

# Mobile Payments in Asia Pacific

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Level 5 One Pacific Place, 88 Queensway, HK**



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## **Mobile Futures: Payments and Games**

Mobile payments (m-payments) are any chain of payments initiated by use of a mobile device. They range in type from one-way (remittances) and two-way Person2Person to C2C, B2C and B2B, and in business model from mobile network operator (MNO) – centric, to bank-centric, to third-party payment platform-centric, to vendor-centric, and in Asia-Pacific vary across national markets (the ‘leaders’ Japan

and Korea, the ‘giants’ China, India, Indonesia and the Philippines, the ‘tigers’ of Hong Kong, Singapore and Taiwan, and the ‘mid-markets’ of Malaysia, Thailand and Vietnam.) Understanding this diversity and the market opportunities it gives rise to is a key to wise business investment. For example, under what circumstances can mobile-banking become an effective way to bring banking to the unbanked? How do regulations (financial and telecom) influence market structure and market potential? What will drive the take-up of new technologies such as NFC (near field communications) and the use of mobile phones as ‘contactless cards’? If all stakeholders are to benefit from creating an m-payments eco-system - MNOs, merchants, card companies, banks, vendors and payment platform service companies – who will be making the necessary investments?

What will convince the MNO’s that m-payments represent the future? What are the drivers? TIF will review the financial and telecom regulations across different markets, the different business models as they appear in these markets, the coming technologies and crucially what will raise the level of stakeholder acceptance of mobile payments.

**European Suite, Pacific Place Conference Centre  
Level 5 One Pacific Place, 88 Queensway, HK  
2.00 pm – 5.30 pm, Tuesday, 27<sup>th</sup> November 2007**

**Session One: 2.00 pm – 3.30 pm - ‘Mobile Payments in Asia Pacific’**

**Keynote Speakers**

David Collins, Partner in charge, Information, Communications & Entertainment, KPMG – introduction

John Ure and Peter Lovelock (Directors, TRPC) – M-payments

Q&A

**Coffee Break: 3.30 pm -4.00 pm**

**Session Two: 4.00 pm – 5.30 pm – Mobile Payment Initiatives: a perspectives discussion from the stakeholders**

**Keynote Speaker**

Doug Chamber, Senior Director for Terminals and Market Expansion, GSMA – GSMA initiatives in mobile payments (30 minutes)

**Discussion Panel**

John McCann, Head of Business Development, AP, CitiBank

Antony Morris, Executive Manager, Octopus Card Ltd

Anthony Lam, director, integrated solutions, Alcatel-Lucent

David Chen, Product Sales & Delivery, Mastercard International

## Proceedings

Tuesday, 27th November 2007  
(2.10 pm)

**JOHN URE:** Good afternoon, everybody. My name is **John Ure, director of the Telecoms Research Project and of the Telecoms Research Project Corporate, TRPC**, about which I will say a little bit more in a moment.

We are very happy today because today we have David Collins, who's a partner from KPMG, to give us an introduction to this session on mobile payments. As you will see, at the back, if you haven't already got a copy, this is the co-branded publication of the TRPC and KPMG on mobile payments in Asia Pacific. This was a research project that we undertook with KPMG earlier this year. Later on I and **Peter Lovelock, Director of the TRPC** -- if Peter arrives on time; he was due to jump on a plane this morning from Singapore so I'm hoping he's actually on his way, otherwise I'm going to have to do the introduction to it, so I was hoping Peter would -- I'll be talking about this particular research outcome.

I know David has to leave fairly early, probably round about 3 o'clock, so without any further ado let me hand over to **David Collins, Partner in charge, Information, Communications & Entertainment, KPMG** to give an introduction and background to this project. (Applause).

**DAVID COLLINS:** Thank you, John, and good afternoon everyone.



I think it was about six or nine months ago that KPMG commissioned a piece of research into the development of the market for mobile payment systems around the Asia Pacific region. This research was conducted by John Ure and Peter Lovelock and their team. They looked at number of things, including the level of usage of mobile payment systems around the region, what was driving that and what are the key factors either driving the market or inhibiting the market's growth, and what is the outlook for the future.

We wanted to better understand in what direction the market was heading and who are the key players that are exploiting the technology. Also, what are the key m-payment services that are being used and how regulators are addressing the regulatory issues associated with it, and how are the privacy and security issues being dealt with.

The findings are set out in this report that John has already held up and is at the back of the room. It actually provides a fairly comprehensive summary of what's going on around the region and gives some very interesting case studies and insights into what's happening.

Here in Hong Kong, of course, about the only type of mobile payment initiative that we've really seen taken off in a big way is the use of Octopus cards, which I'm sure we are all familiar with, so I have to admit that I was a bit surprised and hadn't really fully appreciated the extent to which this market has been developing in other countries around the region. In fact some of these markets are quite a long way ahead of the likes of Hong Kong and Singapore in a number of respects.

We always expect the likes of Japan and Korea to be at the forefront and leading the way in terms of any mobile technology, and there are certainly some important developments in those markets that we can address, but there are also developments in other, emerging markets that are quite interesting. For example, the use of mobile

banking services to those in rural or underdeveloped communities -- I can see Peter just having walked in -- and providing a service to those who don't have ready access to banks.

Another interesting development that we wanted to examine, an aspect of this study, is how all the different industries interact with one another, because this is not just relevant to the telecommunications industry. It's really relevant to banks, card companies, retailers, transport networks, entertainment companies. We thought it would be useful to look at how all those entities are participating: are they competing with one another, are they co-operating with each other? A good example of convergence, perhaps.

We all know about some of the services that 3G devices can offer, and we all know that mobile devices can be used to pay for groceries, pay for other products and services, vending machines perhaps, accessing music and entertainment. But what about the use of mobile devices for remittance of money home by migrant workers, for example? That's another potential use. The evolution of mobile payment systems may also allow global corporations to access far wider markets and perhaps gaining access to consumers in previously hard-to-reach locations.

But can the technology really help to facilitate wealth creation and really make a difference to people's lives? What can Hong Kong learn from the developments taking place elsewhere? And where is there money to be made in the value chain here? Who are the likely beneficiaries and who's best positioned to benefit from these types of services?

We actually see a number of issues, concerning trust, security, affordability, privacy, regulation, harmonisation of technology standards and other issues that need to be overcome before the really explosive growth in the market can really take off. But I hope our discussion today can shed a bit more light on all of these issues. I'm sure there are a number of case studies that will be covered that will provide some interesting insight into what's going on around the region.

So I think, with that, let me just turn back over to John or Peter, who can further explore all these issues and perhaps give us an update on some of the recent developments around the region.

Okay. Thank you. (Applause).

**JOHN URE:** Thank you very much, David.

I just want to reiterate something David was saying, that we were collaborating very closely, TRPC and KPMG. It's one of the few occasions I think actually when, in the research I've done, I've collaborated that closely with a company on this kind of research. Obviously, when one does straightforward consulting, then obviously you collaborate with the company that's employing you, but in this case it was very much a two-way affair.

For example, in this report we deal with regulation. The regulations are not just telecom regulations, which I'm fairly familiar with, but also banking and financial regulations, and that's not an area of my expertise; I had to do a lot of reading on that. As part of that process we had for me a very helpful, very useful meeting with the financial regulatory experts in KPMG to guide us and give us ideas and feedback.

So it really was a very fruitful collaboration, and in fact, as a result of the work that we were doing on mobile payments, a second proposal came up for a paper on online gaming -- games; not gambling, games -- because, well, put it like this: I had a meeting with a mobile operator here in Hong Kong, did an interview for this paper, and they had several years ago introduced an m-wallet, but they never got more than

four or five merchants to join the scheme, so it never took off. I was speaking to their CTO and was mentioning that online games by mobile phone is gaining momentum, and in particular a very interesting little kind of cloud on the horizon that could become a big issue is the mass, multi-player role-playing games, which is where you get many, many different players playing against each other. Now, this is normally done over a PC -- it's online and it takes a lot of bandwidth -- but there are now one or two examples emerging of that being migrated to a mobile environment. For example, there is an example in Shanghai that we know of.

I mentioned this to the CTO and you could suddenly see dollar signs coming up in the eyes, because this would mean a lot of people online, using a mobile phone for quite a considerable period of time. So suddenly a revenue stream became apparent. So that illustrates, on the one hand, why the issue of online games became an independent issue that we agreed to do a paper on, and Peter in fact did most of the research on that one, and that's going to be jointly produced by KPMG and TRPC and it will be coming out very shortly, so watch this space, and it will be distributed by email to everybody on the database.

But it also illustrates another point, and that is that you talk to the operators here in Hong Kong and talk about mobile payments, and there's kind of this, "It's not really something that's happening in Hong Kong, it's not really something that's developing in Hong Kong". One of the results, which we will come to in a moment, that we found was that, ironically, the most mobile societies in Asia -- namely Hong Kong, Singapore and Taiwan -- have the least level of mobile payment. But if you go to the Philippines or India or China -- Japan, Korea of course, again, they are their own story -- and mobile payments in one form or another are significantly growing and are making a major contribution, especially, for example, to the unbanked or, as David mentioned, migrants who are remitting through mobile networks. This has hardly really touched places like Hong Kong, although, as our speaker for the next session, Doug Chambers from GSMA who is sitting at the back there -- Doug, say hello -- he was making the point that in Singapore the IDA, the Infocomm Development Agency, is actually pushing mobile payments and mobile payment trials now in Singapore.

So it's interesting that perhaps in Hong Kong, where everybody has at least one mobile phone and probably, like me, walking around with two right now -- one's for Singapore and one's for Hong Kong -- that the level of interest at this moment is still very low. What we hope to show you today is that this is going to change and there are big opportunities.

So let me go to the beginning of my presentation. I'm going to do this jointly with Peter, so whenever I run out of breath or run out of a clever thing to say, I'm going to ask Peter to come and step in and take over.

M-payments in Asia Pacific -- and Peter and I, you will notice, director of the TRPC. Again, let me just briefly mention this, for those of you who weren't here earlier: TRPC is the Telecoms Research Project Corporate. Earlier this year we decided to start a corporate membership scheme, the idea being that we would have corporate members and we would engage with those corporate members in consulting and research work, training work and other forms of support. KPMG is one of our corporate members, and this is in fact the very first result of that membership.

Peter is based in Singapore. I run the Telecoms Research Project in Hong Kong, but I am now also pretty much based in Singapore. My partner works in Singapore and we are now using telecommunications to work between Hong Kong and Singapore. Terry over there is still based here in Hong Kong, as is Jenny outside. Peter also has a

consulting arm in Beijing. So we are trying to provide this kind of regional consulting research. So that's what the TRPC is.

In a sense, it's the follow-on from this kind of meeting. In the past the TIF, the Telecoms Infotechnology Forum, has been the mainstay of fundraising through sponsorship for the public domain work of the Telecoms Research Project at the University of Hong Kong. Frankly, because the rate of growth of the market in Hong Kong has slowed up, that was no longer a viable vehicle to keep the Telecoms Research Project going, and that's why we've now moved into this TRPC space. So that just gives you the background.

Key findings, business models, regulations and standards, risks and challenges, and case studies -- those are roughly the issues we are going to look at.

The key findings. When we started out on this research -- I think I'm speaking for Peter as well as myself -- we didn't really have a very clear idea about mobile payments. Like David was saying, we had heard of mobile payments, we knew they were important in some respects -- for example, in the Philippines remittances are a major issue -- but, all things taken together, we had a view that mobile payments was about one big ecosystem: get all the parts in place and then, and only then, will it start to take off.

What we actually found was that across the region there are a lot of, if you like, mini or sub-ecosystems. Different ecosystems produce different types and forms of m-payment systems, and what works in the Philippines is very different from, say, what works in Korea, and so on.

What we discovered was that there were not only different ecosystems but at the centre of those ecosystems there were different players and stakeholders. So in some cases they were carrier-centric: the carriers, the mobile network operators were the principal drivers. In other cases they were more bank-centric. In other cases they were vendor-centric, and in some cases that would be including the credit card companies. And in other cases it was platform-centric, the people who provide the payment platforms.

For example, in Korea we discovered -- and we will come to the Korean case later -- that in Korea, after the mobile operators and the banks had failed to come together, had failed to work together, in fact were actually at each other's throats, it was the payment platform operators who offered gamers an opportunity to buy avatars and all the other bits and pieces that go on with playing games, using mobile phones and mobile phone payment platforms. We discovered a similar development in Thailand, although at a much lower level. Payment platform operators are also very important in parts of India.

So we found all these different models working in different economies, and we found alongside that different business models that were evolving. We identified basically five: business to consumer, B2C; business to business, B2B; C2C, P2P, and remittances. I will just go through those in maybe a backwards order.

Remittance is a kind of P2P, it's person to person, but it's a one-way P2P. So you are maybe a migrant worker from the Philippines working in Dubai and you remit money back to the Philippines, or you are working in Metro Manila and you remit money back to Mindanao or wherever.

P2P is a two-way where people are maybe remitting money but they are doing it as a kind of payment for some kind of service, maybe a private exchange; it could be a young person is buying somebody's avatar and they are remitting money to them.

C2C is direct consumer to consumer, things like eBay, PayPal and so on; this is a major model.

B2B: we didn't find many B2Bs, but we did find some examples, and maybe Peter can elaborate on those later. But I think one of those examples was, for example, companies in China using mobile phones to book airline tickets. So that was a form of B2B.

Then business to consumer. Business to consumer can also be very small businesses. In the Philippines -- again, take that as an example -- one of the things that Smart did was to get rid of the scratchcard for prepaid top-ups and provide the store owners with over-the-air wholesale units of time sold at a discount, and then they would retail those units to their customers and they would make a margin, typically about 15 per cent. So there was both a B2B and a B2C, if you like, operating in that instance.

So we found examples of all those business models developing.

Then in addition we found distinct patterns according to these categories. The leaders were clearly Japan and Korea; we will say more about them later.

Mobile tigers are mobile tigers in the sense that everybody has two or three phones; huge penetration rates. But in each of those cases the level of m-payments is significantly lower as a development than in the other categories. That is beginning to change. I mentioned the IDA in Singapore is promoting trials with m-payments right now. In Taiwan, that's an example of where the credit card companies are the drivers and they are working, collaborating with the banks, the mobile operators and government. So again it's getting a lot of government support.

The giants obviously are China and India, but also the Philippines, I've mentioned. Indonesia is a giant in the sense that it's a large country, but whereas in the Philippines, for example, remittances are huge, and remittances have been encouraged by the central bank of the Philippines because they make such a contribution to the Philippine economy, in Indonesia it's the lack of regulation, the lack of a clearly defined green light, if you like, that is holding it back. The banks clearly want, for example, to offer some kind of m-banking services. Mobile operators are interested in the remittance issue. But they dare not do it, according to the interviews that we had, because they are not sure that it's going to be legal. There's a lack of clarity. So whereas the Central Bank in the Philippines is encouraging and facilitating and promoting the use of mobile m-payments for remittances and for m-banking, in Indonesia the situation is the reverse.

India is very different again, and I will maybe let Peter talk a little bit more about India and China later on, but in both cases there are significant developments in m-payments. Just to give you a passing thought, HSBC Bank has been recently given the green light to offer banking services to rural areas in China. One of the issues that they are looking at is the opportunity to offer m-banking because, while not everybody has a fixed phone, everybody has a mobile phone. There are examples of m-banking that we have quoted in our study, for example notably in southern Africa, for example, where it has been quite successful already.

The mid-markets, lastly -- Thailand, Malaysia and potentially Vietnam -- again, a mixed situation. The mobile operators have been rather slow to promote m-banking. In Malaysia there are experiments going on with, for example, MasterCard, and I believe Citibank is involved in that. In Thailand, payment platform operators have been wooing the mobile operators to offer m-payment services.

Again, key findings -- one of the issues in the mobile payments market is what we call two-sided markets. A two-sided market is where you need to bring not only the supply side but the demand side together at the same time; you need to create both

sides.

A good example of this which is mentioned down below is, for example, in Japan and DoCoMo, where DoCoMo was providing the handsets at a subsidised rate. It was working closely with one or two of the banks. It was taking advantage of the fact that banks are not encouraged to extend consumer credit and so that left an opportunity for DoCoMo to offer credit facilities through m-credits, m-wallet, and at the same time was assisting the merchants in putting in card readers, which are expensive, and therefore most merchants are reluctant to undertake that investment unless they know there's going to be a demand and they are going to get their money back.

So in Japan we see that, in a sense, DoCoMo did what they did with i-mode. They had a two-sided market. With i-mode, remember, they brought an internet, work-based technology to the market, but they had a business model which encouraged content developers to provide content, so there was something worth looking at when you actually did surf the net. So the demand and the supply side were created simultaneously.

This contrasts with what we found generally in the industry, the traditional approach, which is to build the supply-side, kind of "build it and they will come" approach, which clearly is not sufficient; and also an issue of standards. Again, one of the problems is that if you have different standards in the mobile payment sector, and for example with contactless cards, which is the next "next thing", where your mobile phone has, inside the SIM card, a secure element, and in that secure element your m-wallet is downloaded across the network from the banks or from the credit card companies. That has to be read by a reader in the merchant's store, and if each mobile operator operates a different standard then each merchant has to have two or three different card readers, and that's just not practical, that's just not on; these things are not cheap. So standards and inter-operability is a key issue.

So as a result of the fact that, up to now, standards and inter-operability have been very slow to develop between the stakeholders, this has certainly held back the growth of m-payments. So the new strategies, the successful strategies, as I mentioned earlier, were the strategies that we saw DoCoMo adopt; aggregating content in Korea, and again perhaps Peter can come in on that one later to expand on that; targeting the under-served, Smart in the Philippines.

Basically, what Smart did -- a very clever, very smart thing -- they approached the store holders, as I said, with the over-the-air transfer of time units. Immediately, by giving them a margin between the wholesale price and the retail price, Smart created a network of sales agents. Within three years Smart had 850,000 small stalls and kiosks nationwide promoting their service, because the store holders were getting this margin. So it was a very sensible and well thought-out strategy.

Business models -- Peter, would you like to --

**PETER LOVELOCK:** More than anything else, the model with Smart and the models that we have seen working are the models that are responsive and reactive and respond to where the demand lies. I will let John do all of the business model stuff. I will just reiterate some of what John has been saying.

Just by way of background, John in the first slide highlighted the TRPC. It might give you some context from where we come from. I'm the dirty money guy. John is the elegant academic. So that synergy is what plays out importantly here. When John was talking, I believe with Anson Bailey -- Anson, do you want to wave to the crowd?

-- about initial collaborations, they came back and they told me they were doing mobile payments.

In contrast to some of what you have heard, I have been doing mobile payments over the years because I am an old telco billing guy, endlessly. If you've been in that part of the industry, mobile payments has been around forever. It's one of those things that has just never gone anywhere. I looked at it and went, "You've got to be kidding; are you guys serious? This is boring."

My epiphany, similar to John's, just coming from a different direction, is that it is obviously about to take off, finally, for a range of reasons, and that's what came out of the research. Really what John has gone over are the four key findings that we came up with.

The first one, which John brushed over, was the important one to start it all off. The problem, it always used to be, was that everyone was going for one ecosystem; you have to get everyone together. Well, telcos don't work together on their own, let alone with banks or credit companies or merchants. They hate everyone else. They are arrogant guys. Telcos particularly hate banks, and it's well founded because banks hate telcos, so no one is going to talk. So the idea that for 20 years we spent trying to get cats together was stupid and it never went anywhere.

When we started doing the research and we found examples of mobile payments taking off and we went, "How the hell?", you go out and you talk and you realise that there were singular players who had started various mobile payments initiatives off, and you say, "Why is this working? Because everyone has to work together." Well, they hadn't bothered. Smart had gone off and done it on its own, and what it had done was offer, as John has described, the opportunity for low-level people to start transferring money to each other. They had simply opened up the ability that you could transfer minutes, and then they had followed the value chain where it had taken them. Similarly with M-PESA in Kenya, the Vodafone initiative, they had allowed people to transfer minutes, and that was one-way remittance. What had happened was, outside of the urban areas, as people travelled home, they had these excess minutes that they transferred to each other as a way of using their phones. Retailers started saying, "We will accept minutes for goods", which became two-way remittances. This is what we have seen happening.

And in places where that demand is there to be addressed, it can take off and it can take off wildly. We are seeing it in Bangladesh and in India, with the remittance kind of bottom-of-the-pyramid stories. In China it's taking off. In the Philippines remittance is now -- I think we quote a figure of 10 per cent of GDP in the report, of Philippines GDP is remittance. My wife tells me it is actually closer to 22 per cent of Philippines GDP that is being driven by international remittance at this point in time. So it can be phenomenally successful.

So that was the first key finding. It wasn't one ecosystem any more. It was multiple ecosystems; they were springing up all over the place.

The second related point which drove from that was that the ecosystems which were emerging, these minor ecosystems, were addressing different businesses. Telecommunication had its own model. The banking system began focusing on where it could address specifically and it had its own model. What we are seeing on the B2B side is logistics companies are stepping up and having their own model. So we had different mobile payments for different industry sectors.

That then led to a third point which John went over in some nice detail, where different countries, different markets, are having their own takeoff points. So Japan and Korea, which are very, very focused on the high technology end, mobile wallets

delivery, near-field communication or contactless cards as John has called them, touch and go, that's taken off.

China and India and the Philippines -- China and India are driving from the bottom up and we are seeing lots of little initiatives. The problem with China, which we will come back to, is the licensing issue. Right now everyone is sitting back waiting for the CRBC, the regulator, to issue e-banking and m-banking licences, but at last count we had 33 different mobile payments providers across the country, with different levels of take-up. Similarly in India, with its ad hoc regulatory position, and John has covered Indonesia.

The mobile territories of Hong Kong, Singapore and Taipei we are saying haven't shown the same take-up for mobile payments, which we stress in the report, and John's made the point here, what we have seen is the contactless cards are the most successful anywhere in the world. The Octopus card is as successful a start-up as there is. Similarly, Singapore has its EasyLink and its NETS. Now, NETS is a terrific example of contactless taking off. I believe we are going to hear about some of what the IDA is doing in Singapore.

The IDA has stepped in to try and address the screw-up that happened last time with mobile payments and the point that I was making that says you can never get anyone to work together. Right now, because we have the takeoff of StarHub and -- I always get the combination wrong -- EasyLink, StarHub and EasyLink? I think so. SingTel and NETS are the other consortium. I think StarHub came first. SingTel of course did what SingTel always does and stepped up and said, "We will do a trial contactless card payment as well", and immediately the IDA saw that what would happen would be in Singapore, as in Hong Kong, what happened in 2001 and 2002, we would have contending initiatives, and no users would want to have multiple different platforms to have to address.

So the IDA, realising some of these issues, has stepped in and said, "We need users to be able to work across different platforms or once again this isn't going to go anywhere." So the IDA is trying to harmonise contending contactless card start-ups right now, rather than trying to get a mobile payments initiative going.

And in the mid-markets, as John described, we are seeing a combination of the two, coming from the top or the bottom down.

The fourth point -- again, we brushed over it slightly; it's a very important point -- telcos have always done the "build it and they will come" model, the supply side model, and that's what didn't work in mobile payments before. What we have seen work, and it's very important, is where people have found pockets of demand, be it Smart and Globe in the Philippines, be it SmartPay in China, be it M-PESA in Kenya; they are following the demand. They are seeing an initial model, be it a B2B or a remittance, one-way or two-way P2P model, and then they are responding to it and they are building off of it a base of usage very quickly.

So it's a very stark contrast to the way telcos normally move of saying, "We will build out a network and we'll sell it to you." These have a usage of demand because the mobile phone is everywhere, and they are responding to where that demand is coming from. Now, if that gets momentum, that's quite a revolution in the way telcos work.

I've dealt with that so I will leave the models back to you.

JOHN URE: Thank you. I was hoping to get rid of this one.

PETER LOVELOCK: Do you want me to do it?

JOHN URE: You want to do it?

PETER LOVELOCK: Sure.

JOHN URE: Go on, you do it.

PETER LOVELOCK: The reason for this chart -- and I have no idea what comes next because I have totally forgotten --

JOHN URE: I'm not showing you!

PETER LOVELOCK: The reason for this chart is to emphasise the point that there isn't one mobile payment. Whenever you talk about mobile payments, because we're all still in this mentality that mobile payments don't work, and if you sit in Hong Kong or Singapore and you talk to people in the industry they'll say, "Mobile payments, blah". Well, I said the same thing. It's not there yet, and they'll assume you are talking about contactless card or near-field communications.

If you start going out and talking to people in China, in India, in Indonesia, in Kenya and Nigeria and all these places where we're seeing take-up, you will realise that we're not talking about the same thing, as you start talking to the various operators. What failed six years ago, five years ago, in this part of the world from the telecommunications operators' perspective are the m-wallets, the idea that on your phone you would have effectively your wallet, and instead of when you leave the house at night needing your phone, your wallet and your keys, we would have got rid of at least one of them and you would only have to walk out with your keys and your phone. All of your credit information would therefore be on your phone.

Japan and Korea still have that initiative, which if we have the chart which I think we might have taken off, you'll see the level of that usage in these kinds of territories, whereas in other places, like China and India, there's very little m-wallet because the technology needed, the sophistication of the handsets and the security in place, isn't going to be there in those markets. Japan and Korea now have those in place so it can take off.

M-banking is of course very different from m-wallet, and it's the banking sector's attempt to exploit demand. M-banking refers to people checking their balances at their bank or paying bills through their bank account, usually very simple usages, but very starkly different from what the m-wallet purpose was, which was to be able to put credit and buy at retail outlets.

Touch and pay is the contactless card, near-field communications type solutions.

Top-up -- now, top-up often merges or morphs into remittance. Top-up has been, with remittance, the most successful initial takeoff model for mobile payments. Top-ups of course we all know about: it's building up minutes on your phone in one way or another. Particularly for migrant workers, for lower level workers, for kids and young folk, the youth market, be it teenagers or early 20s, which is really where this market is looking at, this is the big model, of course. This is for playing games, for paying for music services, for paying for video clips on phones. Particularly with 3G networks, as those services arrive on our phones, the top-up mode for people who either have limited money or limits on how much they can spend is significant.

In Korea this was the big driver: kids wanting to be able to pay for avatars and mobile games and online games, whether they were mobile or not, they were using top-up credits on their phones. The same is now happening in Thailand, in Indonesia, in Vietnam; those models are taking off significantly.

Remittance we have talked about, both one-way and two-way remittance, where it starts off as transfer of minutes or credit and becomes exchange for retail goods.

Content, the paying for the download of wallpaper, icons. It can be things like songs or MP3 things; ring tones, of course.

Payment gateways. We segregated payment gateways out because of the level of impact these third parties have had, where we talked about needing multiple players to work together. As these models broke down between 2000 and 2003, what happened

was there were still a lot of folk knowing that people would want to pay for content or do top-up or pay for goods over their mobile phone, but it hadn't worked with the telcos and the banks. What happened was third-party payment providers who are successful in their own right, the likes of PayPal and so on, would step in and provide the service.

Now, in a number of markets, initially Korea with Danal -- who was the other one in Korea, Terry? There were two big ones. Do you remember? Mobilus? Mobilus and Danal were the big guys who enabled gamers in particular but also content providers to have a one-stop shop because they couldn't talk to the telcos, the mobile guys, and if they did they had to go and talk to each of them. By having a third party payment provider, which is the same as this works in the credit card industry and other related industries, they have one player they could go to, and that player would negotiate with the telcos. That model is now played out similarly successfully in Thailand, in Indonesia and in the Philippines, and has been particularly driven by things like gaming applications.

Then auctions, which is still a minor player in reality, but with the takeoff of social networking and things like C2C or customer-to-customer enabled platforms, the areas that Google wants to drive into, that effectively you will get the telcos out of the way, and the banks, instead of mitigating all the transactions. You will allow customers or businesses like Alibaba to find their own market out there, and the payment platform itself will serve as the finding agent. Then auctions, reverse auctions or direct auctions, will take off significantly, and we are seeing some of that happen.

As with things like gaming, online gaming applications, if auctions do take off then of course the mobile device, without needing overt sophistication, becomes the ideal device because these things are of course time-sensitive. The online gaming model, we are seeing players morph from wanting to play games all the time to interact with communities. You want to stay online with your community even when you are not playing, and so having a mode of communication where you keep that communication line open and going is superb, and if you can tie that together with a mobile device ...

Auctions of course will work the same way when they are time-sensitive. If I want to bid on a Bruce Springsteen ticket and I need to watch that wherever I am going, then being able to be away from a wired, connected computer and see what's going on will be crucially important. So the assumption is that with common payment operators -- be they the telcos, the banks or gateways -- in place, these things are going to take off and they are going to take off dramatically.

A couple of the key examples -- and again I plead both guiltiness and gratitude to Anson and John because they drove me there, they made me do the gaming thing -- it will be a few things like gaming which are showing unique power in driving some of this traffic right now.

JOHN URE: You are doing so well, Peter ...

PETER LOVELOCK: So, where John talked about five models, B2B through P2P, they're very loose holding tags in reality. We have tried -- because you realise that when people speak of m-payments, they're not talking of the same thing; they're talking about very different types of businesses, often -- we tried to group all of those various models under some headings that made some sense. Now, John has gone through them already: B2B, B2C, C2C, P2P and two-way remittance.

What we have done on your right-hand side of that slide is just to show you what those worlds really look like. Remittance, while it's driving a lot of the bottom of the pyramid or unbanked model out, is a subset really of two-way remittance, or P2P, and where in those low-level communities, be they Bangladesh, with -- I worked with him

initially and I always forget his name -- John, your mate, the guy who won the Nobel last year.

JOHN URE: Muhammad Yusuf.

PETER LOVELOCK: Yeah, where Yusuf's models, with the Bangladesh carrier taking off, with addressing the unbanked communities and doing microfinancing and microloans. These things step naturally up from a remittance and they start engaging the retail community, and from there they go to business communities, logistics and whatnot, very, very successfully.

On the other side of the model we have B2C and B2B, and intersecting those two is the C2C platform. It's really just a way of envisaging that world that's coming up.

B2C was what we all thought in the early days of mobile payments, this world would be about: you would take your phone and you would pay at Carrefour, at Wal-Mart, at Park N' Shop, for your goods, and it would all be convenience. It was all seen as a B2C world in our minds initially, and that didn't work.

What's happened is this splintering of opportunity and so people are addressing specific elements of a business to consumer; you guys, in your consumer-mode mentality. But where the real opportunities are is in that C2C platform and in the B2B areas. While the B2B sector is emerging slowly now, that is really where our world of the telecommunications guys and the enablers, the systems integrators and so on, really think the model is going to take off, be it logistics, the health sector, the education sector, the gaming sector; these specific areas are seeing a lot of initiatives now coming up, and so the assumption is that these are really going to begin to drive forward very quickly.

This really is just to give you a snapshot -- again, it is all in the report which KPMG has produced and published very nicely -- of where the take-ups are. It's really just to re-emphasise the point that in different countries and for different types of m-payment we are seeing different levels of take-up. The idea that this needs to be a harmonised approach, a single ecosystem, we have finally given way of.

How many of you have a mobile phone?

JOHN URE: That's a trick question.

PETER LOVELOCK: How many of you use your mobile phones to do payments? How many of you would want to use your mobile phones to do payments?

Actually, I believe you. I think you guys are lying just because you thought that was the trick question. You see, I did this with David and Anson before. This was our problem, we as an industry. We thought for a long time that you guys were the market and we were trying to sell to you guys. We worked out you folk are a pain in the arse, and we aren't going after you anymore. At some point it suddenly kicked in, about two years ago, particularly with things like gaming and so on, or you and your business sense, for logistics, for internal business communications and payments, makes sense, but you as consumers, you guys are an absolute pain in the arse. You require so much security that we're not going after you anymore. The B2C will drag on from a lot of these other initiatives and you guys will probably be the last to take it up. You'll be like your parents; we're gonna look at you as the grandparents' generation.

It's the kids, it's the 20-year-olds, it's the people who need to use their phone for payment who are going to drive so much of this, and the harmonised model, the single payment platform model, will come up in response to where the initiatives are coming from, because the initiatives are driving enough volume in and of themselves now.

JOHN URE: That was Peter's "abuse the audience" model.

Regulation and standards --

PETER LOVELOCK: Let me make one very quick point and then John can take back over on this, because John did far more reading on the regulation side than I did because it was all the financial stuff.

Really there were two key points that we found, at least to my eye -- John will go into a lot more sophistication and detail -- on the regulatory side for mobile payments. Two issues: one is security, the other is inter-operability. They are the two hang-ups for mobile payments.

If you talk to anyone in telecommunications or banking, they will lie through their teeth to you. They will tell you the issue is security. The issue isn't security. In fact, in many, many ways, mobile payments are a much safer form of transaction than online payments, for a whole range of different reasons depending on which type of mobile payments we're talking about and depending on how it is set up.

The problem for us is inter-operability because you have so many contending operators out there who want to walled-garden their base, their usage group, instead of opening it up and having cross-fertilisation. But they are the two stick-in-the-mud areas, inter-operability and security.

Now, security's going to require the likes of KPMG to help get the market really going, because within that umbrella term there are privacy issues, identity issues, safety, privacy issues, and that's going to require a base set of acceptance by both the industry and the community at large. But in reality the security issues are fairly minimal, and most of them -- and I don't mean to be dismissive here because the couple that remain are significant, but most of the security issues have largely been addressed.

The problem for us is the one of inter-operability. Then the issue of regulatory frameworks country by country, John will go into it in detail, but just to leave you with one example, the key one for me, China. We have been waiting for about 20 months now for the CRBC to come out and put out regulations for both e-banking and m-banking in China. Is anyone from eBay or PayPal here? He's not here, the person who made the mistake of putting his -- he's not really here. I've got a \$500 bet from the regional guy from eBay about when licensing are coming down, because he's convinced that China will introduce the licences in the next three months, and I said, "No way on earth". They were going to come out about a year ago. People's Bank of China had put together a committee of 12 industry peers, very well, in fact, this time: four international players in with the eight usual suspects on the banking side and telco side. People's Bank of China was about to, as we understand it, put those regulations for the licences out, when it suddenly caught sight of the fact that the moment it puts the regulatory framework in place it becomes liable.

Right now, liability rests with the individual operators. People's Bank of China does not want that liability when you've got several hundred millions of people out there doing transactions of all ilk, and people trying to skim them for all they are worth, which is the way China works at the best of times. People's Bank of China ain't gonna take that liability on; until they can find a way out of that hole they ain't putting those licences out.

For a central bank to licence a regulatory framework and absolve itself of all liability is quite a unique position to adopt, but that's what they'll try and get themselves to. There's our problem for the China market right now. In the meantime, 33 different operators are out there trying to get your money in mobile payments initiatives and lobbying the bank just to put forward the licences so that everyone can have a degree of trust and everyone can work happily together.

JOHN URE: Actually, Peter, the Bank of China is not quite so unique in that respect. The Bank of England did the same with the subprime crisis in the UK.

I want to leave some time for questions and discussions, so I'm going to go through these fairly quickly. Regulations and standards, why do they matter? Well, on the regulations side, obviously what kinds of m-payments you are able to offer: for example, do the regulations permit a mobile operator to provide banking services, for example, or not; how they can offer them; and who they should best partner with.

Again, let me take the example of Smart. What Smart did in the Philippines, when they wanted to introduce the m-wallet, was they hired 40 people from the banking sector and they designed with the banks a security system for the bank's back end, which is located at the bank, and they employed 350 programmers to develop the software for that system. By partnering with banks they were able to use the banking licence of the existing banks as a cover for their operations. So that's the way it was facilitated in the Philippines and in many other cases as well.

Regulations then also influence the cost of providing these services and the investment viability of offering m-payment services. So, for example, an m-payment system or remittance system or a prepaid card system in fact -- even something as simple as a prepaid card system -- involves a float. It involves the mobile operator receiving funds from the customer which are not immediately being used by that customer; there may be a delay of a few hours, a few days or a few weeks. So there is an accumulation of a float. So very often a regulator, financial regulator in the more sophisticated markets, where financial regulators actually have the capacity to handle those issues, they will usually put a ceiling on the float. Above that ceiling, financial m-banking regulations will apply; below that ceiling there is no financial regulation applied.

In Singapore, for example, I will check my figures but I think it's S\$30 million. So if the total float of all the people doing prepaid cards, if the total float of an M1 or a StarHub is below S\$30 million, then they don't have to get a non-deposit-taking licence, but if they go above that level they have to have a non-deposit-taking licence.

In Hong Kong, the maximum stored value per card is set at HK\$1,000 or less, so that's a slightly different way of approaching the same issue. The idea, of course, is to safeguard the consumer, so if there's a huge sum of money in the float then the risks of loss are significantly increased. Basically, the concept of proportionality is used. So the level of regulation is determined in proportion to the level of risk that the consumer is liable to. That is, if you like, the standard best practice, and it's been developed, for example, in the European Union with some quite high level of sophistication. So, in a sense, there is no reason to re-invent the wheel, and in well-established financial jurisdictions like Hong Kong, like Singapore, then they usually follow those guidelines.

On the standards side, inter-operability that Peter has just outlined again is the key issue. It's a key issue because it reduces the costs to the merchants; you don't have to have different types of machines to read the different cards. And of course it reduces equipment costs, because standardisation means mass production.

MasterCard and Visa Card are both moving into the realm of contactless cards. At the moment their readers, unless somebody in this audience can correct me, are not inter-operable but they are moving towards a common standard for next year, so eventually they will be there. In the EU now credit cards are required to be EMV-compliant. EMV stands for -- I remember the "M" and the "V", MasterCard and Visa but I can't remember what the "E" stands for -- Europay. So in Europe it's a requirement to have that standardisation. It's also interesting that in Europe, any merchant who does not

adopt standardised card readers is not covered in terms of liability for any losses they may sustain from fraud, although under common law they could still perhaps claim compensation, but under financial regulations there is no liability accepted by the banks. So that's trying to drive the standardisation issue.

So these are the common elements across Asia. Risk and security aspects are mostly covered by the banking laws, banking licences and regulations, and deposit-taking licences and/or Monetary Authority approvals are required for non-banking financial companies, including stored-value cards; and this concept of proportionality is used as the discretionary measure. So that tends to be -- where there are regulations, those are the guidelines.

These are just one or two case studies that might be -- I won't go through the whole detail, but let me just try and summarise it as quickly as I can. In the case of Japan, I mentioned earlier that there was a gap in the market, that banks are not permitted to offer revolving credit, and so the credit through an m-wallet offered by DoCoMo and now the other operators did tend to come in to fill that gap. Notice the e-commerce regulations, the prepaid card law, require 50 per cent of the float to be deposited at the Bank of Japan and reporting of unused deposits every six months. So those are the kinds of regulations governing Japan.

I am not going to say more about that, but Peter, and particularly Terry over there, is very well versed in Japan, so any questions will be directed to Terry and he will be expected to answer them immediately. Stay where you are, Terry.

Korea, similar -- the regulations in Korea, E-Financial Transactions Act and the E-Commerce Protection Act require separation accountings, minimum security standards, bookkeeping up to five years, et cetera, et cetera; and mobile operators offering m-payments are obliged to provide status reports to the Ministry of Information & Communications. So that's in the two most advanced markets.

I mentioned these already. In Indonesia, by contrast with the Philippines -- in Indonesia there is very little experimentation going on, precisely because of a lack of clarity in terms of the financial regulations in Indonesia. They really can't get their act together. The Philippines is the other end of the spectrum, and interestingly Smart, I mentioned they had 350 programmers, they had 40 bank staff coming into Smart, they have the intellectual property rights behind their remittance system. They now have a deal with Middle Eastern banks, and they are basically exporting their business model and the intellectual property rights that go with it.

Risks and challenges, finally. Inter-operability and security are central to the successful business models. The banks want the security, the merchants want the inter-operability, and I mentioned the EMV which is a standard offering those two.

New technologies are opening up new levels of market acceptance, and I think really the key points here are firstly, where everything we are talking about here, and the growth of the m-payments in those different vertical sectors that Peter was illustrating, require bandwidth. I personally think that just as broadband has really driven the whole web thing, the whole Web 2.0 especially but Web 1.0 as well, so similarly broadband in wireless is going to be one of the key drivers here; so 3G and beyond.

But also, of course, the next "next big thing" is near-field communications or contactless cards, which are these cards embedded in the mobile phone, and Visa and MasterCard are now experimenting with trials across many parts of Asia. I believe -- I'm not sure how many handsets -- Doug can talk about this later, I'm sure -- are NFC compliant. Nokia certainly have one and Samsung have, but more are likely to be on

the market in 2008. The conventional wisdom is that 2008 is when this is going to happen in a big way in terms of the supply side.

M-payments can be quite secure. They usually use PIN and an SMS. Again, let me take my favourite example, of Smart. You can open up an m-wallet account. You can have a pre-approved list of people who can use your m-wallet account. The person who was running through this with me was the director of the programme at Smart, and he said he has a chauffeur and his chauffeur uses his m-wallet account when he fills up the car for petrol, and he is SMS'd to tell him that his chauffeur has spent so much on petrol, and so on. His children have an account, and so on. So it's quite a sophisticated service.

The other point that is often made is that if you lose your wallet, you may go a day without realising it, but if you lose your mobile phone you will know it in five minutes, so cutting off the SIM card is very simple. The mobile network operator can simply disable the secure element in the SIM card. They do not have access to the secure element -- only the bank has that -- but they can cut the access to it.

As Peter was pointing out earlier, mobile handsets are actually far more secure than, for example, PCs in internet cafes. So paying for a game, for example, is actually more secure over a mobile phone network than it is over a fixed line network.

I think this last point is actually very important for anyone who is really seriously interested in security, and that is, it's not the loss of a phone or an m-wallet or the money you might lose from a prepaid card or whatever that's the issue. The big issue -- and certainly this is the big issue in the States -- is identity theft. That's the big issue. That's where the big money is involved. And of course, when the UK government happened to lose 25 million names, addresses, accounts, et cetera in the post, as they did manage to do last week, there's quite a lot of identity theft risk at stake. So that's the big issue.

For example, just on that, the MIT, Massachusetts Institute of Technology, carried out an experiment with somebody with a card reader of their own picking up -- when somebody was paying with their contactless card on a card reader, somebody was standing behind them with their own card reader, picking up the details of the card. But what they don't pick up is the three little digits at the back of the card. Not all cards have those three digits and not all merchants require them, but that's just a matter of time.

I'm not going to go through these in detail but we can come back to them if anybody has any questions, but there's a case study on Smart in the book.

We have somebody from Octopus here, so they will be talking and giving you examples about Octopus later, so I won't go through that.

Gaming and virtual money -- Peter can answer any questions on that if they come up, so I'm not going to go through that. I will just make the point, though, that this issue of virtual money is very interesting on gaming. People, you know, use virtual money in the games and then they start trading virtual money, so virtual money becomes effectively real money, it has a real exchange rate, and suddenly monetary authorities get concerned, quite concerned.

So conclusions -- I think we've been through all these already. Peter has outlined them more eloquently than I did right at the beginning. So, in the ten minutes left before we have a coffee break, let me finish there and open it up for any comments, questions, discussion.

Any questions to Peter?

PETER LOVELOCK: Thank you!

**JOHN URE:** He's just got off a plane about an hour ago. He's just here to answer your questions, so don't disappoint him.

**QUESTION:** Of the various examples here, who do you think is turning the largest amount of money at the moment?

**JOHN URE:** Who's making the largest amount of money, in the ecosystem? Have you got an answer to that one, Peter?

**PETER LOVELOCK:** Smart, probably.

**QUESTION:** I want to know who's actually turning the largest amount of cash, not who's making the most profit; who is actually doing the largest amount of volume transactions in terms of money?

**JOHN URE:** My guess is -- I don't know if Peter has a better guess; I didn't do that quantification -- but my guess is remittance companies, people like Smart. I mean, it's just huge.

**PETER LOVELOCK:** I'm not sure I understand where your focus -- I presume -- you said we've got someone from Octopus?

**JOHN URE:** Octopus, yes.

**PETER LOVELOCK:** I'd be looking at the person from Octopus and asking how they are doing, for example.

**QUESTION:** I'm just trying to get an idea of scale. I mean, we have talked about some of the more successful examples around the region of different mobile payment platforms and why they're successful. I was just trying to get an idea of scale: who is the biggest, who's actually doing the most.

I should explain, I'm actually a venture capitalist, and I'm trying to see where -- you talked about people starting in niches. Now, the problem with starting in the niches, you need to reach scale, and how you get from a niche to scale. So that's why I am trying to get an idea of who are the bigger players here and how they got out of their niche into a bigger market.

**PETER LOVELOCK:** Okay. That's a bit more helpful. I was stumbling for precisely the reason, I guess that we outlined, that mobile payments encompasses so many different things. John verged to the obvious example in our world, which is Smart and Globe, which are doing massive volume on that front. We kept quoting a figure: as I say, I think we've got 10 per cent of Philippines' GDP is remittance, and that's coming through those guys. The logical other player in that chain is the remittance companies themselves.

I did the example of Danal in Korea, which I think addresses your question, which started focusing, I think as John said, on addressing the teen market in terms of gaming and content downloads, and were providing a way for gamers to buy accessories for their avatars as they played the games. They branched very successfully out of that, firstly across content and then being the common third party payment platform for mobile payments in Korea, so that allowed them to branch out,

and they are doing big volume. I think their profit levels have come down but their volume is quite strong.

The other obvious example that springs to mind is someone like China Union Mobile Pay, which again isn't doing high publicised profit levels, but their volume has been going up exponentially. Given that they piggy-back off China Mobile and UnionPay's networks and the Bank of China's infrastructure, their reason for not publicising their profit levels is obvious, but they're doing very high turnover, and of course, because UnionPay is now Asia-wide and not just in China, and as China Mobile goes regional, the prospects for an institution like China Union Mobile Pay to watch their revenues, their volume of transaction go up is -- they're sitting there drooling at the moment.

Does that answer the question in some way?

**QUESTION:** That's great.

**PETER LOVELOCK:** The other ones to focus on are people like AliPay for the Alibaba platform, which will broaden out beyond the niche of just doing Alibaba; and the gaming, the payment companies that are servicing the gaming platforms, which is where the IDA, for example, in Singapore wants to start addressing now. They've got two initiatives. One is to have a common platform for mobile payment in Singapore to get past this contending initiative, but they are doing it in parallel with the money they are throwing at the gaming community, because they want Singapore to be a gaming hub for Asia, and they've got in their mind that if they could enable that cross-fertilisation you'd have something that was addressing that kind of volume. But that's coming up. It's not there yet.

**QUESTION:** Hi. I just want to comment -- I used to work for a Smartcard company. It has always been the fact that to make something successful like a new technology -- I mean, this is all about technology and technology companies come out with technology things, but the success factor has always been applications.

So Octopus, the success factor is really the transport, where everybody has to use it, therefore, da-da. NFC, for example, if you are talking about mobile payments, and presumably we are talking about the mobile phone, we did a survey year after year. If you speak to the people, basically they don't see a need. The fact that people always lose their phone is also a very big inhibitor. So I keep hearing "gaming", but what else is there? I just want to know whether there are other success factors elsewhere, because every year we talk about gaming and in my previous companies we keep trying to do case studies -- not case studies, business cases, where you try to move into using this technology, but none of the bottom lines are coming out.

So, you know, in terms of application, what else besides gaming?

**PETER LOVELOCK:** I've got two answers and then John will give, again, a much more sophisticated answer than I give, because I'm dirty money.

My first answer is: I'm not the chip or the card evangelist. I think John believes in NFC and contactless cards much more than I do. I agree -- we both went through the literature and I know that next year is seen as the year it begins to kick. We have someone from Alcatel-Lucent who will talk about some of these issues as well, I think in the next session.

I have my doubts about contactless cards' ability to take off for quite some time, for pretty much the kind of issues you are talking about. I don't see how they will become too successful unless they have a monopoly position like Octopus, or a dominant position, that they can really leverage off and make it, for the customer and

the end user, the one thing that therefore becomes convenience; you can use your one reader for something that everyone uses it for, for everything. So without that position I think the competition in NFC is going to prove problematic.

But I think that was the second part of your question. The first part was, "It's all about applications; what drives it on beyond gaming?", and I'm the one who keeps on mentioning gaming. I think gaming is going to drive a lot of this. John mentioned that the bandwidth for broadband mobile is going to play a real issue. I also started off by mentioning that mobile payments have been around forever, and I thought this was all banal, to start off with, when we did this. Because they sent me down to the front line to do the report on mobile gaming, I sat and got hooked. I sat in the internet cafes in China, going and playing and researching -- we called it "research" -- and you'd sit there and you'd watch people. This is when I realised the security issue thing. You'd sit and watch people doing top-ups on their mobile phone in the internet cafe, and I went over to them and said, "Why are you using your phone?" The first answer you always got was "convenience". You'd think, the top-up cards that you are paying for are 10 metres away; it's good exercise. They didn't want to get up and walk over there to buy a top-up card that was sitting there at the desk where you first walked in. So it's the convenience factor for them.

But the real issue, often, was security. If they typed in online, they put in your full information, and if it's credit information they're putting in full credit information, whereas if you're using a mobile phone you've pre-registered, so you're only ever sending something like the last four digits or the first four digits, and everyone felt that because you're not giving all information out over that transaction, it's a far more secure element. The more I asked, the more that question came up over and over again.

So there will be a couple of applications I think are big drivers, hence reiterating gaming all the time. The other one, of course, is content, and as bandwidth improves, what we have already seen with the decimation of the music industry and what's heading with the film industry and the broadcast television content industry, I think mobile is just going to drive through the roof. So all of that kind of content download, which will go not simply mobile but fixed-mobile ubiquitous, mobile will be a big driver of the payment for that. The other big one that's already there is remittance.

So it's much more those low-level usages which aren't technology driven, in my mind, that we're seeing the takeoff of mobile payments. I would have a lot of question marks about the high-tech end around near-field communications, and also, in the early days, mobile wallets.

**JOHN URE:** Actually, I wouldn't disagree with that. Peter thinks I'm an advocate for NFC. It's just that I have just learned about NFC, so I sound enthusiastic, but in practice I agree entirely with that last comment. The whole history of digital technologies that have proved commercially successful tend to be the technologies which are incredibly simple and which can be easily adopted by certainly the Y-Generation and used in their own way. So you go back ten years or so and things like emails and SMSs and all these things, but all the products and services that were designed for consumers, like MMS and so on, haven't really gone anywhere.

So the security issue -- Peter was giving an example there of the internet cafe -- it seems to me the key point there was that people don't want to give that much information about themselves, as opposed to the idea of, "Oh, my mobile phone is not secure".

In fact I today went down to my mobile operator because, somehow or other, my Hong Kong phone 24 hours ago got itself locked, and normally it happens if you put in the wrong PIN number three times in a row, then it locks itself, but it may be because I had it under my pillow that night and maybe I rolled on it in different ways, but anyway the thing was locked. When I got it unlocked this morning I also said, "By the way, disable the PIN." I don't want to use a PIN anymore. I've had that phone for three or four years; nobody has stolen it, nobody has made phone calls on it without my -- I couldn't care less about the security of my mobile phone in that sense. I don't want it to be lost but I don't want to use PINs. But I also don't want to send information about myself. That's why I don't trust things like Facebook and so on. Increasingly this stuff, anything personal, details, et cetera, is available to the world. One of the problems in India, in the development of mobile payments, and mobile banking, for example, is the security thing twisted 180 degrees. Increasingly, because of terrorism, the security authorities are requiring people to give their names, addresses, et cetera, et cetera, et cetera, before you can buy a prepaid card. In the case of India, if you want to open up a bank account, you have to give all your personal details, including the numbers of all the accounts that you may have already, and to administer this you need hundreds of thousands of agents across the country, and they need training in that, and the whole thing is likely to be, at least in the early years, quite a big hindrance, it seems to me.

So if you can think of things which require a minimum amount of information giving, are incredibly simple to use and are volume based -- which tend to be the small margins but relying on volume, the bottom of the pyramid stuff -- those, it seems to me, are the criteria that are going to make this work and are going to take off initially, and the more sophisticated stuff will come slowly, much more slowly.

Maybe we should have a break here for coffee. Peter is gasping. Thank you, Peter. So a 25-minute coffee break, back at 4 o'clock, for the second session. Thank you.

(3.32 pm)

Coffee break

## SESSION TWO (4.13 pm)

**JOHN URE:** At our second session, our keynote speaker is **Doug Chambers, who is senior director for tunnels and market expansion of the GSM Association.** Doug is going to talk about some of the initiatives that the GSMA have been leading in the area of mobile payments, which includes this migrants money transfer which I referred to when we were talking about Smart, for example.

Then following Doug we will go directly into a panel, and our panellists will be **John McCann, head of business development of Asia Pacific, Citibank; Antony Morris, the executive manager of Octopus Card Limited; David Chen, product sales and delivery of MasterCard International** -- is David here? Yes, David -- and **Anthony Lam, director, integrated solutions, Alcatel-Lucent.** So we will go into that panel and I will invite each of the panellists to speak for two or three minutes, giving their view on what's been said and what their company is doing, and most of the panel will be then devoted to questions and answers and general discussion.

So, without further ado, Doug.

**DOUG CHAMBERS:** Thank you.



Good afternoon, everybody. My name is Doug Chambers, as I've been introduced. I work for the GSMA. I've been in mobility a long while, probably too long, as some people might say, but for me I think mobility is fantastic. I really enjoy being in this job; I think it's the best job in the world.

I'm going to talk a bit about mobile payment. In our world it's called PayBuyMobile. I'm going to talk about who's involved, some of the opportunities, some of the organisations we work and how it all fits together, and who's doing what across the

industry.

The first thing I want to talk about is us as an association. As an association we represent over 700 operators worldwide. We work across 200 countries, and we've got associate members, which are vendors, that also work with us. So we have a big, big ecosystem of players. We were formed in 1987, so we are not that old but we are old enough to stand on our own two feet and work out which way is up. Finally, we have a number of papers that we publish -- some are on this subject, and on many other subjects -- and they are in the GSMWorld.com, and you can go to that and collect papers. As I've said, we have some papers on PayBuyMobile; we talk about the opportunities and who's involved.

So our focus is to act as a single voice across the industry and actually drive standards in governance with many, many operators.

The first thing I want to talk about is a little bit about the network, because people tend to talk about handsets and they look at cycle times today and everything seems fast. In actual fact, "Young, Active, Fun", which is between 18 and 34, they cycle handsets around every six months, so it's fairly quick and you see new models. Now, the "Mature Basic" people take three years. So the average is around 17 months.

So it always seems things are happening, but actually if you look at the first call we made on 2G, it was in 1991, so it wasn't that long ago. We went into data around 2000, with GPRS. Then we went to a bit faster data, with Edge around 2003, and we actually hit our first billionth subscriber in 2004. So there was this big gap where we sort of gained and then we took off. Then we actually hit 2 billion soon after that, and now actually we are around 3 billion. So it's really, really grown.

I remember when I was at Vodafone, we put our money down on the 3G licence, which cost us a fair bit, in 2000 -- actually Vodafone UK spent around 6 billion pounds on our licence, and it went on to Germany and other success. So we put a lot of money into the industry. In actual fact, if you look at the networks that launched, it was the 3G in 2001. We moved into really faster data around 2005. So if you looked at from 2G to 3G, that was quite a while, and then we went 3G to HSDPA, which is a faster package data, in a shorter time. We now then got to a point, around 2006, where we had 150 networks in 3G, so we're starting to speed up. Finally, we're into even faster networks. So there's a network out there that's running 14 megs, so we are really starting to talk about mobile broadband, but it hasn't happened overnight.

Then, when we come to the more natural growth, we see that in 2010 there will be more 3G subscribers than there will be 2G, so there will be that movement.

One of the other things I want to talk about is SMS. When I was a bit younger, just a few years ago, and I was at Vodafone, this was 1992, we sent our first SMS. At that

time we didn't envisage the growth that was going to take into -- a really massive, massive growth, and what we were targeting was actually the business and the pager network; I was speaking to someone earlier about paging. It was really a simple concept. We knew that business people would take a handset around with them, so we'd send them an SMS, it would come to the phone, they would know who to call and they'd make a call, and we'd get more revenue. Then we moved it on to voicemail, so the idea was the same principle: you got a voicemail, you then dialled and listened to it. And gradually, probably six or seven years after 2002, we started to move into consumer space and then we saw the real hockey sticks.

So in the early days we did fax to SMS, SMS to fax; we did all sorts of applications and they didn't take off, but gradually we knew it would, and it took off.

So how did we manage to sort of pull all this together? We have a board of some of the biggest operators in the world, and then we have some smaller operators and the smaller operators rotate, so we get this natural feed, and the idea is that the board come and look at big decisions that we need to work together on, and that's how we managed to make mobility successful, because you can take your phone and move around the world and it works.

We do two other things as well, apart from pulling the industry. We run two conferences. One is in Barcelona and the other one is in Asia. In Barcelona we've got between 50,000 and 60,000 businesspeople come to a massive event. We have vendors, we have operators, we all get together, we show our latest technology, we have CEO speakers and we talk about the industry, foster that relationship. And we've just had one in Macau, over the water, a couple of weeks ago; there we had between 7,500 and 10,000 people. So we see the Asian area as really another grow in a step to take this market forward. So that's pretty much about the GSMA.

So mobility and finance. In actual fact, if you look at the industry today, you have the internet, with around 1.1 billion people on there, and credit cards, which is a pretty amazing industry from the banking side. We reckon there are about 1.4 billion credit cards out there. And handsets, as I've said, there are 3 billion. So there's a massive number of handsets in the world, and it's exploding growth.

So when we work with our operators and taking things forward, what we're seeing, and pushed from the operators' point of view and the banks, is that it's now time to get mobility and banking joined together. That's just a natural evolution that we see moving forward.

So what we are doing from the concept is we take the credit card and we put it inside the SIM. This allows people then to use the phone as a touch-and-go type terminal. You swipe it across the terminal. You authorise via PIN, and that would depend on the amount of money that you are going through. If it's a low-value transaction, it will go through. If it's high value, then you type your PIN in. Then you walk away with your goods.

So it's a nice and simple way of doing it, and the benefit is that operators aren't fighting with banks any more. We've tried that. We tried to do our own mobile payment schemes, and we've always struggled; constantly there's been this battle with the banks. What we're doing with this one is pulling the banks and Visa and MasterCard together, and the operators, and doing several, several trials across the globe. I will talk about that in a minute. But from our research, what we've found is that people really enjoy that touch-and-go activity. People like that. The other thing is that it's in your pocket, you can pull it out your pocket and move it forward.

So, if we looked at it in a sort of nutshell from a user's point of view, we're using near-field communications, which is the touch-and-go; we use the SIM as the secure element; combine it into a package and away we go.

Now, I have a credit card here which is a chip and PIN and it has a chip on it -- hopefully you can see the chip -- and, funnily enough, the chip looks the same as a SIM. I don't know if you've ever looked at a SIM. That's no bad thing because Gemplus and G&D, they make SIMs and they make credit cards and they all live in the same factory. So we actually spoke to the credit card guys and we said, "Well, if we took a credit card application, could you put it inside a SIM?", and they said, "Of course you could; you know, it's the same underlying technology, it will work, it's a Smartcard, there's no reason" -- "And will it be secure?" "Yeah, absolutely". So we said, "Okay, let's start getting people together and foster this relationship."

So, from a user's point of view, we have looked at different ways of using it, from using it at gas stations, drive-throughs, transport, cinemas. They are the typical high-speed, touch-and-go movement. Then we have the retail and restaurants. In the States, McDonalds, who are a pretty touch bunch to work with, actually are replacing all their swipe terminals with near-field communications; they've been given it. McDonalds wouldn't do that for no reason. The reason they want to do it is for efficiency in getting people along. So they are actually training their people and they're rolling this equipment out across all their stores. You will see that later on in a little video clip.

So I have talked a little bit about the left-hand side, which is from the user experience, but the right-hand side is how you actually get the credit card information down to the handset. To do that, you're going to do it over the air, so I'm going to talk a little bit about that side and some of the challenges.

From an operator's side and a banking side, you still have the business-to-consumer type linkage, so the B2C, and when you move forward with the service you will continue that as normal. So from your banking relationship, you will still talk to your banks. For your handset side, you will still talk to your mobile operators. But the big challenge is how do you get the banks and the operators to work together, because traditionally they don't have a trusting environment with each other. This is a new opportunity; we have worked together with the banks and the operators, and it's called a trusted service manager. So it's an entity that fits between the banks and the MNOs and it guarantees that end-to-end security. So when the credit card goes from the bank through the mobile network to the phone, the banks can have absolute guarantee that that will be secure, and the mobile operators will absolutely guarantee that the path will be secure. So those two can work together.

The way that will work will be a different relationship within different countries. We are finding that in some countries where the banks have less regulatory than operators, then operators will actually probably take the whole lot. They will take the trusted service manager and they will build it into their network and they will connect to the banks. In some countries we are finding the trusted service manager will live into the banks and they will then guarantee the connection. In other countries we actually find that neither the banks nor the operators want to run it and there are other third parties who want to run this entity. So we think that's going to be a new entity that will start to kick off and it will be quite interesting, but fundamentally it's a business-to-business relationship between the two, giving you a secure passage.

So we've talked a little bit about both sides. So how does it actually happen inside the SIM, or the UICC, as we call it, from the technical side? Basically, the SIM is being partitioned up, and it's a bit like a safe deposit box in a bank. You have all these

boxes there, and you can take your key out at your bank, give it to the bank, and he has access to his key and he locks it up. From our side, what you can do is download your Visa, your MasterCard, your loyalty cards and anything else into these little slots, and they're locked away and they're very secure. So that's the premise. It downloads it over the air. I have a video clip later on that shows you some of the work we are doing across the globe and actually in real life.

So, from a business case point of view, there are three elements which I call the bog standard. We have the McDonalds and the cinemas and people -- they like through traffic. So for them it's all about getting people through lines and out the other end. And the same with Oyster, the transport people. If you're standing in a queue, anybody who stands in a queue like me, I don't know about you but I always stand in a queue and I always look that side and I always look that side, and there's always someone in front of me, they either can't find their wallet or their money is tied up and they can't get it out of their bag, and that really, really annoys me; whereas if you watch the trials that are going on, touch-and-go, you'll see that it really is fast. We're seeing a 63 per cent uplift on cash, and it's even faster than the mag swipe, primarily because it comes out of your pocket fairly easily.

The other one is actually to try and reduce cash. In certain markets cash is very expensive, and even in Ireland, which we consider as a developed country, 1 per cent of their GDP is used to manage cash. So you will see Ireland is one of the trialists up there.

Finally, the last area, from a revenue point of view, is from a banking side, instead of actually issuing a plastic card, it's done over the network.

The really exciting area is what we are doing -- we are doing some trials across the globe, and one of them I will talk about is Singapore. We are sort of hiding it under the covers, shall we say, until we understand more about user behaviour, but what we are seeing there is really big promise from other services. So we've seen coupons around that we've put up, and people are touching their handset against the coupon and then they go and pay and they get discounts. What it's allowing people to do from the merchant side and across the industry is actually connect to their customer. When you have a plastic card, the only time you really connect is when you see the bill that turns up or you put it in, whereas this one, because it's on all the time, it's a mobile PC, and we're seeing numbers of little companies now that are starting to appear after we're starting to work with the operators; they're actually trying to develop applications that will pick up the coupons, send it to you, direct marketing and all this side. So we think that's going to be a big, big market going forward.

So if we looked at the value opportunity for credit cards today, it is a big market, no question about that, and there's a lot of money around there. But from the analysis that we are starting to do, we actually see there's a big growth in payments, with other services that can be added on top of that, and also efficiency in the network. So we see that there will be a big movement. Will it happen today? Absolutely not, but it's going to take time and we are starting to do it, and I will talk about the trials.

So what I want to do is show you a clip now of it actually working across a number of countries, because slides are good but they are not like the real thing, and we'll see some scenarios where people actually took them across different countries.

(Video played)

So that gives you a feel. In Macau, when we held a press briefing, we had ATT&T, Maxis, Far Eastone, and KTF from Korea, and we actually lined up all the payment terminals and we got each one to tap their handset across, and it worked across all terminals. So we were just proving that it did work.

We also did the first live deactivation and activation between China and Korea of a handset, and that was all done live. We're pushing our luck, I guess, because something could have gone wrong, but it actually worked and we proved that the concept worked.

Now I am going to talk about who's involved and why we think this is starting to take place. We have end-to-end trials running across, either now or next year, across the globe, from America to Australia, to this area and up into Europe. Almost each day we get more operators join the big club, as we call it.

When we started -- we actually kicked the programme off this year in Barcelona in February, and we had 14 operators said they want to do it. I will show you in the next slide how many we've got on now, but even that's out of date. We're running regular workshops around the world, and that's being run by Dr Nav Bains, who's my colleague over there, and we're getting more and more banks and operators and Visa and MasterCard moving together, and the handsets suppliers and vendors.

The programme was initially led by Korea, KTF, and when I put these slides together we had 35, I think it's 38 or 39 now. So this week we've already added more and more people to the party. We are seeing that each week it's getting bigger and bigger and more operators are joining, more banks are joining and it's just growing exponentially, it really is. And the trials that we are bringing back, we are doing a whole set of research on there to find out on those, and I will tell you some of the results that we've found out.

The interesting thing we have found out -- there were three areas of research that we did across 17 countries of people. One, which is not surprising, is mass transit; people like to use it, touch-and-go and get forward. And we're seeing with Oyster and Octopus, that's a natural evolution, people like that, to move you through.

The next area actually is shopping. We found that 71 per cent of people said they would use it to purchase their goods through shopping, which is interesting when you think about your credit cards in there, that they would prefer to use one of these than one of these. Restaurant bills was another high charge one.

But the really exciting thing for us was actually the adoption rate. We actually found that 52 per cent of our survey said they would take it in the first year. I have been, as I said, in the mobile industry and we have done early surveys and I have never seen one with that high an adoption rate. So it tells us that it's not in the niche, it's more into the mass market, which is what we were hoping for. It got even better: after two years, when the technology is even more settled down, then we found 67 per cent of the people we surveyed said they would take this, and this was off a variety of ages. So we know we have a good piece of technology here, we know we have good user feedback, and we have a big ecosystem, with the operators and banks pulling it together.

Just to recap some of the benefits, really the target is simple and easy to use. I mean, I remember we had m-wallets and pay wallets, where you'd do SIMs and all sorts of stuff on your handset, and we used to do surveys on that, and the "easy" bit used to be way, way down; everybody said it was too complex. The surveys on this show that touch-and-go really does make it easy. It's fast. People don't like to wait around. I'm one, I don't like to stand around in queues, and most people don't; they want to get in and out. It's trusted and secure. We built models with ourselves and the banks and the providers of the infrastructure to make sure this is secure and it works. And it also uses existing technology. We haven't gone out and built a new banking system. We use exactly the same as you use for your credit cards today. We use exactly the same

as with SMS with our secure networks. So we know this model and the banks know that model, so we know it's secure and trusted.

The target is actually to get value across the industry. I mean, operators are pretty hard guys, and so are banks, and they both want to make money out of this. The target is actually to make sure that this is a great market, it is a mobile PC that you've got in your hand, you can connect to your customer directly, and so there's no reason why we shouldn't share revenues between the two parties, and we're seeing that.

So that's pretty much PayBuyMobile, in a nutshell. Thank you very much for listening to me. (Applause).

**JOHN URE:** Thank you very much, Doug. Now I would like to invite members of our panel to come up and take seats up here.

As I introduced them before, we have John McCann, who is head of business development at Citibank for the Asia Pacific region; Antony Morris, the executive manager of Octopus Card Limited; David Chen, product sales and delivery at MasterCard International; and Anthony Lam, director of integrated solutions at Alcatel-Lucent.

I would like to start by just inviting each of our four panellists, maybe starting with John and just working back down the table, if you would like to just briefly explain, in the case of Citibank, for example, Citibank's involvement in the trials of contactless cards, and from a banking perspective point what do you see to be the critical factors? And do you trust the mobile operators?

**JOHN McCANN:** Firstly, a quick summary. Hi, John McCann; very happy to be here. Thank you for the invitation.



Citi, in the last six to nine months in particular, have been very engaged in the mobile commerce space. My role in the bank, in the corporate side of the bank, has been looking at ways to partner with various companies in the mobile commerce space in particular, along with other areas of our business. As you all know, there's been a lot of activity in this space, and we as a bank already have relationships with the telco operators, so we've been leveraging those relationships to have these conversations, and I will talk to that in a second.

In terms of some of the work we are doing at the moment, some of you may have heard of a programme we launched with DiGi in Malaysia and also Vodafone in the UK, and I think somebody mentioned earlier the remittance space. As you can imagine, this is a key area for financial institutions to focus on. At the moment I think remittance volume worldwide is around the US\$250 billion mark per annum, and this is the person-to-person payments that go from one country to another, which is an enormous number of payments and also a huge volume, and the numbers that are touted are for that to increase to over US\$1 trillion within four years, so that is a pretty exciting opportunity.

So how do we use the mobile phone to access that space and that channel and use the phone or the handset as a new channel for these payments? That's been an area of focus for us. We launched the programme with DiGi Malaysia -- I think it's fair to say that it's the first of its kind in the world -- where people in Malaysia are targeting, with DiGi, their overseas foreign workers, sending payments through their phone out of Malaysia into other countries, for example the Philippines and Indonesia, to beneficiaries that they have already registered as part of the service. They can go into

multiple distribution channels, not just, for example, to another telco but into other bank accounts or through other distribution channels. So it's a very exciting service and that's being kicked off very well and had a very good reception.

Another area we have looked at is also how can we use the phone to collect money, so our focus in my part of the bank is to focus on what we do well, and that is basically processing payments and processing collections for our corporate customers. So we don't necessarily bother too much with the relationship with the end customer. That's the job of our customer, as a corporate customer. So we want to provide a service to them to facilitate financial transactions.

Another opportunity that we are looking at at the moment which I think is very exciting is to provide the functionality into the handset to do realtime direct debit transactions anywhere, anytime with a phone, analogous to an ATM transaction. So instead of having to go to a particular point of sale terminal, being able to use the handset much like an ATM card and to send payments direct debit or to access cash direct debit, to either top up, for example, your prepaid airtime, and then as a next phase obviously to use that to make payments to pay for your utility bill, or you can send payments overseas to other people.

So we think that's a pretty exciting opportunity for us to work on as well, particularly when you think of the telco customers: when they distribute prepaid airtime, that's a very, very expensive process for them, so to provide a solution which can enable them to do that more cost effectively is very attractive for them, and also a much more convenient option for the user. I think somebody mentioned earlier about being in a cafe in China and instead of walking 10 yards to buy your prepaid top-up, they just sit at the terminal and do it on their phone, so that convenience factor is so critical.

Another point we are looking at, and something that I don't think has been discussed in a lot of detail in the research that I've seen to date, is the B2B space. I think the focus, understandably, today has been pretty much around the consumer space. That's normal and fairly straightforward. But I think going forward there will be more applications coming out looking at the B2B space: how can corporates use the mobile phone in the way they engage with their supply chains, with their suppliers or with their buyers? When they go and deliver a truckload of coke to the corner store, instead of collecting cash, which is a very painful process for the truck driver, can we use a phone, for example, to effect that transaction and make it much more efficient and more convenient? We think that might be an interesting area for this space going forward as well.

The other point was, we are also very much interested in the SIM card. We think the SIM card is a very fruitful area in terms of different types of applications. Even if you think of different parts of the world at the moment where people are actually getting inserted underneath their skin chip cards -- there are nightclubs in Barcelona, I think you might be going to them as part of the Barcelona Congress -- or even in the Middle East, where foreign workers are getting embedded with chip cards so their workers can identify where they are. This is pretty fascinating in terms of what you can actually do with this kind of technology.

**JOHN URE:** Don't suggest it to the Singapore government, please!

**JOHN McCANN:** A very good idea.

So we are also looking at ways in which we can put applications onto that SIM card which can go into handsets, and I think there's some very interesting potential there as well.

**JOHN URE:** Thank you very much indeed, John.

So, Antony Morris from Octopus -- one of the big success stories, but where do you go? Do you make the transition to mobile payments or is it going to bypass you?

**ANTONY MORRIS:** No. Thank you very much for being here; very happy to be here.



I think we are a little success story because the payments we do are little, but for those of you that use Octopus, obviously what we care a lot about is making things very simple, very easy to use, very convenient, and by doing that we actually deliver benefit to both our shareholders, who are the mass transit operators, but also, when we come to retailers, we're looking -- and it was very much the same as Douglas was talking about -- what you do when you get into McDonalds is you help them sell more. They are not bothered about whether you eliminate a

little bit of cash. What they do care is that the line goes faster, because that means at peak times they can sell more.

So these are the things we worry about, trying to get the consumer experience as easy as possible and then deliver intangible benefits. We would love to do mobile payments. As your very good report states, we were playing with this back in 2002, I think. I actually had one of those phones with the blue back, much to the embarrassment of anybody who was with me, from 2003 until it finally died earlier this year. So I actually defied the normal six-month cycle of handset turnover, because it's so convenient having a chip on the back of your phone for payment.

Having said that, the reason Octopus didn't go mass market with that: the problem was, it was actually just on the back of the cover, and, a little bit of technology, this magic of contactless is actually radio waves, and the big battery here also generates radio waves, so the two don't work together. So then you spend months trying to test it, put fluoride coatings on, so you can put them together, at which point the handset is about to become obsolete, for 20s people anyway, not for me. So we just couldn't make it work because we would spend our entire life trying to tune the aerial and the coatings. I don't know whether it was directly that or other, similar trials, but that's where NFC came from, because how do you avoid playing with the cover every time? You build the aerial into the phone and it will work, because it is built to work with the battery.

The second thing is, once it's in the phone you can connect to the over-the-air, which is where it gets exciting. So then all we are left with is where do we put our application securely. This has been a debate for quite a while and I very much welcome the GSMA making the SIM the secure place to put the application. There were lots of other models: "Let's put it in the phone", "Let's put it in a little chip you stick in the phone", "Let's stick something on the phone"; none of them really work because people change handsets all the time, and why would you go through a difficult process to get your -- Octopus might not be so difficult, but to get your credit card on there and then switch your handset again and go through the whole difficult process. So putting it on the SIM card is absolutely where it should be, because if you want to move phones you just move it between your phones and it will all work again. Actually, as Octopus, because we are mass market, what we are waiting for is the handset volumes and the way to get it into the SIM, because then we get a huge advantage, that we take a payment system which is currently fast and convenient,

offline, and can be used at 50,000 readers around Hong Kong, and enable that to be carried more easily but, far more importantly, enable it to talk online. So then paying for online games, some of the sectors that were talked about, where maybe you don't want to use your credit card or maybe you can't use your credit card, becomes much easier, and that's where we get interested. So we would love it.

We then face the reality of the Hong Kong mobile market. With all due respect to the operators here, this is a very small market. So we receive things from other bits of the world: the GSM in Europe or a bit of the Japanese, a bit of the Korean, a bit of the Chinese stuff. So we get whatever they produce because Hong Kong is not big enough to produce anything for itself.

So we tested some of the new NFC handsets earlier this year. We took the \$3,000 Nokia one, took it to a focus group. They all go, "No! \$3,000? No, no, no, \$1,000 if you are lucky; maybe my helper will have it", because people buy the latest flash phones here. They are not going to compromise their fashion phone to have payments.

So once every phone has NFC as standard, and obviously GSMA has then sorted out getting the over-the-air loading, then we become extremely interested and we think there are great opportunities.

Likewise, I very much support the GSMA model for doing the same with the MasterCard and Visa, which I know David will talk more about.

**JOHN URE:** Thank you very much indeed, Antony. David, MasterCard. The name cropped up many times in our research.

**DAVID CHEN:** Good afternoon, everyone.



Firstly, thank you to the organiser and sponsor, KPMG and TRPC, for inviting me here. I would also like to thank Doug from the GSM Association for showing the video because on my last count I counted seven MasterCard PayPass signs versus one Visa, so that's a very good start. Indeed, we have been doing a lot in working with GSMA and all the telcos in promoting the so-called PayBuyMobile concept.

I think I would say that at the beginning of probably 2002 we have previously been working on things like m-wallets and other kinds of m-payments, but more recently I think we have been more focusing on the contactless payment and also with mobile phone. Since 2002 we have been focusing very much on using contactless cards, similar to the Octopus concept, and making contactless payment for low-value payment. That, we believe, is one of the trends that will be coming up. Mobile phone basically is another form factor -- back in 2002, where we stuck a contactless antenna or card in the back of the phone and then we called that a contactless phone, so that's the very early days of technology, to the days now that we have so-called USIM, a universal SIM that will allow you to roam everywhere, and a SIM provided by a telco, and also we now have NFC technology.

All these technology drivers basically, in our opinion, along with contents as well as security, basically provide us and our customer, that is the banks and the consumer, many more opportunities to spend money using their card product, whether it's a credit card or a debit card or a prepaid card. That essentially is where we see opportunity for all of our stakeholders, including the telcos, that providing the content, providing some kind of interactivity and providing the right security and the

right payment product, then we will be able to encourage more and more payment, whether it is high value or low value.

So today we are actually working at the forefront of all this mobile payment for contactless. If you compare with 2002, today we actually already have live trials and live roll-outs of mobile phones that will allow you to have MasterCard credit card on the phone, allow you to have some local transportation, e-purse on the phone similar to Octopus, allow you to have local e-purse on the phone for retail, and perhaps access control also, all on the same phone, seated in the chip itself, which is a USIM. That is already a reality in terms of technology.

But what John mentioned earlier on is that there are certain hurdles that have to be overcome before such technology and such practice becomes very common. Of course one of them is security, another one is standardisation, and another one is infrastructure, because there's not much point having all these wonderful NFC mobile phones if there are no places to use it, i.e. the contactless merchants that we, MasterCard, has been busy working on with our member banks to ensure there are a lot of places where you can use this phone for payment.

So all these issues have to be tackled. Over-the-air personalisations or downloading of data is another area that has to be worked out in terms of security and also in terms of operational practices between the telco and the bank, ownership of the SIM, things like that.

So all of this now we are actually already doing, and we are slowly and gradually overcoming all these issues. Availability of the phone, as of course already mentioned by Antony, is another issue. So from a technology sense I think now we have reached the stage where we can do pretty much a lot of things on the phone already, but in terms of becoming a common form of payment, it might be another five years away, until the time that there are enough shops in Hong Kong or everywhere else that accept a mobile phone using contactless for payment.

Octopus obviously is a very successful scheme in Hong Kong, but we at MasterCard are talking about a global payment scheme that will be inter-operable everywhere. So if we issue a mobile PayPass, which is our brand name for contactless, phone for payment, this phone can be used, as shown in the video, everywhere where PayPass is accepted, just like your MasterCard today in your pocket. So that to us is the ultimate aim, to have global acceptance of this kind of contactless payment product, whether it is a card or a mobile phone, and of course if the mobile phone or the card can have multiple applications, which we already can today, even better.

**JOHN URE:** Thank you, David.  
Anthony Lam from Alcatel-Lucent.

**ANTHONY LAM:** Thanks for giving me the chance to speak here.



I would like to forward an apology from my colleague, Gaetan, who unfortunately was unable to be with us today.

Alcatel-Lucent as a vendor in terms of this mobile payment area, we are actively working together with different telcos and also to analyse different market requirement in terms of the B2B, B2C, P2P or different kinds of requirements in terms of mobile payment.

What we have been focused on right now is we are trying to develop a payment platform which could be shared within different banks, using a concept of what we call a virtual bank, so that people can

create virtual credit within this virtual bank, and credit can flow between the virtual accounts, which may be physically sited in different physical banks, which will help to enhance the transaction between different users and try to avoid the real money flow between different entities in the market.

By developing the platform, actually we are also looking into the possibility of using Alcatel-Lucent as a host entity, which will operate the platform and try to introduce different ecosystem partners, for example telcos and banks, into this common platform so that we can try to speed up and enhance the application and the application of this mobile payment.

**JOHN URE:** Thank you. Just on that, would that be kind of a global standard platform or would you tailor it to different markets?

**ANTHONY LAM:** The platform itself is going to be a global platform, that we are thinking to host somewhere. In terms of the local application, I think it is determined by the local standardisation, or would that be governed by a global standardisation? We are thinking to adapt by some local interfaces towards different telcos to make sure the transaction coming from the mobile network will be eventually able to be processed by this central mobile payment platform.

**JOHN URE:** Right. We have heard those four opening statements, so here's a chance for you to make comments or ask questions of any member of our panel, including Doug. Any questions?

**QUESTION:** I don't really have anyone I'm directing this question to, so I guess anyone who has an answer to my question can answer for me.

My question is, with regards to personal data -- for example, if I am travelling and I'm in Barcelona and I use my phone to buy something, the data that's transmitted, who would it go to? Would it go to a bank or something in Barcelona and then be diverted to the relevant credit card provider, and if so what kinds of data protection mechanisms and methods are in place in order to protect data privacy?

**JOHN URE:** Doug, do you want to take that first?

**DOUG CHAMBERS:** Typically, what happens with your credit card today is you go into your merchant, and then your merchant will have what's called an acquiring bank, which he has a relationship with, and then he will pass it through to the credit issuing bank, who does the transaction. So PayBuyMobile will use exactly the same infrastructure as it is today with your credit card. So whatever you pass over that network today, with your swipe or touch-and-go, will be exactly the same as it is, so there will be no difference.

**ANTONY MORRIS:** It's probably just worth saying that there is no personal data transferring across the networks. As Doug has just said, it's exactly the same as using your credit card today, and in fact, because bits of the world are moving towards chip cards, they are actually much more secure than your existing stripe on the back, magnetic stripe. People like David and MasterCard obsess about keeping that stuff secret, so rest assured it's --

**DAVID CHEN:** We would like to call it that, in the interests of the banks and the consumers, that we are trying to make the payment more secure for everybody. Therefore we moving towards the EMV standard which John described earlier. In fact it is now pretty much a global phenomenon, apart from the US, that the banks are moving towards the chip card for credit cards. Therefore, it is even more secure for you to make payment at the point of sale.

In terms of the data transfer between the banks, the acquiring bank and the issuing bank, there are different ways to ensure data security and also to ensure the authenticity of the transaction between the banks and between the cardholders and the banks as well. So there is a lot of levels of protection.

**JOHN URE:** I have a question, probably initially to David and Anthony but any other member of the team, since we are on to cards and chips. The Japanese chip, FeliCa chip -- is that how you pronounce it?

**DAVID CHEN:** Correct.

**JOHN URE:** -- which I believe is also used by Octopus and EasyLink in Singapore and of course DoCoMo use it in Japan; that is not compatible with the NFC chip that is being used outside Japan.

I will read that there are negotiations taking place, but I was wondering, what are the chances of a kind of either inter-operability or a new standard, agreed standard emerging?

**ANTONY MORRIS:** Actually, it will work with NFC eventually. It is just the European -- particularly Philips, or NXP as they are now called, are moving much more rapidly than Sony. Sony provides the FeliCa technology and Sony has a very big home market where this stuff completely dominates. So you get a handset from Japan, any of the handsets, and it's FeliCa. So they're quite happy because it's huge, and the cards in Japan are FeliCa cards, if they've got contactless like MasterCard, but they won't work internationally.

So -- it's quite typically Japanese -- what they began to realise was, "We'll try and export this", but actually these guys will say, "No, no, no, no, you have to have a standard to export it so that everybody can use it." That's where NFC came about. NFC is a standard talk between a very short distance, and it was actually Philips and Sony getting together to do that. I suspect a lot of it was driven by Sony Ericsson because I don't think they wanted to be left out.

Unfortunately for Octopus, it is taking much longer than the Philips one, because Philips did all the hard work on it. Sony is catching up and they have a joint venture now and they are going to produce some chips, but it is taking time.

**DAVID CHEN:** I think probably NFC is probably a good attempt by FeliCa as a back-door way to become a global standard, because they weren't quite successful with the ISO standard anyway. But NFC to us, I think the main thing is that eventually I think it will, as Anthony said, cover the common standard that is available today, which is Type A, Type B and now FeliCa. But more importantly I think is providing that interactivity that I talked about earlier, because now with NFC you have two-way communication between some device and a contactless card, let's say.

So I could potentially, and we have, used a mobile phone that has NFC and I can have a contactless card, and I can utilise this contactless card to generate, for example, a one-time password that will enable me to do secure transactions over the phone, because now I have this dynamic one-time password generated from this contactless chip card. That is only possible with NFC today, because contactless usually is just one way -- you touch a reader, you read something from a card -- but now, with NFC, it is two-way. So I can now use my phone in many more ways: like I was describing, reading something from the card and using it to generate a secure token, a password basically, which is dynamic for every transaction; or I can use the phone to pick up some information off a poster, and we call it a Smartposter because you can pick up a coupon or you can pick up a URL address and things like that.

So all of this stuff is providing me security, as well as a way to enable more transactions to be done because now I have more contents so I can pick up and have the choice as a consumer to pick up whatever information I want, rather than getting shoved with lots of SMS I don't really like.

**DOUG CHAMBERS:** I think it was the VC guy who was talking about volumes that make industry, and that's true. Just with the operators that we have in the crowd, that's 1.3 billion subscribers that they represent, and so actually it is about rolling out technology on mass handsets. So once that starts to propagate to their market, then you start to get leverage and you get standards.

Actually, DoCoMo are a part of the project. They are following us. So they are very pragmatic, DoCoMo. They understand that the world is starting to move. They would say that actually they probably gave a bit of a vision in the early days, which they did, to prove out the market and technology. Now the rest of the operators have suddenly got it that this is what they want to do. So it is really about volumes.

**JOHN URE:** Talking about volumes, when are NFC handsets going to be volume produced? When are these guys going to be able to get their handsets?

**DOUG CHAMBERS:** Actually, the reason me and my colleague are in this area is we had some meetings with some banks yesterday and we came in here, and then tomorrow and the next day we are actually with the handset guys, that's why we are here. The handsets will start to appear in the market next year, and it does take time to build it into all handsets across all ranges, but you will start to see those appearing next year, and then 2009 there will be even more and even more.

So it's a gradual process, as operators now build it in as part of their ordering process.

**DAVID CHEN:** Today, some of the projects we have been working on, we already come across brands like Nokia, LG, Samsung, BenQ from Taiwan, for example, Kyocera I think from Japan. So multiple brands have already put in prototypes, and I think a lot of them will be having commercial products next year, as Doug mentioned.

**ANTONY MORRIS:** But I think from our point of view we won't get interested until 2010, because we need that mass. So I think it will come, but just as the life cycle, the life cycle takes time. So I think a sensible mass, certainly for Hong Kong, will be 2010.

**PETER LOVELOCK:** Can I just follow up on the earlier question? Because the answer that you gave was comforting. It just strikes me as missing some of the point,

or some of what's coming, the question about where personal data and personal security ends up.

Privacy is obviously going to be a huge issue, particularly as identity management plays out with all of the networks and the handsets, with what we are talking about. On the one hand, mobile advertising is supposed to be the next big thing, even prior to NFC, and that's premised on following the sell to sell to sell. So my location is always going to be beginning to be registered, which is a side point to the question that was raised.

But if I understand where pretty much each of you fellas wants to make your money over the medium term, it's in market segmentation that will come from the stored data that will be a product of the mobile payments that happen. If I understand Octopus correctly, it's one area that you are already verging into; that as we begin to understand how people are doing the payments with things like their mobile, you'll be able to segment the margin and go after them on a much more profitable, revenue-generating basis, which seems to run at odds to the idea that there's no personal data really getting shifted across the network.

**ANTONY MORRIS:** Yeah, no. I think that's a worthwhile clarification.

There is one question under there -- I'm not aware of the mobile numbers being tagged on the payment transaction. I doubt it.

So the payment transaction, I think the reason you got the answer you did is a payment transaction. So that has no personal data other than the payment data.

I think you are picking up on what we call Octopus Rewards, which is a system driven around giving customers bonus points, effectively, reward dollars, in return for sharing data with the retailers that are in the programme. That is a completely separate thing to payment, and you have to actually volunteer and want to opt into that before we do anything with that sort of data. So it's very like a Tesco's Clubcard in the UK or any of the loyalty cards. That's a very positive decision to go into that programme, which we keep very separate from our payment side. I think that's very important. The last thing people want with payments is to have this sense that people are using our data.

I am sure David can answer it, but on the MasterCard side that is, as far as I am aware, something which again is kept very, very separate and left to the issuers.

**DAVID CHEN:** Yeah. Specifically for contactless payment, Peter, on our contactless payment product, whether it's on a card or on a phone, there are specific security measures in place, on the card itself or in the banking system, that provide data security. That's point number one.

Point number two is, in terms of personal information, we now no longer allow for things like the cardholder's name to appear on a contactless payment product, so that if you do a transaction, all you are going to really see is just a whole bunch of pan numbers, we call them, I mean your cardholder's numbers and some other payment data that would only be pretty much meaningful to the banks.

Also, because the contactless products use kind of more sophisticated chips, shall we say, so it's much harder to try and read information from this chip than say, for example, your older credit card which is just based on magnetic swipes. You can go to any electronics store in Ap Liu Gai and probably pick up a schemer, we call it, and that can easily steal your information from your mag swipe card, whereas today we are gradually migrating to chip cards, and it's a lot harder, whether it's in contact or contactless mode, to suck the information out of these products.

So, one, we don't allow for names any more on contactless products; two, we have a lot of security measures in place in both the card, the reader and the whole system in the banks to protect the privacy and security of the data integrity. So there's many different measures to do that kind of stuff.

**PETER LOVELOCK:** Okay. Can I just ask a very quick follow-up question, just to put you all on the line a little bit, and this is far less flippant.

On both my MasterCard and my Visa Card in the last two years, there have been individually five different occasions where, because of the way I travel, I get contacted by the credit card company who say, "We're about to close down your credit card because we noticed you were paying in Ulanbatur last week and you appear to now be in Singapore, and we think that you live somewhere else, so we're about to shut this down unless you tell us it was you", which I appreciate. A couple of times I haven't got back in time and they've shut down my credit card, which I don't appreciate.

A lot of my stuff and a lot of the problems that happen come from travelling in either China or Indonesia. A lot of the work I've done with both banks and telcos, and I apologise if anyone feels slighted in this, I do not trust -- while I trust everything I am hearing from you fellas and the security stuff in place, that Shanghai Pudong Bank, as it goes after customer acquisition, will be on top of those records such that if you are able to contact me and tell me my payments look a little dubious to your eyes when I'm in Shanghai one week, that Shanghai Pudong personnel, for all of the issues I know that they face to get ahead in life and in the marketplace, aren't going to be selling those records.

How do I know that going through those individual banks in places like China and Indonesia, my records are as protected as you're telling me happens through MasterCard and Visa?

**DAVID CHEN:** Well, I cannot fix the problem for the whole world. I mean, if there's internal fraud, there's nothing you can do about it, full stop.

Like I was saying, the reason why you got called up is because the data on the card that you have, which is probably a magnetic swipe card, has been stolen by someone and they have created what we call a counterfeit card and then therefore, of course, easily used anywhere in the world. The whole reason for having chip cards today is to eliminate exactly one of these problems, that is to avoid these counterfeit cards being made and used elsewhere without the knowledge of the cardholder.

So, as so-called EMV migration for the whole world moves more and more into maturity, i.e. all the terminals of the merchants and all the cards in your pocket have a chip card, there should be less and less of these calls from your bank telling you to change your card. That's point number one.

In terms of how is the data being protected within the bank or anywhere else as the data transits between the network and so on, you might have heard reports about data storage being compromised and things like that, so MasterCard and Visa and the industry basically are coming up with more and more security measures to protect data storage as well. So there are things called PCI, which is data compliance in terms of security, that's supposed to protect cardholders' data and transactions, for both physical transactions, i.e. spending at the store, or internet transactions as well, i.e. spending over the internet. So that's another measure that as an industry we, the payment association, have put in.

But there is no 100 per cent security. Everybody knows that. And if there is internal fraud, some guys within the bank happen to steal data, or the telephone company has a guy that's tapping the phone lines and steals all the data, that's very hard to control, but at least chip cards are going to be making it harder and harder to get data from the card itself as well as during transmission as well.

There are a lot of security things that I can bore you with for hours and hours, but let me assure you that at least in terms of technology it's a whole lot better than the mag swipe card today, especially as EMV cards become more and more mature around the world.

**JOHN McCANN:** Perhaps if I can just add to that quickly, that these fraud detection systems, which are to some extent fairly commonplace amongst banks and card issuers, they will probably still be there because they will need to monitor activity on the accounts, as a service, as a proactive service, to make sure there is nothing fraudulent happening with their card, or that account. So that should still be in place, and I think it should be that way.

**ANTONY MORRIS:** I think just the other bit of good news, because I had the same thing happen when I went to Israel and then my bank phoned me up and said, "Why are you buying handbags in Monte Carlo?" and I said, "I'm not buying handbags in Monte Carlo". The good news for a credit card customer is you have full rights of repudiation, to give you the big word, i.e. you can say, "That wasn't me", and as soon as you say that, the bank who issued your card says, "Right, I'm repudiating that, and the acquiring bank has to prove it was you. Actually, you won't take the loss, actually the banks take the loss, which is why David cares so much about this because it's his members that carry the loss.

The consumer is actually very well protected in the credit card world. You are right, it's inconvenient, but you won't have to pay for those things.

**DAVID CHEN:** That's a very good point.

**QUESTION:** Say we have mobile payment, I have a payment enabled phone now. Do I have control over which payment card I use? For example, this week is Citibank Visa promotion and next month is another card, and I am really keen to get that limited edition whatever. So can the consumer at her own will switch that payment card?

**JOHN McCANN:** Is this in relation to the NFC chip, I presume?

**DOUG CHAMBERS:** In the handset?

**QUESTION:** Yes.

**DOUG CHAMBERS:** Let me -- so yes, we are working on that technology, that you can change between whatever credit card, because the SIM can hold multiple credit cards, and I've got, like -- the average consumer has 2.4 credit cards that they carry around, so yes, it can do that, it can switch between whichever one you want. That's also to build in -- from a loyalty programme, people want to use certain cards because they get airmiles or points and things like that, so that ability is built in.

**QUESTION:** When you say switch, you mean physically changing the SIM or going online?

**DOUG CHAMBERS:** No, no. Sorry. If you imagine the SIM is cut up into sections, and you will have different credit cards and loyalty cards and Oyster cards in each section, and you can automatically select whichever one you want in your handset. So you can say, "I want Citicard today"; you can have, I don't know, whatever the other banks are, Chase tomorrow or Royal Bank of Scotland the next day or HSBC the next day. You can switch between.

**JOHN McCANN:** Is that MTA? How would that --

**DOUG CHAMBERS:** No, because they are stored inside your SIM card, so you would have to have your bank issue you that credit card and you would have to store it inside your SIM. So the SIM is effectively cut into sections. So just as today I pull out my credit card from NatWest or Royal Bank of Scotland, I can switch it on my handset.

**ANTONY MORRIS:** So I suspect you'll be battling through the menus that I hate on the phone, with all due respect to the menus on the phone. You'll be looking for the menu and picking the one you want, I think.

**JOHN McCANN:** But if you want to add a new card --

**DOUG CHAMBERS:** Over the air, yes.

**JOHN URE:** So you should use this guy's new payment platform. How is that going to work?

**ANTHONY LAM:** Actually, the concept itself is that you, as a user, you have a virtual bank account in the payment platform, and that virtual bank account can be subdivided up into different -- so that transaction will be recorded in that detail. So you can oversee your whole account before you understand what transaction, what kind of payment you have done with your individual credit card.

**QUESTION:** So what is a realistic timetable? 2010?

**DAVID CHEN:** Today that is already possible, to download different card data onto your phone, and even other things like e-coupons, for example, which we won a trial earlier this year in Taiwan. So there's nothing really to stop you from downloading some kind of data, i.e. card data or coupons, onto the phone, and there are already multiple vendors that can support that kind of thing.

But the issue, I think, is that there's not much standardisation today. One vendor will use certain ways and another vendor will use different ways, and different banks may also have slightly different preferences on how the data should be loaded onto the card or, as you saw in the video earlier, how to deactivate a card and re-activate it; this kind of thing has to be worked out.

But in Korea, for example, that kind of stuff is already happening. In Taiwan we are also doing the same sort of thing as well.

**JOHN URE:** I'd like to switch the topic very slightly to the question of m-banking, including the unbanked. I'd like to ask John and Anthony, maybe, in particular about -- we have a section on the bottom-of-pyramid literature. The kind of research we did seemed to suggest that at the moment m-banking for the unbanked is still a huge challenge. The examples that we came across, for example, in South Africa, it was really only a small number of unbanked who actually took up m-banking. A larger number of people taking up m-banking were actually switching from other forms of banking to m-banking.

**JOHN McCANN:** Sorry, can you define m-banking in this case? Some people have different interpretations.

**JOHN URE:** Well, in this case you have a bank account and you do the transactions over your mobile phone, and for each transaction the transaction costs are considerably less than if you are using an ATM or if you are going actually to a bank itself. So it's having a physical bank account but not physically going to the bank and not physically going to an ATM, and the amounts of deposits are smaller, the float is smaller and so on.

So my question would be, this is obviously of general interest to banks, if for no other reason than that the majority -- well, not the majority -- about one half of the world's population now have a mobile phone, according to Doug's figures, so how seriously are banks actually taking this as a commercial next step? And that would include payment process and payment platforms.

**JOHN McCANN:** I think the answer is that they are taking it very seriously. I think if you look at markets like China and India, which are very cash driven and they don't have necessarily a banking infrastructure that's set up like you would in the developed market, for example, like Australia or the US or the UK -- and we talked about this earlier, in the break, where you might have -- for example, in China, it would cost billions of dollars, and I think you mentioned it in the report, to set up a financial services infrastructure in that market versus using the mobile medium to effect financial transactions.

For example, we did a pilot in India, which is what we called Agri Payments, where we set up a process for the unbanked, where a wholesaler went to market at 5 in the morning and instead of carrying cash to pay the farmers for the produce, they actually texted a text message to the farmer to pay for that truck of tomatoes, for example, and then the farmer took that message to a bank branch, one of our correspondent banks, and cashed it. So the teller in the correspondent bank actually looked up the reference number from the text message and dispersed the cash to the person, which was a much more effective way of doing that transaction.

So I guess that's an indication that, yeah, it is a serious space for us to look at, and I think it's a very important one, particularly with governments in some of these countries who are trying to look at ways to encourage and motivate these kinds of solutions to look after the rural sector. India and China again are good examples where it's a politically motivated point as well, and that's very important for the banks and technology players to come together.

**JOHN URE:** Presumably that can ride over the remittance system as well, because if you are talking about rural communities, the remittances are coming into those rural communities.

**JOHN McCANN:** Absolutely.

**ANTHONY LAM:** I think I agree very much with what John just said. The market potential is there. I think it's a matter of how people are willing to adapt that kind of payment approach, using SMS as a payment proof, then you can go to the bank and credit your goods. I think it's more the applicability or the acceptance of the market. The payment platform perspective I think is not a very complicated subject. In the payment system we can obviously design platforms to enhance that kind of peer-to-peer payment. It's not really much of an issue.

**JOHN McCANN:** I think also, just to add to that, that the beauty of this, and Anthony and I have had some conversation about this, is that at the end of the day providing a solution for the end user that is so compelling to motivate them enough to use it, because at the end of the day, if they don't find it as a value-add to what they do currently, then it's going to fall on its face.

Something that's SMS driven in particular markets is very important because it mimics a behaviour they currently have. If you look at something -- for example, in the Philippines it's not uncommon for somebody to send up to 2,000 text messages in a month. That's a lot, to me. So something that's SMS driven in a market might make a lot of sense, versus in another market it could be a different kind of mechanism.

Also the other point which we didn't mention was microfinancing, which I think is a big opportunity, and I would imagine over the next couple of years using mobile in that part of the pyramid will become key as well.

**JOHN URE:** Okay, then it's the next research topic!

**ANTHONY MORRIS:** I think just the other thing, John, is with prepaid system like Octopus, that's an unbanked system, which it is. You can go and get a card, you don't need to use any ID, open any account or anything. If you link that through a mobile handset now, you have linked up a set of mobile unbanked systems with cash that can go into the real world, and that's where we get very interested in it, because you are suddenly linking everything up together.

So I think there are opportunities, not just for linking to a bank account but actually linking just to a small, prepaid card.

**JOHN McCANN:** And also dealing with the spectre of compliance in the regulatory piece as well is going to be key, making sure that the regulators are comfortable with the flow of money within a particular economic environment.

**JOHN URE:** As I said, in India they have this particular problem that they're concerned about the terrorism aspect, so they have these very --

**ANTHONY LAM:** I think also there are big discussions on how far a telco can go. Are they only for the transaction to access networks only, or they can involve in the transaction, or they can be like a bank; you know, the people can store some money into the mobile operator and use it as a credit for their daily purchases. So this is also another question.

**JOHN URE:** Do you spend much time talking to regulators, by the way, about these issues? How do you handle the regulators?

**JOHN McCANN:** Well, yes, we do. We have been, in the last six months, as I mentioned, we've been doing a lot of work in this space. So if you look at DiGi as an example where we have launched a service for people to send money overseas with their phone, we had to work with the regulator in Malaysia, to understand from them how we can go about giving them a comfort level, that we are clear on anti-money laundering and KYC, "know your customer", and when people come to register with the service we have a clear process in place so that we understand who they are, we get their identity cards, et cetera, to make sure they are fully covered and compliant.

**JOHN URE:** Was the regulator principally the financial regulator or the telecommunications regulator?

**JOHN McCANN:** Financial. They were very open to the idea, and I think my view at least is, based on feedback I have had around the region, that telcos going with the bank to a regulator gives them a much higher comfort level, because banks already do today hopefully some of that process that is very highly compliant, and they are already in discussion with the regulators as to how they go about that process, so to bring a telco to go side by side and have that discussion is very important, as opposed to a telco going by themselves; that might make them a little nervous.

**ANTONY MORRIS:** I think the other thing just to add is that I think some of the most successful online payments, before we get to mobile, and I'm thinking of PayPal, actually were very, very clever at avoiding being regulated, because PayPal isn't regulated, actually, and it's done that by plugging into grown-up payment systems like MasterCard and Visa, because they do all this, they do all the KYC, the anti-money laundering, all that stuff; that's what the banks do.

What PayPal does is then sit on top and make it unbelievably simple to transfer money, and it's a money transfer rather than a holder of funds. As soon as you stop holding funds and as soon as you stop setting up your own accounts, the regulatory level -- and the US is a bit exceptional because it takes a very laissez faire approach, but you avoid being regulated, and that's a very good thing to do.

It's also a good thing because everybody has a credit card already so you don't have to distribute cards or anything like that.

**JOHN URE:** Any further final questions before we bring this session to a conclusion? No? Okay.

Let me just come up here -- I have a couple of announcements. Terry, could you just ask Jenny to come in?

Thank you very much indeed for staying until this comparatively late hour. Firstly, obviously I would like to thank very much all our speakers: Doug and John, Antony, David and Anthony, thank you very much indeed for a very informative discussion there.

I mentioned that mainly Peter did a second paper on online games, and that will be due out soon, again published co-branded with KPMG, so that will be available.

A couple of other announcements. One is, I don't know how many of you ever saw or still have a copy of the first book that we published called Telecommunications in

Asia: Planning, Policy and Development. That was first published in 1995 and then again in 1997. It turned out, actually, when Hong Kong U Press -- I approached Hong Kong U Press in about 1993, I think it was, and said, "How about a book on telecommunications?", the response then was, "Telecommunications? Is anybody interested in that subject?"

Luckily for them and luckily for us, it turned out to be a best-seller for them, and they've been after us to do a sequel, and come Sars, when everything seemed to be a bit quiet, seemed to be the ideal time to take up that challenge.

This book should be published in April 2008, again by the Hong Kong U Press, called Telecommunications Development in Asia. We will be sending out notifications of that when it's available and hope you will all be interested to see copies of that.

Also I'd like to just thank very much **Dr Jenny Wan** at the back there, for as usual organising this event, and her helpers, and also to wish Jenny good success in her future career because Jenny has been appointed to a research post at the Pharmaceutical Association; is that right? So Jenny will be taking that post up in December. We will be sad to lose Jenny but it's a good opportunity. So I would really like to take this opportunity in public to thank you Jenny for just doing a magnificent job for us over all these years. Thank you very much, Jenny. (Applause).

On that note, we will be doing, as usual, an executive summary, which will be posted up on the website in due course and circulated.

So I would thank you all very much indeed for attending and hope to see you again. Thank you. (Applause).

(5.40 pm)

(The forum concluded)