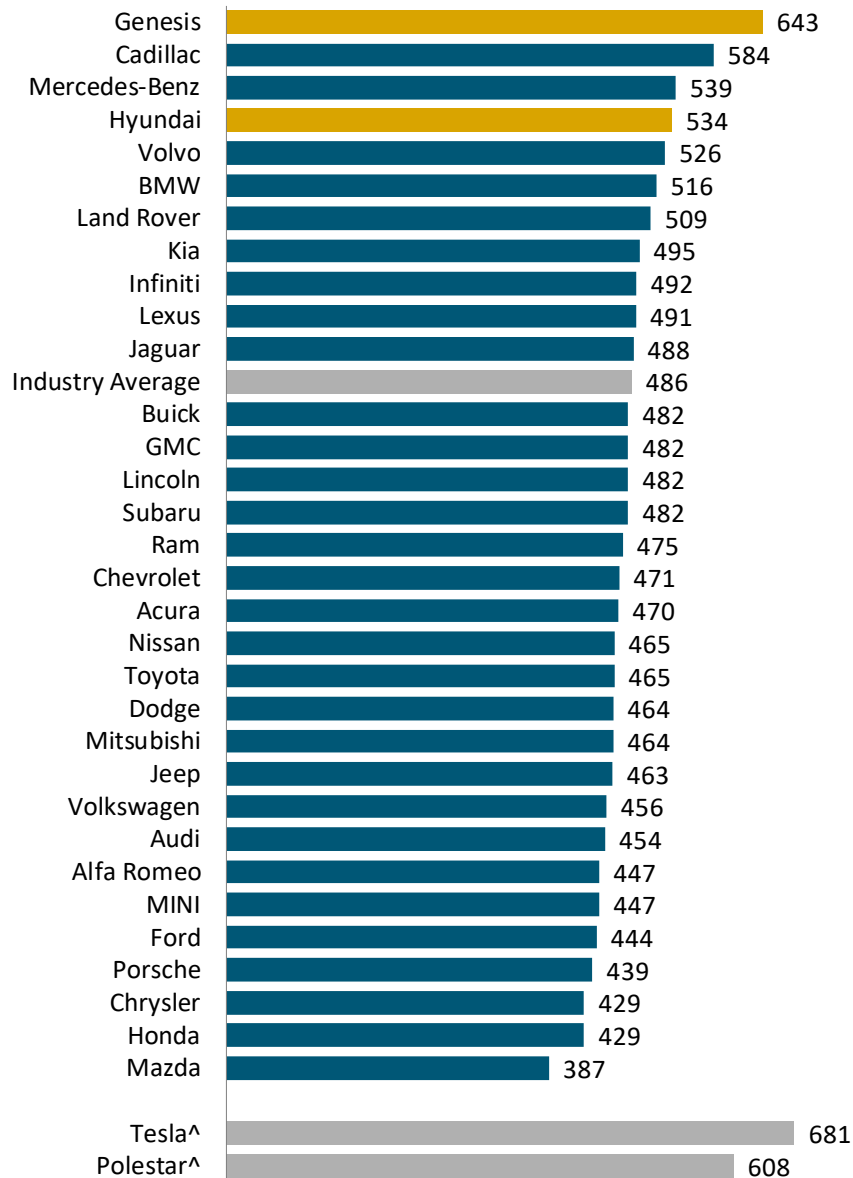
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NOTE: Four charts follow.

J.D. Power 2022 U.S. Tech Experience Index (TXI) StudySM

Overall Innovation Ranking

(Based on a 1,000-point scale)



Note: ^Brand is not rank eligible because it does not meet study award criteria.

Source: J.D. Power 2022 U.S. Tech Experience Index (TXI) StudySM

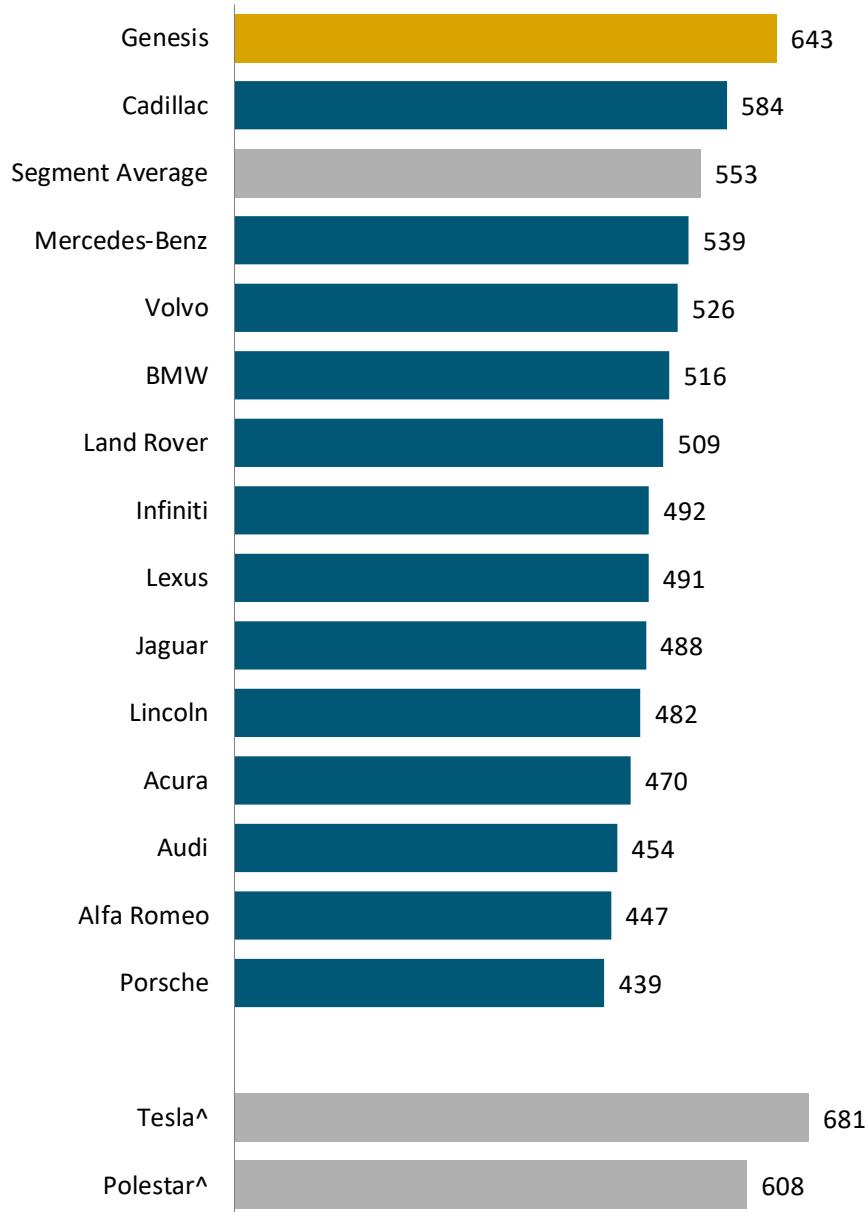
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J.D. Power 2022 U.S. Tech Experience Index (TXI) StudySM

Overall Innovation Ranking

(Based on a 1,000-point scale)

Premium



Note: [^]Brand is not rank eligible because it does not meet study award criteria.

Source: J.D. Power 2022 U.S. Tech Experience Index (TXI) StudySM

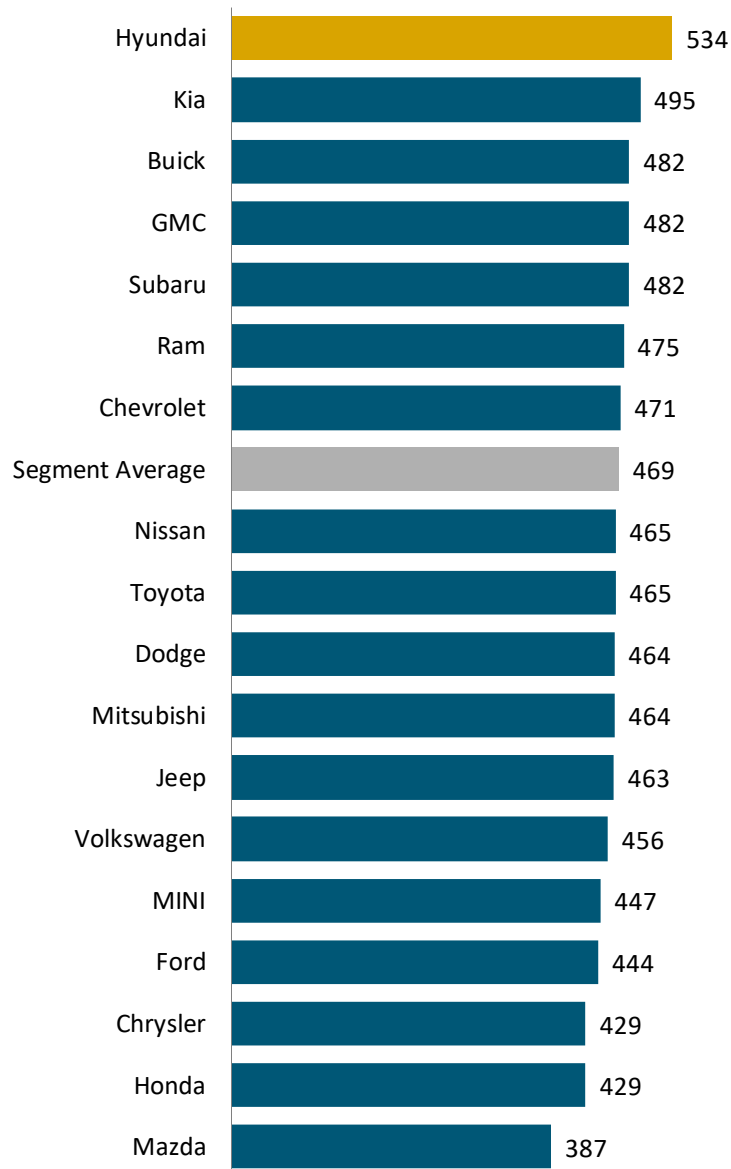
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J.D. Power 2022 U.S. Tech Experience Index (TXI) StudySM

Overall Innovation Ranking

(Based on a 1,000-point scale)

Mass Market



Source: J.D. Power 2022 U.S. Tech Experience Index (TXI) StudySM

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J.D. Power 2022 U.S. Tech Experience Index (TXI) StudySM

Top Models per Tech Category

Advanced Technologies

Convenience

Top Premium Model

Cadillac Escalade

Tech: Camera rear-view mirror

Top Mass Market Model

Subaru Ascent

Tech: Camera rear-view mirror

Emerging Automation

Top Premium Model

Lexus IS

Tech: Front cross traffic warning

Top Mass Market Model

Mitsubishi Outlander

Tech: Reverse automatic emergency braking

Energy & Sustainability

Top Mass Market Model

MINI Cooper

Tech: One pedal driving

Infotainment & Connectivity

Top Premium Model

BMW X3

Tech: Phone-based digital key

Rank-eligible technologies must have at least four models among at least two corporations with sufficient sample to be eligible for award consideration. In the Energy & Sustainability technology category and the Infotainment & Connectivity technology category, these criteria were not met for the Premium Segment and Mass Market Segment, respectively, thus no awards have been issued.

Source: J.D. Power 2022 U.S. Tech Experience Index (TXI) StudySM

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