Clearing the road to the automotive industry's next era

Verizon's vision for the automotive sector in Singapore

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Accelerating transformation across the automotive industry

## Making cars safer, smarter and sustainable.

The automotive industry is experiencing its largest transformation since the assembly line was invented more than a century ago. Today, many car manufacturers differentiate not necessarily on engine make or body style, but on the digital technology that powers a car's mechanics – giving manufacturers the opportunity to be software innovators, too.

The APAC region is home to some of the world's most valuable car makers; in fact, 60% of worldwide vehicle production in 2020 came from the region.[i] These manufacturers are leading the charge into a new era of manufacturing, using technology that relies on data such as in-car sensors, cameras, radar and even multi-access edge computing (MEC).

Enterprise Intelligence can help smart vehicles process these huge volumes of data in real time, helping power a safer, better and more planet-friendly driving experience.

Together, China and Japan make up 42% of the automotive market – double the size of the entire European market.[ii]
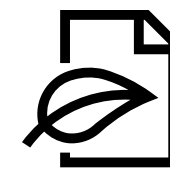
Market leadership in sustainability

With sustainability top of mind worldwide and car makers pushing ahead with phasing out fossil fuel-powered vehicles by 2040, the growth of electric cars is accelerating at an unprecedented rate. Southeast Asia is leading the way. Thailand, for instance, has a strong footprint in car manufacturing and is pivoting to electric vehicles (EVs), with 30% of the country's domestic production expected to be electric by 2030.[iii]

Autonomous vehicles

Enterprise Intelligence uses solutions like 5G networks and MEC to power innovations like autonomous, or self-driving, cars. Enterprise Intelligence can help an autonomous car understand and respond to data from its surroundings quickly, whether it needs to stop at a red light or avoid hazards ahead. Self-driving cars can lead to a reduction in accidents or deaths related to human error, lower emissions, and improve traffic flow.

Changing customer preferences

Today's drivers want environmentally sustainable cars – and demand for electric vehicles is rising. In late 2021, the Australia Institute's annual Climate of the Nation report explored attitudes of Australians to EVs and EV policies. The results indicated that Australians believe the country should 'electrify everything'. The report found that 68% of Australians think the federal government should be doing more to increase electric vehicle uptake in Australia.[iv]

Automotive insights in Asia Pacific

The automotive industry faces mounting pressure from all angles. Supply chain disruptions, steep inflation, rising wages and the effects of sanctions on Russia have converged to increase production costs and limit the availability of raw materials. But the automotive industry remains core to many APAC economies, and investments in digital technology and Enterprise Intelligence can help hone companies' competitive edge over other manufacturers.

Professional services firm PwC expects that changing consumer preferences, increasing data privacy and security regulations, emissions policies, and national electric vehicle charging systems will jolt the market for sustainable, intelligent cars.[v] APAC manufacturers will earn more opportunity to increase market share and usher in a new era of car making.

Today's industry challenges

Asia was the most attacked region in 2021, receiving 26% of the global attacks.[vi]

Proving autonomous vehicles' safety

Automakers have begun to announce Level 3 autonomous driving cars – cars capable of driving themselves in certain conditions – and are working towards deployment of Level 4 self-driving trucks and commercial robotaxis. (At Level 4, cars are capable of driving entirely on their own, without assistance from people.) However, proving the safety and effectiveness of self-driving technology is time-intensive because extensive simulation and real-world testing make commercialisation slow and expensive.

Supply chain disruption

The Boston Consulting Group found that automakers face critical supply chain risks from overreliance on single source suppliers, while research from Roland Berger shows the cost of moving parts through the supply chain will only increase. And with chipmakers like Infineon indicating industry shortages, and sales in some markets falling to levels not seen since 1995, the supply chain is likely to face more disruption.

Cyber security threats

According to IBM X-Force Threat Intelligence Index 2022, Asia was the most attacked region in 2021, receiving 26% of the global attacks. India tops the list of the most attacked country in Asia. The most recent Australian Cyber Security Centre (ACSC) data notes that cyber attacks increased by 13% within a year.[vii]

New and increasing competition

The automotive industry could see digital giants like Amazon Web Services (AWS), Google, Alibaba or Tencent continue to expand their footprints in vehicle technology. Gartner predicts that by 2028, 70% of vehicles sold will utilise the Android Automotive operating system, up from less than 1% today.[viii]

Automotive customers want the latest features, but they don't want to pay more for them.

According to Deloitte, most consumers are unwilling to pay more for advanced technologies in most global markets, as they have been trained to expect new vehicle features as a cost of doing business for brands looking to differentiate themselves from their competitors.[ix]

Industry benchmarks: How do you compare?

The automotive industry is a core pillar for many APAC economies. The manufacturing of motor vehicles and parts generates huge sales and high levels of production for the region. It's clear that industry leaders know that the opportunity for growth is massive, and are looking to invest in new digital solutions to take security, user experience and safety to another level.

63% are increasing IT budgets post-pandemic – significantly more than all other regions.[x]

75% plan to move more business functions to the cloud, to future-proof operations and tap into new growth opportunities.[x]

Forecasted spending:

Internet of Things (IoT) spending in the smart manufacturing sector in the APAC region is forecast to reach US$140.6 billion by 2025.[xi]

Digital transformation (DX) spending in APAC is forecast to reach US$543 billion by the end of 2022, a year-on-year growth of about 18% from 2021.[xii]

Spending on security solutions and services in Asia Pacific is forecast to increase 15.5% or $31 billion in 2022 from 2021.[xiii]

Verizon: We'll build a solution just for you.

Verizon is here to help you embrace the latest technologies and create the cars – and driving experiences – of the future. As your transformation partner, we'll co-create a next generation of vehicles that are safe and sustainable.
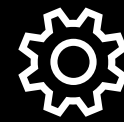
How we do it...

Enable connected vehicles

The scalable Verizon network and its comprehensive platforms can help accelerate the rise of autonomous cars. With near real-time edge computing solutions that localise data, we can help you support the many applications needed to operate fully autonomous vehicles.

Unified technology

Verizon offers a global connectivity platform that can help you safely deploy connected and autonomous vehicles, in-vehicle systems and connected fleet services. Plus, we have a whole ecosystem of partners with applications that allow you to create a customised, connected vehicle strategy.

Differentiated customer experiences

We can help you provide innovative, personalised and geo-based customer experiences powered by our 5G network, 5G Edge solutions and other capabilities. Whether it's mileage-based and diagnostic triggers for the person in the driver's seat or infotainment options catered to passengers of all ages, we can help you offer tailored experiences that will exceed your customers' expectations.

Enhanced cyber security

We can help you understand the internal and external threats to your critical company data and vehicles, and help you build security into your innovation efforts. We can also help you secure critical infrastructure, assets and data in your manufacturing process, no matter where they are located, from the cloud to mobile to the factory.

How it all comes together

HONDA

Challenge

To make Honda's autonomous vehicles safer by equipping them to process and react appropriately to different driving scenarios.

Solution

Honda took advantage of Verizon's 5G and MEC platforms to explore three different autonomous vehicle safety scenarios.

Results

Pedestrian scenario: Improved pedestrian safety – smart cameras, 5G, Verizon's MEC and V2X software platforms worked together to alert the driver of pedestrian movement, even with an obstructed view.

Red light runner scenario: Improved traffic safety – Verizon's MEC and V2X software detected a car that didn't stop for a red light and sent a visual warning message to other vehicles coming up to the intersection.

Emergency vehicle warning scenario: Improved response to emergency vehicles – Verizon's MEC and V2X software received a safety message from an emergency vehicle and gave the driver a visual warning of its approach, even when the driver couldn't see or hear the emergency vehicle.

How it all comes together

ABP | ASSOCIATED BRITISH PORTS

Challenge

To evolve the Port of Southampton's way of working with technology that enables better agility through efficient connectivity, reliable service and real-time information.

Solution

Deploy a Verizon Private 5G Network.

Results

Consolidate part of the port's network and communications, which helps enhance cyber security.

Fast data exchange and near real-time analytics help the port authority update customs with real-time information.

More efficient connectivity has limited employee frustrations and boosted morale.

Better visibility over port vehicles.

More efficient movement of products off ships, into parking and out to buyers.

A strong local presence

Verizon has built a strong presence in Singapore. We employ a dedicated local team who operate from three locations – SGP Science Park, Mapletree Anson and an innovation centre at Ocean Financial Centre OFC. Our offering spans cyber security, advanced communications, secure network services, professional services and media.

Verizon takes security seriously. Here are some of our local and global capabilities:

Singapore	Global
Managed Security Services	ISO 27001
Advanced Security Operations	ISO 27002
Autonomous Threat Hunting	Payment Card Industry Data Security Standard (PCI DSS)
DDoS Shield	National Institute of Standards and Technology Cybersecurity Framework (CSF)
Network Threat Advanced Analytics	
Software Defined Perimeter	National Institute of Standards and Technology SP 800-53
Ethernet access – Private IP	
Private 5G	CSA Cloud Controls Matrix
Partner Access – Starhub/Singtel	Cybersecurity Capability Maturity Model
Secure Cloud Interconnect with AWS/Microsoft/Google/Alibaba	Control Objectives for Information Technologies (COBIT)

Our global strength

When you choose Verizon, you'll not only benefit from dedicated local resources, but our global capabilities too. This combined strength gives you unrivalled connectivity and protection from cyber threats.

99%
of Fortune 500 companies as customers

9
security operation centers (SOCs) globally

150+
countries

2,400+
certifications and training for security team members each year

34TN
raw logs processed each year to protect our customers and minimise threat

We are also a globally recognised:

- Gartner Magic Quadrant Leader (Network Services and Managed IoT Connectivity Services)

- Omdia Global IT Security Services Leader

- Unified communications as a service (UCaaS) leader for enterprise

Next steps

Let's take our partnership to the next level with an executive briefing.

Van help you progress towards your smart manufacturing future – no matter where you are on your journey.

We can also organize one of our Connected Future Workshops to help you define your future vision. By following a tried and tested framework, we can help you:

- Learn what industry leaders are implementing

- Walk through your transformation agenda

- Brainstorm opportunities

- Create a roadmap

- Decide on next steps

Contact us:

+65.6248.6600
apaccontactus@verizon.com

10 Collyer Quay, #16-01 Ocean Financial Centre, Singapore

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