DIGITAL ENGAGEMENT AND THE CONNECTED CAR

HOW CARS ARE TRANSFORMING INTO DIGITAL PLATFORMS AND OPENING AN ENTIRELY NEW CHANNEL FOR SERVICE PROVIDERS

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BI INTELLIGENCE

KEY POINTS

- **Media consumption is at a saturation point.** After rising steadily through much of the last decade, total digital time spent has been nearly static since the start of 2015. This means consumers' overall time spent watching TV shows, listening to music, or even scrolling through the news isn't budging, making it increasingly difficult for content producers to win over minutes of their time.

- **However, there is one platform poised to move the needle: the connected car.** Although digital time spent is stagnating, time spent in the car is increasing as daily commutes become longer in the US. That will result in 900 million more minutes a day spent in cars by 2025, based on BI Intelligence estimates. The connected car will translate these hours into time that can be used to consume content by providing drivers with access to all their digital touchpoints via touchscreen interfaces and built-in connectivity.

- **Getting into the connected car will be critical for service providers, like media companies and commerce firms, that want to increase consumption and usage.** The capabilities of the connected car are expanding at a rapid pace, and will become more robust over time, as technological advances enable additional features and more seamless integration. As this evolution progresses, there will be more opportunities for consumers to take in content, resulting in greater digital time spent. We've identified three trends tied to connectivity in the car that will drive this increase: the extension of the mobile ecosystem to the car, the growth of voice, and the promise of autonomy.

- **There are two main routes into the connected car: by building an app that works with Apple CarPlay or Android Auto, or by integrating a service directly into a car's infotainment center OS.** Entering the car through a connected car app is by far the most accessible option, and is already a favorite among audio streaming companies and messaging services. Full integration, on the other hand, is more difficult but promises benefits like greater processing power and a more tailored experience. Down the line, integrating directly into the car's infotainment center will enable services like video streaming and gaming.

- **Meanwhile, the growth of ride-hailing is resulting in a burgeoning third pathway,** as it turns more drivers into passengers. In 2016, riders took 6 billion trips using ride-hailing services like Uber and Lyft. Companies can already partner with ride-hailing services to integrate offerings into their apps and capitalize on the time passengers are spending on these trips. And, over time, as connected cars specifically designed for ride-hailing are released, service providers will be able to enter the vehicle itself by partnering with the ride-hailing service of their choice.

- **Most connected cars will eventually offer the same services,** giving consumers the option to use the infotainment center, Android Auto, or Apple CarPlay. The majority will also enable drivers to use most of the services they have on their mobile devices. Some automakers, like luxury brands, could choose to go it alone — Tesla is looking into developing a proprietary music service, for instance — but most will likely partner with well-known brands. Smaller companies that are passed over will be free to enter the car through a phone-based platform, or by partnering with a ride-hailing service.

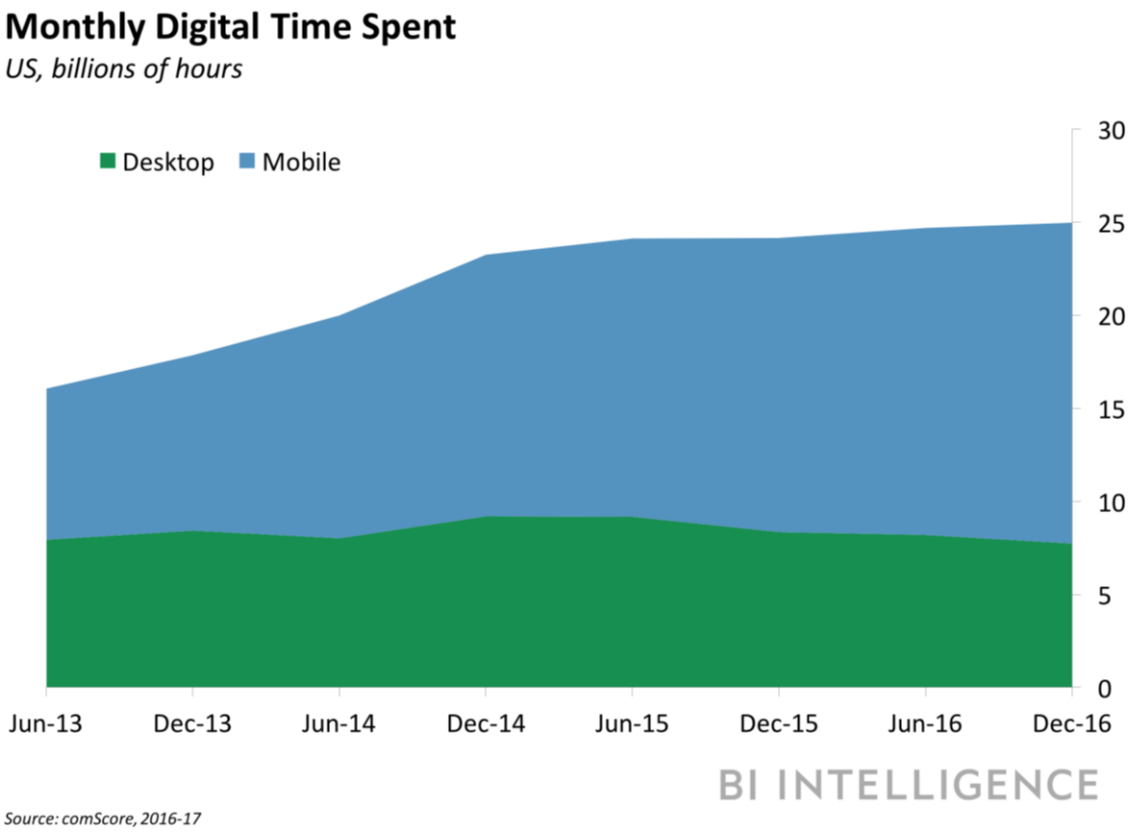
Download the charts and associated data in Excel »

THE CAR AS THE NEXT FRONTIER FOR ENGAGEMENT

Media consumption is at a saturation point. The average US adult spends 727 minutes a day — more than 12 hours — consuming media in one form or another, mere minutes ahead of the 2016 figure, according to eMarketer. Moreover, after rising steadily through much of the last decade, total digital time spent has been nearly static since the start of 2015, with US consumers spending around 25 billion hours a month on media channels, according to comScore.

This means consumers' overall time spent watching TV shows, listening to music, or even scrolling through the news isn't budging. Mobile is growing, but it's mainly eating away at desktop consumption, rather than creating new media time spent. Due to this saturation, any gain in engagement for one content producer comes at the expense of another, and it's increasingly hard to win over precious minutes of consumers' time.

But there's one platform that may be poised to move the needle: the connected car. As digital time spent stagnates, time spent in the car is increasing — in fact, the average US commute has grown from about 25 minutes each way in 2009 to an average of 26.4 minutes in 2017. And BI Intelligence projects commuting time to rise to around 28.3 minutes by 2025. While such increases are minimal on their own, in aggregate, the impact could be huge — there were about 139 million people in the US who commuted daily by car as of 2014 (the latest year for which data is available), which means there will be 900 million more minutes a day spent commuting by 2025, based on BI Intelligence estimates. That equates to an additional 3.7 billion hours of people's time up for grabs in the US alone.

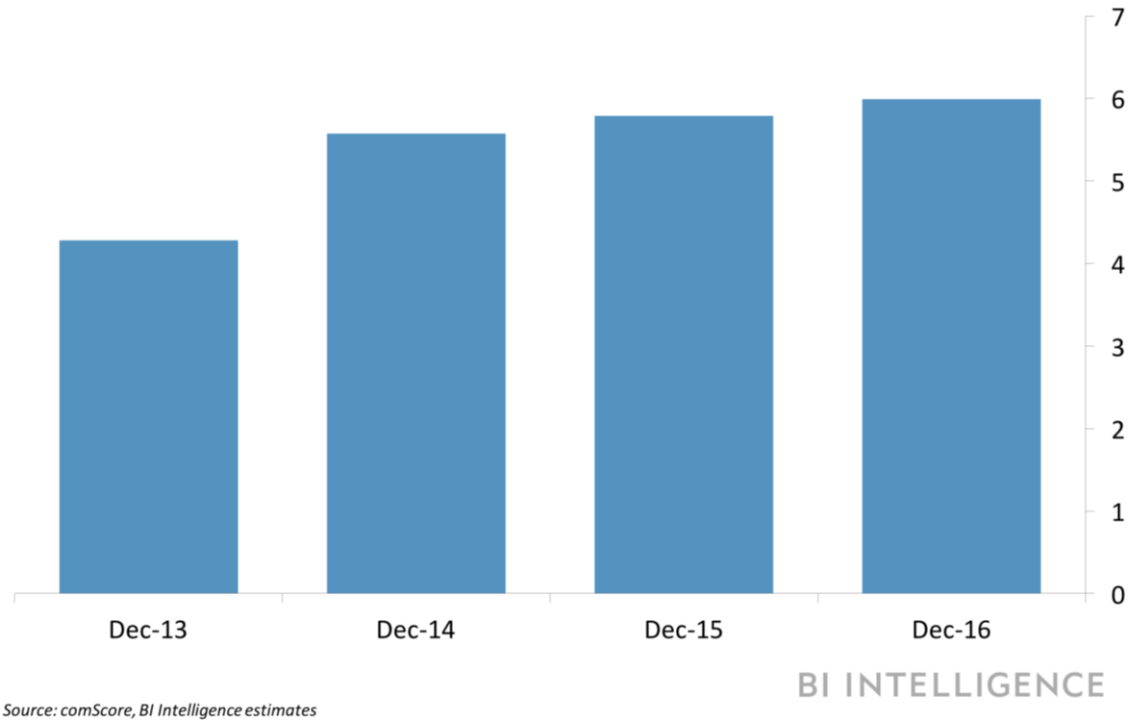


Source: comScore, 2016-17

Connected cars will turn commuting hours into time that can be used to consume content. Until recently, consumers couldn't do much while driving other than turn on AM/FM radio or put in a CD. But now, cars are increasingly being deployed with connectivity, as consumers demand access to their apps and services at all times — BI Intelligence expects connected car shipments to rise from 33 million in 2017 to over 77 million by 2025. These cars feature touchscreen interfaces and built-in connectivity that promise to provide consumers with access to all their digital touchpoints while driving, effectively creating a lifeline to their connected lives. That will greatly expand the possibilities for media consumption, service use, and communication in the car, widening the scope of potential digital engagement.

Average Daily Digital Time Spent

US, hours



Source: comScore, BI Intelligence estimates

The capabilities of the connected car are expanding at a rapid pace, and will become more robust over time, as technological advances enable additional features and more seamless integration. As this evolution progresses, there will be more opportunities for consumers to take in content, resulting in greater digital time spent. We've identified three trends tied to connectivity in the car that will drive this increase:

- **Extension of mobile ecosystems to the car.** Consumers spend more than three hours a day, on average, engaged with their mobile devices. That addiction has pushed Apple and Google, the main mobile operating system (OS) providers, to attempt to extend their dominance to other platforms — like the car. To do this, they've introduced connected car platforms, dubbed Apple CarPlay and Android Auto, respectively, which effectively enable drivers to bring the mobile interfaces they're familiar with into the car.

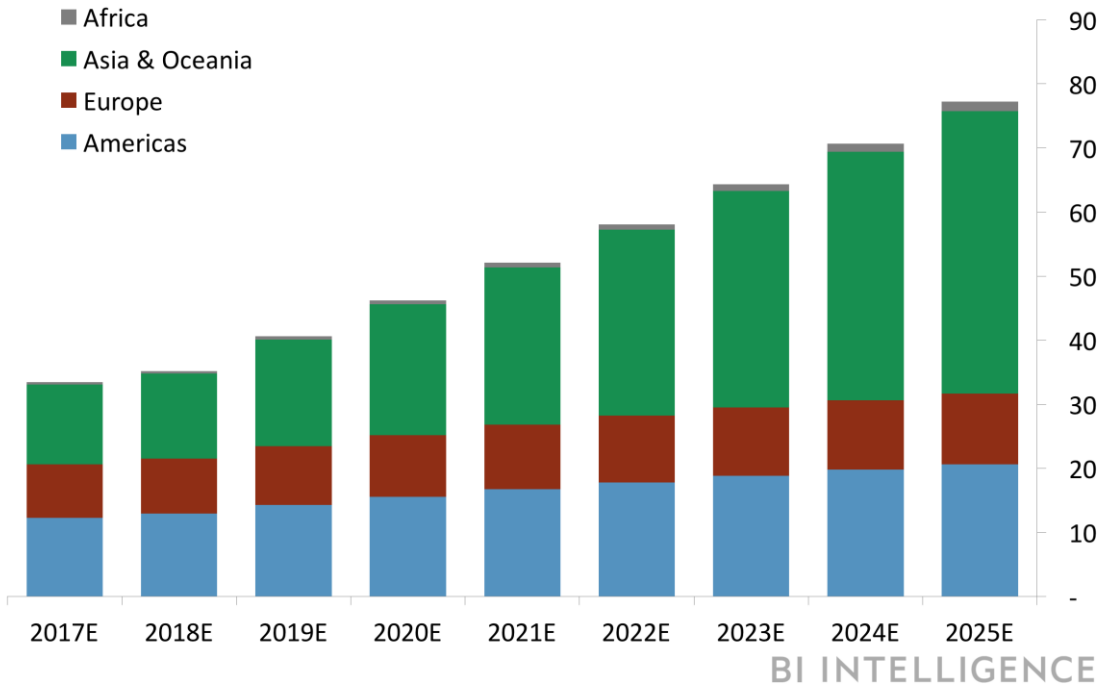
- **Growth of voice.** The growth of voice in the car is enabling people to consume media content, message with friends, and even buy goods or pay for services from the driver's seat — without taking their hands off the wheel. This means many of the minutes drivers would typically spend focused only on the road will now double as time spent queuing up navigation or consuming media, especially music and podcasts, by talking to increasingly capable voice assistants like Apple's Siri, Google Assistant, or Amazon's Alexa.

- **Promise of vehicle autonomy.** Right now, consumers can buy models from Tesla, BMW, and others that offer a range of semi-autonomous features. And car models set to be released in 2018, such as Audi's 2019 A8, will go a step beyond that, allowing drivers, under certain circumstances, to let the car fully take control. By 2025, around 14 million semi- or fully autonomous vehicles will be on the roads in the US, resulting in an equal number of drivers who can turn their attention away from the road. Moreover, Audi's forthcoming A8 will allow the driver and passengers to watch video content on the built-in infotainment screen. Autonomy will open the door for consumers to better leverage their time in the car for media and entertainment.

The confluence of these factors will turn the time people spend in their cars from static minutes into moments that can be captured by content producers, making the car a full-fledged platform for media and entertainment. For companies in the media, e-commerce, and payments spaces, integrating their services into cars will be critical to fuel future growth and continue engagement with users and consumers.

Global Connected Car Shipments

Millions



Source: OICA, AT&T Annual Report, Verizion Annual Report, BI Intelligence estimates

ROUTES INTO THE CONNECTED CAR

There are two main ways companies can deploy their products or services in a connected car:

- Through an app that works with Apple CarPlay or Android Auto.
- By integrating a service directly into a car's infotainment center OS.

Both of these approaches to a connected car strategy pose challenges, and offer companies a different potential market of consumers who will be able to engage with their services.

The Phone-Based Route

This approach involves building a mobile app that can be projected onto the car's built-in display by connecting to Apple CarPlay or Android Auto. The connected car version of an app builds on the phone version; in most cases, it makes sense to develop for both Google's Android Auto and Apple's CarPlay, just as it's generally a good idea to develop for both Android and iOS. Through this route, consumers are met with familiar interfaces and have information from their mobile phones readily available — meaning that their audiobook would pick up where they left off at the gym, for instance, no syncing required.

Leveraging the smartphone for car-based services is the most accessible option for various companies and services because it's based on existing software, and developers can use the languages they're familiar with when programming mobile apps. However, there are two areas in particular where companies are entering the car through smartphones:

- **Audio streaming.** The phone-based route is especially suited to audio streaming, as both Apple and Google have developed preconfigured interfaces for such services that companies can simply tweak with their own content and branding. This means they don't have to build their connected car apps from the ground up, as part of the framework is already in place. Companies that have introduced apps for Android Auto and Apple CarPlay include Spotify, Pandora, and Audible. The introduction of audio streaming services in connected cars is shifting the way people listen to music, podcasts, and audiobooks away from traditional radio and CDs, and creating an experience that's digital, social, and user-controlled. These services are likely benefiting from the place audio has in nonconnected vehicles, as consumers are already primed to consume their content while driving.

- **Messaging services.** A number of messaging services, including Facebook, Hangouts, and Telegram, have built apps to work with Android Auto. These apps use voice and audio as the primary means of communication, reading back messages and using microphones and the mobile OS' voice processing capabilities to allow drivers to respond. Apple has also integrated its iMessage service into CarPlay, while Android Auto lets users message with their default SMS apps.

A key benefit of this route is that the development process is largely internal — which keeps costs down. Companies can draw on their existing pool of developers to build apps that bring their own brand, services, and visual aesthetic together with that of the phone-based system they're working with. Both Apple and Google spell out guidelines for apps that developers wish to make available for connected car overlays. These guidelines are meant to ensure that users have safe in-car experiences by preventing apps from engaging in attention-seeking behavior that could create dangerous situations.

The tech giants that manage the phone-based connected car platforms also maintain review systems, both to enforce these guidelines and to ensure that car apps meet quality standards. Car app reviews are more involved than those for phone apps, taking into account safety and quality, which is why there are far fewer CarPlay and Android Auto apps than overall iOS and Android apps, even among categories primed for the car, like music. This means companies building connected car apps must be careful to adhere to the specified guidelines, and prepare for the process to take considerably longer than with typical mobile apps.

However, what companies can do with a phone-based system is limited by what Apple and Google allow. This means any attempt at innovation or experimentation could be shut down, limiting the types of apps developers can make. Companies are also limited by the phone's hardware, which offers substantial computing power, but not nearly as much as built-in car systems. They also need to factor in battery consumption and consumer data plans. And perhaps most mundane of all, the consumer's phone often needs to be physically connected to the car to launch Android Auto or CarPlay, a barrier built-in systems don't face.

The Infotainment Center Route

Another way companies can approach connected car integration is by working with automakers and suppliers to incorporate their services directly into a vehicle's infotainment center — the collection of screens, dials, and buttons that drivers and passengers use to see information and control entertainment options within the car. This system is built directly into the car, is powered by the car's built-in computer, and often uses the car's cellular connection to stream data from services. Since it's integrated directly into the car, it can provide the most streamlined and controlled experience for consumers, tailored specifically to the vehicle.

Built-in systems are a popular route for companies wanting to facilitate payment transactions in cars. That's likely because executing mobile payments via a phone connection generally requires close proximity to the payment terminal, which isn't always possible in cars. By integrating directly into the car's infotainment system, companies can take advantage of built-in sensors capable of facilitating transactions at a distance. Moreover, this approach allows for better security, which is critical for financial use cases. We're already seeing a number of companies tackle such integrations:

- ExxonMobil partnered with Ford to integrate its Speedpass gas payment service into Ford's Sync infotainment OS, allowing drivers to make seamless, contactless, and automatic payments for gas. Jaguar LandRover and Shell also worked together on a similar integration.

- Domino's Pizza inked a deal with Ford that allows drivers to order food for takeout or delivery through an infotainment center application while on the go. It made use of application programming interfaces (APIs) introduced by Ford to build the app, and leverages the car's cellular connectivity to display the menu, show nearby locations, and transmit orders to the store.

- Additionally, Visa is exploring how connected cars can be linked with credit cards to make payments for drive-thru meals and other services. This promises a new, seamless way to pay that can save time and reduce costs for consumers and merchants. A company like Walmart, for example, could create a car app that allows users to order goods from the car and pick them up via kiosk. Grocers could also implement online ordering — along the lines of Kroger's ClickList — that's performed directly from the car, with orders quickly put together and available for consumers to grab or have brought to their cars when they arrive at the store.

As we move closer to a driverless reality, the infotainment center will offer a slew of new possibilities. The capacity for high-touch content in cars is still relatively low, as drivers remain in control of their vehicles, and thus aren't free to watch movies or play video games. However, as the ecosystem evolves toward autonomy, turning more drivers into passengers, there will be greater opportunities for riders to enjoy content. The infotainment center is especially well positioned to support such use cases, largely due to the impressive processing power of these built-in systems.

Video streaming services, for instance, will be able to leverage the car's powerful built-in hardware to display higher-resolution video, faster, and without concerns over draining battery. Additionally, these services will likely benefit from the permanent built-in data connection tied to the car, which should provide a stronger signal than a phone-based connection, and won't draw on consumers' mobile data plans. In the next few years, as drivers are able to divert their attention from the road, BI Intelligence expects to see these built-in systems support video streaming, as well as other categories like gaming and social media. Right now, however, most media consumption is limited to audio — in addition to their stand-alone apps, Spotify and Pandora are both integrated into numerous automakers' vehicles.

Despite the benefits of full integration, this process is more complicated than a phone-based service because it requires striking deals with automakers. The carmaker has almost complete control over the in-car experience, and therefore acts as a curator for the content and services offered. They're also likely to limit the options available to consumers so that making choices in the car is simple — drivers won't necessarily be able to pick from a wide variety of music-streaming services, for instance; instead, they'll have a handful of options that are built into the car.

Moreover, once a service provider comes to an agreement with an automaker, it will need to build an app that runs on the infotainment center OS. There are three main OS options: Microsoft's Windows Embedded Automotive, QNX, and Linux-based solutions. The vehicle's OS determines who a service provider will work closest with, and what languages will be used to write the application. Each OS is used in a substantial number of vehicles — QNX leads with an estimated 46% market share — and, barring exclusivity agreements with specific manufacturers, most service providers should be ready to develop versions for all three. Every variant of an OS will have slightly different visual guidelines, and service providers will have to adjust their developments accordingly.

Forming deals with an array of automakers is essential to reaching a meaningful number of vehicles. That's likely to be time-intensive, and could require substantial financial commitments to close the agreements. One potential way around this would be to collaborate with an OS vendor like QNX — for example, by working out an agreement for a service to come built into its OS. However, this could prove difficult because OS providers are also competing for a spot in the car. As such, they may not want to risk losing potential integrations by tying themselves to a particular service provider.

THE RIDE-HAILING OPPORTUNITY

While the approaches outlined above represent the most direct ways into the connected car, there's also a burgeoning third option, tied to an increasingly prevalent trend: ride-hailing. In 2016, riders took 6 billion trips using ride-hailing services like Uber and Lyft, according to Goldman Sachs. That market has emerged from almost nothing in 2012, and could grow to as many as 83 billion trips by 2030. This shift in transportation habits has already started to impact what people do in cars. A trip in a ride-hailing vehicle means that someone who would have been driving — fully engaged with a vehicle — is now a passenger.

Service providers can partner with ride-hailing services to better capitalize on the time passengers spend on these trips. To use a ride-hailing service, consumers have to go through an app, presenting an opportunity for service providers to offer them various services. Ride-hailing is a passenger experience, rather than a driving one, meaning every minute is available for consumption. It's also one that will, for the time being, involve connectivity on the consumer's mobile device, rather than any built-in hardware, as many of these cars aren't connected yet. That means we're at the very beginning of this opportunity, and companies exploring these partnerships now may benefit from being ahead of the curve.

There are several types of companies getting into the car via the ride-hailing space:

- **Restaurants.** By offering services through an app like Uber or Lyft, restaurants can both promote their brand and potentially drive customers to their businesses. For example, Taco Bell recently partnered with Lyft to allow passengers to divert their ride-hailing trips to the fast food drive-thru by pressing a button within the app. Aimed primarily at late-night trips, the partnership updates the driver's route to the nearest Taco Bell location when the passenger requests it. This is beneficial for both companies; Lyft gains a feature that entices potential passengers to its service, and Taco Bell gets a new way to market to customers.

- **Social apps.** Social apps can create specific types of messages, stickers, or filters that are exclusively available while traveling in a ride-hailing vehicle. For example, Uber has integrated custom Snapchat filters into its app, enabling users to overlay pictures and videos with content only accessible from an Uber. Additionally, integration with a ride-hailing service could eventually allow users to update friends or colleagues on social media with information like their arrival time when heading to a group event.

Integrating services into ride-hailing apps means working with ride-hailing providers. Just as the automaker controls the car's infotainment OS, the ride-hailing provider controls the ride-hailing app and experience, and serves as the gatekeeper for this channel. After negotiating with a provider like Uber, Lyft, or Didi Chuxing to integrate a service into its ride-hailing app, the service provider will have to offer the ride-hailing company an API or other means of interfacing with its service, and work with its developers to determine the best way to approach integration.

In the future, when connected vehicles specifically designed for ride-hailing are released, there will be an opportunity to leverage built-in displays for video streaming services or to use standardized in-car Wi-Fi hotspots for data connection. At that point, service providers will be able to bypass the app, and deploy services in the vehicle itself by partnering with the ride-hailing service of their choice.

THE FUTURE OF THE CONNECTED CAR

The connected car space is still in early days, and it will take time for an ecosystem to form around it. In the meantime, the different players involved, from automakers to tech companies to service providers, will be looking to mold the environment to suit their own interests. Here are some of the competing forces in the space:

- **Automakers want full control, and likely a restricted ecosystem.** Automakers want to retain control of the car, especially in the face of Apple and Google. They will likely look to provide consumers with the services they want while keeping the options manageable — that means striking the most lucrative licensing agreements possible, and boxing out anyone late to the table or too small to play. Most crucially, they will look to steer consumers toward their infotainment centers, and away from phone-based connections, in a bid to keep content in the car tied to their own brands.

- **Apple and Google, on the other hand, will fight to keep the car open.** These companies want to bring their mobile ecosystems into every facet of consumers' lives, and the car is no exception. However, securing a place in the car will mean thwarting any attempts by automakers to keep the ecosystem closed around the infotainment center. As such, Apple and Google will likely look to quickly onboard companies to their respective connected car platforms, and gain headspace with drivers, before the car's built-in system reaches its full potential.

- **For service providers, it's a mixed bag.** Popular content providers, like Netflix, will have little trouble making it onto the list of companies that automakers want to partner with. They're also likely to support having a limited number of options to compete with inside these vehicles. However, smaller service providers will probably be banking on Apple and Google maintaining their place in the car, as entering through Apple CarPlay or Android Auto will be the only path available to these firms.

The most likely outcome is a middle ground, with many of the largest media, commerce, and payments firms partnering with a range of automakers, while smaller players look to Apple and Google. BI Intelligence expects that most connected cars will eventually offer the same services, giving consumers the option to use the infotainment center, Android Auto, or Apple CarPlay, and letting them use most of the major services they have on their mobile devices. Some automakers, like luxury brands, could choose to go it alone — Tesla is looking into developing a proprietary music service, for instance — but the majority will likely partner with well-known brands. Smaller companies that are passed over will be free to enter cars through phone-based platforms or partnerships with ride-hailing services.

THE BOTTOM LINE

- Media consumption is at a saturation point. After rising steadily through much of the last decade, total digital time spent has been nearly static since the start of 2015.

- However, as digital time spent stagnates, time spent in the car is increasing. The connected car will translate these hours into time that can be used to consume content by offering consumers touchscreen interfaces and built-in connectivity.

- As a result, getting into the connected car will be critical for service providers, like media companies and commerce firms, to increase consumption and usage.

- There are two main routes into the connected car: by building an app that works with Apple CarPlay or Android Auto, or by integrating a service directly into a car's infotainment center OS.

- The growth of ride-hailing is resulting in a burgeoning third pathway, as it turns more drivers into passengers. Companies can already partner with ride-hailing services to integrate offerings into their apps and capitalize on the time passengers spend on these trips.

- Most connected cars will eventually offer the same services, giving consumers the option to use the infotainment center, Android Auto, or Apple CarPlay. The majority will also enable drivers to use most of the services they have on their mobile devices.

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