



SNAPPER



WHY YOU NEED A MOBILE STRATEGY

Why mobile for transport ticketing is a challenge.

Here's why you need a mobile strategy – you can't just ignore it!

Your customers' pain is your pain

What is good for your customer is good for you.

The solution you can implement right now.



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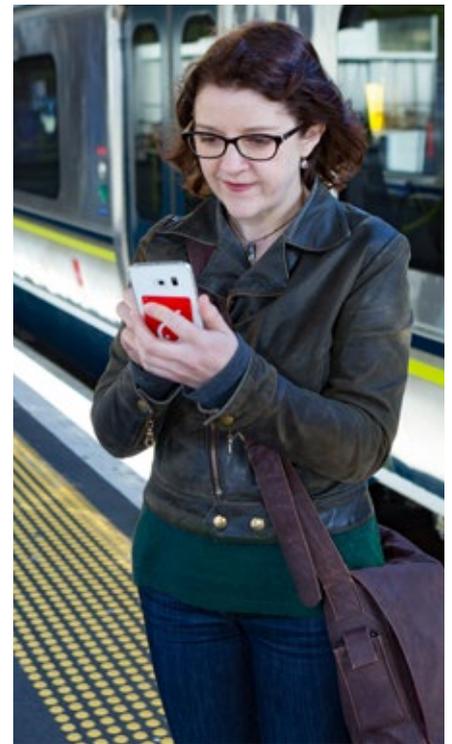
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Why you need a mobile strategy

We live in a world where smartphones are the preferred personal computer for most of us. People expect to use their phone to perform most web related functions such as search, purchase and banking. However, the transport ticketing industry, for the most part, has not been able to take advantage of mobile technology in a way that makes sense for them and their customers.

At Snapper we have been executing a successful mobile strategy for several years now. The goal of this strategy is to reduce the friction that is inherent in most ticketing systems and make it easier for the passenger to get to where they want to go. In this paper, we'll share how we think about mobile, why we think Transport Authorities need a mobile strategy and what a practical and successful mobile strategy looks like.



Why mobile for transport ticketing is a challenge

For the longest time, the vision for mobile in transport ticketing has been to use a mobile phone instead of a smart card. In reality, this has not been achievable for the industry. There are three main reasons why:



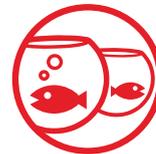
1. Technology alignment

For a transport ticketing application to be integrated with a smartphone, it must be able to be securely issued. There are secure elements that are available - either natively integrated into the smartphone hardware or on the SIM. Both of these use open technology based on JAVA. This is the same technology that underpins contactless bankcards. It is the technology that Snapper selected many years ago, for this same reason. However, the majority of existing ticketing systems are based on other card technologies such as MiFare and Calypso. These are proprietary technologies, and while there are some licences available, there is no native implementation on SIM at scale.



2. The route to market

In order to get a transport ticketing application onto a SIM you need to be able to access the SIM card. This means establishing a relationship with the owner of the SIM card – that is the mobile network operator (MNO). In order to reach the entire market you need to establish a relationship with all MNOs in that market. This takes a lot of time.



3. MNOs and transport authorities want different things

To date the business model that MNOs use to get travel passes onto SIM cards does not make sense for a Transport Authority. MNOs agree to put a transport applet onto a SIM card as a way to monetise their SIM card. They do this by charging service providers for space, and by transferring the costs of implementation onto the Transport Authority. This is not an unreasonable position, however, the costs to implement access to the SIM can be very high - a cost that is unsustainable for Transport Authorities.

... more than 20%
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The rise of the contactless bankcard

The success of Transport for London's (TfL) move to contactless [Europay, Mastercard & Visa \(EMV\)](#) ticketing demonstrates that this will likely be the default method of payment for public transport in the future. One year after TfL first launched contactless bankcards, more than 20% of all pay-as-you-go journeys are now taken using a bankcard instead of an Oyster card. This shift has led TfL executives to state at a recent conference that their goal now is to get out of the ticketing business altogether.

Transport Authorities that choose the contactless EMV path will get a mobile roadmap by default, as platform providers and MNOs execute their mobile payment strategies. [Apple Pay](#) support will come as standard as Apple deploy their service in new markets. This also extends to [Android Pay](#) and [Samsung Pay](#) as they undertake their global deployments.

The combination of contactless bankcards and mobile payments overcomes many of the challenges the industry currently faces, by aligning the technology between the payments industry, the mobile industry and

places where contactless bankcards are used for public transport. The route to market will also become easier with the payment application being native to the smartphone operating system. The business model is common to the payments industry where the merchant and issuer charges are predictable.

This vision to use a mobile phone instead of the smart card for transport ticketing is, therefore, becoming more achievable. However, due to the investment required to replace the back office system and equipment to read the contactless bank card, it is only possible in the short term for those ticketing systems that are end of life and due for replacement.

Existing systems drive the greatest need for a mobile strategy

However, there are bigger challenges where an existing ticketing system has life remaining. Given that investment in these systems can range from \$10 million to \$1 billion, it is not possible to make a business case for change when the assets have not yet been fully depreciated. On average there are six to seven years of life remaining in most smart card ticketing systems around the world.

Further complicating this decision is the fact that the role of the Transport Authority will likely change from that of a revenue collector to that of a retailer using commodity payment platforms. The change is likely to have a positive result. However making this kind of fundamental shift is sometimes difficult for Transport Authorities given their obligation to provide a universal service and their public-facing role.

Therefore, the majority of Transport Authorities will need to do something different in the interim. Below are a few examples of solutions that Transport Authorities have already tried:

1. QR code ticketing

This leverages the power of the smartphone for the consumer but at this time there are no scale examples of integration with an existing ticketing system. Typically attempts at QR code ticketing have involved running two systems in parallel, with the associated costs of that, and resulting in relatively low uptake of the QR code channel. Neither does this solution take you forward to contactless EMV.

2. Use of a smartphone instead of a smart card

This has been successful in Korea, Japan and New Zealand (via Snapper) as there has been careful consideration of the technology choices that are needed to enable this. However, outside of these markets, this area is generally characterised by pilots that do not move past the pilot stage into full production, reinforcing the fact that current transport ticketing technology does not scale into a mobile future. There are hundreds of examples of this reported by [NFC World](#).

3. Contactless bankcard (EMV)

This solution represents an obvious and ideal future for the industry, but it does not integrate with existing systems, and so, represents a very difficult path for Transport Authorities unless their current system is end of life and the investment is available for complete replacement.

Here's why you need a mobile strategy - you can't just ignore it!

A robust mobile strategy is needed to help define a Transport Authority's best role for mobile alongside their current system. You ignore mobile at your own peril. Here's why:

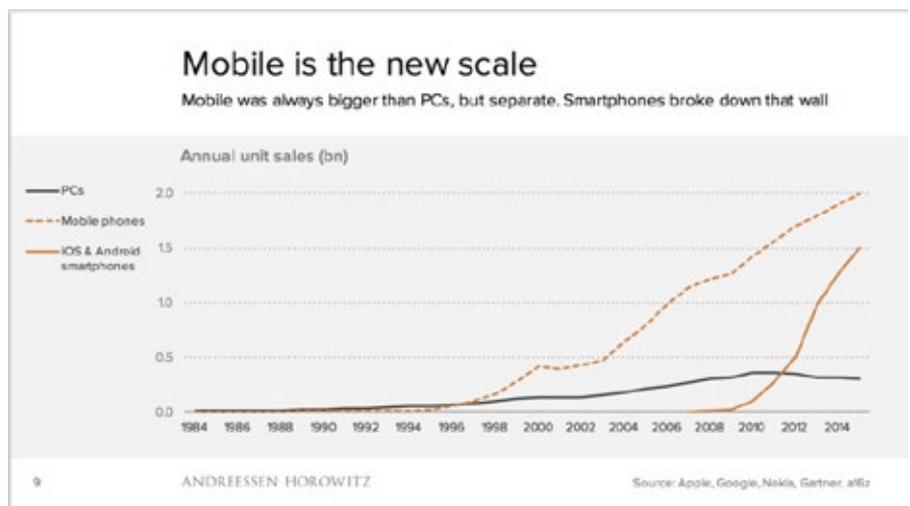
1. Mobile is eating the world

Mark Andreessen - co-founder of Netscape and venture capital firm Andreessen-Horowitz, coined the term 'Software is Eating the World' in 2011. In his *Wall Street Journal* article, he described how software companies are systematically becoming the platforms on which business is conducted globally. His colleague, Benedict Evans, has taken this one step further. He has put forward the view that [Mobile is Eating the World](#). And it is.

Smartphones now outsell PCs by more than 2:1. There is more time spent on smartphone apps than on all of the web. Consumers now see smartphones as their primary computing device. Smartphones now dominate the internet: they are the most-used cameras and they are moving quickly into payments. It is our view that they will eat transport ticketing next.

2. Smartphone penetration hasn't peaked yet

If you thought we had hit a peak in smartphone sales, think again. While there are large numbers of smartphones sold every year (1.2 billion sold in 2014), they still represent a fraction of all mobiles in the market. In 2014, close to 2 billion mobile phones were sold globally, which means there were close to 800,000 feature phones sold. Taking into account the installed base of feature phones, smartphones represent around only one third of all mobile phones in the world.



Therefore there is still some distance to go before smartphones represent the majority of mobile phones used. We will get there quickly - 80% of adults will have a smartphone by 2020, according to Evans. Therefore, the pressure that you currently feel from your customers to provide smartphone services is set to intensify as penetration increases.

3. Payments and mobile are converging

In the past 12 months the long-hyped convergence between mobile and payments has started to take shape in a meaningful way for customers.

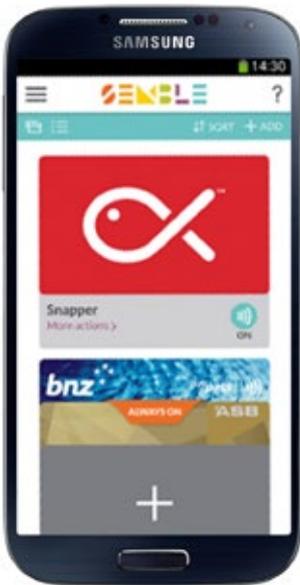
There have been many early attempts to integrate mobile and payments that have been unsuccessful at scale. These have included a number of joint ventures between the major telcos (e.g. WEVE in the UK, Sixpack in the Netherlands, Softcard in the US) as well as initiatives by Google. These have captured the imagination of the industry

but have not resulted in valuable customer experiences. In a number of cases they have not even been able to stand up a product for customers.

In the New Zealand market the Semble joint venture has had a very promising start in aligning the interests of the mobile networks and the payments sector, but this appears to be the exception globally.

However, recent developments led by smartphone manufacturers have driven a new change.

The most important of these is Apple Pay. Apple Pay leverages existing standard contactless payment systems and deep integration into phone hardware and operating systems to provide a seamless mobile payment experience. The adoption of Apple Pay has been very strong with over 66% of all contactless payment transactions in the US completed using Apple Pay, since its launch in October 2014.



Semble – New Zealand's first mobile wallet

Both Google and Samsung have launched their own wallet services - Android Pay and Samsung Pay - in 2015. This points to the eventual end game being the integration of two standard eco-systems - mobile phone operating systems and contactless EMV. The way is now clear for these to be deployed and adopted at scale and it points to contactless EMV being the future of all payments, including transport ticketing.

4. Mobile can deliver

While mobile payments are heading towards contactless EMV, there are signs that there are other roles for mobile to play in the interim. There have been different implementations of mobile ticketing, such as QR code ticketing, but they have not achieved traction as they do not meet the needs of the ticketing authority, the transport operator and the passenger. Athens was a case in point. Their QR code ticketing ran alongside their smart card, but suffered from very low uptake. When we consider what a Transport

Authority needs, the ideal solution looks something like this:

- It will leverage the capability of a smartphone for customers and for the Transport Authority
- It can integrate with existing ticketing systems to allow an authority to reconcile the fare collection and make it easy for the transport operator to integrate into their processes
- It solves practical problems, such as the high cost of reloads, for all stakeholders that leads to mobile being central to their ticketing system.

Your strategy needs to consider all four of the points above. You should develop a solution that leverages equipment that your customer already has; that makes the most of your current investment; and that takes you forward.

So, how do you go about deciding on a course of action that will do this?

... develop a solution that leverages equipment that your customer already has ...

Your customers' pain is your pain

The technology industry is characterised by companies and people that focus on what technology can do. However, the truly successful organisations focus on their customers' pain points and use technology in innovative ways to alleviate this pain.



When Snapper looked at the pain points for our customers, they were not about the transport smart card. That piece of technology works fine. The problems centred around the services that support the card. Primarily, the pain points were the reload process and how that fits into a customer's life. Typically:

- The need to reload or renew a product at approximately the same time as a number of other commuters, leading to queues at reload points such as ticket offices and ticket machines
- The need to go somewhere specific to reload as opposed to doing this on a just in time basis
- The need to physically visit a service centre, go to a computer or make a phone call to perform basic service functions such as refunds or card transfers.

If you can solve these problems for your customers, then you can improve the experience on a fundamental level. What is interesting about these problems is that putting a smart card into a phone does not solve this for the vast majority of consumers. The best solution for this problem is using the smartphone and the smart card to provide an instant and convenient mobile reload service.

What is good for your customer is good for you

When we look at solving these problems for customers, we see that they lead to significant benefits for Transport Authorities too.

... customer satisfaction will improve as customers clearly enjoy the benefits of instant and convenient mobile reload ...



These include significantly reduced investment in ticket vending machines and retail reload points, which improves a Transport Authority's cost structure. The typical blended cost for reload is 7% of fares collected. Snapper's experience is that a mobile reload solution used in conjunction with a smart card can reduce this cost to

around 2.5% of fares collected, once scale is achieved. This represents a saving of approximately 60% on reload costs – a significant gain for the Transport Authority. At the same time customer satisfaction will improve as customers clearly enjoy the benefits of instant and convenient mobile reload.

The solution you can implement right now

So, ultimately, the answer is a solution that integrates with your current systems, leverages the technology that your customers already possess, and addresses their major pain points.

The Snapper approach is based on using proven technologies that are used at scale globally today. The solution is based on integrating known interoperability standards for transport ticketing systems, and uses standard techniques to abstract the complexity of fare policy and business rules into web services. The mobile application programming techniques used respect and protect the ticketing scheme security and allow for integration into existing mobile applications. The risk for the Transport Authority is low and the integration path is predictable and straight forward.

Where this leads is to a mobile strategy that is complementary to your existing ticketing system. It is also a strategy that leverages the capability that your consumers already have. This enables the Transport Authority to focus on improving the existing experience for the customer, putting a ticket machine in their pocket, giving them the instant and convenient reloads, balance checks and product purchases wherever they are. Finally for the Transport Authority it represents an opportunity to significantly reduce the cost of operation and lead you towards a more modern, customer-focused future.



To see this in practice, visit:
<http://services.snapper.co.nz/our-solutions/case-studies/>

If you'd like to know more, contact us. We'd love to help you develop your mobile strategy.

Key references

<http://ben-evans.com> - Mobile is Eating the world – presentation May 2015

<http://ben-evans.com/benedictevans/2015/5/13/the-smartphone-and-the-sun> - The smartphone is the new sun.





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