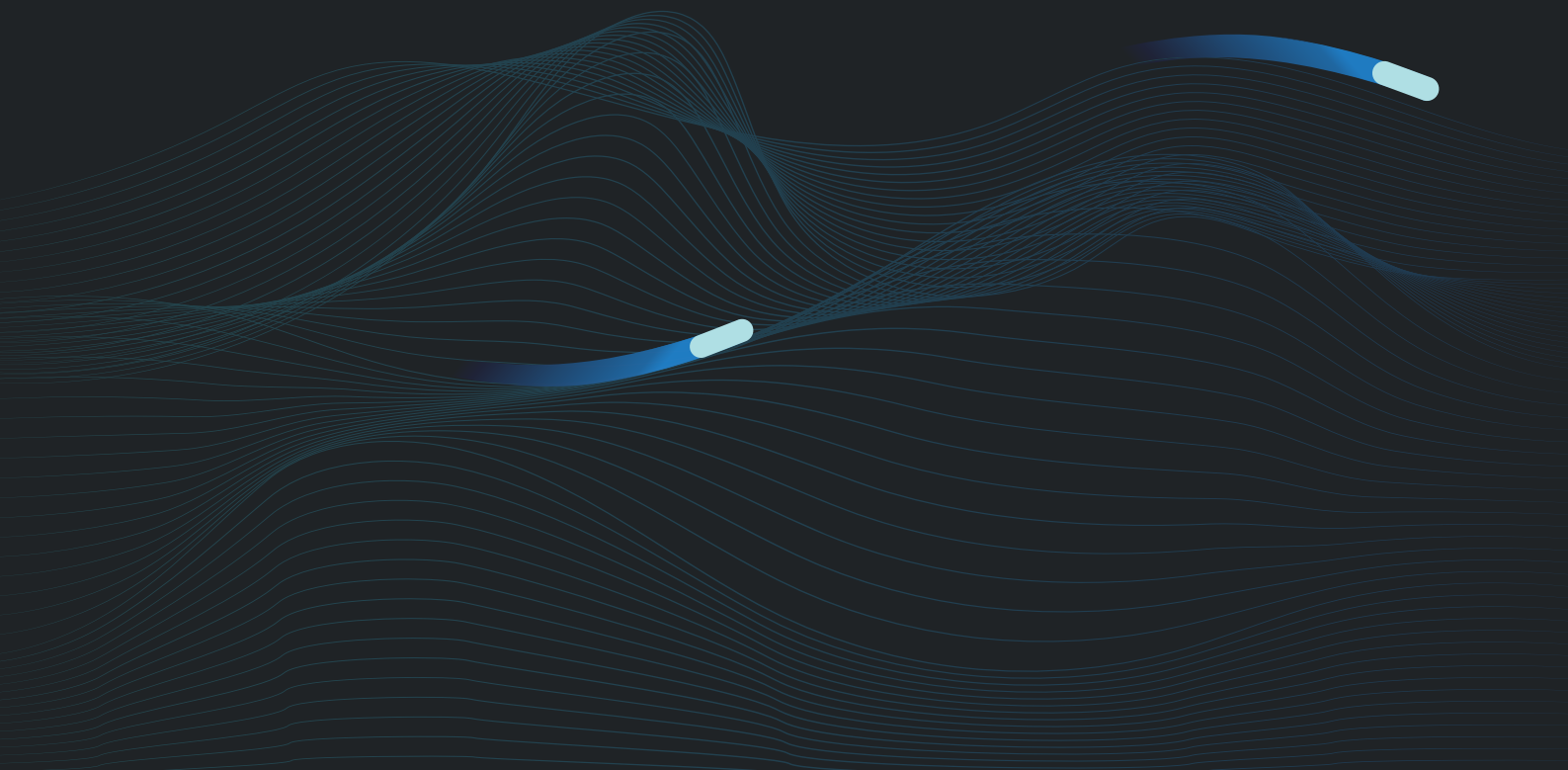




VALERANN

POWERED BY DATA. DRIVEN BY INSIGHT.



CASE STUDY

COST-EFFECTIVE SOLUTION: MANAGING ROADS AND TRAFFIC AROUND MASS SPORTS EVENTS



OVERVIEW

In this case study, we look at the work being carried out by Valerann® and its partners – with funding from the European Space Agency's (ESA) Space Solutions Program – to monitor traffic in areas with limited communications infrastructure, or highly variable traffic zones. One of the most recent examples of this innovative work is Valerann®'s support of local authorities in Milton Keynes to monitor traffic for the UEFA Women's Euro 2022 football tournament.

AT A GLANCE

Challenges

- Monitoring traffic can be a challenge in highly variable traffic zones.
- Active traffic management technologies can be prohibitively expensive.
- Areas where cellular coverage such as 4G and 5G is lacking.
- Locations may have surges in road traffic for limited periods

CHALLENGES

Modern road networks require a significant amount of infrastructure to function, from the roads themselves to signage, as well as other assets that are needed to keep things running. Throw in the digitization of road networks and infrastructure and requirements will significantly increase, especially when it comes to the introduction of connected ("internet-of-things") devices and an array of sensor systems required for road monitoring.

While larger roads managed by government or industry may have the budget to invest millions – sometimes billions – in new infrastructure and modern technologies, many smaller road networks do not have this luxury.

It is also often the case that locations may have surges in road traffic for limited periods – i.e. areas around sports stadiums or festival venues – that do not warrant a huge investment in resources when it is only required on a limited basis.

Other road network operators simply do not have the budget to completely overhaul their communications and sensor network to facilitate digitized road operations. On top of this, many locations will also not have the connectivity bandwidth required to handle the significant amounts of data being generated and sent from connected road devices.

“Active traffic management technologies can be prohibitively expensive.

Costing Over

£1 million

per km of road”

This is particularly true for large events, where tens of thousands of people gather in one location and place a major burden on the existing communications infrastructure.

With these challenges in mind, it is easy to see how monitoring traffic can be a challenge in highly variable traffic zones, as well as “off-grid” areas where highways exist but cellular coverage such as 4G and 5G is lacking. But even in these areas, it still remains a top priority to ensure road safety and that traffic operations are running as efficiently as possible.

SOLUTIONS

In 2020, ITS Equant – a consortium formed by Valerann® with industry partner Excelerate Technology– secured a €1.2 million contract under the ESA Space Solutions program, with support from Satellite Applications Catapult.

The aim of this project has been to develop a solution that leverages Valerann®’s AI-driven intelligent traffic management software and Excelerate’s satellite connectivity technologies, particularly for areas where there is limited infrastructure and connectivity. Excelerate has significant experience in providing resilient communications in limited network areas – including for the emergency services – which it brought to the project.

Last year, the ITS Equant consortium successfully achieved factory acceptance tests of its traffic management solution, proving the concept that full coverage of a road network was possible irrespective of the communications infrastructure.



This project culminated in this space-based solution being deployed in Milton Keynes during the UEFA Women's Euro 2022 tournament.

This was identified as a perfect opportunity to deploy this new generation technology, and Valerann® worked closely with the authority's highways team to roll out the technology in time for the matches that were taking place. This included the semi-finals, attended by nearly 30,000 people.

"Deployment of the **Lanternn by Valerann™** solution meant that the traffic authorities could avoid unnecessarily sending patrols and deploying resources."

During the Euros, local traffic authorities were able to efficiently manage and gain real-time visibility of road traffic surrounding the Milton Keynes (MK) Stadium without the large investments needed for additional infrastructure, including terrestrial telecommunications equipment. Using Lanternn by Valerann™ also allowed the authorities to tap into a comprehensive mobility dataset from many different sources – including navigation apps, cell phones, connected vehicles and weather alerts – with analytics running on each source to gain further insights. This was augmented with satellite-connected and highly secure IP CCTV cameras from Excelebrate Technology.

By leveraging Valerann®'s data fusion technologies with GPS and geolocation capabilities, authorities were able to gain significant visibility around the MK Stadium. Data fusion of different sources also allowed operators to assess the reliability and urgency of events in real-time and ensure efficient prioritization of resources.

The technology also enabled the coordination of efforts between various stakeholders that use the roads around the stadium with assured communications from satellites. Using the Lanternn by Valerann™ dashboard, operators were able to efficiently monitor the surges in traffic that occurred during the Women's Euros and ensure that assets were allocated efficiently to respond to incidents or investigate alerts further.

Deployment of the Lanternn by Valerann™ solution meant that the traffic authorities could avoid unnecessarily sending patrols and deploying resources, thanks to the precise and timely information extracted from the wealth of data that was available to the control room operators.



CONCLUSION

This was a successful real-world demonstration of the powerful capabilities of Lanternn by Valerann™ when combined with satellite-connected sensors and communications systems.

A key feature of Lanternn by Valerann™ – and the wider solution put forward by ITS Equant – is its ability to integrate with existing infrastructure that has already been installed on a road network, even if this is limited. Operators do not have to invest additional capital in expensive road sensors, loops or upgraded communication networks to expand the visibility of their road networks to 100%.

Many roads today have no active traffic management coverage at all, especially in remote regions, which means there are no means to measure traffic flow, get incident alerts, and increase safety.

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The ability to fuse a number of data sources - including open source data - using Lanternn by Valerann™ - as well as the UK-wide communications coverage provided by Excelebrate's satellite technologies, gives any operator an opportunity to roll out an intelligent traffic management tool at a fraction of the cost than was previously possible.

Valerann's work as part of the ITS Equant consortium has proven that cost-effective road traffic management solutions exist, and that even those operators that have limited resources and infrastructure can have 100% visibility of their road networks.

