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Apps vs. Responsive Mobile Websites
Choosing the right tool for mobile passenger information

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Demand for mobile passenger information alongside real-time systems is increasing. Smartphone penetration is high - and rising - while reduced public transport budgets cannot easily accommodate on-street information displays.

But mobile information can be deployed through a number of different technologies. What are they; what are the advantages and disadvantages of each - and which is right for your organisation?

As a provider of public transport information systems we at Trapeze are often asked by clients for advice on whether to develop a Smartphone app or mobile website.

Increasingly we are seeing tenders from local authorities which include the requirement for mobile passenger information alongside real-time systems. This is hardly surprising: Smartphone penetration is high and rising (to a predicted 80% penetration by January 2015 and 90% by the end of 2017[1]) while reduced public transport budgets cannot easily accommodate costly on-street information displays. If your requirement is to help the travelling public to be better informed, the most economical way to do so is via their phone.

However, the terminology used within some tenders suggests there is a degree of confusion about the different mobile technologies currently available. We often see tenders where the terms "app" and "mobile website" are used interchangeably, when in fact there are significant and important differences between them.

This paper is intended to clarify those differences and to outline the advantages and disadvantages of each approach. We hope that with this information you will be able to decide which is most appropriate for your organisation and specify your requirements accordingly.

Clarification: in this document we focus on 'responsive' rather than 'mobile' websites. A responsive website is

one which dynamically adapts to fit the screen size and orientation of the device on which it is being viewed – whether that is a Smartphone, tablet or desktop PC. A mobile website is one which has been specifically designed for a mobile phone platform. It is our view that responsive web is the more viable long-term solution, and the reasons for this will be the subject of another paper.

Technical Differences

Mobile applications (apps) and responsive websites are very different technologies. An app is a program which must be downloaded and installed on to a mobile device, whereas a responsive website exists online and is visited via a phone's browser.

At this point it is worth mentioning the requirement for an Internet connection, as there is often a perception that once downloaded, apps no longer require a connection and can be used 'offline'. While this is true with many apps, it is typically not the case when you are dealing with public transport passenger information. The information the user requires (usually real-time or incident data) is typically not available locally on the device so an Internet connection is required, irrespective of whether an app or responsive website is being used.

There are advantages (and disadvantages) to both approaches. Accessing an app for the first time lacks the immediacy of a responsive website because it must be

downloaded and installed before it can be used, whereas the website merely has to be visited.

However, once installed an app has the benefit in terms of access and prominence. An icon will be added to the phone's home screen, ready for access by the user. (In reality it is also possible for a user to save a website bookmark as a home page icon, but many users aren't aware of the functionality, so this cannot be relied upon.)

There are marketing benefits here too since users are typically familiar with the process they need to follow to find apps. They know to visit the relevant store (for example Apple's App Store), search for the item in question, and then install it. As an organisation promoting an app you can also make use of readily available images and branding elements such as "Available on the App Store" badges.

If you are promoting a responsive website you need to promote the site to make travellers aware of how to find it in the first place.

User Experience

In most instances an app and responsive website will outwardly look fairly similar when viewed on a Smartphone, but the user is likely to experience notable differences in terms of the way that they interact with them. Because a responsive website needs to cater to a variety of device types and screen size/dimensions, compromises have to be made which in our view tend to prevent them from having the slick look and feel of an app which has been specifically designed for a device.

Gesture controls (swipe to delete/mark as favourite and so on) tend to be familiar to users and work well within an app environment. Additionally, integration with the
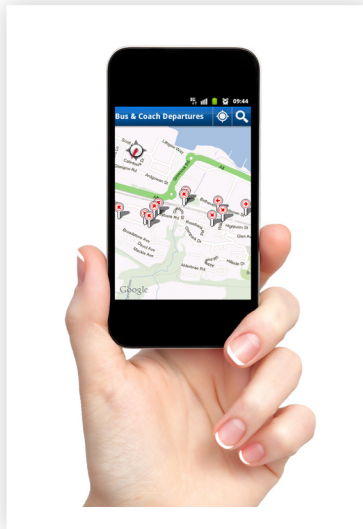
device's embedded features (such as GPS, camera or microphone) is likely to work better in an app. Trapeze's ScotTalk app, for example, uses the iPhone's native VoiceOver feature(Text to Speech functionality) to read out bus arrivals for blind or partially sighted passengers. This type of functionality is often not available on sites designed for Responsive Web Design.

Anecdotal feedback suggests that users tend to prefer the experience offered by apps over responsive websites and broadly speaking this fits with our experience. However, website technology is improving and this may not always be the case – and there are other considerations, not least of which is cost.

Costs

The most obvious disadvantage of apps when compared with responsive websites is the cost. As we have stated, the best experience will usually come from a bespoke build for the platform in question – the problem, though, is that mobile apps are native to particular operating systems (for example, Apple's iOS, or Google's Android) – so you are likely to need to develop more than one.

No single platform will enable you to reach the entire spectrum of potential handsets, so if you want to cater to all (or even most) of the available users, you will need to pay to develop two or more apps. Recent figures show that Google's Android has 54% of the UK market; Apple's iOS has 32%; Windows Mobile has 10%; and Blackberry 3.4%[2].

Clearly there is a calculation required relating to how many app versions you need – and of course it depends on the devices people use in your area, so the first thing most clients do is examine website analytics to understand how people are visiting their existing website.

Unless that analysis yields unusual results, in most instances we recommend passenger information apps be delivered on at least Android and iOS (combined they cover 86% of the Smartphone market). Depending on local usage it usually makes sense to include a Windows Mobile app as well (bringing coverage up to 96%).

However, there is of course a cost implication in developing multiple apps. A single responsive website will usually cost more to develop than a single app – but significantly less than three. We estimated that in most instances the overall cost of developing for three app platforms is likely to be around twice that of a single RWD site[3] – and of course you still won't cover the entire market.

Conversely, you could reach all of the market with a single responsive website – but as we have explained, the user experience won't be as strong.

At this point it is also worth considering the on-going costs. Both apps and websites that you own will require maintenance when the content is out of date. However, apps can also be subject to compulsory redevelopment when the vendor updates their operating system. In our experience, the timing of handset OS upgrades always seems to be time to conflict with other client priorities.

Finally, although not specifically relating to cost, all apps are required to be submitted to the relevant store and are subject to approval prior to being made available to the public. This process can be subject to frustrating delays.

The conclusion of this section is fairly straightforward: if you are making your decision based purely upon cost then a responsive website is almost always the winner.

Other Considerations

There is often an issue of branding to be considered. When working with local authorities we often find that there is an acceptance that an app may have its own distinct identity that is slightly separate from the authority's transport branding.

This may take the form of a semi- standalone portal providing journey planning, real-time and incident information largely in isolation.
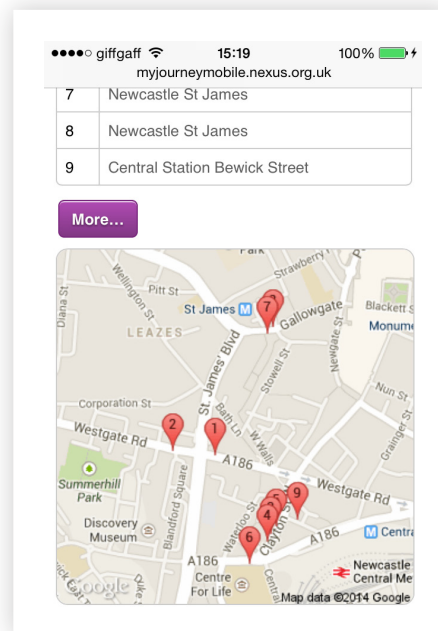
A responsive website, however, shares content with the desktop website and therefore needs to work with the existing website content. In this instance the site is likely to have to cater for other public transport elements, perhaps including multimodal transport information, bus operator contact details, carbon calculators, and details of cycle/foot paths.

If you decide to go with a responsive website then this is perfectly achievable, but we find it is worth clearly specifying the information requirements at the project outset.

Another important consideration here is Search Engine Optimisation (SEO), which essentially determines how effective your site is at being found by search engines (Google, Bing etc.). If effective SEO is a priority for you then you may decide that a responsive website is critical, since it can contribute to your SEO requirements (something a mobile app cannot do).

Future Trends

With budgets constrained and the cost of developing for multiple apps proving prohibitive, we believe that an improvement in responsive website technology will result in a shift away from mobile apps towards responsive websites. This point is covered in more detail here[4].

However, Smartphone technology is developing at a phenomenal rate – more so than bandwidth. We are not far away from the point where an average passenger will own a mobile handset powerful enough to run a national journey planner, with all the data that is needed to support it stored on the handset too. Once this is commonplace it would make little sense to use the Internet to access data – instead, transport data is likely to be stored locally (in an app), with the Internet accessed merely to download any relevant changes.

Therefore, after a period where responsive websites start to take sway, we anticipate a return to mobile app technology a little further in the future. We discuss this in more detail here[5].

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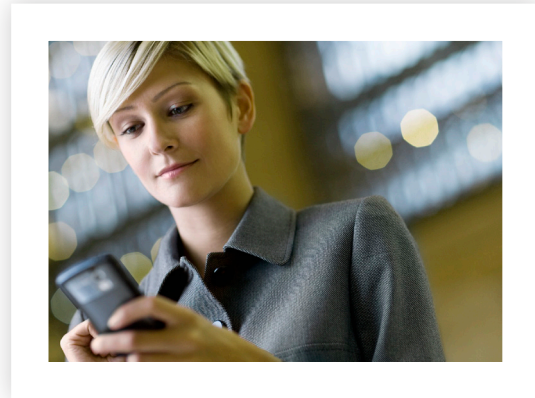
Conclusion (Which is Best for you?)

If money is no object then of course the clear answer is to develop a responsive website and apps for the most commonly used Smartphones. This would provide the ultimate user experience for regular users, leaving a functional website to inform irregular or new users who haven't downloaded the app.

However, in the public transport sector money is of course always a significant factor, so it is highly likely that most organisations will have to make a choice.

Ultimately, the decision here should be dictated by a combination of organisational objectives, the profile of potential users (and handsets they use), available budget and the importance of the quality of the user's experience.

This is not a simple process, but it is one Trapeze has been assisting clients with for many years. We hope this paper gives you all the information you need to make the right choice.

Summary of Key Advantages

For apps:

• Customised user interface

• More popular with users

• Incorporates Smartphone features

• Easy to find within app stores

• Presence on phone's home screen once installed

For responsive websites:

• Lower development costs (creation & ongoing)

• Works across different devices

• Instant updates (no app store review/approvals)

• Less affected by Handset OS update cycles

• Effective SEO

References

1.   http://www.theguardian.com/technology/2014/apr/30/featurephone-smartphone-uk-

2.   http://www.theinquirer.net/inquirer/news/2337089/iphones-uk-market-share-climbs-while-android-and-samsung-see-rare-slump

3.   There's another alternative here: tools exist that enable developers to build one app which can then be adapted for different mobile Operating Systems. This technology may improve, but to date our experience suggests that bespoke developed apps results in a superior product.

4.   http://www.trapezegroup.co.uk/blog/article/newsflash-apps-are-not-the-future

5.   http://www.trapezegroup.co.uk/blog/article/newsflash-apps-are-the-future-again

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