iGAMING BUSINESS

The Changing Face of Payments: A market overview and global trends

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Contents

About the Author

Aideen Shortt

Aideen Shortt is an independent betting and gaming contractor, and author of Mobile Gambling: A Comprehensive Strategy and Marketing Review, published in Summer 2011

As well as providing editorial content and submissions for several gambling industry trade publications including the iGaming Business suite of publications, her own industry blog aideenshortt.com, calvinayre.com, Intergaming and Gambling Insider, she is a contemporary writer and social media expert.

Aideen is a long-time veteran in the interactive gambling space having been involved in a range of senior and director level roles since the outset of online betting and gaming over 10 years ago. Her range of experience includes both operator and supplier side of the gambling market and she is an active participant and speaker at global industry events and has an extensive network of contacts.

She was originally employed as part of the marketing team of flutter.com (subsequently integrated with Betfair) for the 2000 launch of that gambling site - which was ultimately the first player in establishing the brand new category of exchange betting. She subsequently moved to Coral Eurobet (now part of the Gala Group) as a senior member of the marketing team, progressing during her time there to the position of Marketing Director for the online business. During her time at Coral Eurobet, she established one of Europe's first online casinos in 2001/2002 and was involved in scoping out the potential for betting on mobiles.

In addition Aideen has held director level roles at Skybet (part of BSkyB) and Chartwell Technology, a globally recognised software supplier, progressing at the latter to becoming a board member with the role of Vice President, Sales and Marketing.

On leaving Chartwell, she decided to set up as a private contractor and consultant and has worked for a range of different sectors within the industry including contracts with Paddy Power's risk management division, Telefonica O2, fantasy gaming company Clever TV, Jersey's leading IT and data centre, Foreshore Limited, and also the media companies Bluff Europe and now Sport Business.

Her roles and responsibilities as a short- and medium- term contractor include global sales, marketing and business planning, strategy development, commercial negotiation, business development, researcher and author

She has also acted as a private advisor to the presenter of Irish television programme Higher Ground which assisted start-ups and cottage industries to successfully launch their brands, and bring products and services to market.

Aideen is a graduate of University College Cork (Ireland), with a Masters Degree from Kingston University in the UK.

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The entire area of payments is endlessly interesting and fascinating both due to the constant change in landscape and offerings, and of course, the correlated impact on businesses in the gambling industry for whom "money in, money out" is the single critical issue.

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Executive Summary

Fragmentation and local licensing across Western Europe, along with emerging and growing markets in Eastern Europe, Latin America and Asia have brought unprecedented complexities to the operations of a gambling company – and payments are an integral part of this increased workload. Money in and money out, after all, are the heart of the business model and handling payments and collections in every market and improving efficiencies are critical success factors. Payments are as important as the games and bets themselves, and it is not up to the operator to decide what solutions to offer - consumer use and adoption is the sole dictating factor.

Africa: A McKinsey & Company report entitled 'Half the World is Unbanked' found that almost 80% of Africa's adult population, totalling 326 million, is unbanked. This scenario has resulted in mobile payments solutions becoming for the most part the only viable access channel to any sort of financial services for most of the marketplace.

Europe: European e-commerce is diverse and fragmented, and it would be dangerous for an operator to treat the continent as a single entity. Countries and regions are in various stages of market development, leading to gargantuan differences in average online spend and preferred payment methods. Generally speaking with regard to e-commerce the region can be split into three distinct sectors – Northern Europe (mature), Central/Southern Europe (growing) and Eastern Europe (emerging). In each of the sectors payments are hugely localised, often attributed to historic events (in particular the post-World War II Iron Curtain), and subsequent market-driven innovations that have happened over time.

Latin America: Compared to other rapidly developing regions which have endless diversity and fragmentation, Latin America is a more homogenous market, and therefore one with ample opportunity and potential. That is not to say it's without its problems and considerations. The entire continent is a huge cash economy. Although over 75% of online transactions are performed using credit cards, their penetration is low across the region, and more importantly credit cards are typically only permitted for domestic transactions, so unless the merchant is registered, operating and paying taxes in the local country they might not be able to receive the payment from the customers. Alternatives payment mechanisms have a natural home in Latin America, and offline credit transfer, Boleto Bancário, is highly preferred by consumers in Brazil, the largest, most advanced market in the region, who are still reluctant to make payments online due to security issues and also because it does not require people to share any important personal data online.

Asia: From a payments perspective, Asia-Pacific has traditionally been a region substantially dominated by the use of cash. However there have been several recent trends that have led to an evolution of the payments ecosystem, and the growing importance of e- and m-payments.

- Explosion of broadband penetration
- Boom in the e-commerce market
- The emergence of regional payments giants and retailers own solutions
- Domestic and international mergers and acquisition in the payments field
- Mobile penetration

North America: North America is the global leader when it comes to e-commerce. The region has the highest internet penetration (almost 80%) and the most developed and advanced ecosystem. In terms of payments, there is a wide variety of options available to consumers and the market is often treated as a "global laboratory" being that it often acts as the initial launch ground for many services before they are rolled out to the rest of the world.

Despite the plethora of payment choices incorporating credit cards, online banking and a full range of e- and m-payment options, customer activity is still dominated by credit cards. However, rapidly changing market trends and availability of more convenient platform-specific options are creating new opportunities for alternative payment mechanisms which are now making headway and claiming a share of market, eating away at the credit card stronghold.

M-Payments

The latest 2012 report from Juniper Research forecasts that by 2017 mobile gambling (including both phones and tablets) will reach $100 billion per annum generating a worldwide gross win of more than $5.2 billion. The ability to pay for and consume a service on a single platform has endless positive repercussions and many consider the entire area of payment processing and m-commerce to be the 'holy grail' of mobile gambling.

Along with the issue of spontaneity (which is critical from the customer's perspective) lie the charges associated with each method that the gaming operator must bear. Broadly speaking, there is an inverse correlation between payment processing costs to the operator and convenience to the customer. Premium SMS and Payforit, for instance, allow simple and fast depositing, but have in the past incurred prohibitively expensive fees. On the other hand, credit and debit cards offer the lowest fee structures but entering credit card details with Credit Card Verification (CCV), validity date, name and address of card holder, then a 3D Secure redirect to Verified By Visa (VBV) and MasterCard Secure Code (MSC) all for a simple transaction, is very complicated at the customer end.

For a long time, mobile wallets were considered a solution without a problem. Supply wasn't the key issue, but there was a lack of consumer demand. The initial market adoption of m-payments was slow and sporadic due to technological challenges, limited standardisation, fragmented commercial efforts, and most importantly, and the lack of a sustainable business model.

Juniper Research expects the scale of mobile payment transactions to rise nearly fourfold over the next five years (2012 – 2017) to more than $1.3 trillion. The key challenges currently are the lack of cooperation and collaboration between the players in the value chain, uncertain business cases and regulatory hurdles.

Long-term m-commerce growth is more likely to originate in developing economies, where the mobile channel is virtually the only way to access the internet than in developed markets, where m-payments are a novelty or simply yet another channel in which to pay for goods and services.

In developed markets such as Western Europe and North America m-payments are not about filling gaps in the payments ecosystem, but about adding an enhanced experience for customers. The tipping point will be based entirely on consumer behaviour, which will change only when m-payments add sufficient value and convenience so as to make their use more attractive and preferable compared to other methods.

There are endless interpretations as to what constitutes a mobile payment. In general the m-payment sector can be broken down as follows:

	P2P	B2C
Proximity	Contactless – NFC (phone to phone)	Contactless NFC Mobile as a point of sale (POS)
Remote	Mobile money transfers	Mobile online payments (m-commerce, digital/ virtual goods)

The mobile payments landscape is fluid and rapidly changing at the moment as all players are clamouring to carve a niche for themselves in the burgeoning sector. Mobile network operators in Europe and North America are joining forces together (Project Oscar and ISIS, respectively) while simultaneously partnering with a wide range of banks and processors. Card schemes too are deploying solo and joint solutions in both the field of m-wallets, P2P mobile transfer and NFC. Chinese payments giant, Alipay continues to charge forward in their domestic market, but now is also eyeing global expansion and internet giants Google and PayPal are both solidifying their early lead in the space.

Cards and Alternatives

Since the economic downturn of 2007/8 the payment card industry has seen dual-speed economic growth, with developed nations slowing down and the developing nations growing strongly. However, even so, cards remain the consumer's favourite non-cash payment method, accounting in most markets for more than 40% of payments, and above 58% globally. For gambling, particularly in the UK, this can be as high as 80%.

The UK and Ireland are very much card cultures, but this does not hold as true across the rest of Europe or the world. The UK has the highest card penetration in Europe (about 80%), with roughly 172 million cards in circulation for 50 million adults. Other Western European countries are also card-driven; for example, France has a local Carte Bleue, which is now Visa-badged; however Germany, despite being one of the most evolved e-commerce markets, has only approximately 28 million cards in circulation for an adult population of 70 million.

WorldPay data shows that, today, alternative payment mechanisms account for €165 billion of global e-commerce transactions, representing 22% of total transactional value, and they are expected to enjoy a Compound Annual Growth Rate (CAGR) of 13% in the run up to 2015. As the overall e-commerce market near doubles from a value of €755 billion today to an expected €1,460 billion in 2015, alternatives will account for a significant share of that growth

The growth in alternatives will be led by e-wallets and real-time payments, with m-payments having some impact, although there is little consensus to date on how big or small that might be.

Typically alternative payment methods are considered to be any payment format beyond credit or debit cards. This sector now includes social payments which are in their nascent stage, but analysts and experts believe that they will grow in significance and value. Social payments have been driven primarily by the explosion of the virtual goods market and the corresponding development of the concept and framework of micropayments which are considered to be individual payments of less than €1, £1 or $1.

The recent move from Facebook Credits to a Facebook Wallet also opens the door for gambling operators as the Credits format would have been blocked to gambling given the nature of the virtual payments ecosystem which allowed a user's virtual currency to be usable for any and all micro-payments within the network. By moving to a standard e-wallet format the landscape has changed, and the rules surrounding gambling licensing and the delivery of "money's worth" in terms of rewards and winnings in gambling, which is currently an area of much discussion and contention within the industry as regards legislation, can now be separated from the wider selection of merchants and offerings within the network.

Social payments also incorporate networks beyond Facebook. Start-up companies such as Chirpify and Twitpay are offering brands the ability to monetize directly from the micro-blogging network, Google Wallet is wholly incorporated with Google+, as it is with all of the other Google product range and even PayPal has created a social payments mechanism for Facebook, to complement its distinct micropayments service which facilitates high volumes of small transactions under a reduced variable fee cost structure which makes the model viable for merchants – which is not always the case with micro-payments where the processing costs can often exceed the actual payment value.

Fraud and Regulation

Fraud is very often associated solely with the use of credit cards. The reason for this is simply that credit cards were not originally intended for use on the internet or mobile devices and, despite many added security features, card fraud persists. Alternative payment methods are often pitched as a safer option than card transactions because they allow consumers to make purchases without exposing their bank account details to the seller, but fraudsters are increasingly turning their attention to these methods.

According to Gartner, 12.5% of all e-commerce transactions are expected to be carried out via mobile devices by the end of 2013, as a result of the rapid adoption of smartphones. This means that all relevant parties, including merchants, banks and PSPs, are hastily implementing the types of fraud detection capabilities on the mobile platform that have already become mainstream with fixed-line computing as the wireless platform brings with it a unique set of complexities and weaknesses that have to be addressed in order to ensure the market develops in a way that is safe and more importantly seen to be safe by the consumers.

When it comes to regulation gambling operators have quite stringent guidelines and requirements set out by individual jurisdiction regulators especially in the area of Anti-Money Laundering (AML), however there are also several broad-level considerations, in particular in Europe where SEPA (Single European Payments Area) and PSD (Payment Services Directive) have changed the ecosystem and this is of critical importance to gambling companies that have operations throughout the continent dealing with both local and cross-border transactions

Section 1 – Consumer trends

Consumers, not operators, are driving payment landscape

Research from the within the payment industry, as cited in a report by Netbanx, found that 50% of customers will abandon a transaction if their preferred method of payment is unavailable. Conversion on gambling sites is already competitive and difficult enough without losing the potential revenue at the deposit stage.

Fragmentation and local licensing across Western Europe, along with emerging and growing markets in Eastern Europe, Latin America and Asia, have brought unprecedented complexities to the operations of a gambling company – and payments are an integral part of this increased workload. Money in and money out, after all, is the heart of the business model.

Handling payments and collections in every market and improving efficiencies are critical success factors. Payments are as important as the games and bets themselves, and it is not up to the operator to decide what solutions to offer – consumer use and adoption is the sole dictating factor.

Historically, emerging markets were characterised by paper-based payments and information exchanges with manual processes, but now there is a rapid move away from legacy systems which is being driven by the increasing ubiquity of electronic solutions, as well as the lower cost and increasing efficiency of those alternatives. Technologies are accelerating the ecosystem changes, and the result is that the gap between developed and developing countries is being bridged faster than ever before.

A detailed geographic breakdown is provided in Section Two of this report, addressing markets and preferred payment mechanisms. But the critical fact is that localisation applies not only to developing markets but also to developed territories. The very difference in credit/debit card usage between, say, the UK and Germany (both key gambling targets) highlights the nature and the extent to which payments solutions are driven by the players not the operators. It is also important to remember that the evolution of payment mechanisms in high-growth markets will, in many cases, leapfrog that of developed markets due to the prevalence of mobile internet in economies where desktop access has been almost non-existent.

The correct payment solution is as important as a massive marketing budget in attracting and converting players. At the very least, offering local and preferred mechanisms will allow an operator to tap into a demographic that might previously have been entirely inaccessible.

Virtual Goods

Virtual goods have been driving online revenues across the world for several years now. The global revenue generated by virtual goods purchases totalled $1.6 billion in 2010 and that figure is expected to rise dramatically to $7.6 billion by 2015 – in fact, it is suggested that the US market alone will top $3 billion by the end of 2012. In terms of payment options for virtual goods, credit cards and PayPal are the top preferences.

In the context of gaming, virtual goods are in-game items that users purchase for a variety of reasons, and represent over 90% of revenues earned by leading social game developers today. There are many types and formats of virtual goods, including:

- Functional items such as power-ups, boosters, or other in-game goods that provide a player with some actual benefit within the game.
- Decorative virtual goods are items or gifts that allow a user to customise his or her online experience to make it more personal.
- Consumables are goods that do not confer a lasting, on-going advantage to a player. For example, a health or energy pack in a game.

Virtual goods have been instrumental in the creation of the concept of micro-payments, which are considered to be individual payments of less than €1, £1 or $1. Micro-payments are used for quick-decision purchases, and therefore need to be simple and convenient for the buyer. In order for micropayment systems to become mainstream and also profitable, processing costs need to decrease.

In fact, costs are singularly the main issue with micro-payments. The payments themselves can be executed using conventional structures and methods, but not in a cost-efficient way. This is to say, the costs can at times exceed the payment amount itself, and given that the nature of micro-payments leads to a mass of volume that doesn't exist in the traditional payments segment, getting the fees and charges to an acceptable level is critical for operators and merchants, otherwise potential losses suffered will simply increase exponentially in line with ever-escalating transaction volume.

The peculiarities unique to micro-payments require that payment service providers offer their merchant partners different checkout capabilities to handle the different experience. At the end of 2010, PayPal broadened its offerings by launching a specific micro-payment service for virtual goods. Although the company had had a micro-payment pricing structure since 2005, it was one of the first payment providers to capitalise on impulse purchases of low-priced items, and offers a pricing structure for micro-payments that is different and separate to its normal transaction fees. The company has seen the benefits of its insightful early move by capturing a significant market share of the category.

To address and resolve the issues of fees and processes, there have also been many innovative start-ups that have emerged which provide a variable pricing scheme and a simplified, appropriate process for the consumer. A well regarded example of such a start-up is Zong (now acquired by PayPal). In the case of Zong, clients are allowed to pay for virtual goods through mobile billing. This is important in a social gaming sector where a large part of the demographic does not own a credit card or even a bank account but does have a mobile phone. Social gambling is an 18+, adult-only activity, unlike social gaming where a significant portion of the market consists of younger people; however, the relevance of an unbanked demographic with internet access only on mobile devices is no less important – it's just a different global audience with the same issues.

Social gaming payment structure

In 2011, 15 million people bought Facebook Credits, according to their S-1 filing, so it's assumed Facebook has close to 15 million credit cards on file. By the end of this year, once paid apps are added to Facebook's App Centre , experts are predicting that 50 million people, or about 5% of Facebook's user base will purchase apps and other digital goods, which means Facebook will have a pool of 50 million people who have entrusted it with their credit card information.

The use of Facebook Credits had been almost entirely in the context of social gaming, and even with this limited exposure and promotion the fees already represent $557 million, or 15% of Facebook's entire 2011 revenue, which increased to 18% in Q1 2012. The figure is even more remarkable when we consider that fewer than 2% of Facebook users bought virtual goods with Facebook Credits in 2011, yet it still represented the largest single source of cash and primarily from just one vertical – social gaming.

As real-money gambling is slowly emerging on Facebook with the initial launch of Bingo Friendzy on 7th August 2012, the compelling question is just how integrated real-money gambling operators will ever be to the Facebook wallet. Gambling licences and regulation dictate separate logins and stringent KYC, so there will always be a disparate registration procedure, but it's not beyond the realm of possibly that there will, over time, be a fully-regulated gambling account incorporating the Facebook proprietary payments wallet. In the event that this happens, it will unlock a massive revenue-base that would otherwise have been unattainable had the "central network-wide social wallet" (ideal for virtual goods, low level deposits and micro-payments) concept never included gambling.

As real money games evolve on Facebook, gambling operators will be hoping to tap into the Zynga demographic and user base. Many operators are working on the assumption that it will be possible to bring social gamers to the real-money products. But this is an unknown and untested hypothesis. In addition, we are now at a time when many gambling companies, including Bwin.party, which invested $50 million in a new social gaming division, are looking to the freemium model, along with a hybrid of freemium / real-money gambling, as a new business or product division.

There are three potential target audiences for social gambling, and any gambling company looking to make the move into this sphere should carefully consider its business plan and endgame by ensuring there is an appropriate payments module to meet that group's needs:

- The typical social gamer
- The typical gambler
- A new category of social gambler

The social gamer needs a micro-payment solution to encourage the continued growth of social games and virtual goods as it exists today. The gambler needs exactly what is being offered outside of social networks, but repackaged in the Facebook framework.

The hybrid between these two groups is the unknown factor, a category that doesn't yet exist: the social gambler; somebody for whom the freemium model is not compelling, but who doesn't already hold accounts with gambling or casino operators. While there will be a large percentage of the social audience (especially poker and casino style gamers) that will seamlessly move from freemium to real money, the untapped market of leisure/social gamblers, who don't naturally fit into either social gaming or traditional gambling, is potentially up for grabs. Yet, for this demographic, having the right payments solution is one of the determining factors as to whether the new market group can be tapped at all.

Fees and Commercial Arrangements

The commercial terms between Facebook and Gamesys, which launched the real-money Bingo Friendzy product suite, are subject to much speculation and rumour. What is known, however, is that Facebook has acquiesced and moved away from its share of deposit model to a revenue share structure more typical of the gambling industry's media and affiliate partnership structures. This is

a move which unlocks the door for real-money gambling per se, as deposit and turnover revenue-sharing models are prohibitive to profit generation given the high turnover/low margin financial model of casino and leisure games.

Facebook typically takes a non-negotiable 30% of all revenues that go through its payments system. This is in line with iTunes and the Apple App Store which also have locked down on the on the same high level. Virtual goods and products, such as music are media, are viable within the expensive cost structure, but it would be a non-starter for gambling companies as the users expect to see the full amount of their deposits in their accounts and the 30% of deposit charge is far too high for operators to absorb if they want to see any sort of profit.

The move from Credits to a Facebook Wallet also opens the door for gambling operators, as the Credits format would have been blocked to gambling because of the nature of the virtual payments ecosystem which allowed a user's virtual currency to be usable for any and all micro-payments within the network. By moving to a standard e-wallet format the landscape has changed, and the rules surrounding gambling licensing and the delivery of "money's worth", in terms of rewards and winnings in gambling, (which is currently an area of much discussion and contention within the industry as regards legislation), can now be separated from the wider selection of merchants and offerings within the network. This is something that was not accommodated by Facebook Credits, and it is surely one of the considerations behind the abolition of the framework, as Facebook has to look to revenue streams beyond advertising after its disastrous IPO and subsequent share price decline. To this end, real-money gambling is a possible way for the network to generate significant profits.

The benefits to gambling of virtual currencies and virtual goods

As consumers are becoming more comfortable paying for virtual goods in games, virtual worlds and social networks, the opportunity presents itself for other sectors, including gambling operators, to capitalise outside of these environments.

The fact that the virtual goods market has undergone explosive growth offers several benefits. Firstly, a demographic with a disposition towards gaming (even the leisure, casual games such as Farmville) is now used to transacting online, which otherwise might not have been a consideration. In addition, this demographic has already taken the major step of setting up wallets (primarily PayPal). Getting consumers to take this critical step is often a huge obstacle for gambling operators to convert the leisure end of the gambling market, and Zynga and other social games developers have effectively done the hard work already.

Furthermore, virtual currencies and common wallets have been instrumental in driving the sector forward. Consumers are unwilling to register to a large number of different single merchant or aggregator services with the need to log in to each one every time –they want to make a payment, which is why companies with extensive reach (PayPal and Facebook) offer micro-payments and a wallet that is usable with a wide variety of merchants. Essentially, virtual currencies beget virtual activity, as without the former the latter would simply not have evolved into the mammoth marketplace it is today.

Section 2 – Global overview and market breakdown

Africa

A McKinsey & Company report entitled 'Half the World is Unbanked' found that almost 80% of Africa's adult population, totalling 326 million, is unbanked. Therefore unsurprisingly the continent is largely a cash-based economy. However the very set of circumstances in Africa that has resulted in a lack of any viable e-payment ecosystem has also led to the blossoming of an m-payment network.

E-commerce and e-payments throughout the entire continent are negligible for several reasons including:

- Massive unbanked population and little credit card penetration
- A lack of consumer trust and confidence
- Little or no computer availability or internet access
- Restrictions placed on alternative payment mechanisms such as PayPal
- Fragmentation of the availability any real financial services
- Widespread poverty means it is unprofitable for banks to serve poor consumers, as the revenues resulting from managing their small-value deposits could not offset the costs of servicing them.

This scenario has resulted in mobile payments solutions becoming the only viable access channel to any sort of financial services for most of the marketplace.

While the mobile operators have diversified their revenue streams, the banks have not been nearly as active. Most of them offer a mobile way to check balances, rather than provide more expansive tools to pass money through to merchants or customers' contacts. Therefore, as the mobile platform emerged as a lifeline, the provision of services emerged from outside of the traditional finance industry, and they do so fast, basic and without any real technical or financial sophistication. There is some concern that in eagerness to hit the market swiftly, some companies may have (inadvertently) taken shortcuts in security and/or grown well beyond their initial design purpose. In addition most schemes are initiated by mobile network operators (MNOs) that have their own regulators, without financial authority so they lack the understanding that a financial or banking specific regulator might have. The worst case scenario as understood by experts is that the mobile services might result in mass problems, and if so, the platform would be tarnished, or contaminated, for future use and especially in a more complex financial sphere.

That being said, mobile financial services has leapfrogged traditional or internet services in Africa, and indeed one of the mobile payment platforms, M-PESA launched out of Kenya is lauded globally as being one of the most successful examples of mobile money. This is addressed in a later section of this report.

Africa is now the world's second largest mobile market by number of connections after Asia, as well as the world's fastest growing mobile market according to 2011 GSMA research entitled 'African Mobile Observatory'. Numbers by Pyramid Research suggested that the money flowing through Africa's mobile transfer services is expected to reach $200 billion or 18% of the continent's GDP by 2015.

P2P money transfers are the most common usage of mobile payments. The African Development Bank

(AfDB) and the World Bank outlined in their report 'Leveraging Migration for Africa: Remittances, Skills" that recorded remittances into Africa, which grew fourfold between 1990 and 2010, are the continent's second largest source of foreign capital after foreign direct investments. The World Bank estimates that about 120 million people in Africa receive money from about 30 million relatives and friends who left their home country.

The growing success of mobile phone-based money transfer services has gone on to inspire the development of online payment services by IT companies. As reported by Innopay, Intrepid Data System, an online digital branding firm, is in a partnership with Safaricom and Airtel to allow online customers to use either M-PESA or Airtel money transfer services to pay for their goods through a new platform, iPay. iPay has packaged two popular modes of money transfer systems, M-PESA and Zap, into an online transaction processing system to receive payments.

Other online payment options include EBucks, Standard Bank Autopay, mimoney, Npay, PayFast, payGate, SID however none of these services is having any sort of significant effect on the market – leaving mobile payments with a clear path ahead.

Even PayPal is having difficulty since its launch in Africa in 2010 in a partnership with FNB in South Africa. Customers realised quite quickly of the need to open an FNB account, withstand Reserve Bank scrutiny and have all the transactions done in the USD – all issues which dissuaded them from signing up for the e-wallet.

In terms of banking, the opportunity lies in mobile. Bain & Company have reported that retail banking is expected to account for nearly 40% of the continent's banking revenue by 2020, helped by the rapid adoption of mobile phone banking. In South Africa, even though the country's largest banks such as Standard Bank, Amalgamated Banks of South Africa and Nedbank provide personal online banking service, there are many constraints for online banking adoption and growth:

- Consumers prefer paper money
- Legislation for e-transactions is poor
- Technological infrastructure is a problem, especially in the rural areas
- It is not easy to convince African consumers of the need for an electronic banking system or trust such a system.

All in all, given the circumstances in the current and foreseeable future it is very hard to imagine that payments and banking in Africa will deviate from mobile phones, leaving very little room for any other methods to gain any real traction.

Asia Pacific

Asia-Pacific now represents almost 45% of the global online population, and in parallel with the recent jump in connected individuals e-commerce has grown significantly to the point where local online retailing is growing at a faster rate than North America and Europe, with China, South Korea and Japan leading the charge in this region.

The Asian region is extremely diverse in many ways:

- Developed and developing markets
- Large and small territories
- Vastly different urban and rural services and demographics
- Variable access to financial services, between countries and often in different areas of the same country
- Access to telecommunications / internet
- Banked versus unbanked populations
- Variable standards and regulations governing e-commerce, e-payments and general business practices.

From a payments perspective, Asia-Pacific has traditionally been a region substantially dominated by the use of cash. However there have been four recent trends that have led to an evolution of the payments ecosystem, and the growing importance of e- and m-payments:

- Explosion of broadband penetration
- Boom in the e-commerce market
- The emergence of regional payments giants and retailers own solutions
- Domestic and international mergers and acquisition in the payments field
- Mobile penetration

Explosion of broadband penetration

At the end of 2011, there were over 1 billion internet users in Asia – totalling almost 45% of the population worldwide. China alone now has 130 million broadband users (compared to European countries which collectively total just fewer than 189 million). Telecom Asia reported in 2010 that Japan ranked third in global broadband quality, behind South Korea and Hong Kong – an outcome that was driven by the Japanese government absorbing up to a third of the real cost of fast-fibre broadband implementation to ensure that the economic effect of the fall in manufacturing would be offset by a rise in data-driven services and products. Singapore already has a more than 195% penetration rate for broadband, including wireless connections, and it is wireless (3G and 4G) that are enabling connected individuals throughout the continent especially in India and rural areas that would otherwise not have access to the internet.

Boom in the e-commerce market

Strong economic growth in the region has resulted in manufacturers and distributors across the region taking advantage of all the opportunities associated with e-commerce. The Asian retail e-commerce market, excluding travel, is expected to more than double from $156 billion in 2010 to $323 billion in 2013 according to a study by The Paypers.

There is an increasing movement, both inland and in the major cities, to buy goods online and the appetite for overseas products is strong. Innopay has outlined a breakdown of the Asian e-commerce market, flagging that it is not a uniform market, but rather a collection of economies at different stages of maturity. Therefore fragmentation is to be expected both in-country and at a regional level. Japan and South Korea are very mature markets and dominated by strong local retailers such as Rakuten. China is dominated by eBay-like marketplaces including Alibaba, but also local retailers such as 360Buy, Joyo and Dangdang. India's market however remains comparatively small.

In addition it must be noted that Asia is responsible for almost 70% of worldwide virtual goods revenue, according to In-Stats. Given that simple and fast payment systems are necessary for virtual goods purchase, the implication is that there is an increasing acceptance, ability and comfort level in using e-payment services across the region.

Regional players and retailer e-payment services

According to Innopay, the preferred online payment method for the consumers in the Asia-Pacific region is credit cards, except for China, where Alipay's escrow service is used and Thailand, where the debit cards are used online.

Convenience of payment methods and regulatory compliance have been two of the key issues facing e-commerce and these factors have been well addressed by giant regional retailers such as Alibaba and Taobao – which subsequently resulted in widespread adoption of electronic payment cards.

Alipay is the world's largest online payments platform with a reported 500 million accounts and has almost a 50% market share in China. Alipay is owned by Alibaba whose proprietary e-commerce platform enables Alipay to hold funds in escrow while the consumers pay online by credit card or bank transfer. On receipt of funds Alipay ships the goods to the buyer and transfers the funds to the merchant. Alibaba and Alipay are generally regarded as being the E-Bay/PayPal combination of China.

Following behind Alipay in China, Tenpay has a 20.4%% market share according to data released by iResearch, and 99Bill and ChinaPnR have 7.5% and 7.4% market share, respectively.

Mergers and acquisitions

Encouraged by strength of the internet market in the region many international companies are seeking to expand into the Asian marketplace. To do so, there is recognition that the right partners, connections and knowledge are pre-requisites to success. To this end there have been many mergers, partnerships and acquisitions both into and out of Asia, albeit to varying degrees of success.

In 2011 PayPal grew its volume in the Asia-Pacific region increase by 35% and its number of active accounts rose to 6.5 million (in Q3 2011). It only took the company three months to set up its first Southeast Asian hub in Malaysia after their competitor AsiaPay established their own brand there, and in April 2010 Alibaba offered PayPal as one of the payment options on AliExpress.com, however this partnership lasted only one year before PayPal was dropped for reasons unknown publicly in Q2 2012.

PayPal is having difficulties in India as it struggles to comply with the guidelines set by the Reserve Bank of India (RBI), as PayPal can only operate as a payment gateway in the country, and due to disputes merchants in India for some time were not able to accept high value ($500+) payments

via the service, until after lengthy negotiations the RBI permitted, from October 2011, merchants to receive export-related payments up to $3,000 per transaction.

Other retailers and payments companies are also making moves in the market:

- Amazon is in discussion with Indian e-commerce players such as Flipkart.com and LetsBuy.com
- Wal-Mart purchased a minority stake in Chinese e-commerce company Yihaodian.
- Groupon initiated a joint venture in China and purchased sites in Hong Kong, Singapore, Malaysia and Taiwan. However, their actions simultaneously prompted local competitors like Taobao to add their own group buying model
- Belgium's Ogone Payment Services acquired EBS (E-Billing Solutions), the second largest online payment provider in India.
- Payments technology company Adyen expanded its service offering to be able to offer Asian market payment methods to its merchants

In parallel with the inward alliances and partnerships, the Asian companies are also expanding to other regions, in particular Europe and the US. In May 2012, after several years of negotiations, Yahoo! agreed to sell part of its stake in the Alibaba group back to them. Alibaba will buy back 20% now for approximately $7.1 billion ($6.3 billion in cash and up to $800 million in Alibaba preferred stock) and as part of the agreement Alibaba will be allowed to consider an IPO. Alibaba may re-purchase more of Yahoo's remaining 20% stake, although Yahoo! has the right to hold on to at least 10% until after any IPO. This move allows Alibaba an independence to expand globally and as the companies continue to work together the Yahoo! global audience provides an attractive opportunity outside of China.

In the event Alibaba does expand globally, overseas customers would be able to use Alipay directly on Alibaba's e-commerce sites, including Taobao.com and Alibaba.com, to make online purchases. Currently only Hong Kong, Taiwan and Macau registered Visa and Mastercards are permitted on Alipay and those in China are permitted to use their local UnionPay-branded cards. In addition, Alibaba is also reportedly busy negotiating with several of the global card organisations and has already announced a partnership with MasterCard to develop the overseas business of the group's online payment division Alipay by enabling customers with Alipay accounts to set up virtual MasterCard accounts in order to buy goods overseas.

China's second largest retailer, Tencent, spent $390 million in 2011, acquiring nearly 40 companies, ranging from online shoe shops to group buying start-ups and during the same timeframe, partnered with American Express to provide cross-border online payments.

Mobile payments

In a report entitled "Asia - Mobile, Broadband and Digital Economy Overview", Budde telecommunications research agency has identified that the Asian region owns 49% of the world's mobile subscribers. Following more than a decade of strong growth, mobile markets across Asia continued to expand, and total numbers are expected to hit 3.2 billion by end 2012. Growth has slowed somewhat due to saturation of some markets and the global economic situation however experts had expected that the annual growth rate that had been in excess of 50% could not continue at the same pace.

Overall regional penetration has reached an estimated 76% by mid 2012 with more than 18 countries in Asia have mobile penetration levels in excess of 100% and two (Macau and Hong Kong) have mobile penetrations in excess of 200%.

Particularly relevant in the context of rapidly growing markets that still have further room for expansion are India and China, where monthly net additions have regularly been close to 10 million subscribers. These two countries combined account for around 60% of overall market share in the region. Led by China and India the region will continue to grow its mobile subscriber numbers on the back of other markets with large populations and relatively low penetration rates such as the Philippines, Pakistan and Indonesia. In the developing economies, quick and easy mobile uptake has for a long time been the preferred, and often the only, option for subscribers, given the low levels of fixed-line deployments.

The rate of adoption of mobile broadband started increasing rapidly and in South Asia, in particular, more people own a mobile phone than a PC, giving the delivery of mobile data services huge potential there. By early 2012 Asia had a mobile broadband penetration of 11%; this represented 460 million mobile broadband subscribers in the region; two of Asia's markets – South Korea and Singapore – had more mobile broadband subscribers than population by end 2011; Japan was not far behind on 90% mobile broadband penetration at the time.

Mobile payments are emerging as an effective and efficient way to serve the unbanked. In many Asian countries there is a lack of a proper financial infrastructure, and mobile banking and payment services are meeting a need that was, to date, unfulfilled. The Asian payment solutions have thus far concentrated on simple solutions – funds transfers and account enquiries – as the majority of mobile phones are comparatively low-end, low-spec.

Research and consulting company Celent expects the number of urban mobile banking subscribers in India to reach 65 million by 2012. It is likely to be a rural phenomenon, as the urban population have alternatives including online banking and ATMs easily available to them.

Further potential exists in the sphere of mobile banking and mobile payments especially in India and China, with many banks and payment companies addressing this growing niche. Celent further indicated that this was an area being exploited with financial services providers actively moving into the mobile commerce space – comprising both mobile banking and the mobile payments sector – as a cost-effective means of expanding their reach and increasing their customer base in India. Given the success there, it is plausible that this model will be rolled out across the region to a great impact.

Australia

Australia is an advanced market for e-commerce, with 72% of households having internet, and 90% of all adults having access to internet at home and/or at work and according to the Australian Bureau of Statistics almost 70% of connected people undertook some form of web-based retail transaction in the second half of 2009 with the numbers increasing since then.

The Australian e-commerce market is dominated by credit cards and PayPal. In fact, more than 90% of adults that shop online do so with credit cards. Other payment methods include internet-banking transfers (including bill payment mechanism BPAY), Paymate which is a two-way electronic payment mechanism that also incorporates Paymate On The Go where companies can turn a compatible smartphone into a point of sale terminal for Visa and Mastercard.

POLi is another local mechanism that operates in a similar manner to the direct debit instant transfer systems in Europe (such as iDEAL and ELV). POLi acts as an intermediary between the customers bank account and the merchant to immediate authorise a payment, however it is not known to be

as successful as its European counterparts – possibly due to the fact that the European countries, in particular Germany, do not have the credit card penetration of Australia and as such do not have the option not to use the direct transfer mechanism.

China

China is currently the most populated country in the world with a population of over 1.3 billion and the 2nd largest economy with a GDP of USD 10.1 trillion. In terms of Internet use, China has been lagging behind but is quickly catching up. In 2010, the total number of Internet users amounted to 485 million, equaling a penetration rate of 36.3%, thereby making it the world's largest Internet population (CNNIC).

A Boston Consulting Group report in late 2011 shows that while less than 10% of the nation's urbanites bought goods online in 2006, that figure grew to 23% in 2010 and will reach 44% by the end of 2015.

WorldPay has reported that in total alternative payments have a strong presence, comprising 37%of China's online spend, equating to some €20 billion in revenues. The payments company also describes China as "acting" in the same way as the US when it comes to alternatives, in that the market is dominated by a single e-wallet solution, Alipay (in the US is it PayPal that holds sway over the market), with a few other e-wallets and COD (approximately 20%) completing the picture.

Due to their current absolute dominance in customer and market share, Innopay expects Alipay (600 million registered accounts, with over 11 million transactions a day according to data from Global Collect) and Tenpay (a subsidiary of social network Tencent with over 70 million users and a market share of 21%) to remain the leaders in the online payments industry in the next few years with a stable market share. Other significant options include 99Bill and Yeepay (telebanking), paipai (top-up) and QQ (gaming), and the estimations are that the growing card payment, UnionPay (a market share of 11% in the online payment market and growing fast), will have a massive impact over time. This national bankcard association is responsible for operating the unified inter-bank clearing and settlement system, as well as for developing the international acceptance network for the China UnionPay card. In total, there were over 1.9 billion cards issued in 2010, a growth of 12% over the previous year. The vast majority of them are debit cards (91%), but credit cards are catching up (Datamonitor)

The Chinese government's regulations on payment services play an important role in the emerging e-commerce market. From 1st September 2011, all third-party online payment services providers (non-financial institution) are required to obtain a Payment Business License from the People's Bank of China (PBC, China's central bank) before they can conduct any money transfer and payment business. To date, the bank has granted more than 100 such licenses.

Japan

Japan is the third largest e-commerce market in the world and the largest in the Asia-Pacific region. Although Japanese consumers have a tendency to embrace and adopt new payments and technologies, a 2011 report from CyberSource entitled "Global Payment Options" found that credit cards remain the favourite payment mechanism for online payments (52%), followed by cash on delivery (18%), bank transfer (10%) and postal transfer (5%) and internet banking (3%).

Card-based payments hold the highest market share in Japan because of the high penetration of cards (6.2 cards per capita). JCB is the online international credit card brand based in Asia, and has the

highest market share in the country, with almost 65 million JCB card members according to WorldPay, and 16.41 million merchants. JCB cards are also cobranded with MasterCard and Visa.

India

India is the twelfth largest economy and the second most populous country, however due to the low internet (less than 9% according to GlobalCollect) and credit card penetration in the country, the country remains at a nascent stage in terms of online payments. Alongside those issues are numerous other barriers and obstacles including a legal/regulatory framework, issues of trust and a significant lack of payment gateways.

Major international credit cards such as Visa, MasterCard, Diners Club, American Express, and JCB are commonly accepted online. However, dependent on the issuing bank, not all debit cards can be used online (Reserve Bank of India, RBI). Only debit cards issued by the larger banks, such as Axis, HDFC Bank, and ICICI, can be used online to pay.

The e-payment space in India is dominated by independent companies such as CC Avenue and BillDesk but the majority of the space is held by private banks like HDFC, Citibank and ICICI. Belgium's Ogone has already tapped into the Indian e-commerce market by acquiring independent online payment company EBS, one of the key payment gateway providers in India.

E-wallets like PayPal are very much restricted. New requirements were installed in November 2010, when the RBI found that online payment gateways not only facilitated online transactions, but also enabled Indian exporters to transfer funds abroad without thereby avoiding paying income tax. To prevent this, the RBI imposed a number of new stringent restrictions. PayPal, among others, altered its policies to comply with the new regulation. To receive payments, users now need to link their PAN card (Indian tax account) to their PayPal account. In addition, they must indicate an Indian bank account to which the received funds can be automatically transferred. Making payments still requires a credit card (linked to the eWallet).

Online payments do not yet constitute an established business with an IAMAI survey finding that concerns ranged from privacy issues (25%) and lack of trust (15%) to unavailability of payment cards (10%).

Google India forecasting that the 40 million mobile internet users currently being expected to increase to over 300 million by 2015 and it is widely found that mobile phones are changing the payments landscape in India, as financial services available on the platform are opening up opportunities and m-payments to a largely rural, unbanked, un-connected demographic. These types of services are proving successful in acquiring new customers, but because mobile financial banking and payments can function without the existence of any land-based set up, they are proving an extremely cost effective method for the payments companies. Crucially, basic financial services can be carried out on the unsophisticated devices that largely compromise the market right now.

Singapore

Despite its small size, Singapore has 3.23 million internet users and credit cards are the most popular payment method, followed by debit card, cash on delivery and bank transfer. eNETS is Singapore's largest online payment gateway, with all users of DBS/POSB, UOB or Citibank having the ability to pay for goods and services via the direct debit service. This translates to coverage of more than 90% of all internet banking users in Singapore.

Europe

European e-commerce is diverse and fragmented, and it would be dangerous for an operator to treat the continent as a single entity. Countries and regions are in various stages of market development, leading to gargantuan differences in average online spend and preferred payment methods.

Generally speaking with regard to e-commerce the region can be split into three distinct sectors – Northern Europe (mature), Central/Southern Europe (growing) and Eastern Europe (emerging). In each of the sectors payments are hugely localised, often attributed to historic events (in particular the post-World War II Iron Curtain), and subsequent market-driven innovations that have happened over time. Countries that were part of the Eastern communist dominion are, with few exceptions, de facto developing in terms of both their marketplace and their payments ecosystems, while the Western half of Europe includes developed markets with solid financial infrastructures.

Credit card use has decreased significantly, having fallen by approximately 20% since the economic downturn began in 2007. The trend for cash in Europe continues to grow due to the economic situation in many countries. Currently there is €600 billion cash in circulation, the highest amount ever, as many consumers are not comfortable having their funds in bank accounts, especially in the southern countries where the cash economy is making a comeback. This plays very well to companies such as Entropay and Ukash who can convert that cash to electronic payment tools widely accepted by gambling operators.

The biggest growth trend for online payments in Europe is PayPal, however they tend to choose the gambling merchants they want to work with, rather than the other way around which can lead to problems and delays for some operators. PayPal is getting more involved in gambling over time, especially in regulated markets, however this mechanism still has quite a high chargeback risk, just like credit and debit cards and therefore must be treated accordingly by operators.

Other trends are direct online bank payments, especially in countries such as Germany or the Netherlands. Online bank payments can be consumer-initiated or merchant-initiated, and if the latter the user experience is very similar to a card payment. For example in Germany the method effectively initiates an online banking session that takes place within an i-frame and links the transaction between the merchant and the bank. There are official collaborations between retail banks where this method of payment is popular (iDEAL in the Netherlands and ELV in various countries), however independent companies such as Sofort are successfully carving out a niche for themselves in this sector.

Austria

Over 70% of the population has internet access, of which Eurostat has identified approximately half of whom have made purchases (goods and/or services) over the internet and just under 25% of the overall population use online banking.

Along with Visa/Mastercard credit cards, the preferred methods of online payment are ELV (Elektronisches Lastschriftverfahren - which is the local Direct Debit set up, where by a pre-approved company or entity withdraws funds from a personal bank account) and Electronic Payment Standard (EPS) which is the Austrian multi-bank online payment solution and is used by upwards of 80% of all merchants.

According to Innopay, ELV and EPS represent over one third of all online payments, credit cards another third, and the remaining third is comprised of a collective of smaller payment services such as Netpay or Paybox, a mobile payment solution which has over 5 million users throughout the country.

Belgium

Belgium has very similar internet and online payment statistics to Austria, with over 73% of households having internet access and approximately half making internet purchases, in data supplied by Eurostat. Belgian internet users primarily use credit cards online, however in 2009 Maestro debit cards were introduced and have made an impact in the market and customer habits since they were launched.

Customers also use Acceptgiro in Belgium (along with other countries including the Netherlands and Germany) where the merchant sends the customer a pre-prepared cheque for signature and return. PayPal is the strong player in the alternative payment sector along with pre-paid cards such as Neosurf, which operates under the Mastercard brand.

Czech Republic

For the most part, like others in Central and Eastern Europe Czech consumers pay by cash-on-delivery (COD) followed by bank transfers and credit cards although the latter payment methods are notably small. Only 15% of online users recently (in the three months prior to the analysis by Eurostat) purchased goods or services over the Internet according to Eurostat data. E-wallets and pre-paid cards are also used, and local banks are actively working on internet-based systems to offer online payments with lesser charges than credit cards.

Denmark

Denmark is one of the front-runners in the entire e-commerce sector in Europe, with over 86% internet penetration of which just under 55% purchase goods/services online and one quarter use online banking. Credit and debit cards, including Dankort, the Danish national debit card, represent almost 90% of all online transaction methods, followed (according to Innopay data) by online bank payment methods, invoice and COD.

Estonia

As an emerging market in the e-commerce sphere, as low as 13% of online users undertake web-based transactions, of which online bank transfers are dominant method used for paying. Credit cards are rarely used, and COD is highly preferred. Other local payment methods include Swedbank, which is the leading bank in Sweden, Estonia, Latvia and Lithuania and Glue pay, another PSP originating in Sweden, which uses a proprietary payment transfer platform to automatically process instant B2C bank deposits and withdrawals.

Finland

Credit and debit cards are key payment methods in Finland along with online bank transfers as offered by local banks such as Nordea, Sampo, OKO and Aktia. E-wallets and mobile payments have a role; however they are much less significant than the other methods.

France

With over 74% of households having internet access and 42% of online users making online purchases according to Eurostat, the French customers' preference is to use Visa and bank cards, including Carte Bleue and Cartes Bancaires. Card transactions represent 80% of the total online preference, however PayPal is also a critical payment mechanism, having 8+ million users in the country as per data provided by Innopay, resulting in this method being ranked second for most popular online payment method. COD and other alternative payments are used to a much lesser extent.

On introduction of the local point-of-consumption gambling legislation, payment companies such as Ukash received a boost in penetration, as they were used by some of the pre-existing operators to transfer customer balances from .com to .fr sites, however the main payments consideration in France, specific to the gambling industry, is the ARJEL regulation that operators can only make outward payments to a verified bank account. This is an effort to manage fraud and money laundering risks, but it does have a profound effect on the payments ecosystem for gambling operators across the board.

Germany

Germany is an extremely advanced country in terms of e-commerce, however the region commands a relatively unique position in terms of payment behaviour, and given its importance as a target market for online gambling must be addressed accordingly.

Along with the Netherlands, Germany is one of the global leaders in the adoption of alternative payment methodologies, with this sector commanding 66% of the country's total e-commerce value of €45 billion (WorldPay).

Credit card penetration is surprisingly low in Germany - only 28 million credit cards amongst and adult population of 70 million – therefore the majority of online transaction volume occurs using bank-managed offline credit transfers. Holding a similar market share as offline credit, direct debit payments, without using cards, are also very popular. Elektronisches Lastschrift Verfahren (ELV) makes up 28% of the countries alternative payment market according to data supplied by WorldPay, and local payment methods such as Sofort which provide a similar debit transfer service are growing in importance.

Other formats including PayPal and other e-wallets command less than 10% of the alternative market, and yet WorldPay have identified that these methods alone still outweigh any card spending online.

The dominant debit card, Girocard, though popular offline was not developed or implemented with online use in mind can cannot be used for most web-based transaction and in fact debit and credit cards are seeing growth of just 3% - 5% year on year, while prepaid cards are growing the fastest, with a current value of growth at 15% in 2011 according to Innopay.

Greece

Greece has a moderate household internet penetration and of those only users only 10% or so transact online. Credit card, PayPal, debit cards and COD are the popular payment methods in the country.

Hungary

Eurostat has identified that Hungary has approximately a 60% penetration of household internet, of which just 10% of online users transact online. For those transactions COD is most often used, followed by bank transfers and credit cards.

E-wallets are used to a lesser extent and in the alternative sector pre-paid cards are growing in importance, having received a substantial initial boost with the introduction of a pre-paid contactless MasterCard PayPass cards by OTP Bank in 2009. Another local payment method called Abaqoos is also gaining traction. Abaqoos is a "virtual wallet" intended for use on the Internet, on mobile phones and with other digital channels.

Ireland

Almost 30% of Irish online users transact online (Eurostat) with debit and credit cards (both Mastercard and Visa) being the most popular payment methods. Of all card payments a domestic debit card called Laser is the most popular (with over 3 million in circulation), but Maestro and Visa Electron are used as well.

Italy

Italy is the fourth largest e-commerce market in Europe, and one of the fastest growing e-commerce markets in Western Europe. Italian customers use a mix of payments when purchasing online, with credit cards, PayPal, COD and prepaid cards, such as CartaSi and Neosurf, all having nearly equal shares of online retail payments in Italy.

The Netherlands

In the Netherlands, online transactions are heavily dominated by alternative payments (66% according to data from WorldPay), with the native real-time bank payment method called iDEAL being the clear leader in this sector, commanding for example, up to 70% of retail transactions during 2010. Innopay has found that the success of iDEAL among consumers resides in the fact that it is a safe and user-friendly payment method, while merchants value the guaranteed payment. Offline credit transfers, cash on delivery and direct debits (including Incasso Machtigen) are the most popular secondary choices for alternatives, with PayPal and other e-wallets making only a limited impact.

Norway

Norway has extremely high internet penetration (90% of all households) and for online transactions Mastercard and Visa credit cards are the definitely the most common way to pay (typically over 60%). Online bank transfers, such as through the multi-bank service BankAxess as well as invoices are also used with COD and e-wallets such as Paybox being much less popular (collectively less than 10% of the market).

Poland

In Poland the most popular methods of payment are COD and by bank transfers, often using a local service called Przelewy24. Bank transfers are often standard credit transfers, sometimes initiated offline, but can also be conducted through one of the many mono-bank online bank payment methods.

Innopay has outlined that credit cards, e-wallets and pre-paid cards are used in the country, but to a lesser extent, however there has been a marginal recovery in credit card growth from 2011 with the number of issued credit cards having grown by 2% compared to 2010.

Portugal

Credit card is the preferred payment method of the 10% of online users that transact on the web. This method is followed by bank transfer (often incorporating Multibanco which is the inter-bank network across almost 30 local banks), COD, PayPal and debit card as reported in a Nielson Consumer Confidence Survey

Romania

As is the norm in Eastern European countries, Romanian online transactions primarily use offline payment methods such as COD and bank transfers as their execution method. Credit and debit cards are rarely used. Innopay found that in 2011, the value of card payment transactions reached RON 18.03 million, yet out of a total of 9 million cards in Romania, only 200,000 have the 3D secure standard activated, which is used by the Verified by Visa system.

Russia

Russia is a difficult market for online gambling companies, where sports betting alone has an estimated turnover of $1.8 billion per annum, yet as a legacy of the communist era the Russians still believe in cash (representing 95% of all transactions). Debit cards are mainly used simply to withdraw salaries from ATMs, and there is a massive distrust of banks. Credit cards are rare and where used have a higher than average level of chargebacks and fraud. There are about 130 million credit cards in Russia, but only 3-5% of these can be used online as they were designed for POS and ATM use only and therefore most cards do not have a CVV2 or CVC2 code and ultimately are not e-commerce enabled.

When it comes to payments – both offline and online – Russians rely on cash which constitute 95% of all sales. Of all bank transactions, 91% are simply cash withdrawals, while only 9% involve making an actual payment.

The lack of card infrastructure is substituted by various electronic money solutions, including SMS-based billing systems. Although international payment companies such as Ukash have a presence in the market, most online payment systems are developed locally to meet local requirements.

The main eWallets are:

- **QIWI:** 45 million monthly users with180,000 cash collection points with an annual turnover of $13 billion.
- **Yandex Money:** As of Q1 2011, Yandex Money accounted for more than 8 million eWallets, a growth of 50% compared to 2011.
- **Webmoney:** an electronic money and online payment system used by customers to exchange domestic currency into digital currency.
- **RBK Money (formerly Rupay):** has over 250,000 Russian Internet users and 6,000 online shops.
- **Moneta.ru:** both an eWallet provider and a PSP focusing on servicing smaller online retailers in Russia as well as providing payment services for the gaming and travel industry.

Spain

WorldPay has noted that 62% of Spanish online buyers use credit cards when paying online, which represents the highest penetration in Western Europe. Direct debit, COD and PayPal are also used. Sofort (direct debit transfers) and Neosurf (pre-paid cards) also have a known presence and position in the market.

Sweden

In terms of transaction volumes, the Swedish payment system is dominated by the giro systems, Bankgirot and Postgirot, which account for more than 71% of all non-cash transactions. Bankgirot is a proprietary clearing system in Sweden used for transactions such as bill payments. The clearing system is connected with the banks enabling payments to be received directly into bank accounts. Postgirot was not able to offer deposits into bank accounts and still does not generally do so except to Nordea bank accounts.

Cards (35%), online bank transfers (30%) and invoices (28%) have a roughly equal share of the online payments market. Online bank payments are offered by individual banks such as Nordea, Handelsbanken, SEB and Swedbank. Cash-on-delivery (3%) and e-wallets (3%) are also used.

Switzerland

A Nielsen survey in the Swiss market found that credit cards are the most popular payment method, followed by bank and postal transfer, PayPal and COD. More than two million private customers use postal accounts and the PostFinance Card (e-banking).

United Kingdom

Credit and debit cards (incorporating international schemes such as Visa and Mastercard along with local cards including Maestro UK) are the most frequently used payment method, collectively representing 75% - 80% of all online transactions, with gambling transactions at the higher end of that range. The UK has the highest card penetration in Europe, with approximately 172 million cards (including credit, debit, charge and increasingly pre-paid cards), yet there are only 50 million adults – leading to 3.5 cards each per adult on average.

WorldPay have identified that alternative payments equate to just 11% of all e-commerce in the country, a marked percentage share than in the US and far behind AsiaPac and Germany thanks to the high proliferation of payment cards in the UK, however total UK e-commerce revenues stand at €142 billion (almost matching the rest of Europe collectively at €157 billion), therefore even the comparatively lowly 11% has a great impact in the payments market.

Unlike some other markets where PayPal is the clear leader in alternative payment mechanisms, the UK is divided relatively evenly across a range of AP schemes. PayPal does have an extremely strong position, however Skrill (previously known as Moneybookers) narrowly takes second place here, followed by direct debits and offline credit transfers. E-wallets including NETeller and Click and Buy are also well known.

Latin America

Compared to other rapidly developing regions which have endless diversity and fragmentation, Latin America is a more homogenous market, and therefore one with ample opportunity and potential. That is not to say it's without its problems and considerations.

The entire continent is a huge cash economy. Although over 75% of online transactions are performed using credit cards, their penetration is low across the region, and more importantly credit cards are typically only permitted for domestic transactions, so unless the merchant is registered, operating and paying taxes in the local country they might not be able to receive the payment from the customers. For gambling operators this typically means a partnering with a domestic entity – as, for example, Probability Games have done with Caliente.

A local partner might make the payment processing easier it does take a hit on the bottom line, as the profits are subject to a withholding tax given that in the region e-commerce taxation is tied to the existing rules for physical-world taxation, and when those very profits are being shared, a decent return might prove difficult for the international gambling companies. Repatriating funds from Brazil often requires merchants to pay up to 25% withholding tax.

The rationale behind the limitations on international transactions is because many of the Latin American countries have exchange/currency controls in place and don't want their population to be spending money outside of the country, and because of the nature of the payments ecosystem, companies offering cash based services such as Ukash, Paysafecard and Skrill have all been able to take advantage of the rising demand for international payment processing.

Paysafecard targets users who either do not own or are reluctant to using a credit or debit card for online purchases and other micro payments on the internet through its prepaid vouchers. Ukash, another voucher-based provider, joined forces with international online payment gateway First Atlantic Commerce (FAC) and transactional payments company Mercadotecnia Ideas y Tecnología to introduce Ukash voucher payment solutions, including multi-currency voucher issuing and full and partial voucher redemptions on the Mexican market. Ukash also partnered with Rocalix S.A. in Uruguay.

There are a number of alternative payment options for Latin Americans. In Mexico, transactions are cash or debit based, offline bank transfers are also popular and there is the prepaid Todito Card. Pago Facil is a cash payment method for Argentina.

MercadoPago is an email-based "PayPal-like" service associated with MercadoLibre, an e-commerce and auction website. The direct payments service facilitates the completion of transactions online and operates as an escrow service, which reduces the settlement risks that customers face while making transactions.

In terms of online payment methods, Brazilian consumers prefer to pay for their online purchases via local credit cards. Visa and Mastercard branded cards are the most popular options for paying online, each of them accounting for 43% and 32% market share, respectively as outlined in a report by Global Collect entitled "Winning Payment Strategies for BRIC Nations" However, many customers also prefer to pay for products via payment methods that require an offline step, like Boleto Bancário.

Boleto Bancário is highly preferred by Brazilian consumers who are still reluctant to make payments online due to security issues and also because it does not require people to share any important

personal data online. The Boleto Bancário is a voucher generated by the merchant for the customer, which enables the customer to pay the exact specific amount to the receiving party. The customer pays the Boleto Bancário in any Brazilian bank, and the merchant is immediately notified at which point they will take action from their side of the transaction. Boleto Bancário has 100% integration with the Brazilian banking system, allowing any citizen to pay their bills at the preferred location such as banking terminals, ATM's, lottery shops and also via internet banking.

In 2011 the internet population across the region reached 217 million (almost 37% of the entire population), up from under 113 million in 2010 and it continues to increase into 2012. Much of this growth is on the back of advances in technology and the huge popularity of social networking, and the net effect is that Latin America has witnessed some of the world's fastest growth in online business. From an e-commerce perspective however, consumers have widespread concerns over fraud, transaction security and the availability of payment.

Across Latin America mobile phone penetration is very high, unlike fixed internet and fixed phone line adoption. Overall data from Fortumo shows that the region has 89% mobile penetration overall with the top countries breaking down as follows:

- Argentina 130%
- Venezuela 98%
- Chile 97%
- Colombia 92%
- Brazil 90%

The prevalence of the mobile over fixed-line internet means that the mobile handset is likely to turn into consumers' main access portal to the internet and mobile payments, though usually more expensive than e-payments, will be a critical feature in the market going forward. The key question for gambling operators will be whether the marketing opportunities outweigh the higher charges, although realistically these can be offset by managing RTP rates within certain games such as slots which are popular in the market.

The big gap between internet and mobile penetration means that in Latin America, financial services offered via the mobile do not face serious competition from online financial services as the channel is a necessity to customers not an simply an alternative to other established payment mechanisms as is often the case in fully developed nations with more robust payment ecosystems.

Argentina

Argentina is the third largest Spanish speaking gaming market in the world, and has a population of 41 million, and an internet penetration above 50% with up to 30% of online users making transactions on the web. Preferred payment method include Visa and Mastercard, local cards, Click and Buy, Dinero Mail and voucher based payments such as Ukash.

Brazil

Brazil ranks as the 7th largest economy and 5th most populated country in the world (CIA World Factbook). comScore has identified that in 2010, there were more than 50 million Internet users in Brazil, a figure that is growing by 20% a year. As a key part of the BRIC market, Brazil is by far the biggest online market in Latin America, with about 45 million Brazilians shopping online. The country

accounts for 62% of Latin America's online sales according to Innopay, and Brazil already contributes 3% of total online global sales. Forrester Research predicts that e-commerce transactions in Brazil will reach $22 billion by 2016.

Brazilian consumers prefer bank cards, according to the "Global Payment Options" released by CyberSource. Yet, the limited number of residents connected to the internet as well as the regulation which forces Brazilian consumers to rely on local bank cards determines them to hold on to cash based transactions. Therefore, alongside Visa and Mastercard, Boleto Bancário is another dominant e-payment method across Brazil with a market share of around 15%. Other payment options include MercadoPago and a large variety of prepaid cards such as Aura, Astropay Card, or the PanAmericano MasterCard Prepaid Card.

Colombia

Columbia leads the Latin American market in terms of the number of internet users (483 per 1,000 residents) which is above the region's average of 375 and that of countries such as Brazil (420) and Chile (467). The country is faced with the same payment processing issues as others; however there is a significant alternative available known as the "Colombian PayPal". PagosOnline integrates different payment solutions including local credit cards, but also bank transfers and cash payments, and is currently expanding throughout the continent having already started operations in Argentina, Brazil, Chile, Mexico, Panama and Peru via its division LatinAmericanPayments.

Mexico

In Mexico, according to data from The Paypers online sales are expected to reach $3.4 billion in 2016, up 209% from 2010. Nearly a third of the Mexican population (representing 40 million consumers), are online, but there is a widespread fear of being defrauded by online retailers. To that end, Mexicans prefer to use bank cards, with a very high percentage consisting of POS-only cards requiring a PIN.

North America

North America is the global leader when it comes to e-commerce. The region has the highest internet penetration (almost 80%) and the most developed and advanced ecosystem. In terms of payments, there is a wide variety of options available to consumers and Innopay succinctly described the market as a "global laboratory" as it often acts as the initial launch ground for many services, including recently Google Wallet, before they are rolled out to the rest of the world.

Despite the plethora of payment choices incorporating credit cards, online banking and a full range of e- and m-payment options, customer use is still dominated by credit cards. However, rapidly changing market trends and availability of more convenient platform-specific options are creating new opportunities for alternative payment mechanisms which are now making headway and claiming a share of market, eating away at the credit card stronghold.

M-commerce is expected to make a significant impact in the coming years. It is reported by Innopay that experts believe mobile transactions will possibly account for one quarter of all purchases in the coming years. Consumer concerns around the mobile platform are the same as everywhere else around the globe – speed of interaction, security and fraud issues and proper product visualisation.

The online payments market in the US has long been dominated by credit card usage. In 2010/11, there had been an increase in the use of debit cards, however, this has been impacted by the provisions of the "Durbin Amendment" which came into force on 1st October 2011, and limit the interchange that an issuer can collect from merchants for debit card transactions.

Durbin Amendment

Historically retail businesses had been paying banks an average of 44 cents per debit card transaction, however the Durbin Amendment limits the transaction fee to no more than 21 cents, plus 0.05% of the transaction (2 cents average), plus 1 cent for issuers that have fraud-prevention standards in place. The amendment does not affect credit cards; banks have been getting, and will continue to get, almost 2% of each transaction price.

Theoretically the Durbin Amendment benefits both the small retailer and the consumer, however as banks will be earning considerably less from debit card transactions, they have been making changes to their own business models including adding fees to consumers such as charges for checking (current) accounts and offering rewards and perks for credit card usage to make them more attractive. This is because for any transaction in excess of $10.50, the credit card issuer will make a higher profit than if a debit card is used.

While it was expected by Senator Durbin that retailers would pass on the benefit of lower interchange costs to the customers by way of reduced prices, this has not been happening so the benefit to the public has been neutral, however Bloomberg analysts have predicted that Visa and Mastercard will increase their fees on small ticket purchases which may then have a knock-on effect in that retailers may refuse to accept Visa and Mastercard branded debit cards for smaller purchases, which will ultimately lead to an increase in credit card use.

Alternative Payments

WorldPay recently reported that the US currently generates €274 billion in e-commerce transactions, 36% of total global spending in this area. Although the level of uptake of alternative payment mechanisms is lower than other countries, the overall value of the segment is important by virtue of volume if nothing else, with any percentage of this massive market set to represent a high value almost by default.

Alternative payment transactions account for 17% of all e-commerce spend, some €46.6 billion, and WorldPay's own forecasts suggest that by 2014, alternatives will increase to 19%. Industry experts suggest that the two key factors behind the growth of alternatives are:

- Lower costs for merchants who then promote the services
- Portability of online payments and the elimination of the need to disclose personal information or credit card details.

Between 2007 and 2010, credit card use for online purchases dropped from 80% to 63% as a result of a combination of increasing unemployment and reduced credit being made available by financial institutions. As the economy is expected to improve and regulatory conditions (Durbin Amendment) increase the attractiveness of credit- based options, Javelin Strategy & Research forecasts a resurgence of credit card use, with a 10.2% CAGR and a corresponding volume increase from $124 billion in 2011 to $201 billion in 2016.

PayPal

According to WorldPay, PayPal commands a 70% share of the alternative payment market in North America, and the company appears determined not only to hold on to its dominant position, but also to maintain growth by challenging traditional payment systems in what was traditionally their domain. The company is putting huge effort behind its mobile wallet, and in fact increased its mobile payment predictions to $7 billion by the end of 2012. By comparison, PayPal reached $4 billion in mobile payments volume in 2011, far higher than the company's original prediction of $1.5 billion.

In February 2012 PayPal launched an in-store payments technology both via mobile and point-of-sale systems with national retailer Home Depot. Customers are now able to pay for items via their PayPal account at Home Depot's point of sale systems, this signified a major move from PayPal to expand beyond online transactions.

In August 2012, PayPal signed a deal with credit card provider Discover that gives consumers the option to pay using their PayPal mobile wallet at approximately 7 million retail locations in the US. This system will roll out in 2013, and consumers do not have to be Discover card users to pay with PayPal.

An alternative payment option that is growing remarkably fast, 130% increase in 2011, is 'Bill me Later'. Bill me later is an alternative payment option that enables customers to check-out without a credit card and receive a bill afterwards. An important factor in the growth of this payment option is the fact that it piggy-backs on the reach provided by parent company PayPal, that is already a payment option with many merchants.

The banking system is slowly adopting the e-channel

Online banking in not as developed in North America as it is in some Western European markets. However, in 2011, ComScore did report substantial growth of online banking usage, although the same research indicated that there is a lot to gain in terms of customer awareness: many potential customers simply do not know about the service.

It is widely believed that because of the credit crunch, distrust levels towards banks have risen. Allied to the aggressive march forward of card schemes and alternative payments, the role of banks in online payments will become smaller and smaller unelss they start to innovate.

The US banks have been somewhat proactive with two key initiatives, although a massive impact of both is yet to be realised.

ClearXchange is a joint venture between Bank of America, JPM Chase and Wells Fargo. It is a P2P payment service via email and mobile phones. This is seen as an effort to reclaim market share from PayPal in the segment.

Secure Vault Payments (SVP), owned by the US association of clearing houses NACHA, is a system by which consumers can pay online merchants by accessing their online banking program. This program is similar to iDEAL in the Netherlands, where the customers are led directly led to their own online banking portal on selecting the SVP method, and the authorisation process is done within the online banking environment.

Canada

The Canadian online shopping landscape shows notable differences from that of the US. About a factor 10 smaller, it accounts for only 3% of the country's economy (which amounts to $49 billion): way behind the average for advanced nations, according to a 2012 report by CBS News.

In terms of payment preferences, Canadian banks have cultivated an environment where currently almost all online sales are by credit card (Visa, MasterCard, Amex, Discover), and although credit card volume continues to grow it is now at a slower rate than debit. PayPal is the leading alternative payment mechanism within the e-commerce sphere.

Section 3 – Emerging payment models

Mobile

Mobile Gambling

Within the gambling industry the projections of the mobile platform has, for several years, been estimated by Juniper Research to reach $48 billion by 2015. This particular piece of research had been undertaken well in advance of the rise and rise of tablets, and Dr. Windsor Holden, the author of the original report, has recently released revised projections. The latest 2012 report forecasts that by 2017 mobile gambling (including both phones and tablets this time) will achieve $100 billion per annum generating a worldwide gross win of more than $5.2 billion.

Most interestingly is the explicit acknowledgement that while sports betting (including exchange betting) is currently dominant, accounting for almost 70% of the revenues, by 2017 the tables will have turned and casino/gaming suites will prevail.

In 2011 just under $20 billion was wagered on mobile devices. Japan (in particular, the Japanese Racing Association) and the UK collectively contributed more than 70% to this total. Going forward it is likely that Europe will claim a large and leading market share percentage of the overall mobile gambling market.

There was a dramatic surge in mobile activity in 2011, and several bookmakers saw more than $200 million placed via smartphones in during the year, to the point where the platform is often cited in press releases and financial reports to be the underlier to bookmaker growth in the past 12 – 18 months. In the case of some of the leading operators up to 40% of their customer base have now adopted their mobile sites and applications. This development is frequently attributed to the explosion of in-running betting that has grown hand-in-hand with mobile gambling. For many of the larger operators, such as William Hill, Skybet and Paddy Power, in-running now represents up to 60% - 70% of non-horseracing betting activity and much of this is done on mobile devices as punters watch sport on their sofas or in the pubs.

When online gambling started in the early 2000s sports books led the way, followed several years later by the widespread product launch and consumer adoption of gaming products. The same pattern is repeating itself on the mobile platform; however the gap between the two is much shorter. On launch of mobile products, the large European operator's sole focus (in terms of product availability and generating awareness through marketing) was on the sports betting product suite. For the most part gaming was left primarily to mobile-only platforms such as mFortune, All Slots and Probability Games Ladyluck's – all of whom have made sizeable businesses out of this market segment. However, the more traditional operators, the dominant ones in sports betting currently, such as Paddy Power, William Hill and Betfair are now beginning to launch and promote their gaming products, which will bring about a seismic change in this area as it always does when the large players put money and effort behind a sector.

A growing number of mobile gamblers are "mobile only" or "solus". For example, in October 2011 11% of Ladbrokes customers came via mobile and this proportion is expected to increase across all operators as further features, functionality and products are launched as part of the general mobile proposition.

Typically, however, except for the mobile-only casino operators who have no "online" customer base the platform is currently viewed primarily as part of retention and loyalty plans rather than an acquisition mechanism. Screen size has much to do with this as registration is quite frankly easier on a desktop than a mobile. In fact Skopos MTrack research found earlier this year that the three most significant barriers to transactions on mobile phones are:

- Screen size (63%)
- Connectivity (46%)
- Security (44%)

When it comes to the issue of security while mobiles present their own considerations to gambling operators in terms of applications, devices and payment, there is a significant disparity between the reality and consumer perception. Skopos' research also found that while desktop and laptop each have more than 60% consumer confidence, mobile and tablets only have 11% and 10% respectively and it this issue that lies at the top of the key drivers for growth of mobile gambling. Interestingly despite the widespread advertising including massive spend on television around live sports events promoting mobile/in-running, this type marketing activity lies only in 6th place from the consumer's perspective in getting them to convert and use the platform.

Skopos' research suggests that operators' priorities should address the following areas:

- Increased mobile security 37%
- Simple to use app/website 34%
- Reassurance from company 20%
- Larger screen on device 17%
- Easy log in 16%
- Advertising/promotions 11%

Many consider the entire area of payment processing and m-commerce to be the 'holy grail' of mobile gambling, and it is hard to argue against this supposition. Along with the issue of spontaneity (which is critical from the customer's perspective) lie the charges associated with each method that the gaming operator must bear. Broadly speaking, there is an inverse correlation between payment processing costs to the operator and convenience to the customer. Premium SMS and Payforit, for instance, allow simple fast depositing, but can charge the operator prohibitively expensive fees. On the other hand, credit and debit cards offer the lowest fee structures but entering credit card details with Credit Card Verification (CCV), validity date, name and address of card holder, then a 3D Secure redirect to *Verified By Visa* (*VBV*) and MasterCard Secure Code (*MSC*) all for a simple transaction, is very complicated at the customer end.

Convenience and usability is of far more importance as the screen size of the mobile phone and the tools available for the user to enter data into a screen dialogue, is far more limited on a mobile device. Designing a user interface and functionality adapted to the characteristics of mobile devices is critical and some best practice suggestions include:

- Keep the payment process as simple as possible.

- Never ask a repeat customer to enter information twice.
- Only choose solutions that are feasible for mobile devices. Operators should decide very carefully which deposit options are actually practical for mobiles phones. Methods that go through hosted pages, proxies and a number of redirects will lead to an unacceptable number of abandoned transactions.
- Ensure a frictionless/seamless service for the consumer. This requires many or most of today's e-payment providers to re-engineer their services to reach an acceptable mobile user experience.
- Streamlined and failure-tolerant deposit and withdrawal processes are of particular importance in the mobile space. Asynchronous communication and automated recovery of transactions when the mobile connection breaks down are essential technical requirements of a mobile payment solution. Such challenges need to be taken into consideration by operators when designing their mobile ecosystem and when choosing their designated mobile payment partner.
- Invest time and effort in managing security as it is an issue that affects both the operator and customer. Risk management for the operator is harder on the mobile channel as anti-fraud tools are not as well evolved as they are on the Internet and they bring new complexities into play.

For a long time, mobile wallets were considered a solution without a problem. Supply wasn't the key issue, but there was a lack of consumer demand. The initial market adoption of m-payments was slow and sporadic due to technological challenges, limited standardisation, fragmented commercial efforts, and most importantly, and the lack of a sustainable business model.

M-payments are currently at a nascent stage but the ubiquity of mobile devices in almost every region of the world, regardless of economic status, points to a time, not too far out in the future, when it will be difficult to distinguish between online and mobile payments. Wireless broadband is already becoming widely available in many markets and industry observers see fast and inexpensive anytime-anywhere mobile online connectivity as the obvious next step.

In the past 12 months or so, m-payments appear to have started on their hockey stick growth curve. For example eBay's mobile transactions rose from $2 billion in 2010 to $5 billion in 2011 and the company expects to reach $12 billion by the end of 2012. All in all, as reported by Juniper Research globally, more than $240 billion was transacted on mobiles in 2011, and the numbers are only increasing dramatically.

Portio Research has predicted compound annual growth rates in mobile payment User numbers as follows during the years 2011–2016.

Europe	40.9%
Asia Pacific	40.7%
North America	55.0%
Latin America	59.3%
Africa & Middle East	54.5%

Michael Upton, senior VP of Online and Mobile Banking at Bank of America described the mobile payments space as exciting and dynamic because "it's the Wild West again, with all players positioning in different ways to redefine the digital payments landscape." It is a very accurate choice of words because there is massive jostling for positioning at the moment amongst a seemingly endless parade

of players, and in the end it's the consumers who will decide whether to go with the mobile operator who handles their calls and data, the financial organisations they trust with their money or the new players who are emerging on the scene with great products and significant marketing budgets. At the moment there are no clear winners, but given the way the market is going now there certainly will be, and soon.

The key challenges for the m-payment environment currently are the lack of cooperation and collaboration between the players in the value chain, uncertain business cases and regulatory hurdles. That being said there are mind-blowing forecasts from two of the key research companies as follows:

Juniper Research expects the scale of mobile payment transactions to rise nearly fourfold over the next five years (2012 – 2017) to more than $1.3 trillion.

Global analyst firm Gartner announced that according to its analysis of mobile payments, worldwide mobile payment transaction values will reach $171.5 billion this year. That is a 61.9% increase over 2011. The number of mobile payment Users will also significantly increase this year, hitting at least 212 million worldwide. Gartner's longer term viewpoint is that mobile transaction volume and value to average 42% annual growth between 2011 and 2016, and we are forecasting a market worth $617 billion with 448 million Users by 2016.

In terms of devices, research by Dutch payments technology company Adyen shows that most mobile purchases are made from an iPhone device, followed by the iPad. In September 2011, 57% of all purchases tracked by Adyen were made from an iPhone, followed by 25% from an iPad and 14% from an Android device. However, as Android devices have almost doubled in number over the past year, the number of purchases from Android devices is taking payment share away from the iPhone and had risen up to 20% by March 2012, leaving iPhone with a share of 50%.

Sapient Nitro has identified some interesting data regarding attitudes and behaviours towards mobile payments. Firstly they found massive difference between Asia and Europe and the US, especially in terms of consumer demand and convenience.

	Asia	Europe & US
Worry about privacy	79%	69%
Believe increased risk of identity theft and fraud	77%	66%
See mobile as more convenient than other forms of payment	69%	26%
Welcome the day that most payments are done on mobile	64%	29%

When focussing on the UK alone, in May 2011, Sapient Nitro found that the reasons Users would get an m-payment capable device were:

- Convenience to pay 87%
- Speed of paying 67%
- Easier to pay 67%
- Good for the environment 37%
- No personal information on paper receipt 35%
- Track spending easily 29%
- Fraud is less likely 17%
- Latest technology 14%

On the other hand in the US market in February 2011, the top eight reasons for not shopping more on smartphones were given as:

- Awkward shopping experience 49%
- Concerns over credit card information 36%
- Slow connection 31%
- Image of product not good 26%
- Not easy to view information 23%
- Product information was limited 18%
- Takes too long 20%
- Full product selection is not offered 13%

What are mobile payments?

Despite the hype around mobile payments, there are endless interpretations as to what constitutes a mobile payment. In general the m-payment sector can be broken down as follows:

	P2P	B2C
Proximity	Contactless (phone to phone)	Contactless Mobile as a point of sale (POS)
Remote	Mobile money transfers	Mobile online payments (m-commerce, digital/virtual goods)

In essence a mobile payment can be defined as a transfer of funds in return for goods or service, where the mobile phone is involved in both the initiation and confirmation of the payment.

Contactless payments are payments done in proximity without making contact, such as paying at a POS by holding a phone near a reader. Although there are several methods to perform contactless payments including Bluetooth or radio frequency waves, this sector is broadly categorised as Near Field Communication (NFC).

M-wallets are formed of two distinct categories:

- Payment ON the mobile
- Payment WITH the mobile

One of the major problems in the marketplace right now is not only consumer confusion but merchant confusion. The early entrants are addressing the market differently – for example Google, ISIS and Visa have all deployed wallets that Use NFC, but PayPal and the mobile operator O2 have developed solutions that fall under the cloud wallet category.

The NFC wallet is hardware driven and requires a special chip and an application (app) on the smart phone and the consumer sets up their payment system for Use in proximity contactless situations. The payment could be deducted from a prepaid account or charged to the mobile or bank account directly, and limits are usually set as to the value of transactions – for example £15. Quite often NFC wallets focus on improving the loyalty experience for cardholders, for example in the UK Orange makes special offers for their wallet Users in food outlets such as Eat and Prêt a Manger, which are automatically redeemed on Use. The software driven cloud wallet also consists of an app on

a smartphone – and is a familiar concept to any consumers Used to PayPal or any other e-wallet. Once registered consumers use the service for one-click checkouts in m- or e-commerce domains. Depending on the merchant, cloud wallets may require a stored value or it may draw funds from your bank account to Use as cash in the wallet. Typically cloud wallets are evolving from existing e-wallets.

An advantage that cloud wallets have is that along with remote payment, they can also be used in a proximity setting. In POS retail situations, the cloud wallet requires cardholders to enter a PIN into their wallet app from the receipt to complete the transaction – such as the case with PayPal's arrangement with Home Depot in the US. Cloud wallets are somewhat "clumsier" than the NFC solution in POS situations, but they have seen much higher transaction volumes initially, because merchants do not have to change their POS infrastructure. Although cloud wallets have the early lead, many of the MNOs have has come out in support of NFC, primarily because this technology has capabilities that go beyond payments, and once the MNOs get traction in the market place they may usurp the cloud wallet propositions.

In addition to wallets (either cloud or NFC) there are also the long-standing SMS and Premium SMS (PSMS) payment methods and the emerging the direct-to-bill premise as a payment mechanism available to consumers direct from their MNOs or third parties such as Zong or Boku. Direct-to-bill offerings have daily and monthly maximum limits as the MNOs have a core business to protect and while they want to offer a new service/revenue stream, they do not want to do so at the expense of line rental and call/data charges.

The big question with regard to the future of mobile payments is where will the customer take it? It is essentially Video versus Betamax all over again. At present the marketplace is overwhelming to the majority, and once it clears up, there will be a limit to the number of ways the consumer wants to learn and adopt, especially when he or she can simply reach into their pocket, pull out their credit or debit card and pay.

MEF is the global trade association for companies wishing to monetise their products and services via mobile and have outlined six rules of m-commerce:

- Development and management of complex NFC technologies will require significant ongoing services from the retailer's payment systems provider
- Mobile commerce must add value to the consumer
- Mobile commerce must be streamlined with existing POS services and managed well for the retailer
- Mobile commerce must become ubiquitous to be successful
- Mobile commerce must be integrated with other forms of payment
- Mobile commerce must be iron-clad secure.

M-payments value chain

No one company can make a mobile payments system happen on their own. Many have tried, and failed, and the reality is now beginning to set in – collaboration is critical. There are several constituent players in the value chain outlined below – and some or all of them will be involved depending on the m-payment solution being deployed. It is less of an issue for remote software/cloud wallets than it is for proximity hardware/NFC wallets, as they can be managed and deployed as single-players or in JVs or groups. In order to maximise their revenues, especially regarding POS opportunities, there have to be partnerships and arrangements and commercial agreements in place.

One of the main issues to date has come about through differences in perspective, primarily that telecoms companies have a different outlook on fees related to mobile products and payments transactions than the companies who have always been in payments.

MNOs and telecommunications companies view mobile payments as a "value added service" that must generate an independent revenue stream, whereas those coming from the financial side see mobile as simply another channel to the customer. The latter group evaluates the business case on its own merit and not as part of an ARPU-driven telco decision.

As it is early in the entire m-payments process, there is a lack of framework or standard business model for revenue sharing across both a wider range of players in the value chain and/or participants in the mix that are entirely new to the payments business. To date, no consensus has really been reached as to the value that each party brings to the table, and premium pricing strategies by one or more of the stakeholders will not work. Reasonable rates of return in line with each party's contribution will be the only way to truly take this forward, however this is only a position that is being recognised now and is not yet a standard.

Value Chain Participants:

- **Merchants** – Land-based, internet, mobile
- **Payment Service Providers** – primarily the same players operating in e-commerce
- **Financial Institutions** – banks that do the final clearing between the buyer and merchant bank accounts (excepting where money is transferred between two mobile accounts eg. PayPal to PayPal)
- **Mobile Network Operators** – crucial in the chain from a practical perspective, and in addition they have relationships with the customers, therefore the potential to turn them into m-payment users, and also the MNO has an established payment system with the users by way of monthly bills, so they play the role of payment service provider through operator billing
- **Operator Billing Platforms** – this refers to the aggregators that manage the billing and relationships on behalf of the MNOs. Companies such as OpenMarket, MBlox and Velti (formerly MIG) would fall into this category
- **Handset manufacturers (OEMs)** – build and provide the devices and therefore are in control of their capabilities and usability from an m-payments perspective.

M-Payments Across The Globe

Developed / Developing Nations

Long-term m-commerce growth is more likely to originate in developing economies, where the mobile channel is virtually the only way to access the internet than in developed markets, where m-payments are a novelty or simply yet another channel in which to pay for goods and services.

In developed markets such as Western Europe and North America m-payments are not about filling gaps in the payments ecosystem, but about adding an enhanced experience for customers. The tipping point will be based entirely on consumer behaviour, which will change only when m-payments add sufficient value and convenience so as to make their use more attractive and preferable compared to other methods. "Value" is relative but is thought to include ease of use, cost versus other payment methods, safety and security and most importantly being commonly accepted both by merchants and the consumer market alike.

In developing markets, such as Africa or parts of Asia, m-payments have strong potential for several different reasons:

- Despite only marginal involvement by financial institutions in the regions, m-payments are often the only alternative that is available to the unbanked and underbanked
- Developing markets tend to have good mobile penetration (and very little fixed internet or phone line availability especially in rural areas)
- M-payments do not face competition from established traditional services they way they do in developed markets, therefore open up an entirely new customer-base and demographic - provided the m-payment companies do not over-complicate the product or fail to appreciate that most devices are basic and without advanced features
- In Asian and African markets, much of the growth of m-payments is driven by the channel being a cost-effective and sufficiently secure way to send P2P funds transfers, including cross-border remittances. This enables friends and family who have left countries to repatriate money back to their homes in an efficient, cheap manner – to recipients who are unlikely to have bank accounts.

A programme called Mobile Money for the Unbanked (MMU) was launched at the beginning of 2009, at which time there were 17 mobile money services for the unbanked around the world. By April 2012, there were 123 services, with another 93 in the sidelines being readied for launch. McKinsey & Company estimated that 45 million unbanked people were using mobile money in 2009, which is expected to have increased to 360 million by end 2012.

M-Pesa

M-Pesa (M for mobile, 'pesa' is Swahili for money) is a mobile-phone based money transfer service that originated in Kenya in April 2007. M-Pesa is widely regarded as the most successful deployment of a mobile payment service in a developing economy and one which other countries have tried to emulate. An average of 150 million Ksh (€1.39 million) is transferred through M-Pesa every day, although most of this is done in small amounts of around 1,500 Ksh (€13.93) per transaction.

The service is a partnership between Safaricom (in which Vodafone is a shareholder) and Vodacom and allows users to deposit, withdraw, and pay bills and transfer money (to people or corporations) easily by using SMS technology. Registration requires a national ID card or passport and an account is stored on the mobile device.

M-Pesa customers can deposit and withdraw money from a network of agents that includes airtime resellers and retail outlets acting as banking agents.

M-Pesa recorded 17 million subscribers by December 2011 in Kenya alone, and has been expanded to several other countries:

- M-Pesa in Tanzania has nine million subscribers and recently undertook a major upgrade of its system
- In 2008 Vodafone partnered with Roshan, Afghanistan's leading MNO, to provide M-Paisa, the local brand of the service. Launched initially to pay policemen's salaries, the service soon uncovered that under the cash model previously used, 10% of the workforce were "ghost" officers who did not exist but whose salaries were being pocketed by others. Once the corruption was uncovered and the money was redistributed properly, salaries rose for the real policemen and the service was so successful that it has since been expanded to include merchant payments (on a limited basis), P2P transfers, loan disbursements and payments
- In September 2010 Vodacom and Nedbank launched the service in South Africa, where it is estimated that there are more than 13 million "economically active" people without a bank

account. Initial projections were to register 10 million users within three years, but a year after launch, there were only approximately 100,000 customers. The gap between expectations and actual performance has been attributed to differences in the Kenyan and South African markets, in particular the banking regulations at the time of launch

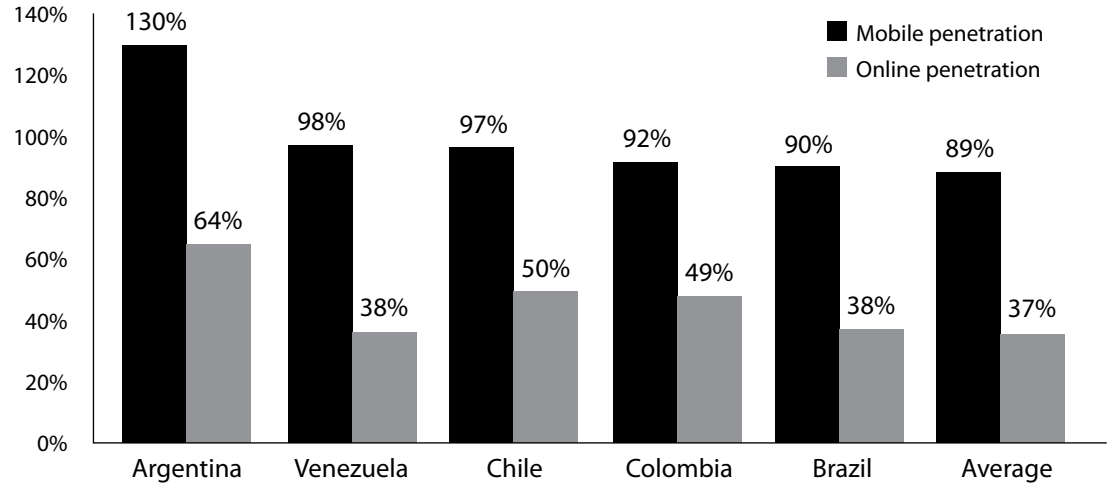
- Branded as M-Paisa, the service was launched in India in November 2011.

Latin America

There are several key circumstances in Latin America that collectively provide the optimum environment for m-payments to flourish:

- All across Latin America mobile phone penetration is very high, unlike fixed internet and fixed phone line adoption, which is very low and will most likely remain low.
- The prevalence of the mobile penetration and lack of fixed internet access means that the mobile device is likely to turn into consumers' main access portal to the internet.
- In 2010 the OECD found that the penetration of traditional payment systems across the entire Latin America region averages around 10% in demographic terms and 40% in terms of actual territory where consumers have access to bank branches and ATMs. This essentially means that the majority of the population is unbanked or underbanked.
- As a developing region, there doesn't exist the plethora of e-payment options in the marketplace, therefore m-payments have no real competition that would prevent them from gaining traction.
- A major consequence of Latin America's long history of hyperinflation is widespread consumer mistrust in banks. This means consumers in the region are open to considering alternative payment channels giving mobile-based financial services a head start.

Mobile vesus online penetration in Latin America



Source mobiThinking 2010

While Venezuela has a regulatory framework for mobile payments, no international mobile-based remittance services have yet been permitted – which is quite significant given that cross-border mobile remittance services are one of the reasons behind the growth of mobile payments, since credit cards are only permitted for domestic transactions. In other areas, Latin American regulators

are cautious about mobile financial services for a variety of reasons, including the instability of the economy and concerns of perceived money laundering risks associated with m-payments.

As MNOs cannot be classed as financial institutions, there has to be collaborations with local banks. The dominant MNOs, such as Telefonica, America Movil and Digicel are likely to form alliances with the bigger banks so as to lock the banks into partnerships rather than have them as competitors. The banks benefit from the low transaction costs the MNOs can offer for mobile financial services, and also because their distribution networks and access to customers already exists.

Telefónica, a Spanish MNO and leading operator in Latin America, announced a joint venture with Mastercard in 2011 to roll out services in 12 countries. There are question marks about the impact of the announcement as Telefonica announced in 2008 a service intended to target 175 million people, and in 2010 that technology company Trivnet has won the contract to supply them with mobile banking software – neither of which plans ever came to fruition.

Asia

India

India is a very appealing market to mobile financial services providers. There is a poor existing financial infrastructure, a large population of unbanked people, a huge rural community whose remoteness makes targeting them via land-based outlets impossible, excellent mobile penetration all throughout the country and a very tech savvy urban population. This combination of factors renders the country ideal – on two levels, rural and urban - for an m-payment infrastructure.

In a report entitled 'Mobile Banking in India: Dual strategy for Rural and Urban segments' from 2010, research firm Celent addressed the Indian market and found that government-to-person (G2P) payments will be the main growth driver for rural mobile banking, with over 60 million rural users benefitting from mobile banking by the end of 2012.

Recently however the Reserve Bank of India (RBI) announced its disappointment with the Indian banking sector for failing to promote mobile banking sufficiently; having authorised 53 banks to offer m-banking services, only 22 had begun offering it by December 2011. On the whole, the accelerated development of India's mobile communications sector is expected to act as a significant trigger for the positive evolution of mobile financial services adoption in the country, despite the currently low number of actual mobile banking users.

Japan

Japan has one of the world's most sophisticated mobile phone markets. In 2011 it had 100 million mobile subscribers (half of which have access to a 3G network) and a mobile-based payments infrastructure dating back to 2004, when the country's largest mobile phone operator NTT DoCoMo started to deploy devices featuring the FeliCa contactless IC chip developed by Sony.

Japan is a very urban tech-savvy society, with a high proliferation of smartphone usage, especially the iPhone. The iPhone however is incompatible with the FeliCa mobile payment system, which enables Japanese devices to contain multiple forms of data including banking information and credit cards and it wasn't until early 2010 that Mophie, a US solutions provider for Apple products, announced a partnership with two Japanese companies to develop a mobile payment solution for FeliCa technology in Japan. The solution was launched in Spring 2010, allowing users to read and write

electronic money card information using their iPhone device in conjunction with a marketplace FeliCa App. As a consumer-oriented service, the added FeliCa functionality allows iPhone users to record all their card activity history, confirm card account balances, report expenses, transfer deposits, provide secure payment and accumulate or deduct rewards points.

China

China has long been expected to become the leading mobile payments market globally, with adoption of mobile payments in the region driven by technological innovations and operators' initiatives, particularly in the NFC field. The reality is significantly more complex and multifaceted than the optimistic forecasts appear to acknowledge.

On one hand, China has all the basics in place for m-payments to flourish – high mobile penetration, low credit card adoption, large unbanked population and few available financial alternatives. In addition to the unbanked, rural sector, for whom m-payments would be a lifeline to a service they wouldn't otherwise have access to, there is a young tech-savvy urban population which adds an additional attractive market layer for m-payment companies.

However, a 2010 study published by Beijing-based telecom consultancy Maverick China Research reported that 75% of Chinese mobile phone users cannot access mobile payment services on their devices, and of the remaining 25% less than 2% actually made use of their mobiles to carry out transactions. In June 2011, more optimistic estimates were published by ResearchInChina, whose study reckoned that the penetration rate of the Chinese mobile payment market would increase to 25.8% by the end of 2011.

Africa

On the back of the success of M-Pesa, Africa is often seen as the shining light in terms of m-banking and m-payments in developing nations, however outside of Kenya and M-Pesa, m-payment services are very rudimentary, even though it is true that they are flourishing and mobile devices have given a lifeline to many poverty-stricken Africans who wouldn't otherwise have any access to financial services of any sort.

Despite having lagged behind the rest of the world for many years, Africa is now one of the world's fastest-growing mobile phone markets, with active mobile subscriptions having crossed the half-billion mark in the third quarter of 2010. In addition, although fixed telephones and computers are largely absent from households, a number of African cities have excellent 3G services.

All in all, Africa's mobile market is very healthy, with a penetration rate that jumped from 3% in 2002 to almost 50% in 2010, and a mobile money transfer market that is expected to exceed $200 billion (8% of the continent's GDP) by 2015, according to Pyramid Research as published by The Paypers. Yet, there remains some under-served areas, especially in rural Africa, where mobile penetration is sub-10% and outside of P2P transfer services (as is the norm in developing regions where ex-pats send money back to friends and family) there is much room for growth of more sophisticated m-payment products throughout the continent, much of which rests on the willingness of millions of Africans to adjust to a formal banking system.

A Sybase 365 report in 2010 found that less than 10% of African consumers had any sort of formal banking, due to poverty, the lack of bricks-and-mortar accessibility and trust. To overcome the trust issue, all m-payment companies had to do was to keep the offer simple and straightforward, and allow

customers to carry out multiple types of transactions via locally established agents that can offer hands-on assistance.

Since 2010/11 there have been many moves by key players in the African m-payment and m-banking market:

- Airtel Africa partnered with Standard Chartered Bank and MasterCard to launch a virtual card set to operate as a mobile wallet called Airtel 1timeshopping Card, allowing customers to make online purchases from MasterCard merchants globally via their mobile phones. This initiative was launched in Kenya with a view to rolling it out across other countries in the continent.
- As well as M-Pesa's expansion into other territories as outlined in the section above, in April 2011, the payments provider joined up with Western Union to make its money transfer service via the m-wallets of the M-Pesa service. The partnership allows users to send funds directly to M-Pesa subscribers via Western Union's agent locations.
- First National Bank (FNB) has just released their e-wallet money transfer solution to non-account holders in South Africa by partnering with PEP stores, the country's largest single brand retailer, enabling individuals to access financial services through its 1,200 outlets. FNB is a good example; the financial industry should not focus on additive mobile banking at the expense of the potentially more lucrative opportunity offered by transformational banking.
- MNO Orange has also been very active, in particular in West Africa. Orange Money is a mobile phone-based payment system that allows customers to carry out basic banking operations and transactions, and is available to users regardless of whether or not they have a bank account.

West Africa is making an impressive move forward in the m-payments sector, with businessdayonline.com reporting that West African economies are fast catching up with Kenya and South Africa in adopting mobile financial services, and flagging that Nigeria is expected to become the largest mobile payment market in Sub-Saharan Africa by the end of 2011. Nigeria has approximately 90 million mobile phone users (out of a total population of 150 million); yet only around 22 million Nigerians own a bank account – once again indicating the opportunity for m-payments services.

The Central Bank of Nigeria (CBN) has issued seven approvals in principle (AiP) to prospective mobile payment service providers in the country, including one to UK-based mobile financial technology company Monitise. The license allows Monitise to develop and deploy a mobile financial services platform in the country designed to be shared by various banks and payment providers, enabling them to offer mobile payment services under their own brands. The next step for Monitise is to enable Nigerian banks and other financial institutions to provide mass market mobile phone-based financial services including loans, insurance, pension products and savings.

Players and Collaborations in the Mobile Payments landscape

ISIS

One of the most important initiatives in the mobile payments sector is ISIS. ISIS is a US MNO (carrier) led scheme for an NFC-based payment network created in a joint venture between AT&T, T-Mobile and Verizon that was announced in November 2010. It was intended to become a payment processor in its own right and therefore a competitor to Visa and Mastercard's NFC offering, but has since partnered with them both, along with American Express and Discover. The fourth carrier, Sprint, is not (yet) involved in ISIS as it is waiting to see if the service will have a presence beyond the SIM-based technology.

Collectively, the three MNOs have more than 200 million consumers registered and, based on that scale alone, it has emerged as a threat to all other US initiatives, including PayPal and Google Wallet, in driving NFC adoption in a retail setting.

ISIS will act as its own Trusted Service Manager (TSM) and will push the secure information to all parties and elements involved (apps, banks, handsets, etc.). If the MNOs furnish all of their phones with the wallet, and it remains a walled garden, it could potentially force other wallets to work through ISIS in order to function on their networks.

As well as being a payments solution, ISIS has already partnered with a services company that offers value-add to consumers in the form of coupons, ticketing, parking and other functionality. Like Octopus in Hong Kong, the early adoption of NFC might be driven by services rather than payments and, if that is the case with ISIS, it has well and truly sewn this product up.

ISIS revenue streams are currently in flux. For virtual goods, the consortium will take a substantial share of profits, but the situation is different for retail and the tenuous commercial relationship between all the stakeholders in NFC is the same for ISIS as it is for everybody else. It's not beyond the realms of possibility that ISIS will take a cut of the retailer's margin instead of interchange fees, and there are rumours that "rental" fees will be charged for leasing space on the wallet to banks.

Project Oscar

After European anti-trust regulators probed the joint venture, which has the potential to block competitors from offering their own mobile payment services in the UK, Project Oscar, the digital wallet collaboration between Everything Everywhere, O2 and Vodafone, was given the go-ahead in September 2012. The MNOs have publicly admitted that the venture is a long-term play to ward off competitors such as Google, which has the UK in its sights for international expansion. Like ISIS, Oscar intends to act as more than an NFC payment mechanism, with the telcos announcing in a statement that Oscar would "provide a single contact point for advertisers, media agencies, retailers and brands."

Each of the MNOs, alongside their participation in Project Oscar, already have other initiatives in the m-payments market, and all are addressing the Direct-To-Bill solution, which will work well for gambling operators.

O2 recently announced its own platform agnostic m-wallet that allows users to transfer up to £500 via text message and make purchases from online stores. This is the wallet that will be used in Project Oscar once it launches. With more than 100 retailers signing up to support the service, including the likes of Tesco Direct, Comet, Debenhams and Sainsbury's Direct, users will be able to message payments, as well as compare prices on items and view transaction histories. The service will be free initially, but O2 revealed that it intends to charge 15p per message in the future.

Vodafone is very much committed to the m-payments sector, driven by its participation in M-Pesa in Africa, in which the company has a significant minority shareholding, and Orange has teamed up with Barclaycard and its Quick Tap service. Quick Tap allows customers to make purchases up to GBP 15 in a single transaction by tapping their Quick Tap mobile handset against a contactless reader at over 50,000 stores in the UK. The service is also designed to allow UK shoppers to load up to GBP 100 on their phones from their Orange or Barclays cards.

In order to use the service, UK customers have to be holders of a Barclaycard, a Barclays debit card or an Orange credit card, as well as a Samsung Tocco Lite device, with other handsets from other

manufacturers to follow in the future. By using Barclaycard's contactless payment technology, customers are expected to be able to pay for items in places they see the contactless payments symbol, including shops and cafes such as Prêt à Manger, EAT and Subway.

Google Wallet is an NFC mobile payment system developed by Google that allows its users to store debit cards, credit cards, loyalty cards and gift cards, among other things, as well as redeeming sales promotions on their mobile phones. Google Wallet was released in the US in September 2011 on the Sprint mobile network and works on any of the 300,000+ Mastercard PayPass terminals. Initially launched with Citibank as the issuing bank, First Data as the Trusted Service Manager and Mastercard as the card scheme, Google has since partnered with others, including Visa, in an effort to be competitive with ISIS.

The difference between Google Wallet and other NFC m-payments is the business model. Google does not charge any processing fees, but instead maintains a focus on its core business of advertising and consumer offerings by charging merchants and advertisers to deliver targeted, localised offers and coupons. In essence, Google is expanding its web offering and using NFC to make the connection between online and offline.

Users can get offers by tapping their phones on terminals or smart posters and the new app Google Shopper will push two types of offers to a user's phone:

- Today's offers, which allows the user to see a single offer redeemable for discounted goods or services in their area.
- Nearby offers, which allows the user to see a list of offers in the 'Eat' and 'Play' categories that nearby businesses have submitted through Google Places.

The Google Wallet was designed as an "open" platform. Payment networks, carriers and banks have been invited to join and participate in the system. Google is acutely aware that the likelihood of consumers having more than one wallet on their phones is slim, so they are looking to be the wallet owner, with many third parties having their own offering as part of the real estate.

Google's current offering is on an embedded chip in Sprint's Samsung Nexus S device, and therefore the company is in control of the technology, but is aware that over time a SIM-based offering will be necessary, but it is the MNOs that manage the SIM – and in this case the MNOs are Google's competitors in the ISIS collaboration which is hardly likely to make for an easy path ahead. There were rumours, which were denied by Verizon, that the MNO was intending to block Google from its network. In the meantime, Google is producing NFC stickers to be attached to phones for a faster roll-out of the service.

Google has bet a lot on its NFC project and is pushing forward extremely aggressively in an effort to claim market share, and indeed the company has a lot of factors working in its favour.

- Google's purchase of Motorola Motility will allow it to produce more NFC handsets.
- It is subsidising NFC-equipped POS terminals by VeriFone for select retailers during their trial period.
- It has announced plans to work on non-Android phones, including Apple and Blackberry.
- Its open platform is attractive, where others, including ISIS, are closed.
- There are plans to work on both handset and SIM based NFC technologies.
- As Google is leaving its share of the processing costs on the table, it's possible that merchants and banks will favour it over ISIS.
- Google will lease, for free, space on its wallet solution, where ISIS will charge merchants and partners for rental.

- Google Wallet is already rolling out in Europe, although this is not without difficulty as the ecosystem and commercial relationships are different from the US market place.

PayPal

As one of the internet giants, it's hardly surprising that PayPal is one of the frontrunners in m-payment – although it is carving out its own niche rather than following the herd. The company has expanded its e-wallet into a joint e- and m-wallet, but more than that, it is successfully merging the online and offline worlds in partnerships with key retailers.

PayPal's land-based retail venture started with Home Depot in the US, where shoppers are able to make their purchase using their PayPal wallet, and they subsequently partnered with Starbucks for reloading the payment/loyalty card, but more recently they have been making inroads on the European high street where it was announced in September that the m-wallet could now be used in the women's clothing stores owned by the Aurora Fashions Group.

Warehouse, Oasis, Coast and Karen Millen now allow their customers to pay in-store using their PayPal mobile wallet. The shops are equipped with scanners that can read a unique barcode generated by the "PayPal inStore" mobile phone app (available on Android and iOS), which is linked to the PayPal account and accessed through a unique PIN. Once the barcode is scanned, payment is taken from the PayPal account. The system works whether or not there is a phone signal in the stores.

This is a different process to the US deployments and PayPal has been trialling its technology over the last year in Pizza Express outlets, announcing that the Aurora deal was the beginnings of a bigger push that will see it team up with more stores throughout the remainder of 2012.

PayPal's local commerce strategy capitalises on its trusted brand name and marries several of its recent acquisitions, such as WHERE (location based couponing), Milo (real-time retail product inventory), RedLaser (comparison shopping) and Fig (mobile payments framework). PayPal plans to offer a seamless end-to-end experience to a consumer who uses PayPal's platform from product lookup, comparison-shopping across local retailers, couponing, payment and order fulfilment.

PayPal also has limited experience with NFC, having had a 2010 partnership with start-up Bling Nation to launch a "tap-and-pay" payments programme in the US, designed for PayPal employees and early adopters in Palo Alto, CA. Despite a promising start, Bling Nation temporarily shut down to revamp and relaunch its service, and while the move was allegedly temporary, the rumours were that the start-up was in trouble due to slow market traction.

PayPal collects a fee for each online e-commerce transaction made through its online payment service. If the company were to move into the heavily-contested NFC market, its gains would be much smaller compared to its current online e-commerce revenue, owing to existing cost structures for processing payments at the point of sale. PayPal's strategy is to have customers bypass the POS infrastructure completely and use its internet-enabled smart phones to transact using PayPal's online payments service.

PayPal launched a developer library for mobile payments in February 2010 as part of the PayPal X Payments Platform. The library enables third-party developers to accept in-app purchases directly via PayPal without having to store customers' personal financial information. In the months following the introduction of PayPal X, other payment networks launched open platforms. MasterCard Worldwide

launched its proprietary payment and data services as an API and allowed third-party developers to build new payment applications in May 2010. Visa followed in October 2010.

Square

Square is a relatively new entrant to the market but it has already made a tremendous impact, having started out by creating its own market with a square reader that enables merchants to accept credit/debit card transactions using their mobile phones. Over 800,000 readers have been shipped to date, and the company is already transacting in excess of $4 million per day, and is on track to process $8 billion annually.

Square got a big boost when Starbucks signed up as a partner and simultaneously invested $25 million in the company in mid-2012, and in September the company was valued at $3.25bn and raised $200m in new funding. The latest round brings Square's total fundraising to $341m. Previous investors have included Sequoia Capital and Visa, which made a combined $27.5m investment. Kleiner Perkins Caufield & Byers and Tiger Technology Global Management invested $100m last year, along with $3m from Sir Richard Branson.

One of Square's biggest competitors is PayPal, the payment arm of ecommerce site eBay, which released a triangular plug-in credit card-reader this year and signed a deal with Discover, giving 7m merchants that accept that credit card the ability to also accept PayPal payments. Groupon is now also offering its merchants in the US a way to accept credit card payments through mobile software and card-reader attachments for iPhone and iPod Touch devices.

Mastercard

Mastercard has long had a strong position in the NFC sphere with its PayPass terminals (compatible with 70+ devices) and several partnerships, including both ISIS and Google Wallet, as well as a recently announced partnership with T-Mobile. The company is also tackling the Latin American market in a 50/50 joint venture with Spanish MNO Telefónica, which operates throughout the continent under the Movistar brand. The two companies will provide mobile financial services in 12 countries in Latin America, with success expected based on Telefónica's telecommunications assets and extensive presence in Latin America, and Mastercard's payments expertise.

Visa

Visa is phenomenally active in the m-payments space, having attacked it from a wide variety of angles:

- Visa Mobile Prepaid was showcased at the London 2012 Games, and is the first mobile-based Visa product providing consumers in developing countries a payment account that offers Visa's high standards of security, reliability and global interoperability. By accessing the Visa Mobile Prepaid account on their mobile phone, consumers can send and receive international remittances, pay bills, top-up wireless minutes and access Visa ATMs.
- V.me is Visa Europe's answer to PayPal and Google Wallet, and the company has confirmed that it will be launching the service in the UK, France and Spain, in association with payment processor MobilePay, in autumn this year (there is no timeline for a US launch at the time of print). It will allow consumers to store the details of a number of cards, not just Visa-branded, in their own digital wallet, which can then be used with online stores and mobile phone NFC payments. V.me will also partner with its issuing banks in the near future.

- Visa refers to its V.me program as a digital wallet, not a mobile digital wallet – a key distinction, as the company claims that V.me will enable click-to-buy on a computer, touch-to-buy for a mobile browser and wave-to-buy for physical point-of-sale NFC transactions.
- Visa Mobile P2P payments enable registered users to transfer funds to any Visa cardholder from their mobile phones, backed by all the security, expertise and connectivity of the Visa Europe processing systems.
- Visa Mobile Alerts notify registered cardholders, in real-time, whenever their card has been used to make payments across the Visa Europe payment network.
- Visa Contactless Payments: There are around 37 million Visa payWave-enabled credit, debit and prepaid cards in circulation across Europe. Neither a PIN nor pass code is required for purchases below £20 (limits vary by country) and, by the end of 2012, Visa Europe expects to have more than 50 million Visa payWave cards in circulation in Europe.
- At the same time, Visa is finalising the details of its commercial Near Field Communication (NFC) services. Here, it is defining the necessary standards to ensure that mobile devices can work easily and securely across the existing Visa payWave contactless acceptance infrastructure.

American Express

Along with its participation in ISIS, American Express has its own Serve platform, which integrates mobile payments, loyalty programs and other social and connected services. Serve allows the creation of a pre-paid account funded via bank accounts, debit or credit cards to use for P2P payments, as well as online and offline purchases. This is effectively a debit card format, which is a new format for AmEx, and the company appears to be keeping it separate from the core credit business, so as not to dilute the user base.

With its P2P methodology, AmEx is pitting itself against PayPal and ClearXChange (a Chase, Bank of America and Wells Fargo service). It has signed up Sprint and Verizon, while its partnership with Payfone will allow millions of customers from either mobile network to use AmEx to pay using their mobile phone number. The Serve digital wallet service is accepted by the millions of merchants who accept AmEx.

Banks are getting heavily involved in m-payments. Barclay's P2P money transfer service Pingit has been heavily advertised on UK television and other media. The service is simple and enables users to send and receive money to and from anyone with a UK bank account simply by using their mobile number, without needing to share bank details.

In addition, Barclays/Barclaycard has been the undisputed leader in contactless card provision, with almost all its credit and debit cards now contactless. Royal Bank of Scotland, which includes NatWest, has some contactless debit and credit cards in issue, while Lloyds has issued 1.5m (including those held by Halifax customers), with that figure expected to rise to 2 million by the summer. HSBC is the latest bank to launch contactless cards in the UK, having started their rollout in May 2012.

The Dutch financial services providers ABN AMRO, Rabobank and ING have joined forces with telecommunications and ICT service providers T-Mobile, KPN and Vodafone. The six companies plan to set up a joint venture to promote and facilitate the use of m-payments in the Netherlands. The mobile phone will communicate by NFC, while the payment software itself will be located in a secure part of the SIM-card.

Japan is a pioneer in this market and NFC payment has been up and running for many years there, since NTT DoCoMo first deployed a wallet-phone concept. Throughout Europe there are many trials and launches of contactless and m-payments, especially in Eastern and Northern countries.

Denmark and the Netherlands both have consortiums in place to attack the marketplace, openly admitting that it is Google Wallet's expansion plans that are causing them to move faster than they had anticipated. The Danish companies' service will include payment, as well as loyalty, ticketing and ID through the wallets and will launch by end 2012. In a set up similar to Project Oscar, the Danish telcos are partnering to push a common NFC platform anchored by SIM cards they will issue.

Over the past year, mobile financial services trials have been initiated in countries as diverse as Slovakia, Poland and The Czech Republic. The Slovakian offering is deployed by UniCredit (in partnership with technology company Gemalto) and uses contactless stickers for its initial service. Gemalto is also active in Poland where it is working with MNO PTK Centertel, an Orange group affiliate.

In the Czech Republic, Telefónica O2, T-Mobile and Vodafone partnered to develop a joint platform in a bid to drive a mobile payment adoption called "Plat mobilem" ("Pay by Mobile"). Plat mobilem permits customers to pay for their purchases at checkout points using their mobile devices, either by sending a Premium SMS or via the jointly-developed payment gateway.

Payforit4

Payforit is a standard developed and implemented by the four UK MNOs for premium rate services and Direct-To-Bill (DTB) payments. The scheme is set up to provide trust, familiarity and reassurance to consumers who use their mobile phone account or prepaid balance to transact

Security and trust in the Payforit scheme is provided by the MNOs accrediting and contracting with a small number of payment intermediary companies. These intermediaries, known as Accredited Payment Intermediaries (APIs) are the aggregators such as OpenMarket, MIG and MBlox who act as aggregators and place themselves between the merchant and the collective MNOs, and delivery the customer experience to the specification of the scheme.

The history of Payforit has been underwhelming and subject to much criticism. In fact PhonepayPlus (the regulatory body for premium rate services in the UK) found in their 2011 analysis that Payforit only generated revenues of £24.4 million representing 3.1% of total premium rate service revenues. At the other end of the spectrum PSMS / MMS totalled £323.1 million, a 40.6% share.

However, in the past few months Payforit 4 has been launched having undergone a massive usability overhaul, and included two new and significant features that were not present in earlier iterations:

- HTML5 based payment iFrame that enables secure transactions without the consumer having to leave the merchants environment
- Payforit Single Click that enables consumer opt-in simplified checkout for second and subsequent purchases from the Merchant.

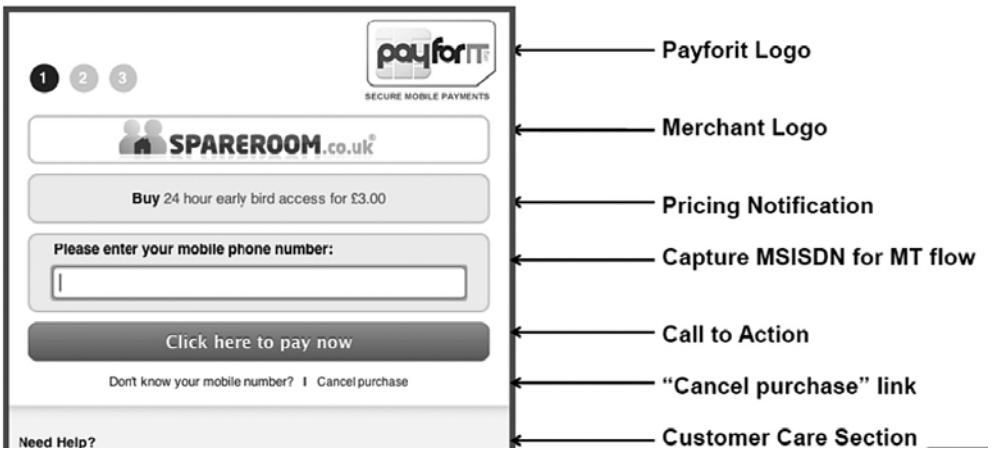
The process is now a simplified "low friction" payment flow that improves checkout success and places a clear "authorisation for charge" into hands of consumers. Where earlier versions of Payforit had low conversion due to poor usability and clarity, Payforit 4 has been redesigned solely with the user experience in mind and is expected to make a dramatic difference to conversion and transaction completion levels.

Payforit Process

Once a customer selects the Payforit checkout functionality from the merchant site one of two processes will take place.

If the MSISDN is known and passed to the MNO, the user will have a single-click process to complete their transaction. (MSIDSN is s a number uniquely identifying a subscription in a mobile network. Simply put, it is the telephone number to the SIM card in a mobile/cellular phone)

If Payforit is being used on the web (i.e. a transaction is being made on a desktop device but charged to the mobile) and the MSIDSN is not passed, then an iFrame is served by the payment intermediary prompting the user to input their mobile number, from which the information will be gathered by the MNO and the transaction can continue.



MNOs and Gambling

Payforit 4 is launched at a time when the MNOs are getting increasingly involved in gambling transactions. Gambling and lotteries using Premium Rate Services (PRS) payments are estimated to have generated revenues of £38.6 million in 2011. This was primarily on the back of PSMS transactions rather than Direct-To-Bill payments. The difference between the two from the customer perspective is that the latter will appear as a "credit card" style statement rather than a charge simply appearing in the SMS section of the bill.

DTB is an area the MNOs are aggressively pursuing and the likes of Vodafone and O2 are ready to be more involved with gambling transactions – albeit subject to the daily/monthly limits they have in place for DTB charges (typically £30 per day, and up to £500 per month, but it varies amongst the MNOs)

In many cases in the past, DTB transactions were executed through the MNOs messaging interface, but increasingly this is migrating to more advanced and flexible billing interfaces which makes a huge difference for gambling operators, as is provides a solution to the VAT pass-through issue that in the past added extra charges on to an already high SMS/processing fee from the MNO.

Historically VAT was applied to the total of a phone bill – i.e. every single charge on the bill was summed up, and VAT applied in a single measure. As gambling transactions should be out of VAT scope on a bill, this made this solution financially untenable at worst and messy at best (if the MNO and/or intermediary put in place a manual workaround to ensure the VAT and charges were executed correctly, if not actually how they appeared on the customer bill)

There are downsides to working with the MNOs on a billing level:

- High charges – not as high as they were historically which reached levels up to 40% at one point. The expectation is that collectively all parties (MNO and aggregator) fees would be "high but workable" in a situation where the revenue driven from the process was incremental.
- Settlement times may be up to 90 days
- Low limits on deposits as the networks need to protect their core business of line rental and phone/data charges.
- Paying back winnings is an area that needs a resolution.

The MNOs have dedicated and are dedicating a lot of resource to setting up seamless and efficient DTB set ups – as they are looking to this as an additional revenue stream in a market that is close to saturation when it comes to mobile subscribers. When DTB rolls out on a real scale this is an area that gambling operators will do well to participate in as despite the higher charges imposed by the MNOs there is the opportunity to increase business through accessing an untapped market of new customers, longer lifetimes and increased frequency of play. The fact that the new technology makes it possible for transactions to be completed on a granular level (1p increments) rather than fixed PSMS price points also adds to the offering.

Near Field Communications (NFC)

Market for NFC

Near Field Communications (NFC) is a short-range wireless connectivity technology standard designed for intuitive, simple and safe communications between electronic devices. Communication is enabled by bringing two NFC-compatible devices within a few centimetres of each other.

NFC originated in Japan in the 1990s through collaboration between Philips and Sony. The two companies jointly developed a standard for two-way contactless communication, and while this standard was available throughout the 1990s it was only acknowledged by the ISO organisation in 2003 and from that point it became an open standard for two-way contactless communications.

There are wide-ranging projections for the importance of NFC in consumers' lives and forecasts are many and varied. In a report addressing the wider area of m-payments, KPMG are anticipating a 97% boost in global mobile payment sales year-on-year for the next three years and project that contactless and cloud-based services will dominate, with an expected market share for contactless of 37% by 2015.

Juniper Research estimates that by 2016 mobile contactless spend, powered heavily by NFC, will exceed £20 billion in Europe, and the company projects that of the six billion mobile phones in circulation by 2016, at least 750 million will have NFC capabilities. Strategy Analytics is more bullish and predict that nearly 1.5 billion handsets sold between 2010 and 2016 will support NFC transactions of more than $50 billion globally.

To date over 45 of the world's leading mobile network operators (MNOs) have committed to support and implement SIM-based NFC solutions, and in general there appears to be somewhat of a consensus amongst many analysts, including research giant Gartner, that 2015/16 will be the time when NFC reaches critical mass. According to Consult Hyperion, NFC devices are predicted to outsell non-NFC devices by 2015, and the company describes 2016 as the "inflection point" at which 50% or more terminals will be contactless/NFC capable.

The road to NFC is not a simple one however, and the deployment of capable handsets does not automatically mean success of the payment mechanism. The obstacles and roadblocks are discussed in a later section of this chapter, but the case for NFC is based around ease, speed and simplicity for both the consumer and the merchant.

Synovate have found that 75% of people will not leave home without their mobile – in fact more people are likely to leave their keys or wallets at home rather than their mobile phones. These statistics underscore the importance of these devices in our lives and why an NFC payment mechanism has the potential it does.

Many elements that must come together on both a country-by-country basis and then a on a global level in order to drive NFC to mass-market acceptance:

- **Mobile industry** – MNOs have a central role in the deployment of NFC, but they cannot do it in isolation. They need to engage the value chain by specifying and ordering appropriate handsets, compliant SIM cards and developing the applications necessary to enable the services
- **Financial industry** – the payment value chain is complex and there needs to be agreement from the banks and the card issuers
- **Merchants** – need point of sale (POS) terminals broadly deployed in the market

- **Adjacent industries** such as ticketing, entertainment, access solutions for hotel or rental card etc need to be involved as payments alone will not drive widespread NFC adoption
- **Public sector** - government, regulators and local authorities are a critical piece of the NFC puzzle in that there needs to be effective regulation to encourage deployment of NFC services and engagement.

NFC can only succeed through collaboration across the entire value chain.

The critical developments of faster data transfer speed and increased data security, along with strong marketing pushes by card schemes and companies such as PayPal and Google have so far given contactless payments the kick-start they needed. For example, at the Mobile World Congress in February 2012, Visa announced a partnership with Vodafone, Orange Money and Intel to use the Visa wallet in upcoming smart phone sales. The three largest MNOs in North America (Verizon, T-Mobile and AT&T) founded ISIS, a mobile wallet solution working with Visa, Mastercard and Discover. PayPal has made massive expansion into NFC based wallets and Google has included NFC as a core capability of its Android operating system.

In 2010 in the US market there were around 300 billion small value payments ($25 and less) undertaken in retail outlets, accounting for a total combined value of more than $1 trillion. Contactless payment technology would have a massive impact on this market in the event that it was the preferred payment method given it would allow customers to eliminate the need for having cash, while also adding user-friendliness and speed into the mix.

Broadly speaking, the key benefits of Contactless payments are:
- Customer convenience – speed of making payments, less time standing in line
- Merchant cost savings – less cash handling, more transactions
- Loyalty and other value added features.

In terms of speed of transaction, Research and Markets undertook consumer research based on the perceived time taken for different transactions. The results were as follows:
- Contactless card – approximately 28 seconds
- Cash – 40 seconds
- PIN card – approximately 58 seconds
- Signature card – 60 seconds

NFC is not new outside of the realm of payments. The most well-known schemes are in transport with both the Hong Kong Octopus card and the London Transport Oyster card successfully using the technology for some time now. In Hong Kong the Octopus card, which is supported by twelve banks and one credit card company, has evolved to be much more than a travel card, and after just 5 years in deployment 25% of card transactions are already non-transit related as the card is accepted by more than 160 merchants such as Park 'N Shop, the country's leading supermarket, Starbucks, 7-Eleven and many other food outlets. Vending machines are also contributing to massive growth as sales have increased given that customer make more impulse buys when they don't need to use cash, and because each Octopus card is personalised with a unique identification number, up to 40,000 are being used as security passes in housing estates, staff ID cards and loyalty cards.

Types of NFC

There are three ways that NFC can be deployed:

- Contactless cards
- Mobile devices
- External devices ranging from micro SD cars to posters and stickers.

Edgar Dunn and Company estimates that estimated market size for contactless cards will be $322 billion by 2016, which represents significant growth. Mobile and other factors will account for a substantial volume of total contactless transactions but payment cards will play a major role in the contactless future in developed markets because of the widespread issuance and use of credit or debit cards which are not likely to decline in popularity – for example there are more than 18 million contactless-enabled cards in the UK, split equally between credit and debit cards.

Contactless cards can now be manufactured at very competitive prices and some card issuers plan to have contactless functionality on all new cards they issue. In developing markets, plastic cards issuance is expected to grow but mobile phones will become the access channel of choice for millions of consumers in Asia, Africa and Latin America.

Despite the fact that contactless cards are in widespread use, much more so than mobile devices currently, it is the mobile contactless payments sector, also known as mobile proximity payments, that is the most debated and most talked about innovation because of the technical, operational and business complexity involved.

Technically there are three different approaches to NFC-based proximity payment solutions that differ primarily on the placement of the NFC secure element (one's encrypted payment card credentials) in the NFC enabled handset, whether its embedded in the phone hardware, on the SIM card or on a separate micro SD card.

IC (integrated circuit) chip embedded in the mobile

In this approach, the NFC secure element (IC chip) is "baked" in to the phone hardware. This is the model used in Japan, where NFC enabled mobile phones have become standard. In short, the IC chip, which enables NFC, is embedded in the mobile phone.

Advantages	Disadvantages
● Common architecture for content providers independent of the mobile phone technology ● Excellent data encryption while stored and in processing ● Preferred by m-wallet providers as they would have access to the customer spending and details.	● Difficult to transfer applications to a new handset ● Limited number of phones have this technology as of yet ● With each new device, applications will have to be re-tested, leading to delayed deployment.

SIM solution

The connection between the NFC chip and the SIM card is the industry standard, using the Single Wire Protocol. The SIM card is certified, standardised and tamper resistant – providing greater security over other NFC form factors and this method appears to be the one that is widely being settled on after years of debate. Not all parties however are happy with the SIM solution – primarily because it is in full control of the MNO, and some players in the value chain, especially banks, are concerned that that this arrangement will entitle the MNO's to act as "gatekeepers" to the payment information and charge fees for simply allowing access to the SIM.

Advantages	Disadvantages
● Preferred by MNOs, and controlled by the issuing party ● Faster deployment, as it is independent of handsets ● Over the air (OTA) provisioning – meaning new applications can be downloaded remotely ● Easy to block/cancel in the event a handset is lost or stolen ● Can be segmented in order to support multiple cards ● Can be portable between phones as handsets are upgraded if the SIM is transferred to new device.	● Requires cooperation from the MNOs and other parties, which currently is a quagmire at best given the ambiguity over roles, value and commercial arrangements for revenue share ● When multiple payment applications are present in one SIM card, questions arise as to who maintains control and visibility of credit cards from separate banks.

Secure Digital card solution (SD card)

This approach stores the Secure Element on SD cards and has the advantage of being totally agnostic of operator networks and handset manufacturers. More importantly is it often seen as a bridging solution possible in advance of SIM or handset technology. A company making good progress in SD card NFC is DeviceFidelity which provides a micro SD card to VISA for its In2Pay service that offers NFC payment capabilities across VISA's payWave platform. In addition, given the iPhone currently does not feature a micro SD slot, DeviceFidelity has designed a protective case that adds mobile contactless capability and works with the iPhone – this has been widely accepted in Japan, where iPhones are very popular, but conflicts with other countries' mass-NFC adoption.

Advantages	Disadvantages
● Rapid deployment as it works with existing hardware ● Agnostic of MNOs and phone hardware ● Preferred by financial institutions, as it allows the card issuing bank to own the secure element (and therefore the customer details).	● No standard currently exists between the SD card and the device functionality (keypad/screen) ● Each bank/credit/debit card would probably need their own SD card slot ● Higher cost and ambiguity over who would pay for the card – the bank or the customer.

Obstacles to Overcome

The enthusiasm and hype around NFC is reaching fever pitch amongst payment, mobile and technology companies, however there are serious questions being raised about its deployment and long term practicality and success, in particular there are concerns about interoperability, and the slow pace of adoption owing to merchant and consumer apathy and perceptions about a loss of privacy or security. Essentially NFC payment involves massive change from consumers, dedication from merchants and collaboration across a wide range of stakeholder who have never been in this position before, and these things all take time. The general consensus is that NFC payments are a few years away yet, but in the meantime, ticketing rather than retail payment, will drive NFC transactions and adoption

Adoption and consumer behaviour

Consumer awareness is extremely low and confusion is extremely high as to what NFC is, how it works and how to get it. Customers know how cash and cards work, they are intuitive, but NFC is a black hole in the minds of the public. Therefore it is imperative for all members of the NFC value chain to engage with the public to heighten its profile as a simple, intuitive payment mechanism.

Mass-market adoption of NFC payments is dependent entirely on a change in consumer behaviour, and currently it is proving difficult to convince consumers to change their payment habits and chose to pay via NFC-enabled handsets (that they mostly still need to acquire) rather than via familiar and trusted bank cards and cash. For NFC to become the norm, consumers must see and believe that there is significant value to overturn their inherent and intuitive payment methodologies of today. To be considered attractive, mobile contactless payments cannot simply offer the same thing as card payments: they must be quicker, more secure and richer in functionalities than "ordinary" card transactions. Theoretically NFC offers all this and more, however the consumers are not yet even close to being on board in their beliefs and understanding. For the most part NFC in most developed markets is simply not yet seen as an alternative worth considering, let alone using.

The most advanced countries for NFC payments are seen to be Japan and Hong Kong. The Japanese market grew on the basis that this is where NFC technology was created and consequently NFC handsets are the norm. In Hong Kong it was the Octopus card and its use as a transit card that initially drove adoption, and the NFC payment mechanism grew from this. Customers understand and use NFC in a non-payment format (even if they don't realise that it is NFC as is often the case for the London Transport Oyster card), and it is a wide-held belief that non-payment uses are a smart and efficient way to drive the NFC payment market. Yet in Europe and North America it is payment companies and MNOs that are leading the charge, so the approach is being taken from the reverse angle to Asian markets and the rollout is an uphill struggle.

Limits and current deployment

NFC is currently being used and advertised for small ticket items. There is a limit of £15 on transactions in the UK, yet the big prize for the mechanism will be the public acceptance and use of contactless transactions for higher value purchases. In addition, the NFC roll-out is primarily in association with food outlets and retailers and therefore it runs the risk of being permanently associated with "beer and sandwiches" according to Keith Brown, managing director of mobile payment specialist Paythru.

Security fears

Despite protections baked in to the handset, including encrypted data on chip, biometric security support in the handset, a secure channel between the keypad/screen to the NFC chip, and secure transmission of data from the handset to the banking systems, NFC has attracted an array of security concerns and challenges. Dispelling rumours of a lack of security surrounding proximity payments and educating the public will be critical to assuaging consumer fears and therefore encouraging consumer adoption of NFC-based mobile payments.

Some of the fears about security of NFC enabled mobile payments centre around the short communication distance between the sender and the receiver. Actual and perceived threats come in the form of:

- Skimming, where criminals use card readers to sweep cash from their victims as they pass by in any

crowded location. The practical limitations of carrying bulky card-skimming equipment suggest this threat may be overstated but it is a very real fear in the minds of the consumer
- Eavesdropping, where a third party intercepts the signal and becomes the receiver of the payment
- Tracking, where the unique identification number used to establish communication between phone and terminal can be tracked
- Lost or stolen phones having their NFC exploited – although with SIM over-the-air provisioning the chip can be blocked instantly, and the hardware devices have measures in place to prevent the chip being tampered with and in some extreme cases it can self-destruct.

Security has and is being addressed both technologically and practically. Not only do the cards and chips have many high level several security and encryption features but on a usage level, payments are restrained by the £15 limit, and a series of transactions within a short period will prompt a need to enter a PIN and most importantly of all, in the event that fraud does occur the consumer is protected by the same guarantees that apply to a credit or debit card.

Infrastructure

In order for consumers to start using this technology, the proper infrastructure must be put in place, both at merchant and consumer level; on the other hand, merchants and retailers will not invest in the proper infrastructure unless contactless payments reach critical mass and start gathering momentum. Merchants cite both the costs of upgrading their current POS terminals and the lack of enough NFC-enabled handsets as proof against pushing forward with the technology and retailers are watching NFC-based payment trials to see the benefit before they fully commit.

Lack of devices/SIMs

Mobile phones with inbuilt NFC technology have not yet become widely and commercially available. Without these phones, NFC payments cannot take place and in a nutshell without the technology in the hands of the consumers this form of m-payment will not get off the ground.

Credit card NFC schemes are using NFC stickers that can be attached to phones, however this is not ideal if for no other reason than it simply adds another step and obstacle in consumer adoption as they must actively take a physical first step to commit to the process.

Apple's ambivalence to NFC is seen as a major drawback and flags the lingering uncertainty surrounding the appropriate business model in this field. The iPhone 5, launched in September 2012, was disappointing for some as it was released without NFC capabilities. Apple's rationale was that NFC was omitted from the iPhone 5 because it doesn't solve any current user problems. Their proprietary Passbook e-ticketing systems and loyalty card system built into iOS6 "does the kinds of things customers need today", according to marketing chief Phil Schiller. This position seems to go against Apple's pattern of dictating trends rather than following them, especially as NFC would integrate perfectly with Passbook features, but unless the company gets on board and reverses their position this has the potential to affect the widespread deployment of NFC mobile devices.

Multiple stakeholders

If NFC m-payments are to become a reality, it is crucial that a wide variety of stakeholders must be involved in the process. They include phone manufacturers, MNOs, card issuers, financial institutions, merchants, retailers, third-party payment processors. The long-standing roadblock to NFC development is quite simply a failure amongst the parties to reach a consensus on the commercial arrangements. The questions of what value each party realistically contributes and what price is put on that value has no global standard or universal agreement. Equilibrium will only be reached when each party, especially the MNOs, accept a reasonable fee for their role, however this appears to be a long way off as the situation stands today.

In Japan where NFC is a pervasive payments solution, the commercial agreement was simplified by all players belonging to the same consortium, however this value-sharing proposition is unique to the market and not replicated in other developed markets.

Customer and data ownership

In the case of NFC there is frequently a paradigm shift in ownership of the customer and data. It is for this reason each of the three parties prefer different implementation methodologies:

- Banks prefer the SD card deployment
- M-payment and m-wallet providers prefer NFC device solutions
- MNOs prefer SIM card propositions.

Social payments

Revenue generated by the sale of virtual goods in social networking and online gaming worlds is estimated to be worth $14 billion by 2014, according to In-Stat.

As more and more people transact, play and socialise online, there has been growing demand for the ability to handle micro-transactions in large numbers; payments that bypass the need to set up credit card or bank accounts; and simpler one-click payment on social networks and mobile devices.

Global Intelligence Alliance (GIA) interviewed 10 large social media and game developers in the US, Europe and Asia. The developers involved in the research cater to global subscriber bases ranging in size from 3.5 million to over 200 million. The outcome of the research was that while global banks were recognised as offering experience in data security, risk management and customer data mining as well as large pools of customers the gaming companies were hesitant to work solely with banks because they are perceived as slow, lacking in understanding of user behaviour, too local for the global element of social gaming and having a shortcoming in solutions for micro-transactions. In addition processing times and settlement were deemed to be unsatisfactory by mobile phone operators and credit cards were declared impractical for the unbanked or those concerned with privacy.

Social media in general has only recently been embraced by gambling operators as a mechanism for customer acquisition and retention – and even still there are only a few companies making real progress in understanding and using the networks to their full advantage. This entire area is addressed in a separate report available from iGaming Business entitled "iGaming Social Marketing and Strategies".

From a payments perspective however gambling operators and social gaming companies should monitor the area closely, as although it is not likely to have a role in the immediate future, that position is not likely to hold true forever given the increasing importance to gambling operators of social gaming, the move by social networks (starting with Facebook's collaboration with Gamesys in the recent launch of Bingo Friendzy) into real money gambling and of course the move by gaming giant Zynga into real money gambling in 2013.

Social payments for gambling have added complexities in that the player must be registered and approved by the licensed operator, rather than making a simple immediate transaction such as the case with virtual goods, music or charity donations. However through collaborations with payment providers, social networks and/or having the players "pre-authorise" themselves for payments and bets directly through the networks, it's difficult to imagine this as an obstacle that cannot be surmounted given time, commercial and technological advances.

Facebook

Facebook has recently ended what has effectively been a three-year experiment with the virtual currency, Facebook Credits. This is not a significant change in Facebook's business strategy, as the company will continue to claim 30% of all transactions, but now instead of 'Credits' which Facebook invented, users will make purchases in their native currency.

Virtual currencies have an interesting psychology behind them because of the user's tendency to view these currencies as not 'real' cash, however the underlying payment-processing system behind Facebook Credits will remain. That generated about 18 percent of Facebook's revenue in the first quarter and the methodology behind the new account will not be remarkably different.

Facebook's new member accounts will function similarly to an iTunes account: a user adds a credit card to their account, digital goods can be purchased and immediately charged to the card on file, or can be drawn from stored value in that account. Facebook gift cards, in card or digital form, would simply be added to the account using a unique code.

Facebook's rationale as to the benefits to games and media outlets are that companies will be able to set granular and consistent prices for non-US customers and price the same item differently on a market-by-market basis.

In 2011, 15 million people bought Facebook Credits, according to their S-1 filing, so it's assumed Facebook has close to 15 million credit cards on file. By the end of this year, once paid apps are added to Facebook's App Center, experts are predicting that 50 million people, or about five percent of Facebook's registered user base will purchase apps and other digital goods, which means Facebook would have a pool of 50 million people who have entrusted it with their credit card information or alternative payment accounts including PayPal.

At the same time as eliminating the Credits, Facebook is now enabling paid subscriptions for apps, games and media content on both the Facebook.com site and mobile application. The initiative will allow content providers to start charging monthly fees to give users access to exclusive content and opens a plethora of opportunities for brands to build relationships and revenue generating opportunities through exclusive or premium content for the fans. Sports organisations are one of the groups that are looking to this as a new revenue stream – and given the partnerships and sponsorships that gambling operators have with football and other sporting teams, there is definitely an opportunity to take this further and drive acquisition, retention and cross-selling strategies.

The use of Facebook Credits had been almost entirely in the context of social gaming, and even with this limited exposure and promotion, the fees already represents $557 million or 15% of Facebook's entire 2011 revenue and increased to 18% in Q1 2012. The figure is even more remarkable when we consider that fewer than 2% of Facebook users bought virtual goods with Facebook Credits in 2011, yet it still represented the largest single source of cash and primarily from just one vertical – social gaming.

It's the enormous potential of Payments as a revenue source that is causing Facebook to phase out the Credits currency. Payments as a revenue source is too important to Facebook's future to take the risk of promoting an untested and unproven currency. To truly establish Facebook Credits, especially beyond social gaming, Facebook would have had to spend significant resources educating the public and building the brand of Credits. It's a much easier solution to simply transact in an already established currency that users understand and utilise. In addition, it's also speculated that with the growth and establishment of a new currency, Facebook would have faced increasing legal and regulatory scrutiny.

Once paid apps are introduced to the App Center, the massive wave of f-commerce is expected to gain traction, and while this model is similar to Amazon and Apple's iTunes (who incidentally both dismissed a virtual currency years ago), Facebook is a long way off reaching their monetisation levels. However, what Facebook has, which neither of the other do, is a stronger, more frequent relationship with its user base. While people go to Amazon and iTunes to make purchases, they go to Facebook to spend time and "hang out".

Once Facebook has a stronghold on its wallet service, it's not impossible to conceive that "Pay with Facebook" will start showing up on web sites everywhere, not just on Facebook) in an effort to

compete with PayPal. Theoretically Facebook could follow the path of PayPal, Amazon and others by partnering with credit card companies, expanding to m-commerce and becoming a universal wallet for both online and offline purchases.

The high charge (30%) will be a massive inhibitor, however Premium SMS charges peaked in the early days at 40% yet retailers and gambling operators made that work to a certain degree – offsetting the charges in return for access to a previously untapped customer market, or seeing the charges as an initial marketing cost and having dedicated teams working to convert the registered players to alternative, cheaper, payment mechanisms.

All that being said regardless of the path that f-commerce takes; a Facebook wallet will not be an immediate panacea. In recent research addressing the US audience, over half of the respondents said that they do not feel safe buying products or services on Facebook, compared to just 8% who did. This reflects the wider, well-known concern that Facebook users do not trust the company to keep their information private.

Retailers have been leading the way in social "shopping" to varying degrees of success. After Facebook ran a pilot Facebook store in 2010, Procter and Gamble opened six more shops in 2011 selling brands such as CoverGirl and Gillette. The stores include a "Shop Now" button that allows Facebook users to make purchases within the platform. Since February 2012, Maplin in the UK has made its entire product range of electronic products available on Facebook. The store uses Facebook's social features such as birthdays and comments, so people can share information and buy products.

The big winners in what is dubbed as f-commerce are cinema companies such as Odeon and airlines. US-based customers have been able to search, book and pay for Delta Airlines tickets within Facebook since 2010, via its Delta Ticket Counter™ system. Passengers can even share their travel information with their Facebook friends. To capitalise on the social media behaviour of its customers, Delta's Facebook store makes it easy for friends and family members to plan and coordinate their group travels together.

Despite the hype, there have been several very public failures, notably retailers including Gap Inc., J.C. Penny and Nordstrom who all opened and later closed their Facebook shops. It can be argued that the stores perhaps closed too soon, when they didn't get returns on their investments quickly enough and several experts have commented that there is still a disconnect between what Facebook can offer versus what the brands expect. Social networks are not simply another advertising channel they need a dedicated and customised approach, whereas in most situations (gambling and retail) companies make the mistake of simply replicating their existing online stores or marketing initiatives on Facebook and when it doesn't work, put it in the "we tried, it failed" category rather than addressing the shortcomings of the approach taken.

Twitter micropayments

To date Twitter has shown little interest in setting up a proprietary payment system, indeed it has been criticised for its slow approach to controlling commercial opportunities around its service in general. Whilst Twitter may be content to rely on advertising alone for revenue, a company called Chirpify announced in February 2012 the launch of a seamless payments mechanism for the micro blogger and towards the end of April the company announced that it has secured $1.3 million in series A financing. Voyager Capital, BuddyTV CEO Andy Liu, former Facebook executive Rudy Gadre, HootSuite CEO Ryan Holmes, and TiE Oregon Angels all contributed to the first round of financing for the company.

There are actually three Chirpify products:

- Chirpify Commerce for brands
- Chirpify Payments for peer-to-peer transactions
- Chirpify Donations for charitable organisations looking to raise funds.

The payment process is disarmingly simple. A brand with a following on Twitter can connect its PayPal business account to Chirpify and then start tweeting out items for sale through a simple dashboard. The user simply replies with the word Buy, and money gets deducted from their PayPal account. Chirpify parses the tweet and will then fulfil the transaction if the user has connected their PayPal account to Chirpify. If the buyer does not have a PayPal account, they are prompted to set one up and connect to Chirpify.

Chirpify will take 4% of transactions from recipients who use the free account. For $49 a month, sellers and recipients can lower the fee to 2%. And, for bigger brands, they can pay $500 for no fees and deep integration into their back office software.

Chirpify is bringing payment and commerce functionality to a platform that was not designed for it, but Twitter is increasingly where people are hanging out, following friends, celebrities and brands too. Being able to sell directly through Twitter allows an organisation not only to push out advertising messages through a popular channel, but actually do some business. Given the extremely viral nature of Twitter, it has the potential to be an extremely powerful sales tool.

Chirpify is not the first company to address Twitter payments. Other companies such as Twippr (which was built using the PayPal API) and Twitpay (which focuses on raising money for charities), have been in existence for some time, although it is Chirpify that appears to getting the most hype, publicity and funding,

PayPal

PayPal is already an established online payments platform and the biggest handler of individual and B2C transactions on the web. At the end of 2011, the company announced a Facebook application called Send Money, which enables Facebook users to send money – including charitable donations – to other users in some 65 countries. Users have the choice of sending either an e-card with money or just a deposit online.

While there are several ways to pay with PayPal via Facebook, this is the first app to enable peer-to-peer payments via Facebook and PayPal. Because it is a peer-to-peer transaction, there is no transaction fee, though PayPal's regular limits and international fees still apply.

The e-card element is interesting. At the launch of the service, PayPal pointed out that more that 500 million e-cards are sent every year which is why PayPal is offering dozens of choices for everything from birthdays to congratulations. This clever addition means users who see a notification of a friend's birthday can easily send a card and some cash in minutes.

Section 4 – Credit and Debit Cards

Introduction to Cards

Since the economic downturn of 2007/8 the payment card industry has seen dual-speed economic growth, with developed nations slowing down and the developing nations growing strongly. However, even so, cards remain the consumer's favourite non-cash payment method, accounting in most markets for more than 40% of payments, and above 58% globally. For gambling, particularly in the UK, this can be as high as 80%.

There has been a significant move towards the use of debit cards since 2007, and credit card use has fallen by approximately 20%, due to the consumer's overstretched finances and a reduced amount of credit being made available by banks. In 2010, UK shoppers spent £26 billion more paying by debit card than by cash; the first time cash spending has been surpassed, according to the Payments Council, and, more significantly, the value of transactions handled by debit cards now outstrips those charged to credit cards by two to one

The UK and Ireland are very much card cultures, but this does not hold as true across the rest of Europe or the world. The UK has the highest card penetration in Europe (about 80%), with roughly 172 million cards in circulation for 50 million adults. Other Western European countries are also card-driven; for example, France has a local Carte Bleue, which is now Visa-badged; however Germany, despite being one of the most evolved e-commerce markets, has only approximately 28 million cards in circulation for an adult population of 70 million. Over all, Realex has outlined that there are currently 1.013 billion cards in circulation, split 56/44 in favour of debit versus credit cards, and 836 million card payments were made in 2011.

There are three types of payment cards – credit, debit and pre-paid. They all look and feel the same, but work in different ways:

- Credit cards allow the consumer to borrow money from the issuer within pre-determined limits.
- Debit cards allow holders to immediately withdraw funds from their bank accounts.
- Pre-paid cards allow the holder to pay money in advance to the issuer and then draw it down by making purchases.

Cards are an attractive proposition to consumers for several reasons:

- They are a universally familiar and understood payment mechanism
- They are convenient across different channels, and customers who use cards in land-based outlets tend to prefer them, where possible, for other channels so that all purchases appear on one statement
- Risk management – payment cards, especially credit cards offer protection against fraud – although many consumers remain wary of using cards online
- Loyalty and rewards plans are available on some cards by way of points and cash back offered to encourage consumers to prefer cards over other options

Global reach credit and debit cards have a unique history in the gambling industry, driven by the 7995 MCC (Merchant Category Code). The MCC enables all parties in the value chain of card payment to

know that products or services are being purchased, and, in the case of gambling, the MCC is highly significant in that PSPs, acquiring members or issuing banks may choose to block all transactions with this code, or sometimes only if the transaction comes from certain jurisdictions where gambling is illegal. The most obvious is the USA where UIEGA regulations clamped down, not on gambling per se, but on the financial transactions that lay beneath. Another effect of the 7995 code for some credit card issuers is to treat the payment as "cash" rather than a purchase, so that the customer is subject to immediate interest charges following the payment.

In addition to the MCC, the Internet Commerce Marker (ICM) is also significant for the gambling industry. Transactions initiated on the internet are tagged with an ICM, which enables card transactions to be processed where, for example, point-of-sale gambling is permitted but internet gambling is not. Conversely, it is this marker that would also be used to block credit card use in land-based bookmakers, as UK Gambling Commission regulations permit debit cards only in the physical environment, yet would allow the same customers to use their cards in the same operator's online or mobile site.

Debit and credit cards work in a similar manner when presented for purchase, but what is different at a wholesale level is the cost to the merchant of processing the transaction. For the most part debit cards are cheaper – but many processors charge a blended rate which takes account of this and gives a simplified cost structure. Credit cards are subject to a percentage value of transaction which is a variable cost, while debit card use entails a fixed fee. Therefore, for operators, the theoretical preference would be to use debit cards for higher transactions and credit cards for lower ones in order to minimise the variable cost.

Payment Card Industry Participants

Card Schemes

Card schemes are the organisations which own and promote a brand of credit card. The best known are Mastercard, Visa, American Express, Diners Club, JCB (Japan Credit Bureau). For gambling purposes, it really is only Visa and Mastercard that matter, as the others do not permit transactions from gambling merchants.

Interchange is what the card schemes charge for processing a transaction through their systems. It is public but enormously complex, taking into account factors such as:

- Where the card is issued
- Domestic currency
- Transacted currency
- Location of merchant

Acquirer

In order to accept merchant transactions into the card-processing system, the involvement of an "acquiring member" – either a bank or a financial institution – is essential. The largest acquirer in the UK is HSBC Merchant Services. Other banks such as Barclaycard, and financial companies such as WorldPay, are also acquirers that serve the gambling industry.

The acquirer's main job is to move the money, manage the relationship with the card schemes and manage the risk on the transaction. Every transaction has a chargeback window of 60 to 90 days.

The acquirer manages the clearance and settlement of funds. Clearing denotes all activities from the time a commitment is made for a transaction until it is settled, and it's necessary because the speed of trades is much faster than the cycle time for completing the underlying transaction. The time for settlement varies – for large merchants this might be as frequently as once per week, but many acquirers will attempt to keep hold of funds for a month, a factor which really affects start-ups which don't have the negotiation power of larger entities.

Card Issuer

An issuing bank is a bank that offers card association-branded payment cards directly to consumers. It is the issuing bank that holds the relation with the buyer. For every transaction that is requested from a merchant, the acquirer seeks real-time authorisation from the issuer, after which the transaction is guaranteed to the acquirer. Typically, except for American Express, the issuer is a different entity from the acquirer.

The business model of issuers is relatively simple as they make money from their customers by charging an annual fee, as well as interest charges on any revolving credit facilities that their customers use (on credit cards). Additionally, they generate revenue through the interchange fee that they charge to merchants for every card transaction made by customers.

Payment Service Provider (PSP)

A payment service provider, such as PayPoint or WorldPay, acts as intermediary between merchant and acquirer. The best partners will be PCI-DSS Level 1 compliant, offer geo-redundant data centres, allow tokenisation of credit card transactions and provide custom hosted payment pages. The role the PSP takes in the four-party model is to place itself between the merchant and the set of multiple acquirers and issuers needed to offer the desired payment methods in the merchant's web shop. This prevents the merchant from having to make connections with too many acquirers. In order to accept transactions into the authorisation chain, the merchant or operator needs a way to convey the card details into the authorisation system. In the online world, this is a piece of software used by the merchant and recognised by the acquirer. This may be provided by a 'gateway service' which is typically part of the set-up of a PSP.

Although PSPs initially provided a simple connection function, today, they offer a wide range of additional services, including:

- Access to local payment methods in defined countries.
- A single administrative connection (reporting).
- A single settlement procedure with an agreed frequency.
- Risk management and fraud prevention tools which are regularly updated.

Typical card transaction flow:

- Cardholder uses a card to transact.
- Merchant send transaction information to the acquirer.
- Processor sends the transaction information to the card scheme.
- Card scheme sends the transaction information to the issuer for authorisation.
- Issuing bank pays the card scheme once it validates the transaction (after deducting charge).
- Card scheme pays the processor on the acquirer's behalf (after deducting their charge).

- Merchants account is credited for the transaction amount by the processor (after deducting their charge).
- Purchase transaction is completed.
- Issuer bills the buyer for the transaction based on the billing cycle.
- Buyer settles bill.

The emergence of third-party service providers and processors in the card payment ecosystem over the years can be linked to two technological developments which have made outsourcing these operations a viable and cost-efficient option: the globalisation of banks – leading to evolving acquirer/issuer requirements – and changing merchant and customer expectations.

The primary activity of PSPs is payment processing, which involves the authorisation and clearing/settlement steps. Apart from payment processing services, they play a crucial role in supporting the acquiring side of a card transaction with certain ancillary services. These include acquiring new merchants, providing fraud protection services and providing training and other terminal operation support activities to the merchants.

Fees and Charges

Acquiring costs are the biggest cost factor in online payments. When using a collecting PSP there are three business models to work with:

- Using the PSPs "master merchant account". The merchant does not have separate contracts with the various acquirers and the PSP gives a (blended) transaction rate to the merchant. This model is very rare now as the schemes have banned it. This is because it does not allow them to adequately identify which transactions belong to which merchant, which is against money-laundering policies. These guidelines are edited as PCI-compliancy rules.
- The umbrella model, where the PSP negotiates a standard sign-on procedure and contractual arrangements for their merchants with the acquirer. This means the acquirer trusts the merchants signed on by the PSP. The acquirer identifies each merchant with its own merchant's identification (mID). The merchant still needs only one contract with the PSP and does not need to bother about separate contracts with the various acquirers. The PSP gives a (blended) transaction rate to the merchant.
- Direct relationship with the acquirer. It's more work, but usually there is margin to be gained by doing this, especially when the amount of expected transactions is relatively high. The business case needs to be carefully evaluated.

An example provided by Counting House outlines the issues and areas to be addressed. A company anticipates 2,000 transactions a month with an average value of £20. All will be intra-Europe as the company, its processor and the acquirer are all in the UK and the only target market is the UK. The chargeback rate is 1% and, on average, 75% of submitted transactions are approved. The company wishes to receive its funds twice a week. Two tenders are received:

- From a well-known PSP, a flat rate of 2.5% with no other charges.
- From a leading commercial bank acquirer, a rate of 0.9 percent. However, other charges are: £100 per month maintenance fee, £25 per chargeback, 20p transaction charge (including declines), and £30 per settlement.

Initially, it appears that the PSP is charging three times the rate of the bank. However, after all the "small print" fees are evaluated, the bank is actually charging double.

Quotation 1 (PSP)		Quotation 2 (Bank)	
Approved transaction MDR £30,000 x 2.5%	£750.00	Approved transaction MDR £30,000 x 0.9%	£270.00
Transaction fees 2000 x 0p	£0.00	Transaction fees 2000 x 20p	£400.00
Maintenance fee	£0.00	Maintenance fee	£100.00
Chargeback fees 15 x £0	£0.00	Chargeback fees 15 x £25.00	£375.00
Settlement charges 8 x 0	£0.00	Settlement charges 8 x £30.00	£240.00
TOTAL COST	£750.00	TOTAL COST	£1385.00

To allow crediting of winnings to cards, a separate procedure, known variously as CFT, OCT (Visa) or PT (MasterCard), is employed. There is a fixed fee for this type of transaction and it is tagged with the 7995 code like a debit transaction.

Chargebacks

Chargebacks are the nature of the beast when it comes to card payments and an ongoing cost centre for merchants, in particular for the gambling industry. In normal commerce, a refund can be generated on a card any time that a customer is not satisfied with his purchase. This is broadly permitted by the card schemes as a standard part of business. However, in gaming, where the business model is "money in and out", the potential for abuse is obvious (as charges are normally credited back) and refunds are not permitted.

The card systems operate largely on the basis of trust, and when a cardholder goes to his issuing bank and says his card has been fraudulently used, either by a merchant or third party, he is usually credited back the amount charged, pending an investigation. The merchant is debited, contacted, and given an opportunity to provide proof that the transaction was legitimate. Many merchants simply don't bother and accept chargebacks as a cost of doing business. Since the 3D Secure (3 Domain Secure) programmes of Visa and MasterCard (called Verified by Visa and MasterCard SecureCode, respectively) have been put into effect, the card schemes absorb the risk when the programme is used, meaning that the merchant would not be liable for card-not-present (CNP) chargebacks.

While the functionality of some payment methods (such as pre-paid cards from Ukash or Paysafecard) means that the funds are guaranteed, the operator bears the risk for all card and banking tools, such as Giropay. PayPal and other wallets also have chargeback risks, but some, such as Neteller and Moneybookers, will absorb the chargebacks – at and extra negotiated cost, of course.

An average gambling company will accept a chargeback risk of up to 2%, but there is a wide difference across the board, so it's difficult to put a specific figure on it. It all depends on how the individual operator runs its risk walls. Some will have a very low appetite for risk and will turn away legitimate business and transactions (false negatives), and others will take more chances, hoping that the net effect of increased transactions and subsequent player margin will offset the higher chargeback costs.

Experienced operators usually manage their chargeback levels sub 1%, with some operating at even half that. There are many elements that are involved in this process, and the KYC checks (necessitated by licensing jurisdictions) are so extensive now that there has been a significant positive impact on the levels of fraud.

Aside from the actual costs, chargebacks are a very serious issue for gambling operators. If chargebacks rise above approximately 2% of transactions (based on current month's chargebacks over last month's charges), sanctions, monitoring and ultimately fines ($25,000 for a first offence, $50,000 for the second) kick in. High chargeback levels for three to four successive months can result in the loss of the ability to take payment cards at all, which is usually fatal to an operator.

To minimise the financial effect of chargebacks, which have a fixed fee attached per reversal of a payment, some operators "capture" players' funds and then hold off on full authorisation until full KYC checks have been complete. This means that even if the player does reverse the transaction, it is not a chargeback, because a chargeback is only possible after settlement to the merchant has taken place, therefore while the operator does not receive the funds (same as if there was a chargeback), they also do not have the associated fee.

Aternative Payment Methods

Decline of cards / Growth of Alternatives

Bill Gates is quoted as saying, "Banking is essential. Banks are not." This has never been truer than it is currently when we consider the explosive growth of alternative payment mechanisms.

WorldPay data shows that, today, alternative payment mechanisms account for €165 billion of global e-commerce transactions, representing 22% of total transactional value, and they are expected to enjoy a Compound Annual Growth Rate (CAGR) of 13% in the run up to 2015. As the overall e-commerce market near doubles from a value of €755 billion today to an expected €1,460 billion in 2015, alternatives will account for a significant share of that growth.

The same dataset from WorldPay flags that, by 2015, growth of alternatives within e-commerce will outstrip that of cards, particularly in developing economies such as Brazil and India where the use of cards is much lower. This doesn't mean that card payments will dwindle; it's just that alternatives will grow faster as these mechanisms are popular in some the world's fastest growing economies.

The growth in alternatives will be led by e-wallets and real-time payments, with m-payments having some impact, although there is little consensus to date on how big or small that might be.

Credit cards have traditionally been the "go-to" payment method for online purchases, but a study from Javelin Strategy & Research found that 60% of merchants rate alternative payments as a priority. Alternative payment methods are becoming a necessity for global e-commerce and, while the preference of alternative options varies from region to region, the presence of these alternatives remains a vital part of any customer-facing offering.

Multiple payment offerings are known to have an impact on customer acquisition. A poll commissioned by CyberSource discovered that merchants who accept four types of payments convert as many as 20% more visitors into customers than merchants who offer a single payment method.

Sheer volume and diversity of payment methods is not sufficient, however – the offering must be relevant to the customers in the targeted market. Localisation of a payment module is a necessity, not a luxury. In fact, WorldPay suggests that when merchants offer appropriate local acquiring and alternative payments, conversion rates can increase by up to 40%. Further research from within the payment industry study showed that 50% of customers will abandon a transaction if their preferred payment type is not available

There are many drivers behind the growth of alternative payment mechanisms:

- The World Bank has identified that there are 2.7 billion unbanked consumers globally. As e-commerce grows, the participation of this massive market segment will be through alternatives such as pre-paid and voucher-based mechanisms.
- Although the UK has high credit card penetration, this is not the same in all countries. Certainly, in developing or emerging regions like Latin America, Eastern Europe and Asia, credit cards are not prevalent, but it is not limited to those markets. Several major economies, Germany and the Netherlands in particular, simply do not have a credit card economy. In these countries, the culture veers naturally to the alternative mechanisms – such as real-time bank transfer in Germany and Alipay in China. In fact, Alipay not only supports the e-commerce economy, but the mechanism was actually one of the key drivers behind the growth.

- Since the recession there has been a move back towards a cash economy. There is over €840bn in circulation in the EU, the highest amount ever, and cash is dominating in southern Europe in particular, where the economies were hit extremely badly and there is a mass distrust of traditional financial institutions.
- Fear of online fraud is a major inhibitor to e-commerce. Verisign has reported that 50% of consumers don't transact online for this reason. The sharing of personal and financial details is central to the concerns and, to this end, consumers often feel that payment forms other than credit and debit cards provide greater security.
- Pre-paid and other alternative payment methods offer the ability to convert players that otherwise cannot be targeted, something which gambling operators take very seriously, especially at a time when new products and platforms are opening the door to customer bases that were not gambling previously.
- The global slowdown and recession has lead to a lesser amount of credit being made available – rendering credit cards less effective a payment mechanism than they had been during the boom time.
- Age is a major factor in the payment selection as well, and the younger population has no affinity with cards. PayPal often gets "sticky" first, and it is expected that in the near future mobile will be a preferred payment method. A 2009 Edgar Dunn & Company report demonstrated that younger (18-30 year-old) consumers are most likely to be receptive to alternative payment methods.

What is meant by Alternative Payments?

There is no standard definition of what is meant by alternative payments. In general, and for the purpose of this report, it is any non-card payment type. These alternatives comprise a large variety of discreet schemes. It is estimated that there are more than 230 schemes in existence on a local or global level. However, WorldPay has found that the top 25 schemes account for over 80% of transaction value. This would include offerings such as PayPal, Alipay, iDEAL and ELV.

In fact, the importance of iDEAL in the Netherlands and ELV in Germany lead them to have the highest share of transactional value in the alternatives sector.

When evaluating what offering to bring to market, every gambling operator must address the locality that they are targeting. There are definite must-haves for key target markets in the industry.

E-wallets

An e-wallet is a separate intermediary account with a stored value – it essentially acts as a "financial firewall" between the merchant and the customer's bank account. This section of the alternatives market is dominated by some of the biggest schemes worldwide, and it is anticipated that growth in alternatives will driven by the established giants, PayPal and AliPay.

E-wallets are one of the most popular alternatives to credit/debit cards because they are quick, easy and, most of all, they are perceived to be much safer because sensitive data is not shared with a merchant.

From a gambling perspective, e-wallets have a few unique considerations:

- Statistics show, as reported by Neil Erlich in iGaming Business, that those players who receive funds into their bank account or on their credit card are less likely to re-deposit those funds at the merchant; however, with an e-wallet payout, close to 90% of the funds returned to the customer will make their way back and be re-deposited at the merchant site.

- As a general rule, e-wallets and the casual gambler don't mix. The demographics of the casual gambler and the emerging market for "soft" or leisure style products often do not correlate to the demographics of e-wallet users. Experienced gamblers, however, expect and prefer e-wallets such as PayPal or Neteller because they can keep their money secure, in one place and it is easily transferrable between sites.
- E-wallets grew in the gambling market on the back of other financial institutions, rejecting the 7995 code for gambling transactions. In addition, e-wallets have a return path for funds.
- The dominant wallet in the gambling industry is PayPal, which did not initially (after being purchased by eBay) accept gaming transactions. This led to the growth of specialised wallets, including Moneybookers (now Skrill), Neteller and ClickandBuy. PayPal is increasingly involved in legislated gambling markets – however, unlike the other wallet providers, PayPal decides whom it will work with, not the other way around.

Although Alipay is a dominant wallet in the global market, it doesn't have any resonance in the gambling world. Instead, some of the key wallets used are:

- PayPal
- Skrill (Moneybookers)
- Click2Pay
- Neteller (Optimal)
- ClickandBuy
- WebMoney

The biggest growth trend online is PayPal. PayPal's current position of strength and its ambitions for the future make it a force to be reckoned with. Indeed, Mastercard and Visa show signs of being fearful of PayPal because, while they build their business based on the number of merchants they have – approximately 29 million or so – every registered user on PayPal's site is potentially a merchant and can engage in two-way financial transactions. This is even more significant given Paypal's recent move into Square's territory by issuing their merchants with a mobile phone-enabled card handler.

PayPal started as an e-wallet but quickly enabled consumers to link their credit cards and bank accounts to their PayPal accounts, and therefore took on the role of a payment services provider. Through integration with PayPal, merchants can accept credit cards and other (local) payment methods without having to go through a complex sign up and acceptance procedure with an acquirer. From the user's perspective, if there are no stored funds (as is the case under the standard definition of an e-wallet), PayPal will claim them directly from the account's registered bank or card.

To consumers, PayPal has demonstrated reliability and innovation, and is entrenched in the online world which is a market traditional retail banks are only just beginning to enter. Worldwide, it is one of the most respected consumer-facing financial brands – sometimes more so than the card schemes or banks, especially since the economic downturn.

PayPal is carving a niche for itself in mobile payments and, to leverage its existing user-base and global infrastructure, the company offers third-party developers the possibility to develop applications that use the PayPal infrastructure for actual transactions. This "PayPal X" platform really pitches PayPal as a processor or payments infrastructure provider, allowing others to develop user-friendly services while earning on the transactions.

Real-time bank transfer

Customers are routed from the merchant to their own bank accounts in real-time for immediate authorisation and execution of the transfer. This form of payment is dominant in the Netherlands under the iDEAL scheme, which is lauded globally for being an excellent implementation of the process.

Along with e-wallets, online banking-based Internet payments are the fastest-growing category of online payments in Europe. Buyers initiate transactions at a merchant's website and are redirected to their own online bank for the authorisation of the payment. The merchant receives an instant payment confirmation, after which the money arrives as a regular credit transfer. For merchants the major advantage of using online banking is the elimination of fraud, since the issuer bank is responsible for the authentication of the transaction:

- iDEAL – The Netherlands
- EPS – Austria
- E-Dankort – Denmark
- Bancontact/Mister Cash - Belgium
- Giropay - Germany
- BankAxess - Norway
- Secure Vault Payments - USA
- Interac Online - Canada
- eNETS - Singapore

There are intermediary services operating in the field – providing the same technical solution while remaining independent of the banks themselves. Sofort is the leader in Germany and has position in Austria, Switzerland, the Netherlands, Belgium and United Kingdom. POLi is the Antipodeans' version, common in Australia and New Zealand.

Offline credit transfer

This occurs when the customer makes a purchase and then settles the transaction offline before the payment/order is fulfilled. The best example is Brazil's Boleto Bancario which has been addressed earlier in this report.

Direct Debit

Direct debit works like a debit card transaction in that the merchant claims the funds from customers' bank accounts with their approval. The ELV ((elektronisches Lastschriftverfahren) process, common in Germany and German-speaking countries, is probably the best example of this.

Paper-based solutions

The paper-based alternative payment spectrum is a broad one. From cheques to postal orders, and even cash on delivery, many different ways to pay are covered under this single umbrella. It is not one that is directly relevant to online gambling, but some key target markets, in particular Russia and some Eastern European countries, remain, and are likely to remain for some time, massive cash-driven economies. As e-wallets are expected to gain traction as younger consumers emerge who have grown up with new technologies and payment schemes, it is expected that cash and paper solution types will see the greatest market loss by 2015.

Prepaid

Online, pre-paid cards are used primarily by the "digitally nervous" and the "digitally excluded". The digitally nervous have access to other online payment methods such as credit cards, but are concerned about fraud or worry about privacy and therefore choose to use a pre-paid card to transact online. The digitally excluded are those unable to pay online by other means. Primarily, these people are unbanked, but there are market sectors and countries where domestic cards simply cannot be used online – for example, Latin America doesn't permit international transactions; Russian cards do not have a 3-digit security code on the back, a fact that renders them useless online; and German debit cards are not suitable for internet use.

The two key pre-paid / voucher companies in the online space are, without a doubt, Ukash and Paysafecard.

Social payments

These do not yet have a real place in the alternative market because they are in their nascent stage; however, it's impossible to imagine that social will not have a strong role to play in the future, although how relevant it is to gambling in the short-term is open to debate.

Mobile payments including NFC

Once again, an emerging area for alternative payments – these are covered in great detail in the dedicated mobile sections of this report.

Section 5 – Fraud and regulations

Fraud

Fraud and the perception of fraud are hugely important concepts in online payments. Although most online transactions are conducted without fraud, it remains a constant worry for consumers and merchants alike. Innopay outline succinctly that the real cost of fraud is not just the sum of money lost but also the funds spent on prevention, as well as the loss of trust in the online channel from consumers and businesses.

Since 2000, the e-commerce sector has witnessed constant growth (between 15% and 25% per year), which in turn has brought about major challenges for online merchants because, as time passes, fraudsters and their tools become more sophisticated, devious and pervasive.

The National Fraud Authority has recently outlined that, while fraud is not a new crime, the ways that fraudsters operate have evolved significantly in recent years:

- Criminals are now more organised.
- Criminals are more technically capable.
- Criminals increasingly operate across borders.
- Fraud is linked to other serious crimes.
- Not all fraud is linked to organised criminal gangs.
- Many frauds rely on one or more enabler to succeed, including, but not limited to, identity exploitation, online techniques, corrupt professionals/staff, physical technologies, money laundering and mass marketing (phishing) approaches.

The entire payment processing chain, from the acquirers to the merchants, is heavily involved in fraud prevention. The key drivers behind the time and effort invested in enhanced security and prevention measures are:

- A growing eco-system of criminal enterprises which drive phishing attacks, as well as botnets, is readily available for hire.
- Fraudsters now have access to significant amounts of the confidential and personally-identifiable financial information belonging to card customers.

Banks and card issuers are making quite innovative efforts to support the merchants and customers, including such initiatives as:

- Virtual credit cards: Some credit card issuers offer a software application that generates a temporary credit card number for online usage. The temporary number usually expires after a set number of transactions or a set time-period.
- Virtual keypads: Online fraudsters sometimes use advanced programs such as key-loggers, which, when installed on a computer, monitors all the strokes of a user on the keyboard and have been used to capture the sensitive financial information of customers, either directly or by logging passwords. To combat this approach, most of the larger financial services institutions, including Citibank and HSBC, have put in place online virtual keypads that are randomly generated.

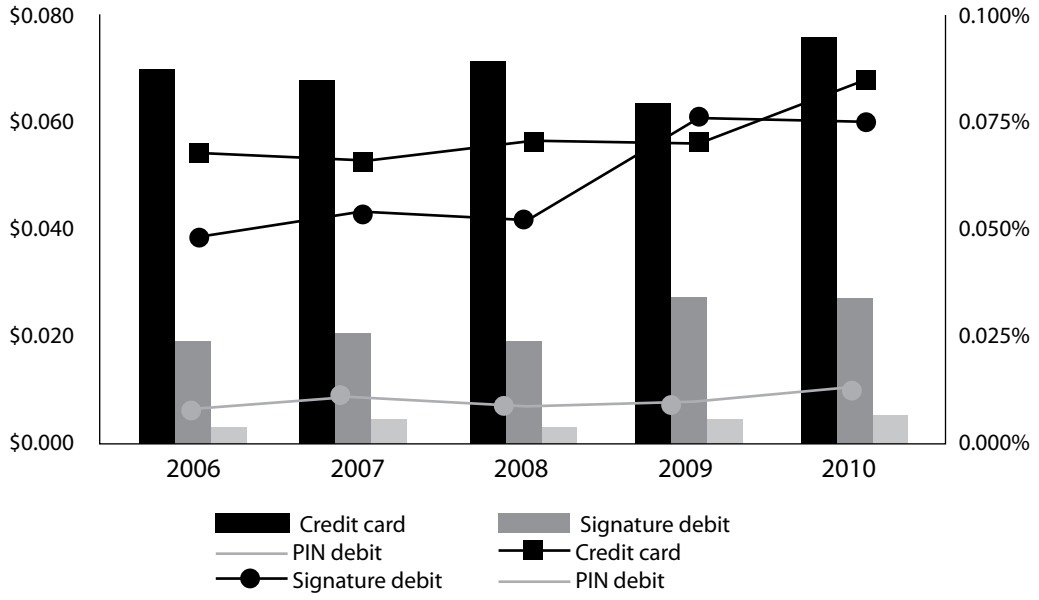
Dynamic passwords: Dynamic passwords generated from electronic key fobs provided by banks have increased customers' security. Improved security has been achieved, since the password generated by these gadgets is valid only for a short-time – usually a matter of seconds or minutes. Therefore, fraudsters must gain physical access to the key fob to defraud customers, which is riskier and more difficult.

The proven superiority of EMV cards (chip and PIN) in combating card fraud – compared to the traditional magnetic stripe cards – has resulted in the card industry increasingly adopting EMV technology globally. The European Central Bank has recommended that all banks within the region stop issuing magnetic stripe cards after 2012 and switch to EMV technology. Elsewhere, China plans to stop producing and accepting magnetic stripe cards after 2015. The US is the only developed nation that still uses magnetic stripe cards. All other developed regions have either already shifted or are on the way to EMV-based cards adoption.

Types of fraud

Fraud is very often related to the use of credit cards. The reason for this is simply that credit cards were not originally intended for use on the internet or mobile devices and, despite many added security features, card fraud persists. The Nilson Report charted estimated losses by payment type across five years to 2010 and, as can be seen from the graph below, credit card fraud dramatically exceeds all other types.

Estimated per unit fraud losses by payment type incured by US financial institutions



Source PaymentsSource, Pulse Issuer Debit Study, The Nilson Report

Given the pervasiveness of credit cards as a payment mechanism, this information highlights the gravity of the problem for the online gambling industry.

There are two main types of payment risk that gambling operators must consider:

- Identity fraud – the risk that payments are accepted due to stolen, misrepresented identities and deceptive information.
- Deliberate fraud by the player/bettor who denies a transaction and instigates a chargeback.

Fraud management

When it comes to fighting online fraud, there is no "one-size-fits-all" strategy. This is why there is a need to conduct a cost-benefit analysis for each deployment of a fraud prevention toolkit upfront.

Fraud prevention saves money but also costs money. Not only because of the costs associated with prevention measures, but also because of the false rejection of non-fraudulent transactions.

If a consumer denies a transaction, it is up to the merchant (gambling operator) to prove that the consumer did make the deposit and place bets. Once transactions are disputed, the merchant and consumer go into the dispute process. The issuing bank will initiate a question-and-answer procedure which is time-consuming and costly to all parties involved. It is for this reason that many gambling operators do not fight chargebacks, but accept them as the price of doing business.

In the physical retail world it is often possible to treat a reversed transaction as a refund – the merchant and shopper simply communicate and the former makes a refund while the latter returns the goods. This process can prevent chargebacks and is much cheaper since there is no formal dispute process, but unfortunately it is not one available to the gambling industry.

Some operators minimise their chargeback transaction and dispute fees by capturing a player's funds but holding off on authorising them until full KYC checks have been completed. That way, if the deposit was fraudulent, it is not an actual chargeback because a chargeback can only occur once a transaction has been settled. This measure, however, is only one tool of an entire kit that gambling operators should be implementing.

A complete risk management system is a major project that not many merchants will undertake by themselves. Many PSPs offer risk management systems that are integrated with their payment platforms, but there are separate providers of risk management solutions who operate independently from payment processing and use external resources. Companies such as iovation, 192.com, GB Group and Experian are all extremely active in the gambling sector, working with operators on myriad solutions.

KYC – "know your customer" – is the best possible safeguard against unknowingly taking cards subject to fraudulent use. While there are "basics" to be dealt with (in an automated or a manual fashion), there are many key areas which gambling operators should address – in a manner that is suitable and cost-effective for their business, while meeting, at the very least, the requirements of their gambling regulator.

- Age verification.
- IP address validation.
- Address verification services (AVS) – this can be purchased either integrally or as a third-party add-on for some countries, notably the UK, Germany and the USA. Not all countries have as sophisticated a mechanism as the UK electoral roll, so in some regions this will be a more manual process.

- Card verification code (CVC), also known as card verification number (CVN) is the three-digit number on the back of a card, the purpose of which is to verify that the person placing the order has the actual card in his possession. When a card is stolen this tool is worthless, of course, since the possessor of the card has access to the code, but it does prevent fraud from phishing exercises.
- Fraud-scoring, using software modules provided by a solution provider to the merchant. A risk management module usually contains a series of checks. Every check generates a certain score. If all scores together exceed a certain value, the transaction is blocked automatically. A fraud screen can include a wide range of parameters including:
  - Location of the issuing bank (compared to the customer).
  - Value of the transaction.
  - Known fraud patterns and the fraud profile of the originating country.
  - IP address of transaction originating country.
  - Consumer behavioural checks.
  - Velocity checks.
  - Consistency checks. A mixed set of checks – e.g., on email address, name, location.
- Specialised fraud tools covering geo-location, device fingerprinting, proxy piercing, velocity checks.
- White and blacklists (in house and third party).
- Real-time transaction fraud scrubbing – as offered by companies such as Optimal Payments.

Automated tools make use of information provided by buyers (directly or indirectly), and can often be followed by inhouse manual checks which often leads to additional actions in order to complete an online transaction. Examples are filling in the three-digit CVC code or filling in a PIN-code for authentication as part of the Verified by Visa (VbV) or MasterCard Secure Code (MCSC) process.

Using the 3D-Secure programmes (branded as Verified by Visa and MasterCard Secure Code) and EMV (in UK: 'Chip and PIN') for physical retail transaction results in a liability shift for chargebacks towards the card scheme and away from the gambling operator because it is up to the issuing bank to check the identity of the buyer.

Depending on the region, after any automated fraud checks, there may be a manual process to be followed by either – or both – the operator and the customer. For example, the customer may have to physically submit documentation as proof of address or age if the appropriate information is not readily available online, or if it is required by the licensing jurisdiction. For example, France's ARJEL has a strict code with regard to customer registration – although the operator has one month to complete the process for each customer.

Online merchants will often be faced with the manual processing of transactions that have been rejected by the automated fraud process but still have a "reasonable" score. Judgment by a well-trained employee will help to make a good decision. Furthermore, the aggregated manual analysis enables the organisation to refine the settings of the fraud detection tools. It is very important for operators to realise that general risk management systems are not static, so every company should tweak and fine-tune to their own circumstances. Chargebacks should be closely monitored – if the number is too low, a high level of "false positives" might very well be occurring and the company might be losing more potential revenue in declined business than it is saving in chargebacks.

False positives (refusing "good" deposits) and poor user experiences are both side effects of managing fraud risk. The challenge is to find and maintain the delicate balance between reducing incident while recognising legitimate players. From the player's perspective, it is important to transact in a safe

and secure environment, but also with ease, so striking this balance correctly is important for a fluid payments experience.

In terms of user experience, recent research conducted for Experian by the International Fraud Prevention Research Centre estimates that £144 million worth of online gambling transactions in the UK alone were abandoned in 2011. These were mainly consumers frustrated by old and inefficient identity checks. One in five abandoned transactions were not taken elsewhere, as the individuals abandoned their online gambling attempts altogether. In total, more than four out of ten (44%) of UK consumers have abandoned at least one transaction in the past year.

Experian suggests that aging forms of online verification are largely responsible for these losses, as far too many operators deploy complex, standalone systems, drawing no single sources of information to corroborate identity information, and are unable to validate as many individuals electronically as more up-to-date packages.

Alternative Payments

Alternative payment methods are often pitched as a safer option than card transactions because they allow consumers to make purchases without exposing their bank account details to the seller, but fraudsters are increasingly turning their attention to these methods.

The US is a market where the alternative payment sector is flourishing, yet merchants that accept alternative payments reported in July 2011 that 27% of fraud takes place with these products, up from 20% a year earlier, according to data from Javelin Strategy & Research. Credit and debit cards, meanwhile, both showed declines in fraud. Debit card fraud fell to 18% from 30%, while credit cards slipped slightly to 65% from 66%.

WorldPay has reported that, while the fraud rates within alternative payments are typically low, they are not invulnerable. Significant attacks on banks and e-wallets have taken place in the last couple of years, with phishing and "pull" scams used to drain accounts.

Fraud amongst alternative payments is categorised mainly by the lack of cohesive standards – no chargeback monitoring program exists, for example, and there are no security requirements such as PCI-DSS, which has been implemented for credit and debit card payments to great effect. Essentially, emerging channels and alternative payments are primary areas of growth for businesses and consequently they are also the most nebulous areas where security and prevention methods are still growing.

WorldPay, an expert in the area, has also suggested that, although the fraud levels are lower than they are for debit/credit cards, it's a far more complex area to manage, as different threats exist by payment type. Over all, the relative lack of data within alternative payments (compared to card payments) makes it more difficult to identify, track and defend against fraud. As such, choosing a PSP that has experience and understanding in this area is vital for an operator that wishes to implementing and grow the alternative side of its payment mix, as the PSP will provide a sufficiently thorough fraud management service, setting up defences and rules that are flexible enough to cope with different payment types and allow customised rules to be set by service type.

Mobile Payments

The growth in m-commerce transactions will necessitate the development of detection mechanisms capable of coping with fraud-related issues specific to the mobile world.

According to Gartner, 12.5% of all e-commerce transactions are expected to be carried out via mobile devices by the end of 2013, as a result of the rapid adoption of smartphones. This means that all relevant parties, including merchants, banks and PSPs, are hastily implementing the types of fraud detection capabilities on the mobile platform that have already become mainstream with fixed-line computing.

The three main problems of m-payments are that:

- The fraud detection tools available today in fixed-line computing environments do not work well, or at all, in the cloud-based m-payments world.
- The mobile device, being portable and easily lost or stolen, brings with it a whole new set of security issues relating to identify theft and card-not-present transactions.
- Mobile payments conducted by NFC have their own set of fraud risks, based on skimming and eavesdropping on the proximity payment; however, these are addressed fully in the Emerging Platform – NFC chapter of this report.

SafeCharge recently addressed mobile fraud and security in an article in iGaming Business magazine which emphasised that, from the very outset, in order to understand the risks associated with fraud in m-payments, it is imperative to understand the mobile payment process, or the different possible integration options of a mobile payment solution.

Operators can incorporate the existing web payment module, either by opening the mobile browser and redirecting to the cashier or by opening a frame within the app itself, or alternatively, to maintain the "look and feel" of the core site, they can replace the payment webpage with a native screen front-end.

It is, and will continue to be, critical for merchants and PSPs collectively to ensure that:

- Customer information is maintained securely.
- Mobile-specific anti-fraud measures are in place.
- Buyer protection applies.
- Mobile apps are designed and maintained securely.

Common fraud tools have been based on IP geolocation, proxy piercing, device fingerprint and 3D Secure – no longer sufficient for mobile. Roaming means that mobiles connect in various countries with IP addresses changing regularly and, in addition, mobile devices, unlike desktop, can share the same IP and move between IPs in a short time-period. Therefore, new parameters which address the device/owner combination, rather than the location, will be necessary.

Historically, data collection tools relied on cookies – which are blocked by mobile devices and are therefore no longer an adequate fraud prevention measure; however, in the absence of cookies, there are many technologies that can be used as a solid solution to verify users and devices.

- IP verification should be replaced with capabilities to detect the location of the device and how the user interacts with the app or webpage, ensuring that the app actually resides on the phone of the user.
- Once phone location is detected, it can be used for checking any conflicts regarding gambling legislation.

- Each phone has many easily identifiable factors; i.e. operating system, device manufacturer, mobile operator, IMEI (International Mobile Equipment Identity).
- Native apps have an advantage over HTML5 sites because even more details can be obtained via the download – allowing for velocity rules and identity morphing checks, crossing the IMEI with other parameters, as well as a pool of blacklisted devices previously identified as fraudulent.

All in all, mobile devices and m-payments bring with them a whole new set of problems; however, with the experience garnered from years of e-commerce practices, and the availability within mobile devices of the features, flags and identifiers to perform the necessary fraud checks, mobile security measures are not a an insurmountable problem – although, given the growth-rate of m-payments, the resolution and implementation needs to be swift so not to hinder the burgeoning sector.

Regulations and Directives

SEPA

The Single Euro Payments Area (SEPA) is the area in which individuals and businesses can make and receive card and electronic payments, in euro, across Europe, simply, cheaply and efficiently, regardless of their location. In other words, it is an integrated euro payments market, across all EU Member States, as well as Norway, Iceland, Liechtenstein, Switzerland and Monaco.

Following on from the introduction of euro notes and coins in 2002, SEPA can be seen as a further evolution of this economic and monetary union, marking a step towards the creation of a single market for Europe. Under SEPA the European banks seek to harmonise credit transfers, direct debits and card.

Implementation of SEPA has been slow, however. The first initiative launched at the end of January 2008, but by October 2010, fewer than 10% of all credit transfers in the euro area were executed using a pan-European payment instrument. As a response to the slow migration, the European Commission planned to impose a 12-month deadline across the EU for the migration of national credit transfers to SEPA. The banks reacted strongly to the short timeline and the end-date is now set for 2014.

Benefits of SEPA

- Individuals and companies within Europe can have access to a single set of payment instruments. This set is the combination of a bank account and instruments like credit transfer, direct debit and cards. SEPA signifies the end of "cross-border" or "international" payments within Europe.
- SEPA payment products and services will offer businesses and individuals more ways to pay in euro, such as credit transfers and direct debits, as well as ensuring more widespread usage of plastic cards.
- It will assist pan-European trade and help businesses compete by making it simpler and cheaper to send or receive euro payments. The new regulations of SEPA will require that merchants only need one acquiring contract for their European transactions, avoiding today's practice of having to organise acquiring contracts per region.
- From a consumer perspective, it will facilitate the transfer of funds between SEPA countries.
- The SEPA vision is to abandon the concept of cross-border transactions and to treat Europe as one domestic region for payments, including charges and time-frames. SEPA does not mean that, for example, no charge will be made for an international transfer. However, it does mean that the price customers pay will be the same for international as well as domestic transactions.

SEPA key players

- The European Commission, which is helping to remove barriers to SEPA by introducing the Payment Services Directive to harmonise the European legal environment.
- European Central Bank, which has provided guidance to the market by setting out its expectations regarding timescales and deliverables in a series of SEPA progress reports.
- European Payments Council, which is a collective of banks and banking associations from across Europe whose declared purpose is supporting and promoting the implementation of SEPA.

SEPA Schemes

The portfolio of SEPA schemes are defined as sets of interbank "rules, practices and standards", providing a common understanding of "how to move funds from account A to account B" using a SEPA payment instrument. These schemes then form the basis around which banks (payment service providers) and payment institutions can develop competitive products and value-added services to offer to their customers:

- The SEPA Credit Transfer Scheme was the first to be launched, on 28th January 2008, and enables payment service providers (PSPs) to offer a core and basic credit transfer service throughout the SEPA area for either single or bulk euro payments.
- The SEPA Cards Framework is aimed at ensuring all plastic cards are accepted in more places throughout the Eurozone. This framework applies only for newly-issued cards. The vast amount of cards already in circulation will be migrated in the years to come. Also, the POS card acceptance points will be expanded and upgraded with EMV (chip and PIN) where needed.
- The SEPA Direct Debit Schemes, which will enable direct debits in euro to be transacted on a SEPA-wide basis. Since these schemes need the support of a uniform EU-wide legal framework, the launch was aligned with the deadline for which all EU Member States must have adopted the EU Payment Services Directive into national law – 2nd November 2009.

E-SEPA

In 2007 the European Payment Council started work on two e-SEPA services:

- The first service is positioned as a value-added service to the SEPA Direct Debit and will allow for further dematerialisation of processes between consumers and merchants, corporates, governments and banks. In particular, this refers to payment instruments such as e-mandates, online payments and 3D Secure services for cards. E-SEPA supports the emergence of SEPA-wide online e-payment solutions and calls upon existing schemes to become interoperable.
- The second is a framework for online payment services based on the SEPA Credit Transfer, which will use online banking as the authorisation mechanism. However, e-invoicing is not the native domain of the banking industry, so a multi-stakeholder effort is needed. The European Commission took the lead by installing an Expert Group on Electronic Invoicing, which finished work in November 2009 and proposed the European Electronic Invoicing Framework.

M-SEPA

On a European level there have also been attempts to standardise mobile contactless transactions. The GSM Association (GSMA) and the European Payment Council (EPC) have published a paper that could speed up the adoption of NFC-based mobile phone payments in Europe. This document focuses on various processes involved in the provision and lifecycle management of banks' mobile contactless payment applications incorporated into a mobile device.

The collaboration between mobile network operators and payment providers would enable more than 500 million consumers to make SEPA payments on their phones. The two organisations plan for the new services to be managed by a trusted service manager, an intermediary between banks and mobile operators, which would provide a single point of contact for mobile service providers and manage the activation of mobile services on NFC-enabled handsets.

PSD

The Payment Services Directive, introduced three years ago, is still an important force that shapes the payment landscape in the EU. The aim of the directive is to ensure the user-friendliness, safety and efficiency of payments throughout the European Union/European Economic Area, in particular for credit transfers, direct debit mandates, card payments, as well as for money transfer services.

The PSD implemented a licensing procedure for all PSPs and introduced the concept of regulation and licensing for "payment institution". The definition of a payment institution is open to interpretation – however, the functions of payment institutions are that they can transfer money, hold payment accounts and grant credit, and are prohibited from taking deposits and issuing e- money. E-SEPA essentially lays down information requirements regarding payment services and lists rights and obligations of both PSPs and users.

While the PSD applies equally to banks, it also creates the category of a payments institution in order to encourage new payment services providers to tap in to the market. In order to serve the whole European market, the payment institution needs to take out a license in only one country.

The original intention behind the Directive was to create a legal framework to facilitate the development of the Single Euro Payments Area. However, in the process of arriving at the final set up of the PSC, a number of other drivers were identified, and the final PSD has four fundamental aims:

- To facilitate the development of SEPA.
- The regulation of payment institutions (i.e. those institutions providing payment services which are not banks and are not currently regulated).
- Consumer protection and increased transparency.
- Increased competition.

The key payment services activities that will be regulated are:

- Cash deposits and withdrawals.
- Execution of payment transactions.
- Credit transfers, including standing orders.
- Direct debits, including one-off direct debits.
- Payment card transactions.
- Issuing payment instruments or acquiring payment transactions.
- Money remittance.
- Execution of payment transactions through the intermediary of a telecom, IT system or network operator.

The regulations apply to payments where the PSP of both the payer and the payee are in the EEA and the transaction is being made in euro or another member state currency (e.g. sterling). Key provisions are set for both financial institutions and the customers themselves:

- There is a legal obligation on the customer to use any payment instrument (e.g. a credit card) in accordance with its terms and conditions of issue, to take all reasonable steps to keep it secure, and to notify the issuer without undue delay of its loss, theft, misappropriation or unauthorised use.
- PSPs issuing payment instruments are subject to various obligations, such as ensuring that the personalised security features are not accessible to other persons and not sending unsolicited payment instruments (except as a replacement).

- The PSRs introduce a long-stop 13-month time limit after the date of debit for a customer to claim that a transaction was unauthorised or incorrectly executed. These claims should be made without undue delay. In the UK a policy decision was taken not to change the unlimited period of the Direct Debit Guarantee.
- Where a transaction is found to be unauthorised, the PSP has an obligation to immediately refund the amount of the transaction.
- For payments in euro or the domestic currency of another EU member state concerned, or where there is only one currency conversion between euro and the domestic currency and the transfer is cross-border and denominated in euro, there is a maximum timescale for execution of one day.

The PSD was written predominantly with consumer protection in mind. However, it also applies to banking relationships with corporates, which can have very different needs and requirements to those of consumers. Therefore, the option of a "corporate opt-out" exists for certain provisions, which can be agreed between a PSP and its corporate customer.

PCI-DSS

The Payment Card Industry Security Council (PCISC) has implemented clearly-defined rules about secure acceptance, transmission and storage of credit and debit card information, known as the Payment Card Industry Data Security Standard (PCI DSS).

All merchants must validate their compliance to these rules by completing a "self-evaluation questionnaire" or SAQ. Large merchants may require independent confirmation of compliance through an onsite visit from a qualified security assessor. For web-facing merchants, or merchants with high volumes, it may be necessary to hire the service of an approved scanning vendor (ASV) and/or a qualified security assessor (QSA). The simplest route to PCI DSS compliance is to outsource the handling of all cardholder data to a compliant PSP.

PCI-DSS is the global standard for the protection of consumer data, based on the standards of Visa and MasterCard, respectively. The standard has been created to prevent sensitive credit card information from falling into the wrong hands via processors' websites.

The central provisions of the PCI DSS are:

- Card information may not be stored beyond the period of time for which it is needed to transact business with a customer.
- Card information must not be accessible to any person who does not specifically need it to carry out a legitimate transaction.
- Card numbers must not be accessible to any outside company unless that company is PCI compliant and specifically contracted to process payments on the merchant's behalf.
- Card information must be safeguarded against unauthorised access, whether physical (e.g. theft of credit card authorisation forms or servers) or electronic (e.g. theft of electronic information over the Internet by hackers).

It is possible to arrange a contract that only covers the acceptance of credit card payments via the Internet. This is called an "e-commerce contract". An important condition of this contract is that the exchange of information between consumer and merchant, and between merchant and credit card scheme, has to be secure through the use of encryption with, for example, SSL (Secure Socket Layer).

There are four different merchant levels for compliance

Level One:
- 6 million + annual Visa or Mastercard transactions.
- 2.5 million + American Express transactions.
- Merchants with known compromises.

Level Two:
- Between 1 and 6 million annual transactions.

Level Three:
- E-commerce merchant / 20,000+ transactions.

Level Four:
- Other merchants (less than 1 million transactions).

E-Payments Merchant Initiative

During the Global E-commerce Summit of 2011, for the first time, a group of merchants united in the form of the E-payments Merchants Initiative to give recommendations for maximising success in the field of e-commerce.

They issued a call to action to the payment industry to come up with more efficient e-payment services which are less sensitive to fraud, have more cross-border reach and lead to more sales conversion.

The document produced, on which major cross-border European web retailers and their representative e-commerce member organisations have collaborated, addresses key issues currently affecting the development of the online payments industry:
- EMI has set up ten recommendations for card schemes, issuing and acquiring banks.
- Improvement user experience of 3D Secure.
- Harmonisation of chargeback and dispute processes of credit cards.
- More clarity on chargeback rules with wallet systems.
- An international and interoperable OBeP solutions based on (SEPA) Credit Transfers.
- SDD: introduction of e-mandate for (SEPA) Direct Debits and improvement of one-off direct debit rules.
- Interoperable pre-paid solutions.
- Cross-border cash-on-delivery solutions.
- Payment methods dedicated to phones and tablet, including e-authentication options for ease of use (less input of data on the device).
- Use e-authentication solutions to fight fraud and improve the buyer experience of credit transfers, direct debit and credit cards, including for the mobile channel.

MyBank

The ECB has always strongly supported the emergence of SEPA-wide online e-payment solutions, such as those that already exist at the national level – for example, in Germany (ELV) and the Netherlands (iDEAL). MyBank, the e-authorisation scheme being developed by the European Banking

Association (EBA), finally presents such a solution. EBA Clearing is a provider of pan-European payment infrastructure solutions. The company is owned by 66 of the major banks operating in Europe.

The MyBank project was launched in 2011 and was being deployed as a pilot scheme in 2012. The user experience of MyBank will be much similar to the Dutch iDEAL in that it will deliver an online banking e-payment (OBeP) solution geared at making it easier and safer to sell and buy goods and services over the internet at a pan-European level. The customers will be paying for goods/services through their own familiar online banking interface.

The EBA Clearing initiative is set to create what they are describing as an "e-authorisation scheme" that will eventually support both SEPA Credit Transfers (SCT) and SEPA Direct Debits (SDD) using the online banking portal.

MyBank will initially be rolled out as a browser product, but over time will also be adapted for web-enabled applications for smartphones or other devices. It is envisaged that the solution will be extended to other payment methods and non-euro instruments in later phases.

Money laundering

European 3rd Directive AML

The First Money Laundering Directive (1991) from the Financial Action Task Force (FATF) concentrated on combating the laundering of drugs proceeds through the traditional financial sector. This imposed obligations on financial sector firms, which included requirements relating to maintaining systems for customer identification, staff training, record-keeping and the reporting of suspicious transactions.

The Second Money Laundering Directive (2001) amended the 1991 Directive to introduce changes in two main areas:

- Expanded the scope from drug trafficking to all serious offences.
- Extended the scope to a number of non-financial activities and professions. (including lawyers, notaries, accountants, estate agents, art dealers, jewellers, auctioneers and casinos).

The Third Money Laundering Directive reflects the FATF's 2003 Recommendations.

The Directive now applies not just to the financial sector but also to lawyers and accountants, casinos, estate agents, trust and company service providers and high-value dealers and it explicitly covers terrorist financing as well as money laundering.

It contains more detailed "customer due diligence" provisions than previous directives:

- Comprises not just customer identification and verification of identity, but also establishment of the purpose and intended nature of the business relationship and ongoing monitoring.
- Applies to new and existing customers.
- Requires identification of beneficial owners and the verification of the beneficial owner's identity.
- Introduces exemptions from full customer due diligence ("simplified due diligence") for certain low-risk situations and requires "enhanced due diligence" measures for situations that present a higher money laundering or terrorist financing risk, and – at least for non-face-to-face business – "politically exposed persons" and international correspondent banking relationships.

Money Laundering

There is a whole hierarchy of regulation where money laundering is concerned. This includes international legislation, such as the EU Money Laundering Directives, UN resolutions and international policy initiatives. Collectively, these combine to form regulatory requirements that operators must adhere to, and that includes being established in a reputable licensing in jurisdiction, such as Malta, UK and Alderney. In the case of multi-licensed operators, they may need to comply with differing regulatory and national requirements, so most operators opt to adhere to the highest degree of conformity.

There is always speculation about the level of money laundering involved in online gambling and the risk it presents. In 2009, the Remote Gambling Association (RGA) in the UK commissioned a report from MHA Consulting, which concluded that statutory, jurisdictional and self-regulation had reduced the risk of money laundering in online gambling and there were almost no examples of money laundering in licensed jurisdictions.

The report found that:

- The risk of money laundering and terrorist financing is low in the gambling industry.
- There is strong commitment by operators to prevent and detect money laundering and comply with legislative and statutory requirements.
- Online gambling is not an easy avenue for money laundering because:
- The identities of gamblers are known.
- The financial transactions between bettors and operators are all in electronic format.
- All wagers are recorded and monitored.