EDITORIAL

Welcome to the latest edition of Intertoll Africa’s Newsletter.

In this issue, we will be covering the elements of Intelligent Transport Systems (ITS) that Intertoll Africa is currently developing and managing in conjunction with Tolling and Road Maintenance to provide the full spectrum of Freeway Management Services your organization may require.

The present Newsletter seeks to introduce the new ITS capability within Intertoll Africa as part of the company’s expansion and growth trajectory. To that effect, a partnership has been established between Intertoll Africa and Q-Free (ASA) to form QFree Zonke (Pty) Ltd, which will act as an Integrator – combining Q-Free’s ITS solutions with Intertoll Africa’s Operational expertise. The focus of this newsletter will be on:

- the Intelligent Transport System environment
- QFree Zonke ITS Products, Services, Strategies and Benefits
- Sub-Saharan Africa’s National implemented projects, required strategic outcomes and foreseeable challenges.

PREAMBLE

Road safety, congestion, overloading and excessive carbon emissions continue to mar the progress of the transportation sector the world over. Moving beyond infrastructure development, authorities are required to look at smarter alternatives to address such challenges, if mobility is to be achieved for economic development.

In an environment where technology advancement is becoming the norm, transportation is compelled to swiftly adapt.

Intelligent Transport Systems (ITS) have a pivotal role in shaping the future ways of mobility and the transport sector.

Attuned to this reality, Intertoll Africa has joined forces with Q-Free ASA to deliver ITS products in response to the transport market challenges through the establishment of QFree Zonke, to deliver ITS/FMS solutions across Sub-Saharan Africa.

Using ITS for sustainable mobility will require harmonisation of standards and best practices, interoperability of technologies and utilisation of data for optimisation, value and realisation of return on investment. Be that as it may, ITS deployment should at its core be responsive to the needs of the transport users, this being the main theme of this Newsletter.

INTRODUCTION TO ITS

Intelligent transportation systems (ITS) are advanced applications which aim to provide innovative services relating to different modes of transport and traffic management and enable various users to be better informed and make safer, coordinated, and ‘smarter’ use of transport networks, as seen below in Figure 1.
A number of ITS work packages are available depending on the need or application. In the case of Roadway Maintenance and Construction, ITS Work Packages support numerous services for scheduled and unscheduled maintenance and construction on a roadway system or right-of-way.

There will be an opportunity for road funds to evaluate various ITS Maintenance services that QFree Zonke can offer, namely landscape maintenance, routine maintenance activities, and repair and maintenance of both ITS and non-ITS equipment on the roadway, namely:
- Signs, traffic controllers and Traffic detectors
- Variable message signs, traffic signals, CCTVs.

**STRATEGIC NATIONAL OUTCOMES**

The National Department of Transport (NDoT) in South Africa, as a policy maker and the lead transport agency, has set forth 6 outcomes, which sets the path for transport in South Africa and which is relevant to most if not all countries on the Continent.

1. An efficient and integrated transport infrastructure network for social and economic development
2. A transport sector that is safe and secure
3. Improved rural access, infrastructure and mobility
4. Improved public transport systems
5. Increased contribution to job creation
6. Increased contribution of transport to environmental sustainability by minimizing the effects of carbon emission contribution.

**CURRENT ITS PROJECTS IN SA**

Various ITS flagship projects have seen the light during the last couple of years in Gauteng (Johannesburg/Pretoria area). These projects have created opportunities for a fledgling ITS industry in Sub-Saharan Africa. An example of a typical ITS package includes Advanced Public Transport Management Systems (APTMS), which is the ability to connect signal controllers to an intelligent network for enhanced data gathering and analysis and better timing of traffic signals. Connecting signal controllers to an intelligent network with a standards-based wireless IP infrastructure is cost-effective, provides flexibility in design, enables faster deployment, and provides a network infrastructure for future additional applications.

Some of the major projects in Gauteng with their typical application areas are listed below:

1. **BUS RAPID TRANSIT PROJECTS:**
   - Rea Vaya system, City of Johannesburg
   - City of Tshwane BRT
   - City of Ekurhuleni

   ![Rea Vaya Bus](image)

2. **SANRAL FREEWAY MANAGEMENT SYSTEM (FMS):**

   A Freeway Management System includes technologies and systems that help to improve the flow of traffic on Valley freeways, provide information to motorists about crashes or construction, and help NDOT and other agencies better respond to traffic incidents.

   These systems have been deployed on large portions of the Gauteng, Kwa-Zulu Natal and Western Cape freeway networks, covering most of the National roads. The systems are currently being expanded and
improved, all under a new performance based contract where the design, build, operations and maintenance (DBOM) activities are all sourced out to a single service provider. Typical application areas include:
• CCTV surveillance and Vehicle detection systems,
• Traveller information and Travel time prediction,
• Communication systems and centralised operations.
• Integration of various emergency management service providers

3. GAUTRAIN:
Extensive ITS applications support the day-to-day operations of this high quality public transport mode. These include above mentioned ITS systems.

4. SANRAL OPEN ROAD TOLLING (ORT):
The ORT system is supported by wide-ranging ITS applications along the Gauteng Freeway Network. These includes Electronic Toll Collection (ETC), various detection devices along the gantries, communication systems and supporting software systems.

Whilst the above projects are at various stages of implementation and/or operations, they all operate independently with minimal integration, thereby limiting the value of the real benefits of ITS. Many opportunities are as such missed to integrate, facilitate, and coordinate the sharing and optimisation of resources, information and technology.

Q-Free Zonke is an Intelligent Transport Solutions (ITS) provider that aims to provide solutions within ITAS space with specific focus on electronic tolling collection, parking management solutions and info-mobility areas – with specific attention to overload control and weigh-in-motion – as well as the integration of such systems into fully-fledged operational solutions (toll plaza management), freeway management solutions, traffic control centres and weigh stations, parking management, dry-ports, road maintenance, etc).

The Company distinguishes itself as a solution provider than a technology provider through offering turn-key ITS solutions. The QFree Zonke logo can be seen below in Figure 3.

QFree Zonke offers its solutions to the African market and plans to establish itself as key player within the African ITS transport sector. Their approach is informed by the transport challenges of road infrastructure funding, mobility and safety that traverse the world over. QFree Zonke, through the joint experience of two key players within the transport sector, offers comprehensive solutions from design, architecture, installation, support and maintenance. Quality service delivery is at the core of its delivery model and customer satisfaction is the benchmark against which it measures itself.

Their solutions and products comply with internationally recognised quality and safety standards. The solutions have been implemented and tested in different environments exposed to diverse environmental conditions around the world, and they have stood the test of time.
Q-FREE ZONKE STRATEGIES

In alignment with the NDoT outcomes, QFree Zonke has centred its strategy on a few key pillars that represent the focus areas to build and strengthen its position as a key player within the ITS space.

Its strengths lies in it being a key player within the transport operations sector, and the move to ITS should leverage on this as a base. Due to the sector being as varied and huge, the need to have a focused approach is key to narrowing the focus areas.

1. **Ensuring a safer** transportation system, namely through:-
   - Overload control centres
   - Traffic Control Centres

2. **Mobility** through the ease of movement within the transportation system, namely through:-
   - Traffic Management systems
   - Incident Management solutions
   - Advanced Public Transport Management systems
   - Parking Management

3. **Minimizing the effect of fragmentation** between modes of transport, as well as governance and administration of Freeway Management Systems in:-
   - Logistics hubs operations
   - Arterial Management solutions
   - Routine Road Maintenance (RRM)
   - Automated Fare Collection Systems

The potential clients that have shown their interest in implementing ITS in Africa are namely:-

- **Private sector**
- **Public Sector**
  - SANRAL and Municipal Roads Agencies (JRA)
  - Law Enforcement Agencies and Airports authorities
  - Rail Agencies and Ports Authorities

QFree Zonke aims to deliver its services, guided by the following strategic outcomes:

1. **Exceptional service delivery** is at the core of its business. QFree Zonke aims to deliver quality service far better than their competition.

2. **Operational excellence, reliability and accessibility** define its approach to delivering solutions.

3. **High levels of customer satisfaction** are key as the company exist primarily to serve its clients. They view the clients as the lifeblood of their business, and client satisfaction is critical for success.

Given Intertoll Africa and Q-Free’s history, the combination has built capacity, skills and competencies in revenue collection through toll collection, cash management processes, Electrical and Mechanical (E&M) maintenance of the toll plaza as well as contract management.

QFree Zonke is offering the following 4 ITS products:

- **Automated Number Plate Recognition (ANPR)**: This is a technology that uses optical character recognition on images to read vehicle registration plates, commonly used by police forces around the world for law enforcement purposes. It is also used for electronic toll collection on pay-per-use roads and as a form of cataloguing traffic movement.

- **Weigh-In-Motion (WIM)**: WIM devices are designed to capture and record axle weights and gross vehicle weights as vehicles drive over a measurement site. Unlike static scales, WIM systems are capable of measuring vehicles traveling at a reduced or normal traffic speed and do not require the vehicle to come to a stop, making the weighing process more efficient while allowing trucks under the weight limit to bypass static scales or inspection.

- **Electronic Toll Collection (ETC)**: ETC aims to eliminate the plaza delays through electronic toll collection. This allows for ease of traffic movement without forming queues at toll plazas, as well as collecting toll without the need to build a toll plaza.

  Also, it has made feasible the improvement and the practical implementation of road congestion pricing schemes in urban areas.

- **Parking Management**: Includes a variety of strategies that encourage more efficient use of existing parking facilities and improving the facility design and quality of service provided to parking facility users.
ITS offers the space for operations which would involve revenue collection, E&M maintenance, contract management as well as the operations management. More than deploying technologies, is the ability to integrate the different technologies to ensure mobility, safety and optimisation of transportation infrastructure. It therefore follows that a key role that QFree Zonke can play is within the solution integration arena.

The sustainable implementation of ITS requires that policy makers see transportation as a tool to facilitate mobility for access to education and economic opportunities, and as such to socio-economic development.

Policy makers must also understand that ITS provides opportunities for governments to optimally utilise the available resources to benefit transport users. To this effect, governance of ITS is critical for its wide-scale deployment and policy makers need to take the lead in ensuring that supportive policies/legislations are put in place.

### ITS CHALLENGES

ITS with its many opportunities and benefits for the transport sector and society at large, is still faced with a number of challenges that present stumbling blocks in its implementation. Figure 4 below, highlights some of the challenges with ITS and the implementation thereof.

- **Lack of political will**
- **Lack of harmonised policies**
- **Limited skills and capacity**
- **Limited public understanding**
- **No standard definitions**
- **Fragmentation of technical standards**

![Figure 4: ITS Challenges](image)

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### CONCLUSION

The transportation world is continuously evolving, with focus on finding new ways for enhancing performance of the transportation systems and networks. The increase in the number of vehicles on the road has led to traffic congestion and pressure on the road infrastructure, leading to the rise of ITS initiatives. To continue thriving as a business over the next 10 years and beyond, we must understand the trends and forces that will shape our business in the future and move swiftly to prepare for what’s to come.

### INTERTOLL HIGHLIGHTS

On 15th of May 2017, Intertoll Africa, a fully-integrated Sub-Saharan African based road management, toll systems developer and with existing operations across Africa, was awarded the Comprehensive Toll Road Operation and Maintenance (CTROM) contract by SANRAL for the Operation and Maintenance of the N2 North Toll Plaza facility on the N2 Route in Kwa-Zulu Natal for a period of 5 years, beginning on 1st July 2017.
The N2N Toll Road consists of 138km, with 3 Toll Plazas containing a total of 69 lanes. The responsibilities of Intertoll include O&M of the three plazas, Route patrol Service and Incident Management Services. SANRAL is introducing the rollout of Electronic Toll Collection (ETC) in the contract to ease and provide efficient collection of toll fees from road users.

In our next issue, we will be continuing with elements of the QFree Zonke’s Freeway Management System, developed and managed in conjunction with tolling and Routine Road Maintenance to produce a full package for efficient Road Management for Road/Infrastructure Funds.

We welcome your valuable contribution and feedback on the ITS newsletter. For more information on the above please consult our new Intertoll Africa website on www.intertoll.co.za/products-intertoll.php, as well as Q-Free’s website on www.q-free.com/. We will be pleased to assist you to develop a solution tailored to your needs and budget. Feel free to also view Intertoll services, as well as videos, brochures and Newsletters.