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# Why revolution is in the air

With growing volumes of unstructured data, questions are being raised as to how organisations can embrace data to drive business advantage and competitive edge. A revolution is brewing in response, not least in the highways sector, says Yotta's Nick Smeed

Recent years have seen a radical change in expectations around how businesses and consumers should work with data and systems; how software should help us achieve our goals both at home and in the office. These are trends impacting all areas of society and all industries today including the highways and infrastructure sector in which Yotta operates.

These raised expectations are being driven by consumers and the technology they use. It was in the mid-1990s that the Internet entered mainstream use. In other words, there is a whole generation of people in the workplace today who have never known a world without it. If they need to find something out, they turn to Google and expect an instant answer. They therefore expect their business software to respond just as rapidly and provide them with the data, content and intelligence they need to answer their business queries in near real-time.

It's not only in terms of raw processing functionality and speed of execution that consumer technology is having an impact, it's just as much about the look and feel of the software. People are increasingly used to an app-based culture and they are demanding elegant user interfaces on all of their systems - not just the ones they carry in their pockets or on their tablets. They want this not just in their everyday lives as consumers but in the business environment also.

The radical changes we have seen in consumer expectations

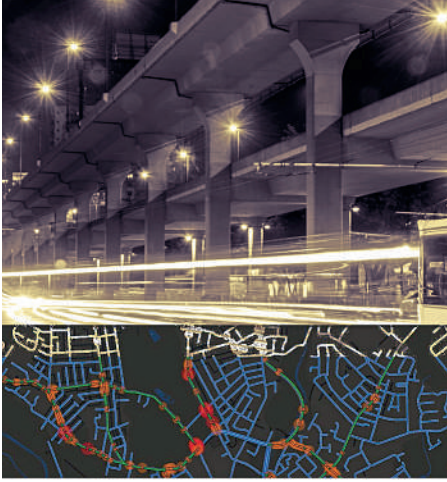
of technology are one of two main factors driving change in the business world today. The other is the ongoing ramp-up in overall data volumes. According to the April 2014 report, EMC Digital Universe with Research & Analysis by IDC: "the digital universe is large – by 2020 containing nearly as many digital bits as there are stars in the universe..., and by 2020 the digital universe – the data we create and copy annually – will reach 44 zettabytes, or 44 trillion gigabytes."

Added to that, estimates suggest that as much as 90% of that data today is unstructured and that raises questions in terms of how organisations embrace data to drive business advantage and competitive edge.

## Innovation is Key

The clarion calls for more data and better ways of analysing it, richer functionality and greater ease of use are getting louder. A revolution is brewing. Businesses across all sectors need to change their approach and embrace innovation, if they want to be in the vanguard of the process rather than ending up a casualty of it.

It's a lesson that at Yotta, we believe the highways sector needs to take note of and act upon quickly because data growth rates will accelerate, as processing power ramps up and digitally-savvy millennials increasingly dominate the workforce.



In an increasingly connected world, highways departments will have to look at operational challenges more holistically and have access to software with which to optimise the management of different types of assets, from street lighting to drainage to signage and more. Images: Shutterstock / Yotta



As the data-driven world morphs into the connected data universe, solutions providers will increasingly need innovative ideas to ensure they are optimising the value they get from their highway assets. Image: © Shutterstock

This won't be easy. Historically, the highways industry has not had a great reputation for innovation. The introduction of polymer-modified bitumen and analytical pavement design both took decades to move from concept to practical application. However, we see genuine grounds for future optimism. Yotta's recent experience is a case in point. When we first developed our asset management software, one person involved in the industry told me that although the product was brilliant, 'nobody would buy it', as it represented a significant modification to traditional processes. That was around three and half years ago. Today our Horizons software has over 60 clients across the UK, Europe and Australia, all generating improved asset management practices and behaviours.

What makes the best asset management software effective is that it turns data from impenetrable bits and bytes into the kind of intelligence and insight that drives informed decision-making. And the more data we have access to, the more insight we can glean from it.

### Seeing is believing

Being able to visualise all of this data effectively is critically important if we are to effectively realise this potential. A scanner survey, for example, will bring reams of information into the organisation, all of potential value. But the data in its raw form will be bewildering to most business users. However, if the best-quality visualisation is applied to it, organisations can make the data come alive. Decisions can be made in a better value for money and more informed manner.

Enhanced visualisation is certainly one key technique, where we see great potential in the asset management arena but it's far from the only one. As the data-driven world morphs into the connected data universe, solutions providers will increasingly need innovative ideas to ensure they are optimising the value they get from their highway assets.

We are living in an environment increasingly dominated by the Internet of Things, by sensors embedded in devices continuously sending and collecting data. Analyst, Juniper Research recently projected that the number of connected IoT devices, sensors and actuators will reach over 46 billion in 2021.

### Operational challenges

In terms of the highways sector, it's critical that councils have access to software that enables them to optimise the management of different asset types from street works to waste management. That's a huge benefit to any local authority. As the new connected world starts connecting many of our assets, we have to start looking at operational challenges even more holistically.

We need to think about how the different asset classes can link together and how they can be connected with other external functionality to bring further benefits. We need to think about waste management and enhancing it through route optimisation. We need to consider drainage and make sure it's looked after properly to ensure it doesn't negatively impact other highway assets.

In the future, therefore, they think about how to drive efficiencies in a single asset class, providers should consider how this will be affected by the management of other associated classes. Councils typically draw their spending from a single budget 'pot'. Going forward, providers will need to work with them to deliver a more holistic multi-asset modelling approach. This will need to focus on optimising efficiencies across all asset types and ensuring local authorities concentrate on allocating spending across their assets in the most efficient manner possible rather than adopting a piecemeal asset-by-asset approach that fails to optimise overall value.

### Positive prospects

Over time, the enhanced connectivity that the Internet of Things will deliver and the rapid escalation in data growth that it will drive presents a mix of challenges and opportunities to authorities and highways agencies.

Figures from analyst, Gartner, indicate that the number of connected devices this year will outstrip the world's population for the first time. This is a hugely significant trend for the world of infrastructure asset management. We already see bridges, street lights and a raft of other infrastructure assets with sensors located on top of them. But those sensors themselves will ultimately have many other connected devices embedded in them, looking at weather patterns, pollution, noise and the like to help authorities plan future repair and maintenance scenarios.

To tackle the challenges and turn them into opportunities providers will need to change and acknowledge that the revolution is already underway, they need to embrace it and ensure they are protecting the investment their customers have made, while enabling them to take advantage of the opportunities that the future is likely to bring.

That's why we see connected asset management platforms as the way forward, allowing connectivity between a range of assets and data types and helping organisations harness the resulting insight for their competitive advantage. For the first time, councils will have the opportunity to realise the economic benefits of managing all their assets in the same way; generate good quality data about them, and make smarter decisions about their ongoing maintenance, in order to provide better service levels at lower costs. The future is here... welcome to the future..



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