NEXT GENERATION TRANSPORT EXPERIENCE

Moving to a new, information enabled, frictionless transport experience

White paper

OVUM

SAMSUNG
New personal devices and lower cost, high definition flat panel displays are creating new opportunities for transport service providers to offer an enhanced service experience to travellers and commuters. Personal mobile devices such as tablets and smartphones are gateways to real-time, personalised information services that can make the transport experience more efficient, influence travel choice behaviour and promote loyalty.

Low cost, high definition flat panel displays create opportunities to turn more wall real estate into distribution points for communal information services, and when combined with hyper location positioning technologies such as Bluetooth Low Energy (BLE), these information services can be personalised and even incorporate targeted marketing services.

Metropolitan public transport infrastructures are having to contend with growing capacity demands from increasingly urbanised populations. Personalised mobile services will be vital to enable not just the transport systems, but also the passengers themselves, to be adaptive to real time events such as delays, weather, or major event-driven usage spikes.

For airlines, the new services enabled by consumer smartphone and tablet usage behaviour creates new, highly efficient paths to better customer satisfaction, loyalty and promotion of new services. In addition, new high definition public display technology enables better user information and marketing opportunities.

For all transport service providers, the unprecedented scale of smartphone ownership is revolutionising ticketing process. Passengers now have the ability to make multi-model journey decisions and purchase tickets from a single device that through Near Field Communications (NFC) or on-screen bar codes can also be used to authorise travel.

At the heart of this change in the way that transport is evolving, is the opportunity to expose services built on personal and transport system information through the new screens being used by transport users in massive scale. These information services enable end users to make smarter personal transport decisions, and for transport systems themselves to be reactive to patterns in user needs. The potential for mutually adaptive behaviour from both user and system is the recipe for improved experience and more efficient transport system capacity usage.

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Between a city being an engine for national economic growth, and transit systems being sources of data, the world. The United Nations forecasts that over 80% of the world’s population will be living in cities by 2050 and the ability to provide good transport services can make the difference between a city being an engine for national economic growth, or a catalyst for inequality and economic stagnation.

Urbanisation creating massive and rapid pressure on mass transit systems

The greatest challenge for transport is rapid urbanisation around the world. The United Nations forecasts that over 80% of the world’s population will be living in cities by 2050 and the ability to provide good transport services can make the difference between a city being an engine for national economic growth, or a catalyst for inequality and economic stagnation.

Growing middle classes have new demands and shifting patterns of car ownership

A growing urban middle class also creates challenges. Increasingly sophisticated, and web-connected consumers demand a better customer experience as has been shown by the UK Customer Satisfaction Index which continues to plateau year on year, as consumers in a fast paced, connected world become more discerning. And in high-growth markets, their pre-disposition to holding onto the status symbol of the 20th century, the car, creates its own very specific congestion and safety challenges. Although Ovum notes that in western markets, the appeal of the car shows strong signs of weakening, JD Power studies in the US have shown that teenagers and young adults are increasingly choosing to remain car-free relative to previous generations, signalling that the market may be seeing the emergence of a “mass transit generation”.

Air travel to double in demand by 2032

The final major change is the rebalancing of the globe’s center of economic gravity towards Asia, the growth of Africa, the consequent underlying global growth of air travel. Air travel demand is forecast by the Air Transport Action Group to double from the 8.6 million passengers per day in 2014 to twice that at 17.2 million passengers by 2032. Airlines need to fulfill their promise of delivering good customer service in a competitive market, enabling the world to become a smaller place for friends, families and business, and manage this growth in capacity demand. Against this already complex backdrop, they also need to do so in a manner that demonstrates the industries commitment to managing and minimising environment impact.

The challenge of transport in a connected, global metropolitan economy

Technology is fuelling a dramatic acceleration in the pace of change within the transport industry. Traditional planning and investment cycles used to be measured in decades, but with the advent of mobile technology coupled with a rapid change in user behaviour and expectations on one hand, and major demographic shifts on the other, the industry is being forced to adapt to a far faster pace of change.

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The power of data and new screens to enable transport systems to operate more efficiently

While transport systems and service providers are facing unprecedented speed in the rate of change, they also have the opportunity to exploit the ability to reach a transport user that has never been so connected and information enabled.

Smartphones – the world’s most powerful sensor network

Smartphones not only create the opportunity to provide services to users, but they are also sensors in their own right and hence rich sources of data. New devices throw off rich data that can aid the provision of real time transport services:

• Location data through WiFi and cell tower triangulation,
• Location data through GPS,
• User sentiment through mobile social networking,
• Hyper detailed location data through new sensors such as Bluetooth Low Energy.

These rich sources of data can enable transport service providers to track location, speed of travel and sentiment of the user, vital building blocks for the delivery of a personalised and enhanced transport experience. These new sensor capabilities of smartphones and in the near future, companion devices such as biometric wrist-bands, create the potential to measure physiological response of massive volumes of travellers to a particular given event, again enabling transport service providers to react and respond in real time with the right information and services to improve the passenger experience and drive the right behaviour to optimise traffic system capacity usage.

Delivering “Happy Trains” and the power of real time sentiment data

Social sentiment analysis is a powerful tool for transport service providers. Usage of social networks such as Facebook and Twitter on mass transit systems creates real time sensors of passenger satisfaction. This can then be applied to live maps used by transport service providers to map customer satisfaction in real time to an event, asset such as train carriage and place. Transport service providers can use this information to both engage passengers on social networks and make real time decisions in the transport system to deliver “happier trains”.

This powerful new source of sentiment data is exactly that being harnessed by First Group thanks to a solution delivered by Atos. Atos is using its social listening platform to map sentiment against a single view of all train company assets, both fixed and moving, to constantly monitor, benchmark and act on customer sentiment, as well as enabling First Group to deliver a level of customer care impossible before the era of the pervasive smartphone.

Using Big and Open Data to improve passenger flow and create new services

For transport service providers, there is an intrinsic relationship between the growing use of smartphone devices in their networks and the ability of Big Data technologies to ingest, store and process the massive amounts of information thrown off by these devices. Mass transit systems have relied on analytics for decades to manage the movement of assets through real time and predictive analytics. Now that each user is armed with a connected device, they have new rich sources of data to enable incrementally more efficient management of these assets as well as better passenger flow. New screens are both the source of Big Data for transport as well as the consumption platform for the resulting passenger-facing services.

This wealth of new location and sentiment data also creates the opportunity for ancillary services delivered by 3rd party providers. Public transport providers are moving to provide Application Programming Interfaces (APIs) to their data assets to enable new transport or marketing related services.

Using services from the web majors to provide an enhanced customer experience

Of course this also creates a “fireside” relationship with the web majors, and specifically Google, who are also aggregating information about end users and providing multi-modal information services. Parties such as Google are now embedded participants in the transport industry as information service providers, driven by the goal of providing location based marketing services. Transport providers should work collaboratively with players such as Google and Twitter to use their services to enhance the experience of their users.

Simplifying transport payments and ticketing through Near Field Communications and on screen bar codes

Smartphones are also driving opportunities for a revolution in ticketing. The ability to combine the selection, purchase and authentication process onto a single device removes complexity in the customer experience, speeds up the customer journey through saved time at kiosk, and reduces the cost and real estate footprint for dedicated ticket kiosks.

Near Field Communications (NFC) creates opportunities for faster passenger flow and better quality customer service on mass transit systems such as tubes and metros. NFC creates the opportunity for transport service providers to enable passengers direct from their handsets on the go, without the need for kiosks or paper ticketing, using any NFC enabled smartphone.

As the installed base of NFC capable devices grows, as well as screen based barcode solutions to accommodate users with non-NFC equipped devices, transport service providers are implementing smartphone based paperless ticketing around the world. Just some of the transport networks deploying smartphone based systems for paperless ticketing today are the New York Metropolitan Transit Authority, the Massachusetts Bay Transportation Authority and London Underground.

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Mass transit systems entail the movement of very large numbers of autonomous beings (passengers) within high structured systems and processes. The challenge for transport service providers is to marry passengers demand, and modal choices, with available transport system capacity.

Creating more efficient transport systems

Information services such as notifications, SMS alerts, emails or web services create the opportunity to inform passengers to enable them to make smarter choices as to how and when they travel, enabling transport service providers to more efficiently match demand with capacity, and hence provide a better transport experience and a mass better transport solution, with a given level of physical infrastructure capacity.

This kind of passenger behaviour influence more closely links the formerly autonomous passengers with the conditions of the transport system. It makes it a more predictable, efficient system.

In Melbourne, Australia, the city’s tram system provides travelers with real-time updates on the location and timing of trams as they travel through the network. Travelers can use a location-aware application on their smartphone to select the optimal route, stay informed about the location of trams and to find their nearest station. Service users benefit by being better informed about their journey, while the operator can monitor usage of the smartphone application to identify changes in demand.

The ability to change delivery schedules and routes while in-flight makes it possible to offer consumer and business customers a level of flexibility, and logistics companies a level of visibility over their processes that has previously not been possible. For businesses in particular that are seeking to increase the control of their supply chains, this level of insight creates opportunities for new levels of partnership between logistics provider and customer, and hence increase customer retention.

M2M AND GPS: USING DATA TO AUTOMATE THE LOGISTICS PROCESS

Logistics companies were among the first to adopt mobile devices as a means to manage and monitor their processes. Initially the hand-held devices that delivery drivers used delivered benefits primarily by simplifying and automating existing paper-based processes.

With the emergence of lower cost, always connected, location aware devices, the current generation of mobile technology allows logistics companies to move beyond simply making existing processes better, by making it possible to dynamically track both vehicles and the packages they carry.

Real-time insight enables greater efficiency and better customer service

In the first generation of process automation, logistics companies were able to track in-flight deliveries each time they arrived at a key milestone in their journey, the arrival of a parcel at a depot, port, or at the customer’s location could all be tracked. The current generation makes it possible to track an individual parcel on a meter-by-meter, second-by-second basis.

Not only does this provide a welcome level of information for the customer, it also makes it possible to monitor the status of in-flight processes and to not only identify issues when they arise, but also to predict problems before they manifest themselves.

Every logistics process is a candidate for improvement

Mobile technology has the power to transform every logistics process, from determining when to pick up goods, how to route them, and when to deliver them to delivering more flexible and responsive fleet management.

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ENABLING NEW SERVICES FOR AN ENHANCED EXPERIENCE

The ability to manage transport and logistics systems dynamically along with the potential to incorporate external processes and data into existing processes makes it possible to offer customers greater flexibility in scheduling services, as well as enabling the creation of new, more customised, services for customers.

Transport providers can provide not only real time information updates based on intelligence from the transport network, but also recommendations based on the other factors defining the “context” of the user. The most obvious of these is information on the location of the user, gathered through cell site triangulation, GPS or hyper proximity technology such as Bluetooth Low Energy. However the most effective personalised and targeted services will also take other factors into account, such as time of day or weather.

These contextualised services can help passengers navigate the complexities of multi-modal journeys, and help transport service providers limit the impact of disruptive information aggregators.

Transport service provider as affiliate marketer: new consumer services driven by context aware, proximity marketing

Just as contextual mobility creates the opportunity for a better passenger experience and faster passenger flow, it also creates the opportunity for transport service providers to market additional services

NFC and BLE are making it possible for retailers to move to an active push model of communication with their customers. This same strategy can and should be used by transport service providers. Just as contextual information services sent direct to a passengers mobile device will enable them to have a better experience and move more efficiently through a transport system, so the same communication channel and application can be used to recommend and promote additional services that may be of interest, whether basic food and beverage services, or more sophisticated affiliate accommodation services and gift retail.

Fundamentally, transport service providers have two hugely valuable assets in today’s digital economy with which to play, passenger time and passenger context data. This creates the potential for contextual services that can both improve and differentiate the passenger experience and increase revenue per passenger journey. It is an opportunity that must not be ignored.