THE **IMPORTANCE** OF **LOCATION DATA** FOR **ENTERPRISE OPERATIONS**

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Shaping the IoT future

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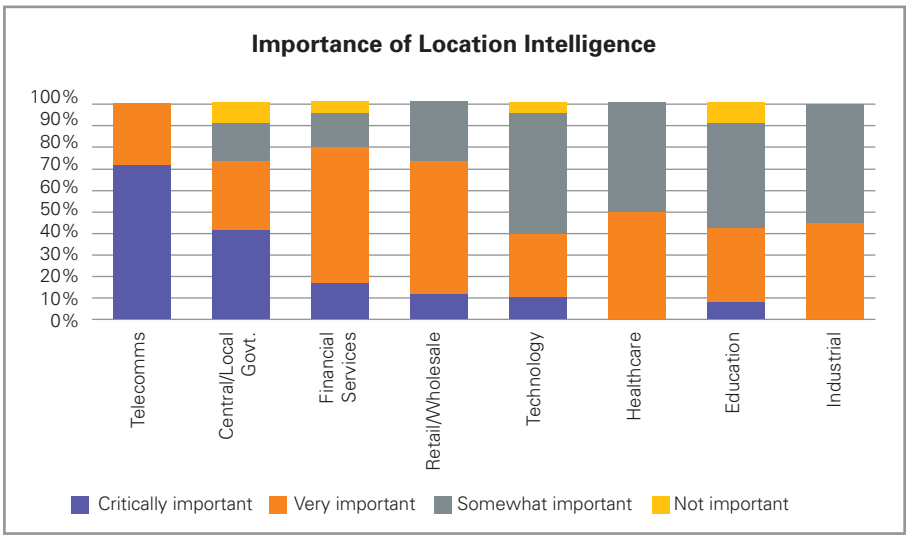
A recent study of the importance of real time location data for different types of enterprises (Location Intelligence Market Study, January 2019) shows that, among other findings in other sectors, 70% of telecommunications companies consider location intelligence to be critical to their success. Of all the enterprises in the study, representing a broad range of different business sectors and applications for which the data is used, an average of 66% ranked location intelligence as either critical or very important to their ongoing revenue growth strategies. Less than 5% considered it unimportant.



(Source: Dresner Advisory Services

It is often not recognized just how important location data is becoming for enterprise operations. Traditionally, it has enabled businesses to keep track of their materials and equipment, as well as their employees working with these. Beyond those immediate tracking needs, the availability of real-time location data can also significantly enhance operational efficiencies, improve project planning, ensure compliance where needed, and contribute to worker safety, for example in hazardous environments. In other words, while location data has traditionally been useful for tracking purposes associated with specific operations within a business, now it is increasingly being seen to have wider scope within the overall operations of a business.

TRACKING IN A WIDER SOLUTION CONTEXT

It is also the case that only a small fraction of items that could be are in fact tracked for their location. There are many examples but take, for instance, trailers for goods vehicles. There are an estimated 26m of these worldwide yet less than 10% are estimated to be actively tracked. At its most basic level, location tracking allows operators to know where their trailers are, enabling optimization and efficiencies as part of larger logistics and supply chain systems, while also reducing theft-related losses. In particular, it assists in finding them when they are not being used. By the same token, it assists in ensuring that there is a rotation of use so that some are not left idle for too long which can then impact on maintenance costs.

A further example is pallets used for shipping purposes. The majority of the world's 10 billion shipping pallets are made of wood, but an estimated 800m are made of plastic and are more valuable and reusable. Yet less than 4% of them are currently reported as being actively tracked. Why so few? Partly, it is a question of need versus cost and this tends to be calculated at an individual item level – the cost of losing each item – rather than the overall solution and ensuring that items needed are in the right place at the right time, or even that the location data in a connected pallet could be accompanied by other data – such as temperature, humidity, shocks, arrival/departure, etc. – that may also be valuable for some applications. A connected pallet may also represent a service opportunity – pallet as a service, where it is only charged for while in use.

In a purely business environment, there is a real need to keep track of all the tools in a typical construction site. However, at an individual item level it is often only viable for the high cost items like bulldozers and cement mixers to be tracked. Yet it is the smaller, less valuable items that are more likely to go missing and there are usually a lot more of those. For example, power converters. It can be hugely disruptive to operations if one of these goes missing – either mislaid or stolen. If instead all such items are tracked, whether they are large or small, downtime or idle time used up looking for these things can be significantly reduced.

This is particularly the case on a factory production line. Many factory lines are organized on the basis of consecutive work cells – where a range of tasks need to be performed in each cell and those tasks may vary for different product types going

down the line. To ensure those tasks are performed efficiently and on time, it is increasingly essential that all items involved with the task are located in the cell at the right time – not only the parts that are being worked on but the tools used as well. Tracking systems are therefore increasingly implemented to ensure this, on the basis that if even the most inexpensive tool or part is not available when it is needed, the whole line can stop.

Most processes are not so critical as a factory production line, but for example many construction sites are increasingly resembling them. The same is true for agriculture and many other processes. The point is, it is not so much the cost of an asset that warrants it being tracked – more the potential downtime cost of it not being in the right place at the right time.

In a supply chain context as well, the more that is tracked the greater the transparency and the more efficient the overall process is likely to be. Supply chains can be complex and involve many participants, including subcontractors and transport companies, making it difficult to establish an overall, end-to-end view. As a result, some parts of the overall supply chain processes are often literally invisible. This reduces planning accuracy and agility, often increasing lead times. Achieving supply chain visibility throughout the process is a real challenge because there are potentially so many participants and factors that can cause bottlenecks and delays.

THE IMPACT OF NEW CONNECTIVITY TECHNOLOGIES

The Internet of Things (IoT), cloud computing and new connectivity options are considerably strengthening the opportunity to improve this end-to-end visibility. In particular, the introduction of new forms of connectivity, including cellular-based NB-IoT and LTE-M (LPWA - low power wide area technologies) offer new opportunities to track a much larger range of lower cost mobile and semi-mobile assets more effectively than ever before. These have much lower power consumption and extended coverage for low bandwidth applications than traditional cellular technologies. While LTE-M is then most appropriate for tracking mobile assets while in motion (2G replacement), since the technology supports full cell hand-off, NB-IoT is aimed at static and semi-mobile assets – those where you want to know location when they are not moving. As such, these technologies are complementary and can assist in different ways to complete the picture.

In addition, new eSIM-related technologies to select wireless subscriptions offer a vastly improved process to enable connections for large numbers of those assets wherever they end up being used. Part of the challenge associated with cellular connectivity for remote assets has been the provisioning of it using traditional plastic SIM cards, which were originally designed to be installed in mobile handsets in retail outlets. They were not originally designed for remotely installed assets transmitting data. Matching up the correct SIM card for a particular connectivity contract with an asset that may be shipped to one of many different countries is logistically

challenging and potentially very expensive. The eSIM alternative, especially of value for product manufacturers (OEMs) shipping their products worldwide, uses an embedded SIM (termed an eUICC) assembled in the product during manufacture just like any other component. This eUICC is then updated remotely over the air, with the correct network profile for that location being automatically downloaded when the product or asset is first switched on. This combination of embedded connectivity and automated remote downloading of the correct network profile is greatly expanding the reach of IoT solutions worldwide in volume.

Looking to the future, tracking technology is also being combined with other technologies – especially Artificial Intelligence (AI) – to open up new application opportunities. For example, mobile operator Vodafone has recently conducted trials of long distance Unmanned Aerial Vehicles (UAVs) – otherwise known as drones – in preparation for the "drone economy". The EU is predicting this will be a €15 billion business by 2050. Vodafone is using LTE radio positioning and a self-learning AI system. A challenge with controlling and monitoring drones for business use is that they need to be controlled when not in direct line-of-sight. They are also often too small to be tracked by conventional radar. A case in point is the Mini Talon drone, which is about the size of a laptop. Vodafone's trial uses an LTE modem and SIM attached to a drone, enabling a self-learning AI system to calculate the position of the drone. The trials have demonstrated that even existing LTE networks, which are optimised for ground-based users, can currently simultaneously be used to monitor drone flights at up to 120 metres above ground level. This opens up interesting possibilities for the future, especially if combined with future 5G networks.

CASE STUDIES – EXTENDING THE USE OF LOCATION-BASED DATA WITHIN THE ENTERPRISE

1. Bigmate

From its early beginnings as a GPS engineering company, Bigmate has emerged as one of Australia's leading location tracking and asset management providers. Regulatory compliance continues to represent a large component of the Bigmate portfolio and, over the years, the company has provided fleet operators, construction companies, and local councils with a broad range of location tracking, monitoring, and regulatory compliance services.

A few years ago the company began to notice that costs were rising at unprecedented rates, solution offerings were becoming more complex, and additional human resources were needed to support operations and technology development. The company therefore partnered with KORE to enable them to solve these strategic business and technology challenges. KORE's Position Logic platform provided the means for transforming critical in-house systems, workflows, and business processes, offering high-availability, extensible location based service tracking features that are continually being refined and enhanced.

This has led to the following key areas of improvement for Bigmate processes: Business Operations and Drivers – enabling re-allocation of own resources from IoT development efforts to core business processes.

Customer Solution Stack – introducing a new asset tracking and management solution for applications ranging from enhanced worker safety and Hours of Service (HOS) compliance to improved preventative maintenance for vehicles and large pieces of equipment.

Technology Adoption and Integration – providing a native ecosystem of interoperability throughout IoT and cloud IT domains, allowing third party edge devices, gateways, and cloud applications to interact seamlessly across disparate protocols throughout the connectivity chain.

Regulatory Compliance – With new transportation regulations coming into play, the solution provides automated HOS monitoring as well as real-time asset monitoring for foods and other perishable goods.

2. Dantracker

Dantracker is a modern Danish IoT company that provides comprehensive GPS tracking solutions consisting of proprietary tracking devices, a management portal, and mobile management application. With more than 25,000 trackers sold, the company is represented in 75 countries with a network of 11,000 dealers.

The company experienced rapid initial growth with their suite of flexible and dynamic GPS tracking solutions, designed to protect the security of personal and commercial assets including boats, machinery, vehicles and other high value items. Their solution consisted of proprietary tracking devices, connected by cellular network technologies, as well as a portal and mobile application for users to manage their connected assets. This gave rise to challenges associated with complex SIM card delivery, integration, and provisioning processes.

To address these, KORE provided a multi-carrier network connectivity solution, enabling Dantracker to consolidate their supply chain, simplify operational processes and ultimately scale their IoT deployment to reach all target regions more effectively. API integration from the KORE platform to Dantracker's back-end systems gave the business quick and easy access to their installed connection base and enabled streamlined SIM card ordering and provisioning processes. This in turn enabled Dantracker to focus its resources on growing and scaling its core competencies in tracking device development. As a result, Dantracker was able to reach its business targets and bring a new, 2G+3G tracking device to market. At the same time, it also enabled Dantracker to expand into new regional markets – presenting the opportunity to become a global GPS tracking organization.

These are two examples where location data has become essential to wider operations of the business. They illustrate the potential for creating complete solutions across enterprises so that such data can be used across the whole organization in a way that saves costs, drives efficiency and creates new business potential..