Revolutionizing Mobility: The Future of Driving Experience

here

FROST & SULLIVAN

Driving information   Live

Merge lanes
in 2km

Who is this eBook for?

Hyperconnectivity is evolving our idea of mobility. In the automotive space, mobility is no longer just about a vehicle. This guide examines how the automotive industry is evolving to meet this changing landscape. It looks at how connectivity and convergence are turning cars into digital platforms that will revolutionize and monetize the driving experience through the innovative use of location technology.

This guide is brought to you by global research and consulting firm Frost & Sullivan in partnership with HERE Technologies.
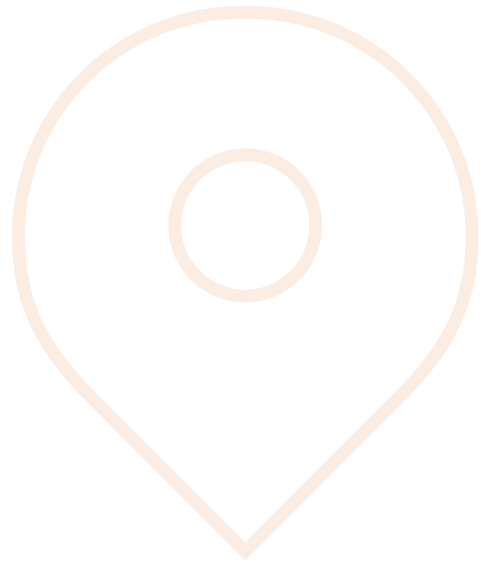
Is it for me?

This guide explores the growing advancements in location technology and new trends that have arisen in the automotive and mobility landscape, and how the industry continues to evolve as we increasingly move into a digital space. It is aimed at:

- Business leaders and decision makers working on urbanization and the future of mobility

- Those looking to monetize the driving experience and add value through the enablement of digital retail services

- CTOs and technical teams in the automotive industry tasked with rethinking the potential for location-enabled services and increased consumer autonomy

- Founders and developers in automotive-related startups who are keen to stay informed on current trends

What's inside?

Foreword by Frost & Sullivan

As the world gradually reemerges from the COVID-19 pandemic, one thing has become clear: hyperconnectivity is now a fundamental requirement for any business and in no other industry is this trend advancing more rapidly, I believe, than in the automotive industry. From the way cars are made and marketed to the way they are driven and maintained, every part of the auto industry now requires and generates more data in response to much higher consumer expectations of convenience and safety.

At the heart of this hyperconnected revolution in mobility is location data.

While we are in the early stages of vehicles becoming platforms for goods and services, we are already living in a world where location data powers and enables on-demand services like maps for navigation, ride-hailing, and intelligent routing for last mile deliveries. Our team at Frost & Sullivan has been at the forefront of observing and advising the world's leading auto industry organizations on these trends, and we are an active partner to many stakeholders looking to grow in this hyperconnected mobility environment.

The rapid pace of change brought about by hyperconnectivity and powered by location data can make identifying priorities and opportunities confusing. This is particularly true for the Asia-Pacific, where discussions of smart, connected cars can seem quite removed from the day-to-day realities of low-cost vehicles and traffic jams in many emerging markets. It is with this in mind that we have prepared this eBook on Intelligent Mobility and Smart Cars in the Asia-Pacific in partnership with HERE Technologies.

Drawing on wide-ranging discussions held during Frost & Sullivan's Intelligent Mobility Summit, this eBook covers the essential aspects of vehicle connectivity in the Asia-Pacific. We identify new areas for revenue growth made possible by vehicle hyperconnectivity, explain why autonomous driving is a goal for OEMs and, most importantly, clarify the opportunities created by smart cars and the central role of location data in realizing these opportunities.

While we certainly do not have all the answers, we hope this eBook serves as an informative and practical introduction to those seeking to understand and take advantage of the unprecedented, exciting shifts taking place in and around the auto industry.

The connected car is here. Let us put you in the driver's seat.

Vivek Vaidy
Associate Partner, Frost & Sullivan

About Frost & Sullivan
For more than five decades, Frost & Sullivan has been recognized globally for its role in helping investors, corporate leaders and governments navigate economic changes and identify disruptive technologies and mega trends. It also helps identify new business models and "companies to action", resulting in a continuous flow of growth opportunities to drive future success.
To learn more, please visit www.frost.com.

Introduction

The rise of smart devices capable of communicating seamlessly over the internet is transforming how we live and work. Our reliance on digital connectivity is now greater than at any other point in history, spurred further by the impact of the COVID-19 pandemic accelerating our need to transform with the power of data. As we enter a new digital era, we need to fundamentally reconfigure our relationship with technology and look at long-term changes.

From individual mobility to ride-sharing, from manual to self-driving, from physical deliveries to drones, from city planning to thinking cities, and from street maps to an all-encompassing index of our reality, location-enabled mobility services will play a critical part in setting us toward an autonomous world.

Location-enabled services can simplify our day-to-day needs. They will become a trusted partner as we define to how the future of everything will look, feel, think, and work. This collaboration can provide us with a safer, smarter life. Businesses will be able to leverage this opportunity to create new revenue streams that rely on location-based technologies.

Want to talk? We do, too. Get in touch here.

To understand the challenges and potential for location-enabled mobility services and revenue streams, **HERE Technologies took part in a discussion at Frost & Sullivan's Intelligent Mobility 2020 summit held on 24 and 25 November 2020,** alongside a host of industry experts. The panel included:

Anuj Jain
Vice President,
Bosch

Rashid Shukor
Head of Operations,
Grab

Cyril Leman
Lead of Automotive
Product Marketing,
HERE Technologies

Stanimira Koleva
Senior Vice President (SVP) and
General Manager - Asia Pacific,
HERE Technologies

Marina Arbuzova
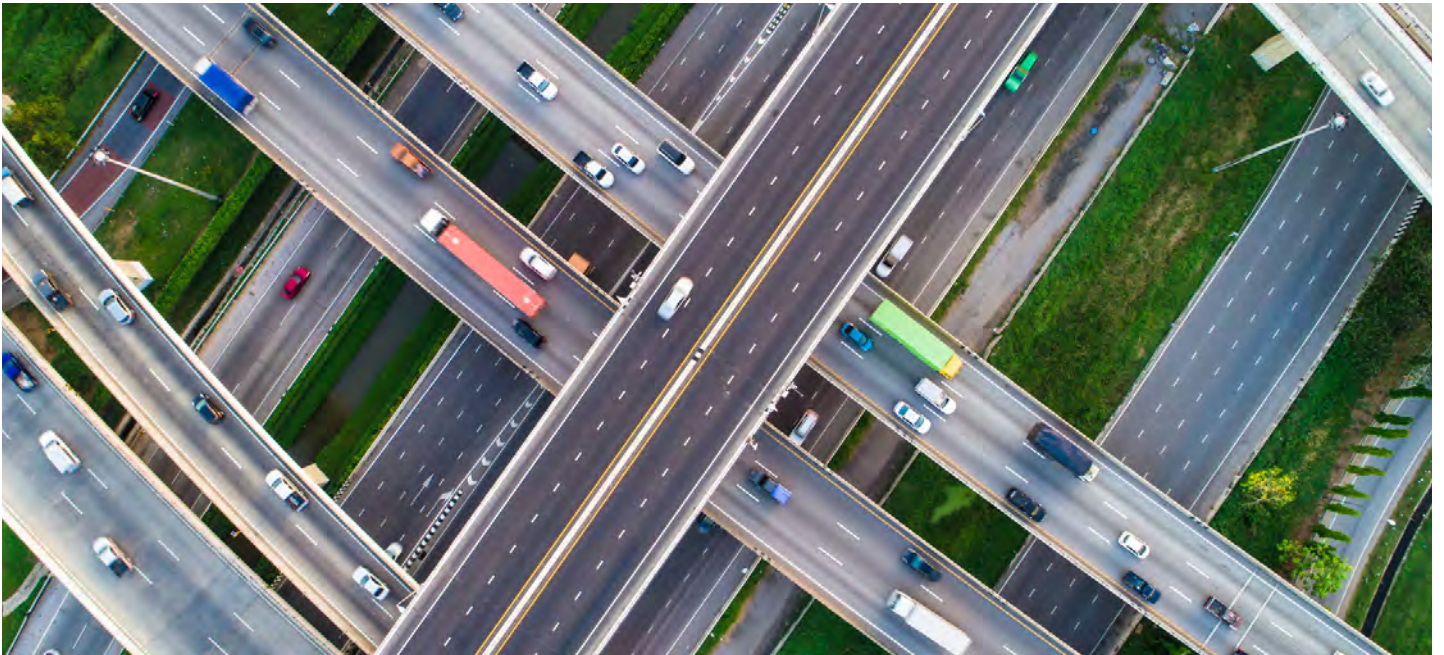Head of Product
Management,
BMW

Vivek Vaidya
Associate Partner,
Frost & Sullivan

Pradeep Pandey
General Sales Manager
(Asia, Asia Pacific),
Nissan

This eBook delves into the ideas, topics and points raised during the discussion.

New opportunities in mobility services and the automotive industry

Amid the crises of booming urbanization and the COVID-19 pandemic lies opportunity. Our new era is primed with potential as the automotive industry shifts towards mobility.

Automotive industry revenues were led by car sales and after-sales services – but this is now reaching a point of stagnancy. OEMs need new business models that extract value over the lifecycle of a vehicle. More than being great product providers, OEMs must become great service providers.

Connectivity and convergence have turned the car into a digital platform. Digital retail is becoming the new norm as consumers look towards autonomous technologies, personal digital assistants, self-driving cars, interconnected transportation systems across the cities they inhabit, and location-based technologies that can enrich their lives.

Monetizing the driving experience

As the speed of connectivity increases, so does the interest in autonomous driving across the globe. From a location-enabled mobility services perspective, monetizing the driving experience offers the biggest potential for revenue, through several different approaches:

Safety and security - the management of cyber risk, data privacy, and the potential for making and meeting emergency calls in both consumer and public sectors will be important in the future

Intelligent routing - the convenience of a streamlined driving experience can remove the hassle of heavy traffic. Intelligence provided by location-based technologies will complement information from car sensors and in-vehicle system to assist traffic planning as well as congestion and pollution-related activities

Autonomous driving - with detailed high-definition maps and precise location-based technologies, automated driving can be enabled. Information supplied by in-vehicle sensors, cameras, radars, and external data sources will help autonomous driving become increasingly likely as our reliance to digital connectivity grows

"**The core challenge for the mobility industry is to develop a safe and reliable automated driving system. This is a complex topic and requires collaborations across various industry players, including OEM's, Tier Suppliers, Governments and Regulators, who will be instrumental in standardizing these systems, as well as the business models around them.**"

- Anuj Jain, Vice President, Progressive Mobility Players, Bosch Southeast Asia

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Enhanced driving experiences are critical, but alone they are not enough

The automotive sector needs to also consider production and point of sale as part of a vehicle's lifecycle. This will help it find ways to add value to the end-to-end digital customer journey and embrace new services. The sales process must change to focus on the customer and prioritize their needs. Only then can we look towards new revenue streams, with location-enabled mobility services at the core of innovation.

"Providing next-gen digital experience in the cockpit, a marketplace to control payments, a dedicated electric and automated driving platform as the data control points – this enables an eCommerce experience throughout the entire lifecycle of the vehicle. Location technology will support those mobility use cases of the future and be the glue that enables new revenue streams in the automotive industry."

– Cyril Leman, Lead of Automotive Product Marketing, HERE Technologies

# The future of mobility: shifting trends in Asia-Pacific

Asia-Pacific is home to 30 megacities, each with unique needs and digital availability and reliance. When considering the APAC region, OEMs and manufacturers need to consider the countries in which they operate and deploy, as the region is dynamic and does not suit a one-size-fits-all solution.

Instead, organizations should focus on offering solutions that are contextual and useful for the needs of today, that will also remain relevant for the future. Ensuring mobility is safe and secure should be a top priority for organizations as they bring value to the market while also providing monetization potential. Securing data transmission to combat cyber risk and protect data privacy is also a way forward. As the mobility landscape evolves and transforms, further security checks and balances will need across the customer journey.

"The priorities and agendas of smart cities are evolving, with budgets being modified and redirected to better meet the needs of citizen services in highly urbanized environments. In the future, APAC may likely host the biggest number of major cities globally. The first level of urbanization will see a new way of thinking, a new way of securing resources, mobility, high precision data, and a culture of high productivity – dependent on the city and its citizens' needs. These are all big agenda items that I would see as a very prominent part of this region."

- Stanimira Koleva, Senior Vice President (SVP) and General Manager - Asia Pacific, HERE Technologies
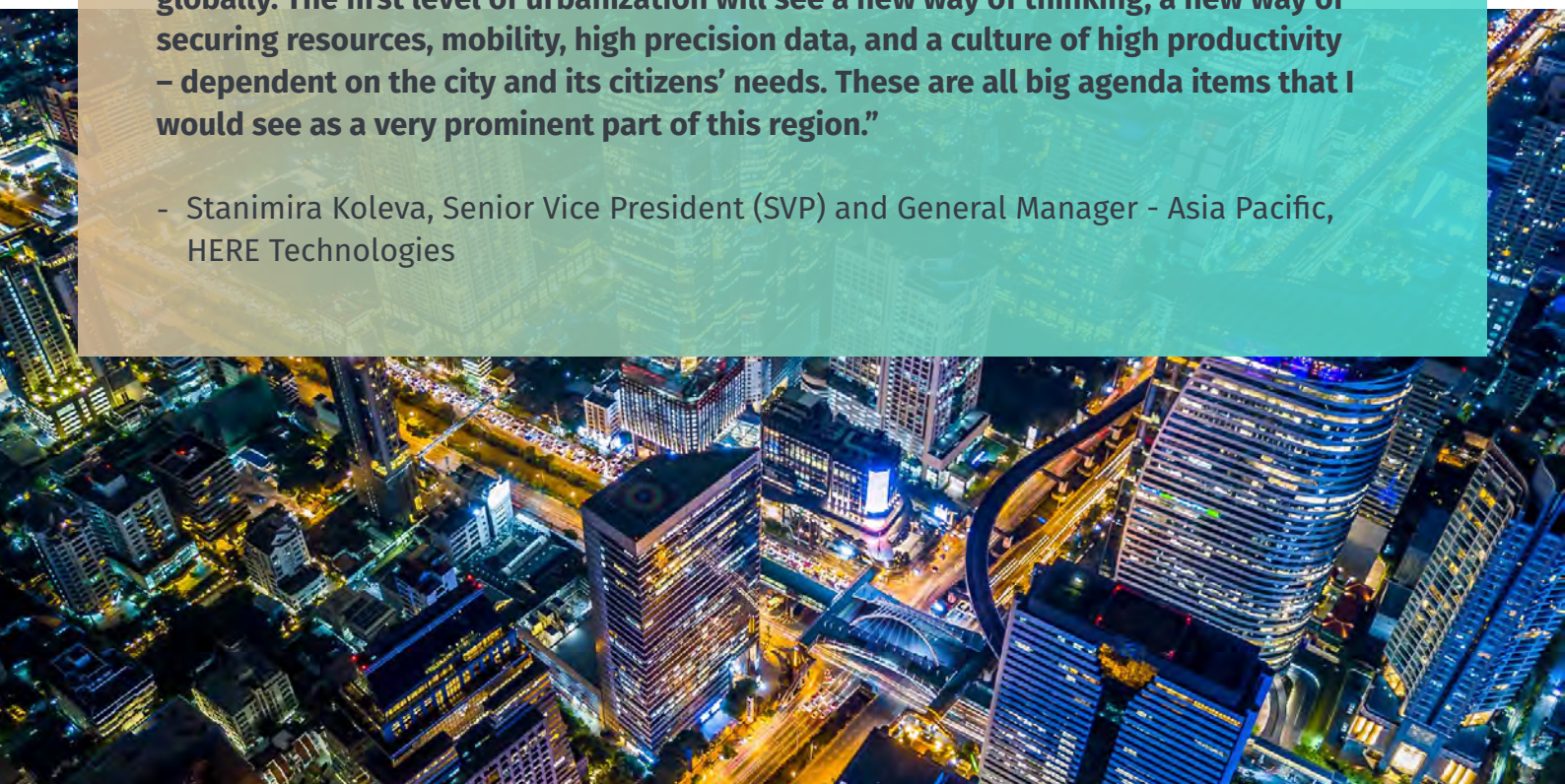
"The future of mobility for OEMs is autonomous vehicles, and ridesharing is a step towards that goal. At the moment, we are effectively replacing one driver with another - giving a person the ability to step away from the steering wheel and do other things during the journey. With the high penetration of smartphones and mobile apps for everything, OEMs can look at deploying relevant services through mobile devices now, and these services can eventually be provided in smart vehicles. I believe that the adoption of new mobility technologies could be the goal between companies like Grab and the OEMs, using the concept of the future of mobility as a stepping stone."

\- Rashid Shukor, Head of Operations, Grab

Furthermore, organizations can look at utilizing existing assets by connecting them with alternative infrastructures in reliable and efficient ways. Can an organization provide the most cost-effective way possible across the city through collaborating with city planners, governments, and the public sector? Adding a layer of location-based services could allow organizations to provide citizens with highly contextual, relevant, and timely services.

Since the beginning of the pandemic, all sectors and consumers have adjusted to the new normal. This is no different in the automotive industry, with several key areas requiring more attention than before, shaping new trends:

Digital retailing - social distancing initiatives have meant that if businesses do not offer digital retailing and services, they risk falling out of the market permanently

Contextual data - there is now a need for location-based knowledge for shared rides to highlight and identify areas that are safe and areas that are at risk

Last-mile deliveries - rising demand means there is now a greater need for organizations to know where each vehicle is located to ensure safety for delivery partners and riders

Efficiencies adopted during the pandemic are likely to remain in place. As a result, investment in technology and digital services will become even more significant as we move into the future.

Connected vehicles and 5G

Autonomous driving may be the future, but it is a technology rooted in connectivity. In a self-driving car, there cannot be any network interruption - for safety reasons this must be a top priority.

As the automotive sector approaches 5G, this need for continual connectivity will be the great next step. Investments telco operators are making towards 5G - and enablement in real-time with low-latency applications empowering autonomy - will be critical for the automotive industry. Existing infrastructure will improve exponentially and will bolster the growth of location-based technologies and autonomy.

"As more real-life use cases are getting realized using 5G, the more investment will get in. My expectation is that we will see infrastructure improving exponentially. Certainly, all the telco providers we work with are busy launching 5G - that's going to change things for us."

- Stanimira Koleva, Senior Vice President (SVP) and General Manager - Asia Pacific, HERE Technologies
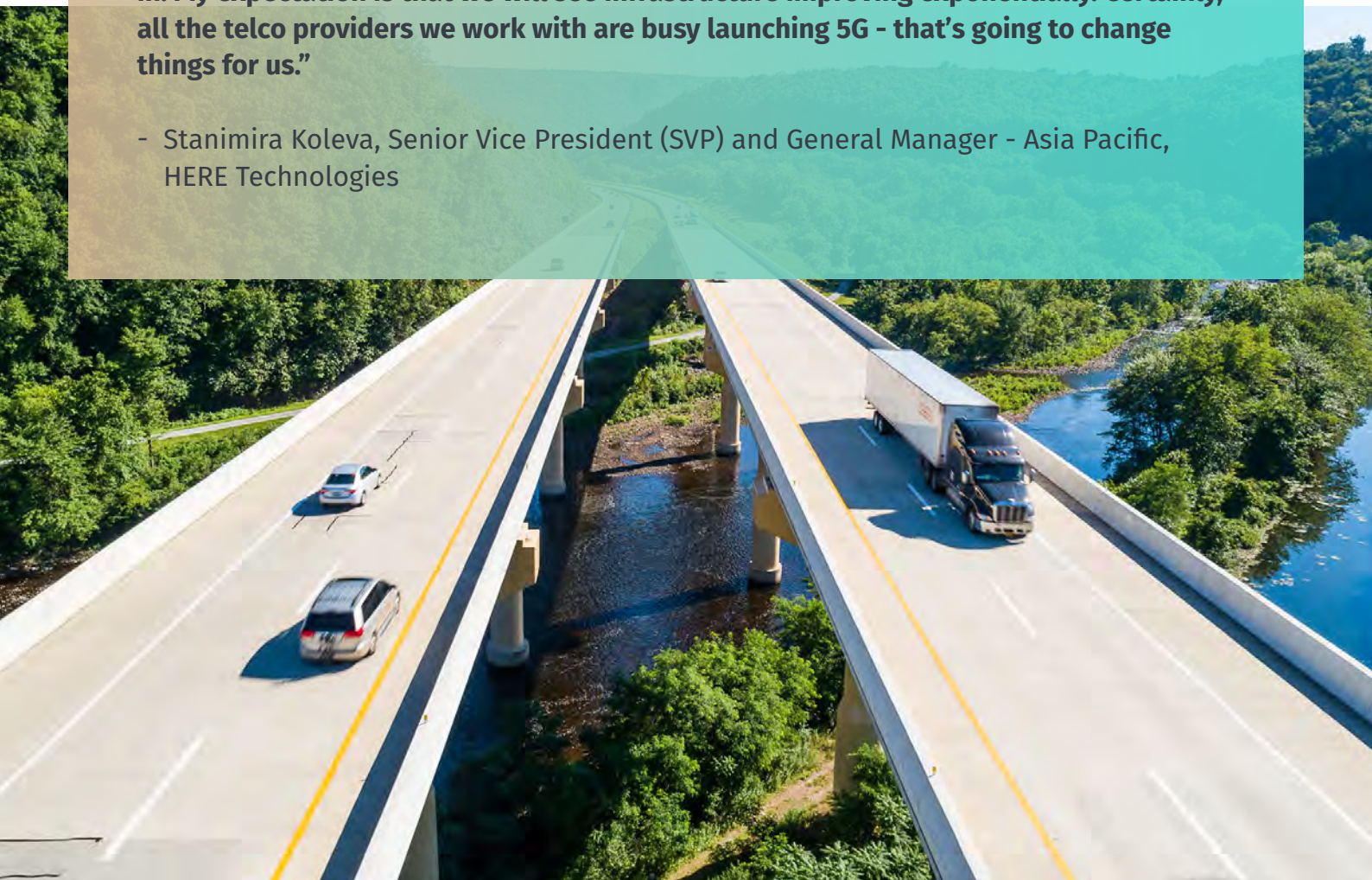
The Location Promise

Changing mobility behavior and advances in digital technologies are enriching the experience for car drivers and riders, while also opening new avenues for businesses to create value. To achieve the perfect C.A.S.E proposition - to create new digital touch points with the car owner and create new personalized on-demand mobility experiences - it is essential to solve the "where" dilemma.

Location intelligence is at the heart of the next wave of transformation providing insights and context to connect people, things and places together.

The following are three concrete use cases that HERE provides solutions for:

Monetize the driving experience

With greater levels of autonomy and connectivity, the car transforms into a digital platform giving birth to new revenues and business generation, cost reduction and increase on data driven services: safety, security, entertainment, etc.

Facts*
In car marketplace is poised to grow from $0.23bn in 2019 to $17.30bn in 2025

Challenges
How to provide distinctive and differentiating value proposition and strengthen customer relationship with superior UX in the car?

Opportunities
- Automatic and electric driving
- Application store and FoD
- Data exchange services: safety / security / navigation / advertising
- Smart payment and digital voice assistant

Why HERE?
- HERE Navigation on Demand enables an always fresh, mobile-like user experience with features on-demand
- The HERE ADAS/HAD offering: enables all levels of automated driving. Use rich map data to enhance safety and build trust
- Electric mobility: predictive planning and EV routing capabilities that help reduce range anxiety while journeying

Want to talk? We do, too. Get in touch here.

*Source: Frost & Sullivan

Digital retail in the future

The future of brand experience will be omnichannel, personalized and fun. Physical touchpoints will be complemented and surpassed by digital touchpoints. OEMs should not surrender the dashboard as the brand experience is expanding into the digital world.

Facts*
Online vehicle sales set to breach the 1 million unit mark in 2020, on way to 6 million units in 2025

Challenges
Building a customer journey unique to the brand while ensuring similar pricing both in-store and online

Opportunities
- E2E sales process with companion app at anyplace, at anytime
- Maintain the health and longevity of vehicles
- Build loyalty with vehicle-related services

Why HERE?
- HERE Marketplace provides platform environment for the integration of third party services and an opportunity for data monetization
- HERE companion applications offer new digital touchpoints to connect brands with their customers
- HERE Workspace enables the creation of new data-driven services; such as in-vehicle advertisement or predictive maintenance

Want to talk? We do, too. Get in touch here.   *Source: Frost & Sullivan

The future of mobility

There is a clear shift in the way consumers view mobility in urban areas, where people have more options. Collaboration between OEMs and cities will help enable greater mobility choice and create safer cities.

Facts*
The global revenue opportunity from the shared mobility market to exceed $1.5 trillion by 2030

Challenges
- How can technology help enhance the digital experience for customer?
- How to improve operational efficiency and profitability?
- What are the right public private partnerships that can enable long term sustainability?

Opportunities
- Hassle free mobility
- Pay as you go and pay as you drive
- Door-to-door mobility
- Intertwining of passenger and goods mobility

Why HERE?
- HERE Urban Mobility Market offers solutions for intermodal journey planning and routing (WeGo, Transit API, intermodal routing), operational excellence for fleet management, and a platform environment for mobility ecosystem for data engagement and collaboration

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*Source: Frost & Sullivan

Location is key

Location technology connects people, places and things together. It lends context to the user experience journey, through questions such as where a location is, how can users arrive there efficiently, what they might encounter along the way and when they will arrive. These historical patterns and analytics help build a clear perspective, leading to location tech being a key enabler in the automotive industry.

From providing a next-generation digital experience in the cockpit, to providing a marketplace to control payments, to providing a dedicated electric and automated driving platform as the data control points, and enabling an eCommerce experience throughout the entire lifecycle of the vehicle, there are numerous use cases and revenue avenues that rely on location technology.

There are a few examples where location is key:

Where is "X"?

How does "X" get to "Y's" location with parameters?

What is around "X"?

When will "X" arrive?

What is the status of "X"?

Where should "X" be located?

Where has "X" been?

What will "X" encounter?

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Conclusion:
Mobility of the future and areas of investment

As the automotive industry moves into the digital space, gaining real-time access to data and location technologies, existing mobility solutions will evolve. As the function of the car changes, there is an expectation that organizations will increasingly provide more holistic services in order to monetize the driving experience.

Mobility services of the future will be defined by innovation, connectivity, security, and location technologies. The public and private sectors can collaborate to ensure seamless transportation systems across cities and, in doing so, contribute to the development of mobility systems and autonomous driving.

"We are seeing and contemplating in front of us a tremendous opportunity to embrace new business models. These will be extensively based on our capacity to provide personalized and customer-focused experiences for end users. We need to make sure we're customer-centric, putting the customer into everything we do."

– Cyril Leman, Lead of Automotive Product Marketing, HERE Technologies

About HERE Technologies

HERE, a location data and technology platform, moves people, businesses and cities forward by harnessing the power of location. By leveraging our open platform, we empower our customers to achieve better outcomes – from helping a city manage its infrastructure or a business optimize its assets to guiding drivers to their destination safely. To learn more about HERE, including our new generation of cloud-based location platform services, visit **http://360.here.com** and **www.here.com.**