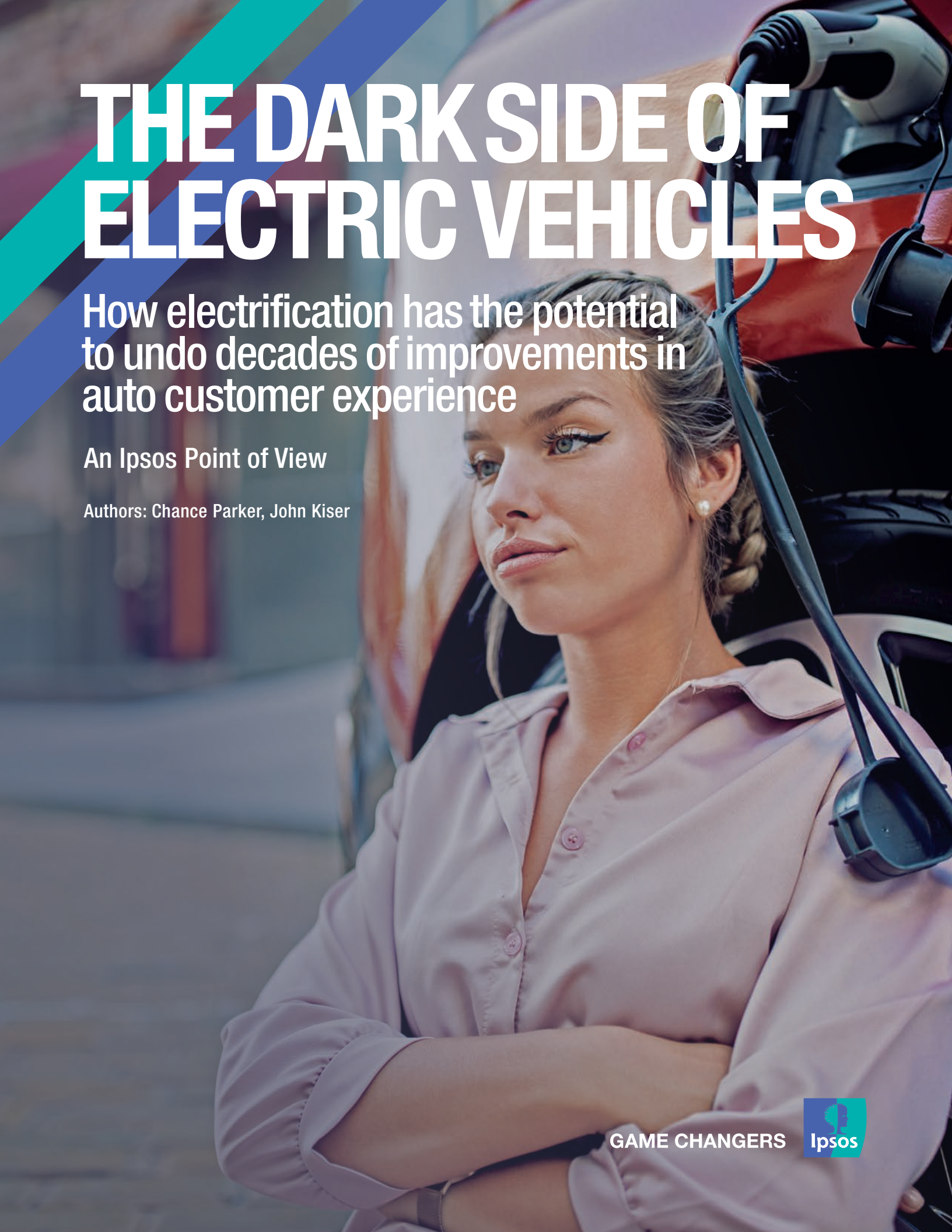

THE DARK SIDE OF ELECTRIC VEHICLES

How electrification has the potential to undo decades of improvements in auto customer experience

An Ipsos Point of View

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GAME CHANGERS

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The hype around vehicle electrification seems to be in hyperdrive. Much of the narrative surrounding it sounds like this:

- Electric vehicles are coming! In the next two to three years, more EV models will be introduced in the U.S. than currently exist.
- Consumers are ready! The 2022 Ipsos Mobility Navigator Study showed that interest in EVs has more than quadrupled in the US since 2018.
- Internal combustion engine vehicles are dinosaurs! A number of states have already enacted legislation that will make them illegal.
- The message seems to be clear: "Climb aboard the EV train or risk getting left behind… or run over!"

While electrification may ultimately fulfill its lofty promises, **the electric vehicle revolution also has the potential to undo decades of improvements in customer experience**. Caution signs are popping up on a number of fronts.

Caution sign No.1: Challenges with public charging

There is a growing body of evidence that the public charging experience leaves a lot to be desired.

- Fortune Magazine highlighted the potential frustration that will befall EV owners who don't have the luxury of a garage or dedicated parking space where they can install a charger.
- Bloomberg recently published findings highlighting serious problems with the build-out of the EV charging infrastructure.
- Out-of-Spec-Reviews, an EV-focused YouTube channel with 150,000 followers, published a summary of charging experiences as reported by followers that suggests a high rate of problems and failures among the largest EV charging networks.

While the majority of the blame for a poor charging experience falls at the feet of the charging networks, there is real danger for carmakers as well. A recent Ipsos analysis reveals that Recommendation levels for the vehicle brand plummet by over 50% when an EV owner has a bad experience at a public charging station. In other words, the charging experience is currently a pain point and detracts from the vehicle experience for many consumers.

And this may just be tip of the charging frustration iceberg. Even if the hardware works flawlessly, consider all that a new EV owner must deal with as they learn to use the current public charging infrastructure.

- While it varies by manufacturer, consumers often must learn to juggle smartphone apps in addition to the onboard technology of their EV to find and use public chargers:
  - Separate apps for each of the charging networks they want to use
  - Probably at least one third-party app to find the most convenient charging station nearby
  - The car manufacturer's app that may (or may not) accurately show all available charging options
  - Potentially a mobile payment app

Once they find a charger, they often face a tiresome blend of inoperative or unavailable chargers and inconsistent and sometimes confusing payment options. For example, some stations require the use of an app while others allow users to swipe a credit card to pay.

Imagine the potential for angst when a new EV owner needs to quickly charge their vehicle while running late, only to find that they first must download a new app, create, and account, and store a payment option in the app before they can add even one electron to their vehicle. What if they don't have their phone? What if they don't have their purse or wallet and don't know their credit card numbers by heart? What if they don't use Google Pay or Apple Pay? The potential for frustration is high, even when the charger itself functions perfectly.

Caution sign No. 2: The home charging experience

One of the most significant benefits an EV owner can expect is the ability to charge their vehicle at home. However, things are not quite as cut-and-dried as the industry would have us believe.

First and foremost, effectively charging at home requires a level 2 charger. Just plugging into a normal outlet, while doable, is practically useless in most cases; this kind of "level 1" charging is painfully slow, often requiring 24-plus hours to charge a battery electric vehicle from low to 80% charge.

Second, installing a level 2 home charger isn't always a straightforward proposition. First, you must have a place to install said charger—typically a garage or covered carport. Those owners who live in condos or apartments are often out of luck. And while level 2 charging stations are being installed in residential parking structures to alleviate this problem, there is no guarantee that a station will be free when you need it.

Then there is the potential time and expense incurred, even if you have your own dedicated parking option. The charger itself typically costs several hundred dollars and can range up to as much as $1,000. That's just the start. Your garage may not have the appropriate wiring to support a level 2 charger. In this case, consumers must have an electrician update their electrical panel in support of a charger. In newer homes with easier access to a 240 volt connection, the costs can run from $500 to $1,500. With older homes, more significant electrical work is required, which can cost thousands of dollars more.

Finally, there is the not-so-simple task of selecting which level 2 charger to buy. A recent Amazon search returned over 15 brands offering these chargers, with each brand offering multiple options. Consumers who aren't prepared for all this are likely to end up frustrated by the process and resentful of the additional costs.

Caution sign No. 3: Quality and service challenges

On paper, EVs should be more reliable than traditional vehicles. After all, there is less to go wrong, they don't need to be serviced in the traditional sense, etc. Unfortunately, this does not seem to be the case—at least not yet. Ipsos quality tracking studies conducted around the globe for a plethora of carmakers shows that electric vehicles are far from problem-free.

While our data is proprietary and cannot be shared publicly, we are not alone. Both Consumer Reports and JD Power have reported that the quality and reliability of the current crop of electric vehicles is relatively poor:

- Consumer Reports, fall 2022: "EVs are among the least reliable cars and trucks in the industry"
- JD Power 2022 IQS, spring 2022: "BEVs and PHEVs have more problems than average"

To make matters worse, EVs are typically equipped with the latest and greatest tech features that each OEM has to offer. Historically, new technologies and features have resulted in a higher number of consumer complaints, so perhaps EVs having more reported problems should not be a surprise. Nevertheless, being able to explain this phenomenon does not excuse it. The equation is simple: More vehicle problems equals confused, dissatisfied customers.

In some cases, the new "tech" associated with the latest crop of EVs may have a darker side than just creating confusion and generating "difficult to use" complaints. Look no further than Tesla's recent announcement that it will be recalling almost 400,000 vehicles to address "safety risks" associated with its Full Self-Driving feature.

There is also evidence that dealerships are struggling to service EVs. JD Power just announced lower scores in its annual U.S. Customer Service Index study, pointing the blame squarely at electric vehicles.

This brings us to a relatively new thorn in the consumer's side: over-the-air updates. One of the potential advantages of today's connected vehicles, especially if they are EVs, is the ability for a manufacturer to send updates and fixes directly to the vehicle via a built-in internet connection, or "over the air." In theory, these updates should fix problems, enable new functionality, and even improve the performance or range of a new EV. In practice, over-the-air updates have proven to create confusion and uncertainty with the consumer, prompting questions like the following:

- Are there any available updates? How do I find out?
- What does a given update do?
- How do I install it? Do I install it, or does it just happen automatically?
- Did it work? What is supposed to be different?

But wait—there's more:

- EVs behave very differently than internal combustion vehicles regarding range. Consumers have been conditioned by decades of experience to expect maximum range during highway driving. EVs don't behave that way, instead offering max range during stop-and-go driving. Imagine your reaction when you take your new "300 miles of range" EV on a road trip, only to find that it provides significantly less range on the highway.
- Charging speed is, well, tricky. OEMs often tout the time required to charge from 20% to 80%. But what about the instances in which the consumer needs their battery to be at 100%—for example, on that road trip when they are not getting the 300 miles of range they expected? Here again, EV behavior is unexpected and potentially frustrating, since the last 20% of charge, from 81% to 100%, often takes longer than the 20% to 80% charge so often publicized. Fatal? No. Frustrating? Absolutely.
- Because of their high-tech nature, EVs have the potential to be obsolete if and when the next breakthrough comes. Pity the consumer whose three-year-old EV, once considered state-of-the-art, plummets in value because the technology is suddenly outdated.
- EVs do not like the cold, at least based on the impact on range and charging. Consumers in cold climates may be in for a shock when they learn their range is suddenly much lower for reasons they don't understand.

For all these reasons, vehicle-makers and charging network companies cannot afford to sit back and ride the hype of electrification. Instead, they must be even more focused on understanding the expectations and experiences of the EV owner, identifying any pain points, and fixing them. A “Field of Dreams” approach (“build it and they will come”) will not work.

Proactive management of the EV wave is critical. Without it, automakers risk too many poor EV experiences that will significantly hurt customer satisfaction and diminish market share.

With decades of experience helping automotive companies identify and solve problems around the globe, Ipsos can help. In addition to traditional research like quality and CX tracking, Ipsos has developed several new services aimed directly at the identifying potential problems new EV owners will face, and helping fix them:

From issues with charging to vehicle quality, Ipsos has you covered. For more information on how Ipsos can help, contact us or click on the links below:

- Ipsos EV Charging Station Audits: Systematic audits of public charging stations to measure station availability, reliability, performance, and functionality.
- EV Atlas: A geo-analytic tool that tracks the charging behavior of EV owners between networks and over time.
- Ipsos OTA (over the air) Update Audit: A research program that provides fast feedback following the release of an OTA campaign
- Ipsos Navigator: an annual syndicated study focused on consumer attitudes and behaviors around the globe.

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