

# Embracing Industry 4.0 to future-proof transport beyond 2030

Most of South Africa's transportation is still road-based, but the country needs to get ready to take advantage of the Fourth Industrial Revolution. In doing so connectivity, data and analytics, and autonomous vehicles will play transformative role in future-proofing transportation in the country beyond 2030.



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“Effective implementation of the National Infrastructure Plan (NIP) should be considered in earnest that will see selected major infrastructure projects fast-tracked to get the backlog moving, which could help with increasing capacity in transport industries and, as a direct result, influence positive growth in the economy,” says Vishaal Lutchman, transport and infrastructure divisional director, WSP | Parsons Brinckerhoff Africa. “Though it shouldn’t be thought of in isolation, but rather viewed as a starting point to get the country’s infrastructure and supporting networks ready for the technological advances we are seeing globally, and better enable the 5.5% GDP growth the country is said to be able to achieve with relative ease.”

## A long-term vision with connectivity in mind

In reality, 2030 is a medium-term planning timeframe for major infrastructure projects. “While it’s important to have this planning and set targets in place, we also need a long-term vision that encapsulates how people will live, work and play beyond 2030. This will enable us to design what the future demand of transport networks will be. If we look at the pervasiveness of mobile devices and the uptake of the internet in the country as well, then the adoption of key technologies becomes crucial to this vision and its implementation,” adds Lutchman.

Grant Fraser, product, and marketing director at MiX Telematics (Africa) agrees: “Today, we live in a digitally connected society and the expectations of individuals and business alike, is to remain connected. However, managing this usually requires mobile connectivity in the form of Wi-Fi, GSM, GPS and wireless technologies.”

In fact, according to Riaan Graham, sales director at Ruckus Wireless, Sub-Saharan Africa, “Mobility goes hand-in-hand with travel and transport and the proliferation of mobile devices is certainly driving the adoption of wireless technologies – particularly Wi-Fi connectivity – in transportation. Whether it’s an individual, or a company transporting people or goods, there is a distinct desire and expectation from consumers, customers and business alike, to be able to communicate, do seamless and real-time route checking or planning for improved time management and productivity, manage safety and security from anywhere, as well as access certain application services while on route.”

## Wi-Fi ideal for transport and mobility

Graham confirms that Wi-Fi is ideal to incorporate in transport planning. “It doesn’t require fixed infrastructure to establish can handle offloading 3G/4G capacity – particularly in high user density areas – with reliable connections and ubiquitous coverage and, it can differentiate service and access by user and device. For instance, a bus can be transformed into a moving Wi-Fi hotspot, which will create great value for the passengers and become a unique selling point for the bus company. However, the potential of Wi-Fi in transport is not just about passengers when, with the amplification of the Internet of Things (IoT), it can enable smarter lifestyles for everyone.”

“Passengers also need real-time access to schedules, gate and ticket information, maps and/or other guidance as they pass through the bus terminal. Wi-Fi not only provides an ideal method for these activities, it also provides a platform for new revenue generating services such as additional Wi-Fi access or 3G/4G offload, as well as support for bus terminal operational needs such as point-of-sale, digital signage, and video security.

From a commercial perspective, there is also a global trend for transportation cargo and fleet services to become more involved in value-added activities such as cargo processing and logistics, which will require new processes, practices and technological advances around stock control and integration, as well as better wireless connectivity,” adds Graham.

## Advances in telematics technology

This is particularly true when we consider the significant advances in telematics technology and the future of smart vehicle. Fraser says: “The combination of connectivity, IoT, and onboard technologies continues to drive the use of Big Data, which now lies at the centre of telematics technology. While the onboard computer is still an important component, advances in IoT and analytics provides the opportunity to access much richer data about the vehicle, its movements, the driver, etc. and being able to effectively utilise this data to provide added value.”

## AVs are coming

The proliferation of Big Data and IoT are certainly two of the most significant change agents that continue to shape the future of telematics, however, when converged with leading-edge thinking into connected and autonomous vehicles (AVs), we can recognise the potential to truly transform transportation in the country.

Lutchman adds: “Autonomous vehicles or AVs are coming. A number of countries are already investing in supporting infrastructure and undertaking successful case studies. South Africa has the most sophisticated networks of transport infrastructure on the continent, and with the right planning and investment into required supporting infrastructure for connectivity, we could be ready for AVs post-2030.”

Global [research](#) undertaken by WSP | Parsons Brinckerhoff in the UK, in association with Farrells, found that AVs have the potential to support a better quality of life, economic growth, health, safety and social connections. They offer convenient and safer mobility, regardless of the driver’s capabilities, and could also help to improve the way that existing spaces and route networks work.

“Imagine a connected network of vehicles on our major highway, freeway and city centre routes. Because the vehicles will be pre-programmed to abide by the laws of the road, and able to connect to and access the latest in GPS mapping and data from other sources, these vehicles will be safer, more sustainable and more efficient than the vehicles of today,” adds Lutchman.

The company’s research also shows that in time AVs will be able to move around without direct driver input to transport people and goods, on demand, from door-to-door using the most efficient routes. Added to this, road transport systems of the future will interact seamlessly with other transport systems, offering end-to-end journey connectivity and resilience.

## Addressing driver behaviour and fatalities

“Having networks of automated vehicles capable of completing journeys safely and efficiently - in normally encountered

traffic, road and weather conditions - could significantly reduce collisions caused by driver error on our roads. Sophisticated telematics will still have a key role to play in ensuring visibility and, in the future, to monitor what will be known as the 'robo driver' (which too can come with its own set of challenges).

If we consider that road fatalities cost the country billions of Rands every year, with the majority being caused by irresponsible driver behaviour, this should certainly be motivation for the country to adapt to these sophisticated transport modes in the future. Telematics data will remain an invaluable source of real-time insights when automation is present," concludes Fraser.

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