How IoT can drive smooth, smart, free-flow traffic

The total cost of road traffic accidents on South Africa's roads was estimated at R142.95 billion in 2016, equating 3.4% of GDP in that year.

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Says Lawrence Kandaswami, managing director at SAP South Africa: "It is important for all sectors, including the private sector, to understand the impact of these costs on the economy, so that we can develop strategies on how to partner with the public sector in managing the influx of a growing population in need of safe, reliable public transport."

The internet of things (IoT) is expected to become a $1.46 trillion industry by 2020. This innovation will have a positive influence across all sectors of business, including public transport, security and in the provision of public healthcare.

According to the United Nations, as much as 66% of the global population is expected to live in urban areas by 2050. This means that cities will face many challenges, mostly centred around having to leverage limited resources to deal with a growing influx of people needing services. Public transport is one of the many sectors that will experience strain because of high traffic volumes which can lead to increased road fatalities.

Solving traffic problems with an IoT mindset

Accessibility and safety of public transport is one of the major challenges facing modern urban centres. Navigant Research predicts that from 2025 onwards, public transportation itself will become more of an on-demand service, involving a more efficient use of buses. An IDC report also illustrates that there are 152,000 smart devices being used every minute globally, pointing to a future where the success of cities will be heavily determined by the level of smart and innovative technologies they use.

Additionally, a more citizen-centric business model for service delivery can help alleviate problems such as traffic congestion, safety and shortages of resources, especially in public healthcare facilities. Citizens need tangible outcomes, enjoyable experiences and more personalised services. This is what will capture the hearts of many citizens across the continent.

"Smart traffic and IoT are critical for cities to operate more efficiently with better-managed traffic flow and open lines of engagement between cities and citizens. This innovation offers the potential of a much safer and inclusive community with the amplified use of digital devices for municipal services across the country," adds Kandaswami.

In this age of innovation, cities are urged to think differently, have a clear vision of the city's future and a digital transformation roadmap to get there. IoT, like other innovative technologies, presents cities such as Nanjing, China, with exciting fresh methodologies and real-time insights on finding new ways to connect, manage their operations better and provide real value to citizens.

Reimagining the ways cities work with IoT

South African cities stand to benefit immensely from IoT, especially with the high quality and speed that comes with network connectivity and infrastructure. The escalation in urbanisation and climate change is also putting pressure on cities' management. These require speed and agility, to be able to respond in real-time to challenges such as road accident emergencies and service disruptions. "The biggest challenge we see, so far, is the adoption of technology into cities' services models, the process requires an innovative technology platform with the ability to work with multiple data sources across all services while providing real-time insights for cities to make fast, accurate decisions," says Kandaswami.

Cities need to capitalise on innovation opportunities by identifying solutions and planning better for natural disasters and emergencies. Connectivity and data analytics will play an increasingly critical role in helping cities and governments to provide more efficient and effective healthcare, transport and security services, using real-time technology platforms such as SAP S4/HANA.

Big data drives smart traffic

There are three key factors contributing to a smart traffic city namely:

- people (both drivers and passengers);
- vehicles; and
- road infrastructure.

Innovation is transforming how these key factors could operate harmoniously. As an example, organisations such as Keifuku Bus Company in Japan provide services and solutions that are putting people first using the SAP connected transport safety technology, which allows for data sharing amongst most major cities that are installed with traffic light sensor technologies to ensure a smooth flow of traffic. Innovation helps city managers make decisions for traffic planning and policies fast.

"SAP is convinced that, with the amount of traffic data available in South Africa alone, we could help measure, analyse and manage traffic volumes much better, by using technology and taking advantage of the traffic big data. The ability to analyse traffic big data will help cities consolidate different data sources into a single reliable source for better traffic management, reporting and insight," explains Kandaswami.

Quality of data unreliable

The current South Africa road traffic data availability is not integrated, as it is collected from multiple sources which make the quality of data unreliable. According to the Road Traffic Management Corporation of South Africa, having a quality comprehensive traffic management system is vital for accurate data collection, analysis and reporting across all factors including human casualties and related costs.

"Leveraging technology will present cities, transport authorities with innovative ways of how to improve road safety, provide sustainable, efficient public transport, manage traffic flows and speed up response time to the inevitable challenges of rapid urbanisation."