The personal data antidote to disconnected transport disorder

INVESTIGATION BY LEE WOODCOCK

The way that people travel is ripe for radical change and a tipping point in the use of intelligent mobility (iM) is just around the corner. But issues around connectivity, or the joining of the dots to make it reality, cannot be left stranded at the bus stop. Here, in a change from our normal format for Atkins Investigations, Lee Woodcock gives his view and a series of experts give their own personal reactions

Whether it's skypods on a monorail in downtown Tel Aviv (*right*), Google's driverless cars in San Francisco or electric driverless vehicles like London's DLR, the future is virtually upon us - but for the vital harvest of un-mined data.

I believe CAVs, Connected Vehicles (CV) and Autonomous Vehicles (AV), are among the most exciting sectors for iM. Why?

Because Ford's President and CEO Jim Hackett is predicting bankruptcy for OEMs backing traditional car production come 2027 and so has pumped $4.5 billion into AV and driverless car development. Meanwhile, at the time of writing, India's Tata Motors is seeking a 5,000-strong workforce to deliver AV and electric transit innovation through its British subsidiary Jaguar Land Rover. With these shifts in top tier thinking, isn't it high time data keepers and those in control of the infrastructure hopped aboard?

Disconnected

We've talked about smart cities and data for a time but there's not one exemplar project where individuals' data, private sector data and public data have been joined together to formulate a fix for transit.

But transport agencies tend to operate in false silos and the end-user, who just wants to get from A to B, does not care for them. Disruption through new transport modes will only compound that. At Atkins' parent SNC-Lavalin, we not only build an understanding of our clients but also their customers. It's only when you understand the consumer and their expectations that you can begin tailoring solutions.

Leadership

Take Dubai's Roads and Transport Authority which hosts an app of the city's transit options. Meanwhile HH Sheikh Mohammed Bin Rashid Al Maktoum has decreed that a quarter of all journeys must be driverless by 2030. This is a fantastic example of the leadership required to drive the necessary changes.

Furthermore, if one in every 10 commutes is made by these electrified means, the emirate's Ministry of State for Happiness envisages a cleaner, greener and less congested commute.

Of course, the structure in Dubai enables this stuff to happen more quickly. AV is not a case of one size fits all but if His Highness Sheikh Mohammed bin Rashid Al Maktoum can create it at home, Dubai will be in a position to supply it to the rest of the world.

DAVE ROAT
Strategy Manager at Cubic Transportation Systems

DERYK WHITE
Consultant at DWG Consulting

JOHN McCARTHY
Arup Digital Services teamand leader of European Intelligent Mobility business

Open

Transport for London (TfL) is responsible for buses, tubes and trains and they also license all of the city's taxis. The sheer volume of data it handles has the potential to unlock a huge amount of valuable insight. And while it's true that TfL is striding in this direction with its open data initiative, its potential power lies in the leverage of its combination of personal and public data.

What's to stop local hospitals using Uber drivers to escort patients to appointments in their downtime at a discount price? Or could they diversify into deliveries and accelerate a reduction in the city centre congestion that has grown in line with the advent of online shopping?

What is known is that TfL worked with London businesses and freight operators in the run up to the 2012 Olympics to try to reduce the city's congestion – and that its work preceded a 30 per cent reduction in traffic across London. But given that the local government body estimates that up to 70 per cent of workplace deliveries are personal rather than business, I'd be surprised if the "ghostly city roads" reported in the press during the Olympic period were not directly related to so many working from home. Essentially, ratios around those kinds of ad hoc differences are types of insights we need to harvest, number crunch and build our solutions around.

Dubai's aim is to make 25% of all journeys driverless by 2030

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Context

What's needed is end-to-end connectivity where all services are tailored to you as an individual – whether that be a journey or a delivery. Those services will be personalised and contextualised and they will be the ones customers will choose again and again.

But in order to deliver them, we need to know where packages and people want to go, (for the latter) why they're going and what myriad of options are available for meeting those transit requirements.

Responses

DR The truth is that transport must become integrated and intelligent. We must act to develop more efficient and informed processes using the existing infrastructure, rather than focus only on wholesale change.

Autonomous vehicles have been touted as revolutionising the industry, but they are far from a blanket solution. They will help improve the current system, giving customers an additional way to get to where they want to go.

To make transport truly intelligent, tackle the current problems and help customers get from A to B quickly, it is essential to connect data for the total journey across all modes of transportation, including AVs. We need to actuate data and make full use of the flexibility granted by digitisation. Public transport needs to be integrated so that it delivers a seamless travel experience for the individual: each passenger with a unique, multi-modal travel account – one that offers more freedom than car ownership.

The cost efficiencies of multi-modal travel accounts would be enormous and the ▶

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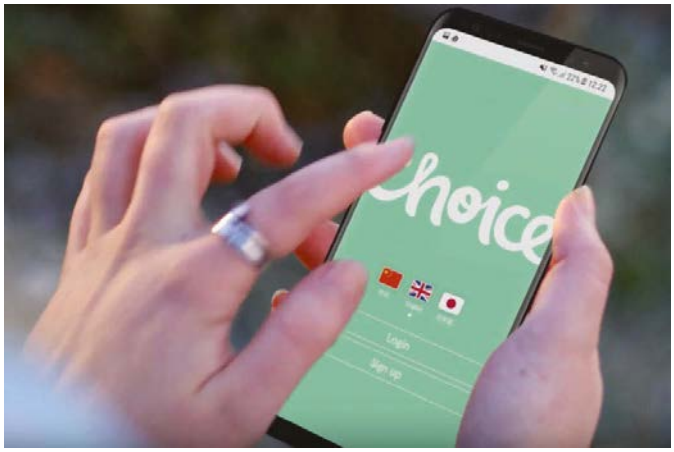

The Choice and Ridemate apps are currently being piloted in two New Zealand cities

customer proposition compelling – seamless inter-modality through a single back office, rather than siloed islands.

A sensible, workable end-to-end solution is perfectly attainable now. Take Chicago as an example – Ventra is working well as an account-based smart solution, and has just passed the one billion transaction mark. Although this is a city region-based solution, such an approach is scalable nationally – if we have the will. We can remove the massive duplication of cost, resources and effort that is going on at present if authorities and operators join their thinking together – and there are encouraging signs that one or two of the big operating groups are heading in this direction.

DW Transport is changing, with disruptors such as new technology, autonomous vehicles and new transport market players (eg Uber, Google) shifting how we think and consume transport services. One revolutionary technology, the smart phone, has been at the core of this transformation, fundamentally altering how transport mobility options and services are offered to the individual. This new “intelligent mobility” (iMobility) customer is seeking personalised transport choices, a need born from the new socio-technology “lifestyle” norm, as a result of connectivity, social media, “big” data and the Internet of Things.

Future delivery of transport services need to fit and meet the expectations of the (iMobility) customer. A customer with more information on hand than ever before, informing customer preference choices associated with travel experience, travel time and cost.

In response to the iMobility customer expectations, an open “mobility marketplace” has been established by the New Zealand Transport Agency (NZTA), aiming to offer a single, connected network-wide transport system focused on providing people-centred mobility services. It is a public sector-led Mobility as a Service (MaaS) solution. As a first step, NZTA has partnered with transport service providers like taxis, buses and ride share operators, integrating their real time data into the marketplace to support real time mobility service offerings.

The concept is currently being piloted by NZTA in Queenstown (Choice app) which was launched in August 2017, and the other in Auckland (Ridemate app), launched in December 2017. The pilot is aimed at helping visitors to get around while in these destinations.

JM For the delivery of services in a private/pubilc environment, there is a need to ensure that the data exchanged is fit for purpose and conforms to the relevant policy guidelines established by local and government agencies. It should be the goal of Government agencies that as a pre-requisite in the deployment of CAVs, the data shared between vehicles, infrastructure and people is continuously checked, managed and governed in order to ensure a consistent and auditable data trail in the event of an emergency or other scenarios where the data flow is unclear and needs to be established.

Checks and balances need to be put in place through an independent body in order to secure the trusted operation for the travelling public as well as to guarantee the privacy and ownership concerns of the relevant bodies. Arup proposes that the delivery of a Data Governance layer is a vital requirement in order to act as an intermediary between public and private entities. This will help establish the necessary transparency around the movement of data between various bodies, as well as helping to define the required operating model to allow pass through of ownership between competing bodies to take place.

In a Governance framework, there are three important parts;

- Governance – ensuring that the overall goals and objectives of traffic management are being supported by V2V and V2I communications. These objectives may be derived from an overall transport strategy to ensure better traffic flows and congestion management and V2V & V2I communications are a means to that end. This will help build trust between the organisations sharing information and also Key Performance Indicators (KPIs) can be developed to help track progress. The progress or lack of with improving in kpi’s can be a trigger for changes to the V2V and V2I communications processes
- Risk – the application of an appropriate risk management process linked to the governance and compliance needs to ensure that appropriate management initiatives and measures are implemented to manage relevant risks. The application of these measures is appropriate to the impact and probability of each risk.
- Compliance – In any business and technical infrastructure that shares information, relevant Global, Regional and National regulations such as data protection must be adhered to and shown to be adhered to. As with Governance, relevant KPIs can be developed to demonstrate and track compliance

This role is vital in order to ensure close partnership between rival organisations and to guarantee privacy and ownership between companies are protected. To that end, the Data Arbiter is essentially the delivery of an independent Governance Risk Compliance (GRC) framework. This will provide an independent assessment of the data quality and reliability of the data being exchanged between rivals as well as validating that the exchange aligns itself to an agreed set of guidelines established by the relevant body to enable the unprecedented volumes of public and private data to work together for the delivery of customer services. ■