

# White Paper

- The changing face of mobile
- Tim Jefferson

## The world of mobile is changing

The mobile world is changing rapidly and at a rate that none of the existing ecosystem players have ever experienced. New players, new ecosystems/business models and new handsets are all impacting on the market, transforming the landscape and creating fresh challenges and opportunities for everyone.

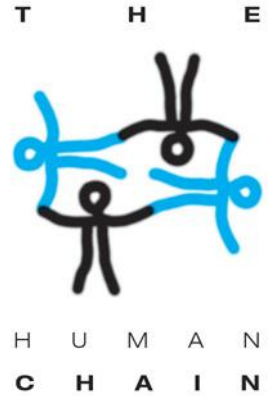
Smartphones – from high- to mid- and low-tier devices are making their mark on worldwide sales. The adoption of Android as the operating system of choice for many handset vendors is helping to drive down device unit costs and coupled with the development of the apps ecosystem is having a considerable influence on the whole mobile handset market place.

There has been a dramatic increase in smartphone penetration especially in markets such as North America and Europe in the past couple of years. The swift adoption of this technology is having a powerful impact on consumers' personal lives, offering them a whole new world of options and applications, including access to the internet. In fact smart phone adoption is growing four times faster than other handsets, with IDC estimating that they will account for 450 million of the 1 billion handsets sold in 2011.

This technology leap has provided end users with the ability to carry out complex computing while on the move. But Mobile Network Operators (MNOs)/carriers and WiFi providers are struggling to keep pace with data usage demand and in many markets have failed to build sufficient network capacity to cope with the demands of these data hungry users. MNO/carriers in both the UK and the US have gone as far as paying the heaviest iPhone users to 'go away' because so many urban areas are close to full capacity. They are also cutting 'eat as much as you can' tariffs in most mature markets. However, network capacity and speed are now being addressed by current 2/3G networks and the increased drive to deploy LTE networks should help alleviate this issue going forward.

In only four years, Apple has gone from selling zero mobile handsets to 90 million and has developed iTunes into a 10billion+ download closed ecosystem with more than 350,000 apps available. All this from what a lot of industry insiders think is a niche player in the mobile industry that punches way above its weight. Though with 40% of all Apple's revenue coming from iPhone sales in Q1 2011, it's clear that mobile is more than just an after-thought for the company, especially with strong rumours of a lower end mobile device from Apple coming to market late in 2011.

The new app model is driving sales outside MNOs/carriers' traditional business models and pushing them into a whole new world whether they like it or not. For many years, they have been trying to break away from the voice and simple data direct revenue models that they have relied on to drive growth, but have struggled to manage and monetise the changing business ecosystem. It's an experience shared by new market entrants, which have got into mobile via the apps model, but also struggled to develop sustainable robust revenue models.



The latest players to move into mobile are exploring how they can drive fresh revenue streams and new business models that are favourable to them. But they are hindered by the immaturity of many of these models, which rely on a high penetration of handsets running specific technologies such as near field communications (NFC), which is something that has yet to be achieved.

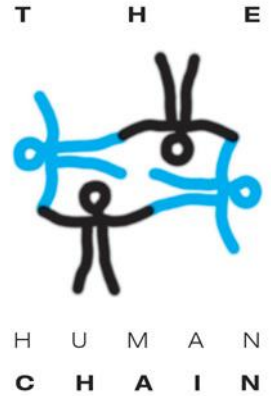
These 'smart' smartphones offer increased functionality courtesy of faster processors, with bigger memories and high-definition screens coupled with very high quality cameras and video capability (with 3D and augmented reality imminent), accelerometers, accurate GPS and contactless/NFC. These capabilities will allow a new range of services and products to be delivered on mobile handsets. HTML5 is also set to come to the market on mobile handsets soon. This development has the potential to spark another step change, making it easier to roll out new mobile products and services across a range of operating systems without the need for dedicated apps.

Also, we should not forget the increasing sales of feature phones in emerging markets. Not only do they still account for the majority of the world's handset sales, in these markets they may be the only form of communication for both voice and fast internet access and are increasingly being used for money transfers and payment.

## **New players with new ideas and business models**

Everyone wants to play in the mobile space! Whether it's major brands in the fast moving consumer goods (FMCG), clothing, cosmetics or hospitality sectors; retailers both physical and web based – including Wal-Mart, Tesco, Carrefour and Amazon; finance sector firms; web-based businesses such as Google and TripAdvisor; social networking companies including Facebook, Google Checkin and foursquare; gaming companies; all handset and operating system (OS) manufacturers: they are all entering the mobile market in some shape or form.

Key areas of interest are: payment and mobile financial services (MFS); ticketing (both transit and event); loyalty; gift cards; membership; location-based mobile marketing; vouchers and coupons; gaming; machine to machine (M2M) and physical and logical access. True high-end value and revenue can be realised by introducing new and innovative services that bridge many of these verticals. Everyone is trying to come up with an app or mobile wallet that delivers payment, vouchers/coupons and loyalty in a simple to understand and use format, that offer real value to the end user. A proposition has to be presented to end users (both consumers and business to business (B2B) in a recognisable format (not too big a leap from existing or similar services) that they will flock to use and which will drive mass adoption. It needs to be backed by a sustainable business model to provide a working ecosystem. The theory may sound simple, but it has proved difficult for many to master, up until now. Many new entrants to the mobile market place feel that with their skills, knowledge and expertise from other sectors they are ideally placed to be able to bring these types of products and services to market. Coupled with their belief that they have better customer relationships than the existing mobile ecosystem players, they may be able to satisfy consumer needs quicker.



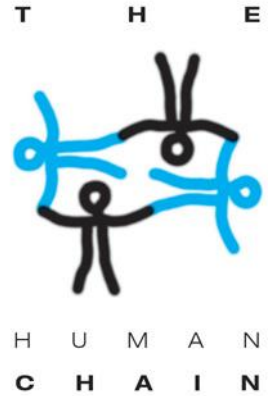
An example of these is what is termed Over the Top (OTT) services, where increasingly sophisticated services are being created via a downloadable app. For example, there's Hullomail (<http://www.hullomail.com/>), a downloadable app offering visual voicemail plus a paid-for (ad-free) version that links to the Hullomail server in the IP space. This is MNO/carrier-independent and also does not require the 'three 9s' reliability and massive integration overhead that is characteristic of systems operated by MNOs/carriers. It is yet another major change sparked by new services being brought to market by agile players that have not had to make the same massive investment in infrastructure as traditional MNOs/carriers. MNOs/carriers are also really concerned as OTT voice services are coming to market which could really start to threaten their core service revenues.

Let's explore some of these interesting verticals or solutions in more detail.

Mobile payment and other financial services are coming to market and not only being driven by the traditional players in the card-based financial services ecosystem, such as the schemes – Visa, MasterCard, Amex and Discover – but also by their members: the banks and other financial service operators. New players are rolling out new products and services rather than replicating existing ones to drive innovative revenue streams. And existing ecosystem players have a lot to lose, with one major US mobile carrier claiming that the country's mobile payment sector alone is 'worth a trillion dollars a year' within three years. But major changes are on the horizon, courtesy of new entrants such as PayPal and Google, among others. Their cause is backed by retailers fighting against the transaction fees levied by payment schemes, pressure from regulators in both Europe and North America and the might of consumer rights organisations. But while there is a lot of pressure on the existing payments ecosystem to change, current regulatory controls are hindering a quick and easy market transformation. You only have to consider the delays in the rollout of EMVCo Chip and PIN in the US to realise the potential problems ahead.

Also, this is about much more than payment in the financial services sector. Mobile financial services allow end users to make not only physical payments but also remote payments (in a number of formats); in addition, they enable a wide range of other services to be executed on the move using a single smart/feature phone device. These new services offer fresh ways of engaging the mobile generation – sometimes referred to as Generation C (connected, communicating, content-centric, computerised, community-oriented, always clicking) – which think of mobiles as transactional devices rather than being solely for communications. Gift cards on mobile phones, are a good example of how the mobile platform can be harnessed to extend the capabilities of existing plastic card-based formats. There is a big focus on this area because of the increasing use of stored value products on both open and closed-loop prepaid cards.

Ticketing – both transit and event – is closely linked with payment. There is already a huge and growing market for mobile ticketing, using 1D, 2D and QR codes for airline boarding passes, train, bus journeys and also event ticketing. The next stage is to use the latest NFC technology, which is now coming to



market, whereby ticket/credentials get sent to a user's phone, which then interacts with the reader or access gate via the short-range contactless radio technology.

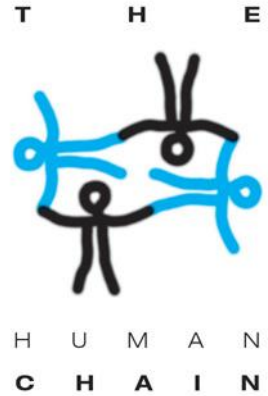
Another area attracting plenty of interest is loyalty and membership. The ability to drive footfall or usage and therefore revenue is essential for many organisations, and mobile provides an easy way to deliver this. Something as simple as putting your loyalty or membership card credentials (including 1D, 2D and QR codes) onto a mobile app or wallet is a start, because it means end users no longer have to carry a physical CR80/ID1 plastic card. To leverage real value from the use of mobile, the card issuer can then start adding extra functionality such as marketing messages, information services, points redemption and a whole range of special offers and coupons directly linked to the loyalty or membership. Link multiple loyalty cards and memberships into apps or a mobile wallet and you provide real tangible value to the end user, as long as the offering is simple, cheap – or even free – and the advertising/marketing is appropriate and accepted via opt in.

Location-based mobile marketing, along with targeted vouchers and coupons delivered to an end user's handset, either while the person is physically at a location, or being directed to a shop, restaurant, hotel etc, are compelling tools. Most smart and some feature phones now come with inbuilt GPS, and given the current trends these devices will become the feature phones of tomorrow, so location-based or proximity marketing is maturing rapidly. Combine this with social networking activities such as Facebook's Places, foursquare or Google's checkin and it's easy to see major opportunities to drive new or increased revenue, especially when coupled with potential CRM knowledge of the targeted consumer. This ability to know your customer at a given location, with a medium that allows you to communicate with them two-way in text, images and sound is very compelling for brands and their advertising channels. However, rendering the messaging, offers, coupons and vouchers in a timely manner and via a workable business model is challenging, and something the industry is working to address.

Gaming is another area where mobile adds real value. A combination of multi-player, location-aware gaming with immediate access is exploiting existing mobile technologies, establishing wider use cases for mobile devices and driving potentially large revenue streams. This, combined with social networks, provides opportunities to drive these 'rich' services and promises substantial usage and therefore revenue potential.

Machine to Machine (M2M) is also a critical area when mobile is being used for remote metering and monitoring; this is already becoming a major revenue driver with a number of large-scale implementations. Other areas such as mass consumer electronic M2M communication and machine to environment monitoring will further drive this use of mobile technology in years to come.

The use of mobile devices as keys or credentials for physical and logical access is a fast evolving market. In fact, using NFC or encrypted audio in a mobile handset as a key or credential to unlock doors or allow access is emerging as a compelling and industry-changing application. The key – or access credentials – can be sent over the air (OTA) to the handset wherever and whenever required; it can have different levels of functionality; and it can be revoked or cancelled in real time over the air. The wider use



cases of remote key distribution and revocation in consumer and B2B channels is clearly attractive, but the upgrades required to locks and access control systems would make this more complex – and costly. The compelling customer proposition, therefore, is the additional value-added services that can be provided above and beyond simple physical access card replacement.

Logical access is embracing the mobile platform as well; the mobile can store complex multi-factor security credentials and enable users to input codes with the keypad, using fingerprint recognition or even via the handset camera. So a mobile with a reader – either standalone or built into another electronic device such as a laptop – provides high level security capability.

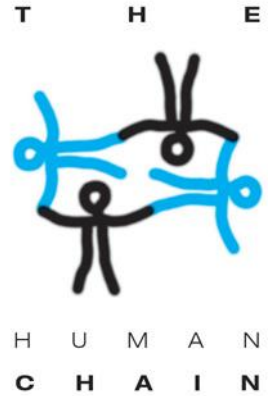
This list of innovative solutions that can be driven by mobile merely scratches the surface. There are plenty more on the horizon, in areas such as healthcare, infotainment and connectivity with other consumer electronics, and these are best explored in another article.

## **The challenge to existing ecosystems and business models**

MNOs/carriers have built huge worldwide businesses in the past 25 years based on supplying mobile handsets that could be used for voice calls and simple data, such as SMS and low use web browsing, on their own networks. This traditional mobile business model evolved very quickly once the MNOs/carriers realised the true value of voice and data interoperability. The ongoing evolution and deployment of 2G, Edge, HSPD, 3G and now LTE networks mean that voice quality/capacity and data speeds have increased exponentially.

Handset functionalities and capabilities have increased in parallel with network capacities, but MNOs/carriers have remained wedded to their tried-and-tested business models. While they have all tried a wide range of initiatives over the past decade to drive new richer functional products and services, most of these have had limited success because of poor timing, lack of suitable handset or network capability, and a failure to ensure market readiness.

The success of the traditional mobile business model was based on handset distribution and who controlled it. At first, all devices were distributed and sold via MNO/carrier channels, both direct and indirect. Today it has all changed with non-MNO/carrier channels now handling more than 50% of European distribution for example. This major change to the business model means MNOs/carriers have virtually lost control of the guaranteed business that they used to own and control. They haven't been helped in many Western European markets by the skewed marketing device of supplying subsidised handsets, where the MNO/carrier provides the handset to the end user, either free or at very low cost, and re-coups this often substantial investment over the total life of the contract or via higher usage fees in pre-paid/pay as you go models.



Many emerging economies do not have the MNO/carrier distribution model; instead devices are purchased through separate channels. This creates a problem for MNOs/carriers because they cannot pre-integrate applications on devices and are reliant on over the air (OTA) and app store type capabilities which increases complexity, creates problems in terms of rolling out new services and has proved to be a barrier to service take up.

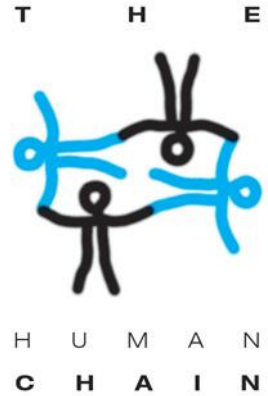
So one of the critical barriers to entry for new mobile market entrants, in some geographical regions has crumbled and while MNOs/carriers remain important to the ecosystem, how and where they provide value is being severely questioned. New entrants are hoping to exploit this market shift; they believe that they can enter this sector and drive new revenue models, taking over from the MNOs/carriers so these no longer play a central role. But this scenario is difficult to imagine, given the MNO/carrier billing and handset distribution relationship with the end users that still exists in many mature markets as well as their complex and deep business relationships with handset and OS manufacturers.

MNOs/carriers need to be flexible to fight the threat posed by new organisations with new ideas. But as organisations notorious for their highly structured business as usual (BAU) attitude, this flexibility is unlikely to be forthcoming in a timely manner. What is likely to happen is that new entrants will find a way of working with MNOs/carriers and vice versa. The relationship may be difficult, but ultimately both sides need each other to drive complex commercial models that deliver compelling, rich customer propositions in the new and emerging next age of mobile.

## Conclusion

Strong and innovative new business models are emerging. But the first to market with rich customer-facing propositions and new business models does not guarantee long-term success. You only need to look at the internet, and its history of start-ups with great propositions but business models that were not robust and offered a truly poor customer experience. Many have already failed in their bid to bring these types of service to the mobile arena; they've struggled to gain mass market penetration and so failed to survive: witness the mixed fortunes of mobile banking over the past 10 years.

Technology is racing ahead of practical products and services and the business models needed to exploit the latest innovations. While there are plenty of new handsets with eye-watering functionality coming to market, the service propositions that can really make this technology work in the real world are slower to emerge; the business models, meanwhile, can be challenging, as they are both new and complex. Contactless (NFC) mobile payment is a good example: it offers a great user experience with swipe/tap to pay or gain access with all the obvious consumer and retail benefits of speed and convenience. NFC technology is more or less mature and should be appearing on lots of handsets come the second half of 2011. Unfortunately the introduction of this technology and its widespread adoption is being held up by complex standards and certification issues, the reluctance to switch from existing mature payments business models as well as the need to invest in upgrades to physical payment/point

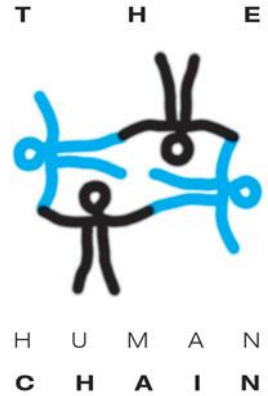


of sale (POS) and ticketing/transit infrastructure. This is just one example; multiply the complexity by X when trying to create the rich customer experiences and underlying successful business models.

What is also interesting about NFC is that it shows again how the MNOs/carriers are being side stepped or out flanked by new entrants. With NFC the challenge has always been to develop the eco system to support and exploit the technology. Until very recently MNOs/carriers have had the whip hand as they have controlled services; they have been cautious about the business model and so unwilling to fund handset vendors to introduce NFC capability. With Google and in all likelihood Apple introducing NFC capabilities on their handsets ahead of the ecosystem being fully established, NFC-based applications are being opened up to the OTT model that will allow the large developer base to start creating new and innovative applications that exploit the technology and drive the value proposition. To reiterate, for payments the correct standards and security are required to drive scale, but this can be achieved over time through successful services scaling. In the evolution of mobile, Europe has followed the model where you set standards and then build to them, enabling interoperability, roaming and so on; in the US, on the other hand, the industry has gone the route of having several proprietary standards, some of which become the main standards and then evolve. Both approaches are clearly viable but when it comes to speed to market the US model, that is, the OTT play, is probably going to be faster and therefore likely to gain traction. MNOs/carriers can certainly take the risk and drive the services as well, but they are not typically characterised as risk takers.

However, what is new and compelling is the central role that mobile plays in peoples' lives nowadays. They are less likely to leave their mobile at home than they are their purses or wallets. They report their handset lost or stolen in a matter of hours, while on average it takes them well over a day to report the loss of credit cards. People demand information immediately and want to let their friends (and in some cases strangers) know where they are and what they are doing via social networks and other media. This immediacy and convenience is driving both existing and new mobile ecosystem entrants to bring new rich services to market in record time.

Mobile has always moved forwards in leaps and bounds. What is different this time is that these leaps are bigger and well outside the experience of nearly everyone.



## Contact

Tim Jefferson is managing director of The Human Chain, the mobile consultancy providing business and technical consultancy along with thought leadership, helping bring new products and services to market in the changing world of mobile and wireless.

Tim provides thought leadership in technology evaluation and adoption, business and revenue models, ecosystem development and go-to-market strategy in the mobile, wireless, m-commerce, contactless, NFC and M2M sectors in Europe and North America.

He has chaired, facilitated and spoken at major conferences, at workshops in m-commerce, financial services, access control and NFC verticals, and will be the chairman at WIMA 2011 19-21 April 2011 ([www.wima.mc](http://www.wima.mc)) and NFC Payments Europe 2011 13-14 June 2011 ([www.nfcinsights.com](http://www.nfcinsights.com))

The Human Chain provides consultancy in m-commerce, especially Near Field Communications and M2M, to mobile network operators/carriers, banks, retailers, technology and other service providers in Europe and North America.

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