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Contactless Payments 2006

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INTRODUCTION

What is this report about?

It is widely acknowledged that payment cards in their current form can only hope to penetrate a certain portion of the overall payment market. Despite accounting for a growing share of payments globally, other payment tools are currently preferred for the majority of transactions at the very high and very low value ends of the spectrum. Indeed, the strength of cash as a tool for low value payments is a perfect example of this.

However, at a time when many payment card markets are moving closer to saturation point, expanding card payments into the areas currently occupied by other payment tools becomes essential to generating continued growth in transaction volumes and growth in revenue. Contactless payments offer a solution to capturing a greater share of payments at the lower end of the scale.

Since Datamonitor's previous coverage of this topic in 2004, there have been some dramatic developments in the market, and this makes further analysis appropriate. This report builds on this previous content, to accurately identify and quantify the markets and market opportunities that issuers are targeting now, and should be targeting for the future.

What does the future hold for contactless payments? Which markets offer the greatest opportunities? What lessons can be learned from the commercial launch of contactless in the US? This report provides the answers.

Who is the target reader?

Datamonitor's *Contactless Payments 2006* is essential reading for card issuers globally. Specifically, this briefing is targeted at current mainstream providers looking to grow card activity levels, boost customer retention, and provide a unique customer offering.

Within these organizations, the following will find this report of particular interest: directors, strategic planners, business development managers, business analysts, researchers, product managers and marketing managers.

How to use this report

This report is structured with ease of use in mind. Following this introductory section, it is structured as follows:

- Chapter 1 **– 'Introduction to Contactless Payments'** – provides background to the topic of contactless payments, setting the scene for the analysis to follow by defining what is considered a contactless payment technology in the context of this briefing, and the market conditions that make them particularly relevant to a card issuer;

- Chapter 2 – **'Recent Developments in Contactless'** – discusses the key developments in contactless payments on a region-by-region basis. The full commercial rollout of contactless payments by Chase Bank in the US is discussed in detail;

- Chapter 3 – **'Sizing the Contactless Opportunity'** – examines the size of the potential opportunity for contactless on a region-by-region basis to the country level. This chapter draws heavily on Datamonitor's *Contactless Payment Market Opportunity Model*;

- Chapter 4 – **'The Future Decoded'** – provides an analysis of the future potential for contactless payments, key learnings from the successful US launch, and Datamonitor's view on future developments in each region;

- Chapter 5 – **'Appendix'** offers a number of tables and further information designed to support the content in the rest of the report. Details of other products and services, along with contact details for the Datamonitor Cards & Payments Team are also included.

INTRODUCTION TO CONTACTLESS PAYMENTS

Introduction

This section will provide background to the issue of contactless payments, giving Datamonitor's definition of what is considered to be a contactless payment in the scope of this report and an overview of the potential benefits of this technology to card issuers.

It is worth noting that these issues have already been covered in depth in Datamonitor's previous report on this subject, BFFS0280 *Contactless Payments*. Readers interested in a more comprehensive introduction to contactless payments will find this briefing particularly useful.

Defining contactless payments

In order to properly set the context for this report, it is necessary to define what the term 'contactless payment' is considered to represent. Datamonitor defines a contactless payment as an electronic payment in which the transfer of transactional information from the payment piece of the consumer to the POS terminal of the merchant is conducted without the need for any direct physical interface between the payment piece and the terminal.

Speed is at the heart of the contactless payment proposition. Contactless payments are considerably faster than standard card transactions, and this can offer significant benefits for certain types of merchant.

Chip-based form factors utilizing a radio frequency (RF) interface are the standard model in the contactless programs of the leading international card schemes, namely:

- American Express – ExpressPay;
- MasterCard – PayPass;
- Visa – Visa Wave (Asia-Pacific), Visa Contactless (US).

However, it is worth noting that the analysis in this report is not restricted to contactless offerings constructed in this way, or indeed the contactless payment

programs of the leading card schemes. The discussion of the potential and likely future for contactless payments applies equally strongly to non-card scheme contactless programs.

Contactless payments offer an opportunity for issuers to grow transaction volumes and therefore revenues

Contactless payments allow issuers to account for a greater share of low value payments, offering significant potential benefits

Plastic cards in their present form can only account for a certain proportion of the overall payment landscape

Global plastic card use has grown consistently over time, with both cash and cheque transactions declining as a result. Plastic cards offer consumers greater convenience and security for medium and high value transactions as there is no need to acquire and carry large sums of cash. In addition, pay later products offer access to a pre-approved credit line, which is also of considerable benefit to consumers.

However, despite strong growth in plastic card use globally, there are limits in the extent to which consumers and merchants are willing to make and accept card payments for low value payments. As one industry executive interviewed for this report commented:

"*The payment market is getting saturated. Most card payments are between £15 and £150, so moving into the low and high ends of the spectrum are key to continuing growth, and contactless is the right solution for low value payments".*

Consumers find cash a more convenient mechanism for low value payments

In the case of some medium and the majority of low value payments, cash remains the dominant payment mechanism in all markets. There are several reasons for this:

- **Cash is universally accepted in face-to-face transactions** – many small traders do not accept card payments, making cash the only payment option available. This is also relevant in the case of vending machines and 'pay as you board' public transport options;

- **Some merchants apply a surcharge on low value card payments** – in some cases, merchants that do accept card payments effectively rule out acceptance for low value transactions by either setting a minimum threshold for card use, or applying a surcharge. This is because they view the cost of accepting card payments as too great for these transactions;

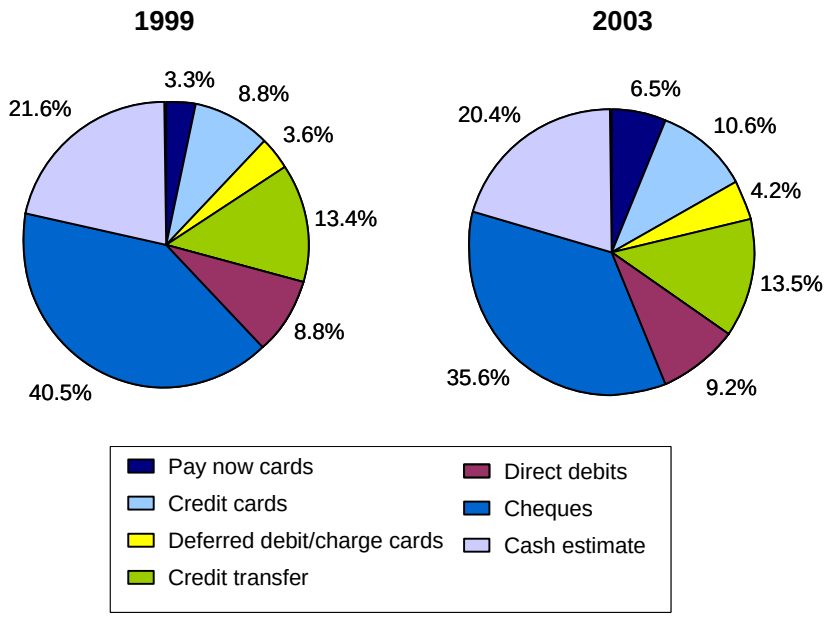
- **Cash is frequently speedier than card payments** – part of the convenience of a payment card is that it allows the cardholder to make medium and high value payments without having to carry large sums of cash; an advantage that outweighs the fact that a card payment may take longer than a cash payment (if it needs to be authorized). This is not as relevant in the case of low value payments, as consumers will frequently carry smaller sums of cash as a matter of course.

This therefore places a limit of the share of the payment market that plastic cards can realistically occupy

This combination of factors effectively means that there is a lower limit on the size of transaction that plastic cards in standard form are realistically going to be used for, largely as low value payments are predominantly made by cash. Indeed, this is even before considering that there will be some consumers who prefer to use cash for almost all of their payments.

As a result, cash accounts for a significant proportion of total consumer payments even in the most developed card markets. Figures from Datamonitor's *Consumer Payments Model* show that cash accounted for around 20.4 per cent of the total value of consumer payments in France, Germany, Italy, Spain, UK and the USA, in 2003. While this total has fallen from 21.6 per cent in 1999, it does demonstrate the importance of cash in all payment markets.

Figure 1: The share of cash within the value of all household expenditure in France, Germany, Italy, Spain, UK, and USA is falling, 1999-2003



Note 1: Data in Appendix

Note 2: For notes on the methodology behind this data, please refer to BFFS0345 *Consumer Spending Patterns – Where Do Cards Fit In?*

Note 3: US general-purpose card data includes commercial cards

Note 4: 'Cash estimate' is a residual including cash, other electronic money (such as e-purse) and private label card transactions

Note 5: To remove the effect of exchange rate fluctuations, figures for the UK and US markets have been converted from national currencies into EUR using the 1999 exchange rates

Source: Datamonitor, APACS Plastic Card Review 2004, BIS: *Statistics on Payment and Settlement Systems in Selected Countries 1999-2003,* Bundesbank: *Payment System in Germany*, Diners Club Europe, www.directdebit.co.uk, ECB Blue book, Eurostat, German Bankers' Association, ONS, MasterCard, US Federal Reserve, Visa.

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Capturing a portion of these transactions will generate significant additional revenues for issuers

Contactless payments offer a means for issuers to capture a share of these low value payments, with the result that overall card activity will increase. There are obvious financial benefits to this for credit card issuers:

- **Greater interchange revenues** – clearly, if transaction volumes grow, issuers will collect higher interchange revenues;

- **Higher interest revenues** – any increase in overall card use will inevitably help to increase lending revenues.

There are also benefits to be had from attaching contactless functionality to debit products. In addition to the obvious customer retention and acquisition factors, cardholders would have a lower need to acquire cash, and this would drive down the associated ATM costs – particularly if a bank meets the interchange fee for their customer using the ATM of another bank.

In short, the business model for contactless payments is built around growing card usage, something that will always benefit card issuers and all other players in the value chain.

At a time when competition and regulation are eating into profit margins in many markets, contactless payments are therefore a clear opportunity for issuers to seek to grow revenues. In addition, there may also be customer acquisition and retention benefits to be had from offering contactless payments, again delivering a positive impact on profitability.

Contactless payments offer strong benefits for both consumers and merchants

Consumers benefit from greater speed, security and convenience

Contactless payments offer consumers benefits in two key areas, namely:

- **Speed –** the biggest selling point of the technology, contactless payments are significantly faster than other payments made by plastic card and, more importantly, cash. Datamonitor understands that a contactless payment made at an offline terminal will take no more than 500 milliseconds to be verified, compared to several seconds for a standard card transaction. In addition, as one industry executive interviewed for this report noted: *"One of the big problems with the use of cards for low value payments is the time it takes. But [contactless] is faster than cash in these circumstances as you don't have to wait for change"*;

- **Convenience –** while this is clearly linked to the time savings outlined above, contactless payments remove the need to handle cash at the POS, or even carry cash at all. Indeed American Express' contactless payment product, ExpressPay, is marketed as "no fumbling with cash or cards, and nothing to sign".

As a result of these benefits, consumers have reacted extremely positively to contactless payments in the trials and early rollouts to date. One industry executive interviewed for this report commented that:

"People love contactless; all the surveys and feedback so far has been fantastic. Consumers like the speed, the fact they don't have to sign or enter a PIN to verify the transaction, as well as the other security aspects [as they don't have to let go of the card]. This is perceived as a clear value add".

Merchants experience higher revenues and lower costs

Contactless payments also offer significant benefits to retailers. These are:

- **Faster customer service at the point of sale** – the time saving from contactless payments means that retailers can serve a larger number of customers in any given time frame. This is particularly beneficial for merchants who experience very high customer flows at peak times, and can therefore lose business if consumers are put off by long waiting times. Merchants offering contactless payments in the US have reported visibly higher sales as a result. Indeed, an executive at one fast food chain famously noted that the saving of one second at the POS for every transaction is sufficient to add US$1 million to turnover over the course of the year;

- **Customer satisfaction** – consumers like the ease and convenience of contactless payments, with the result that they are more likely to make repeat visits where they have had a good service experience;

- **Higher spend –** it is a widely held view that consumers are more susceptible to making impulse buys when they don't need to use cash, again to the benefit of the retailer. American Express's ExpressPay pilot found that customer spend increases by 20-30 per cent when compared to cash. Also important in this is that consumers are not constrained by the amount of money they are carrying, and can therefore make higher value purchases with a greater degree of freedom;

- **Greater frequency of transaction –** one important finding from the launch of contactless payments in the US has been that consumers using contactless have demonstrated a higher transaction frequency in certain outlets than they had previously. While this is only an anecdotal finding, it further strengthens the potential business case for the merchant;

- **Reduced cash handling fees –** contactless payments will reduce the volume of cash transactions handled by a retailer, therefore reducing the costs associated with cash. For some retailers, notably large chains, the cost of cash is particularly apparent, and removing cash payments is consequently part of an overall strategy. Any cash replacement program would be of particular interest to these merchants;

- **Potential reductions in staff costs –** perhaps not an immediate benefit, contactless payments will ultimately offer retailers the potential to reduce staff numbers and provide more automation at the point of sale;

- **Customer data –** contactless payments that are replacing cash will also have the potential to generate new data on the spending habits and preferences of consumers. The volume of data potentially collected and extent to which retailers could access or use it is not clear, although some form of loyalty programme would seem to be a strong possibility. Contactless payments would certainly provide opportunities for marketing and customer retention exercises that are not available in the case of cash transactions.

As a consequence, Datamonitor understands that merchants involved in the trials and early rollouts of contactless have been particularly positive about the technology. One executive interviewed for this report commented that:

"Merchants have been very positive because of the speed, which reduces the time taken at the POS. In addition to the benefits from greater consumer satisfaction, there are also benefits from the monetary side, due to the increased efficiency of non-cash payments. Also, when people move from cash to contactless, there is a sales uplift of around 20 per cent".

Summary

This chapter has demonstrated that there is a very strong theoretical business case, among both those within the payment card value chain and merchants, for contactless payments. As a result of the strength of this business case, contactless

payment programs have already been trialed and launched in several markets, and the current state of play in this respect is discussed in the following chapter.

RECENT DEVELOPMENTS IN CONTACTLESS

Introduction

Now that the scene has been set, it is appropriate to see exactly what is happening in contactless payments. Since Datamonitor's previous coverage of this technology, there have been several further product trials and a handful of commercial launches, the most notable being in the US.

Contactless payments have moved from being almost a theoretical proposition a couple of years ago to being something that consumers in several markets are now growing familiar with on a daily basis. For this reason alone, it is important to identify the markets in which contactless products are being tested and used, to see where the future growth opportunities will be.

This chapter provides a round up the developments in contactless payments in each of the following regions:

- The Americas;
- Asia-Pacific;
- Europe.

It should be noted that this chapter discusses developments in the contactless products of the major card schemes, but does not discuss these products directly. For a more detailed overview of these offerings, please refer to the '*Selling the Proposition'* chapter of BFFS0280 *Contactless Payments*.

Americas – the US is the most developed contactless payment market in the world

Despite not being the first region to see a launch of contactless payments (Visa launched its contactless program in Malaysia in February 2005), the development of contactless has been most striking in the Americas. However, at present, the only commercial available products are to be found in the US.

This section discusses the recent developments and trends in contactless payments in this market.

There are now over 10 million contactless devices in circulation in the US

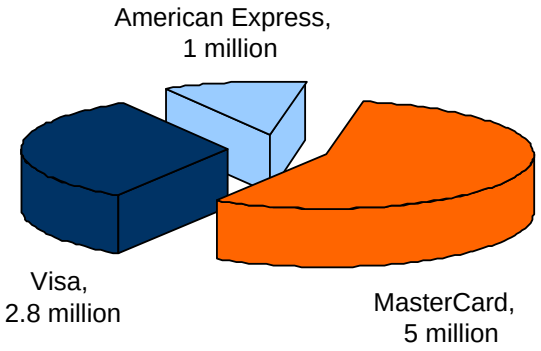
In line with its status as the largest payment card market in the world, the US is also the world's largest contactless payment card market. Indeed, a representative of one of the leading card schemes told Datamonitor that: "*the US is our number one region in terms of deployed cards, other devices, and terminals*".

The numbers bear this out. By the end of the first quarter of 2006, there were more than 10 million contactless devices in circulation in the US, with acceptance reaching over 160,000 terminals in 30,000 merchant locations. This shows rapid growth over what is a short space of time.

At the end of 2005, Datamonitor understands that there were close to nine million contactless devices of all form factors in circulation in the US, with acceptance approaching 25,000 merchant locations. Within this total, MasterCard's contactless product is the most commonly occurring in the market, the five million *PayPass* enabled devices accounting for over half of all contactless products in issue. Based on figures release by Visa, Datamonitor estimates that it has around 2.8 million devices in circulation, and this suggests that American Express has in the region of one million.

The scheme market shares of both contactless devices and merchant acceptance are shown in Figure 2 and Table 1 below.

Figure 2: MasterCard is the leading contactless card scheme in the US, 2005



Source: Datamonitor competitor research DATAMONITOR

Table 1: US contactless devices in circulation and merchant acceptance by card scheme, 2005

Devices in circulation, 000s	**2005**
MasterCard	5,000
Visa	2,800
American Express	1,000
Total	**8,800**
Merchant acceptance (number of locations)	
MasterCard	25,000
Visa	20,000
American Express	n/k

Note 1: n/k denotes that data exists, but is not known to Datamonitor
Note 2: Visa and American Express devices in circulation figures are estimates
Source: Datamonitor competitor research DATAMONITOR

Chase Bank's full commercial rollout has driven growth in the US

One important factor in the strong expansion of contactless payments in the US has been the momentum built by a succession of commercial launches over the past 12

months. The most significant of these to date has been the launch by Chase Bank, which announced an initial rollout in May 2005. As a result, the merchant acceptance and consumer awareness of contactless payments have increased dramatically.

Chase Bank customers can now 'blink' their payments

Figure 3: Key facts about Chase Bank's contactless offering, 2006

- **Launch** – May 2005
- **Scheme** – MasterCard and Visa
- **Acceptance** – 16 national store chains
- **Form factor** – general purpose credit card
- **Devices in issue** – 6.5 million at Dec 05

Source: Datamonitor, Chase Bank

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Chase Bank was not the very first issuer to launch contactless payments in the US, but it has certainly been the one to make the biggest investment in the technology. As a result of this, Chase's full commercial launch has been a key driver of growth in the market. Indeed, by the end of 2005, Chase had issued 6.5 million contactless enabled credit cards across the US, accounting for over 70 per cent of the total market.

As contactless payments are an entirely new concept for many consumers, Chase has needed to involve itself in both raising consumer awareness and building merchant acceptance. As one industry executive interviewed for this report commented: *"you don't want to issue a card with contactless only for it to have no practical application…for this to work, you do need to cover both ends of the equation".*

Strong branding and marketing have encouraged a positive consumer response

Raising consumer awareness has been of paramount importance to Chase's launch. A large press, internet, and television advertising campaign has backed up the rollout of the functionality Chase has christened 'blink'. Screenshots from the television commercial shown in the US are in Figure 4 below.

Figure 4: Screenshots from Chase Bank's US contactless card commercial, 2005

Source: Datamonitor, Chase Bank

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Perhaps the most important element of Chase's marketing campaign has been the creation of its own contactless brand, 'blink'. Datamonitor understands that rebranding MasterCard and Visa's contactless functionalities as 'blink' has been seen as central to making the concept as consumer friendly as possible, if only because it removes any potential confusion arising from offering the programs of two separate card schemes.

This move has also given Chase a significant advantage over its competitors. The strength of the marketing campaign undertaken alongside the launch of 'Chase credit cards with blink' has effectively allowed Chase to give a brand name to contactless payments in the eyes of consumers. As a result, there are likely to be significant customer acquisition and retention benefits for Chase. To illustrate the strength of this effect, it has been reported to Datamonitor that, anecdotally at least, some consumers have approached other issuers in the US asking for a card with 'blink'.

However, assembling a critical mass of accepting merchants was the key factor

While raising consumer awareness is important, building the merchant infrastructure is critical to the successful launch of a technology such as contactless payments. As one industry executive interviewed for this report noted:

"*Consumers love this* [contactless]*, so they don't take much convincing. Where you need to make the investment is with the merchant*".

Accordingly, this is an area in which Chase made a large investment, working closely with merchants in testing the technology both functionally and in terms of quality, and also in training staff. The focus of this effort was placed on national chains in retail areas that require a high speed of service, such as fast food outlets, drugstore/pharmacy chains, and convenience stores.

Targeting these chains has proved important in quickly building acceptance, for two reasons:

- National chains are more likely to have a card acceptance infrastructure in their outlets;
- Providing a solid business case for a national chain can result in acceptance growing nationwide.

This investment has provided Chase with around 25,000 merchant locations for its 'blink' product.

Several other US issuers have since launched contactless

In addition to the launch of contactless payments by Chase Bank, several other US issuers have looked to offer contactless functionality on their products.

Following several trials conducted by the major card schemes, MBNA was the first issuer to announce a rollout of the technology, adding MasterCard's *PayPass* functionality to its Seattle Seahawks, and Baltimore Ravens co-brand cards in March 2005. However, acceptance was limited to the refreshment and club merchandise outlets within the stadium of each team.

Partly as a result of the success of Chase Bank's launch, interest in contactless payments is now growing across the market. One industry executive interviewed for this report commented: "*Contactless is now a reality there* [the US]*, and there is full interest from American banks".*

Table 2 below lists the other launches of contactless payments in the US.

Table 2: Timeline of US contactless payment launches, 2005-2006

Date	Scheme	Product type	Launch
Mar-05	MasterCard	Credit	MBNA, announces the rollout of PayPass in Seattle Seahawks and Baltimore Ravens stadia
May-05	MasterCard, Visa	Credit	Chase announces its "blink" programme - the first widespread deployment of contactless
Jun-05	American Express	Consumer and small business credit	American Express announces that it has begun issuing cards enabled with ExpressPay across the US
Aug-05	MasterCard	Credit, debit	Citibank first to launch PayPass key rings
Sep-05	MasterCard	Debit	HSBC USA begins issuing debit cards with PayPass
Feb-06	MasterCard	Debit	Citizens Financial announces it is to launch PayPass on its debit cards

Source: Datamonitor issuer research DATAMONITOR

Product design and positioning in the US differ from that elsewhere

One particularly interesting feature of the rollout of contactless payments in the US is that there are significant differences between this rollout and those in operation and being considered in the Asia-Pacific region and Europe. These differences are in terms of the technology that underpins the basic product, and also in terms of product positioning.

US contactless forms are all based on magnetic stripe technology, necessitating online authorization

It is important to note that the technology underpinning the contactless payment programmes in the US has a number of fundamental differences to that in Asia-Pacific. At the heart of this difference is migration to the EMV standard. In both Asia-

Pacific and Europe, contactless payment programs are built to leverage an EMV compliant card and acquiring infrastructure. In these regions, contactless devices are built around the EMV compliant chip, with the only point of difference between contactless and standard card transactions being the interface with the POS terminal. This means that all EMV based contactless programs offer the same security standards as a regular card transaction. As one industry insider interviewed for this report commented:

"The card and terminal conduct a standard EMV transaction, but through the contactless mechanism. These transactions are therefore as secure as any standard EMV transaction"

Perhaps of more practical importance, this means that EMV compliant contactless programs can be accepted offline. As a consequence, the time taken for such a transaction is considerably less than an online contactless payment. Datamonitor understands that the time to authorize an online payment is in the region of two seconds, while offline transactions are verifiable within 0.5 seconds.

The US has not progressed well with EMV, and contactless programs are built on magnetic stripe technology

In contrast, the US market has not really progressed with EMV. There are a number of reasons for this, and readers interested in an appraisal of the issues involved will find BFFS0402 *EMV Migration in Europe* of particular interest. As a consequence of this, US contactless programs operate in a different way to those in other markets. Each contactless piece contains an embedded smart card chip (not EMV compliant) with antennae, and this is used to transmit Track 2 data (the basic data required to verify a card payment) to the POS terminal.

This is less secure than EMV compliant systems, as it based on magnetic stripe technology. As a result, all US contactless transactions are verified online.

There are also important differences in product positioning between the US and other markets

In addition to the differences in the technology behind the programs, there are also key differences in the way that contactless products are positioned in the US and other markets.

In the US market, contactless is positioned as another way of presenting the card at the POS, with little distinction drawn between contactless and standard card

transactions. In contrast, the product positioning in other markets is centred on contactless as a product innovation specifically targeted at low value payments. As one executive interviewed for this report commented:

"In the EMV region, the product is positioned as a new advanced proposition; contactless is not just another technology and is not positioned as such…in the US, contactless is positioned as another way of using the card; there is no distinction in terms of payment values in the US. You present the card as for contactless, and just authorize as required".

Current developments suggest further growth in the near future

The US market has enjoyed strong growth in contactless payments over a very short timeframe, and a large number of current trials and recent announcements suggest that contactless will continue to grow.

Citibank is conducting a six-month trial of contactless payments at ticket barriers on the New York subway

In January, MasterCard and Citibank announced that they will be working with the Metropolitan Transportation Authority and MTA New York City Transit to conduct a trial of contactless payments in select New York City subway stations with an unspecified number of pre-selected Citibank customers. The six month trial is scheduled to have begun in spring 2006.

Participants in the trial will be able to pay their fare at the point of entry by tapping their new Citi MasterCard card or payment tag on a specially equipped reader mounted on a the entry barrier. During the test PayPass will be accepted on the MTA's Lexington Avenue and E&V lines that serve 900,000 riders daily in Manhattan, Brooklyn and Queens.

Visa introduces a contactless Mini Card

In March 2006, Visa announced the readiness for launch of its Contactless Mini Card, a contactless card half the size of a traditional payment card. Designed specifically to be fitted onto a key ring/fob, Visa reports that this is the industry's first alternative contactless form factor ready for large-scale commercial deployment.

The card offers both a contactless and magnetic stripe interface, and is designed to act as a companion card to a standard, or indeed contactless, product. As a result,

this therefore has the potential to further facilitate growth in contactless payments. Certainly, the penetration of Exxon Mobil's Speedpass suggests that there is a segment of the consumer base that would not have a problem in a key ring mounted payment piece.

Asia-Pacific – launches in several markets have resulted in growth across the region

While the development of contactless payments has been most pronounced in the US, growth has also been strong in several markets in the Asia-Pacific region. This market has largely been served by Visa, under the Visa Wave brand; MasterCard has only made relatively small moves towards this region, while American Express has not made any information about a trial or launch publicly available.

This section discusses the key trends and developments in contactless payments in Asia-Pacific.

Malaysia: the first market to deploy Visa Wave in mobile handsets

In April 2006, Visa announced the first trial of Visa Wave (the name of Visa's contactless programme in Asia-Pacific) in mobile phone handsets. The trial, conducted in collaboration with Maybank, Maxis Communications Berhad (a mobile phone service provider) and Nokia, is open to 200 participants and will run for four months. The trial will involve the use of Nokia mobile handsets embedded with a chip and antennae based on NFC (Near Field Communication) technology. Those selected for the trial must be both Maybankard Visa cardholders and Maxis mobile phone subscribers.

This is a particularly interesting development for both Visa and the region. Despite not having taken off in Europe and the US, mobile payments have proved successful in the Asia-Pacific region, particularly in Japan where NTT DoCoMo's contactless mobile handset offering has been very successful. This offering involves a contactless technology developed by Sony, and therefore is not accessible to any of the international card schemes. A successful trial could therefore open up this market for Visa.

The signs are good. Malaysia was the market in which Visa first launched a contactless product (in February 2005), and consumers have reacted positively to the technology. Datamonitor understands that more than 160,000 Visa Wave cards have

been issued in the country, and the scheme hopes to have 600,000 cards circulating by the end of 2006. Merchant acceptance is good, with more than 4,000 merchant locations currently accepting Visa Wave, including convenience stores, quick-service restaurants, cinemas, petrol stations, supermarkets.

Taiwan: Visa Wave is also growing strongly in this market

Visa launched a pilot of Visa Wave in Taiwan in March 2005, in partnership with Chinatrust Commercial Bank; making it the second market in the region to launch a contactless program. This trial was successful, and Chinatrust Commercial Bank moved to a full rollout later that year.

At the end of 2005, Datamonitor understands that there were in the region of 300,000 Visa Wave cards in circulation in the market, and that this figure is growing at a rate of 15,000 per month.

There are two co-brands involved in this program, including leading retailers Watsons and Costco. The Watsons co-branded program currently involves more than 60,000 cardholders, with acceptance available at more than 400 stores nationwide. Visa reports that the contactless function is currently used in 72 per cent of transactions in Watsons stores. The conversion of the standard CostCo co-branded product to the contactless form had reached 150,000 by February 2006, with the process of migrating the remaining 90,000 cardholders currently underway. Contactless transactions among this cardholder base were reported to be at 30 per cent.

Taiwan: MasterCard has announced a PayPass trial

In 2005, MasterCard announced a trial of its PayPass technology in Southern Taiwan's public transport system, in collaboration with the Kaohsiung Government (KCG). In the region of 2,000 PayPass cards have been issued for the trial, and several merchants are also participating.

South Korea: Visa Wave has become popular, with a mobile payments launch a probability

In South Korea, Visa has partnered with LG Card and LG Telecom to create a contactless proposition carried in both card and mobile handset form factors. Launched in early 2006, the card is currently only accepted in the 66 nationwide

stores of major retailer, Tesco. Datamonitor understands that this initial launch involved the issue of more than 50,000 contactless devices.

In addition, some of South Korea's major mobile networks are expected to begin rolling out contactless payment programs to their customers. These operators, including SK Telecom and KTF, are investing in the region of US$10 million in merchant acceptance infrastructure to install 150,000 readers at department stores, restaurants, and other merchant locations by the end of the year. These terminals will accept both MasterCard PayPass and Visa Wave transactions.

Mobile operators in Korea have already distributed around 20,000 miniature, chip-based credit cards inside mobile handsets, using a credit application issued by South Korean card issuer Samsung Card. The companies hope to roll out at least 50,000 more cards this year. However, the mobile operators plan to switch to phones supporting Near Field Communication (NFC) technology when these become available.

Singapore: Visa has teamed up with EZ-Link to offer contactless

EZ-Link and Visa have announced an agreement by which Visa holds the exclusive right to build the acceptance of the EZ-Link contactless public transport card into Visa payment cards. This is a significant agreement for Visa, as the EZ-Link has proved to be successful in the market, and will presumably allow Visa to reciprocate and extend Visa Wave technology to EZ-Link cards at some point in the future.

MasterCard is conducting further trials across the region

The success of contactless payments across these markets has seen MasterCard announce a series of trials across the region. These are:

- Philippines – pilot in January 2005 in partnership with the Bank of the Philippine Islands (BPI);
- Thailand – pilot launch in December 2005;
- Japan – pilot in the first quarter of 2006 in partnership with Pocket Card and Itochu Enex;

- Australia – in early 2006, Commonwealth Bank of Australia began a six month trial of MasterCard's PayPass involving 35,000 cardholders and 150 merchants in New South Wales.

Europe – no issuer has moved beyond the trial stage, but developments are imminent

To date, there have been few developments in contactless payments in Europe. This is partly a result of the ongoing migration to the EMV standard, which has drawn heavily on both the financial and management resources of issuers across the region. As one industry executive interviewed for this report commented:

"[European issuers have adopted] *a wait and see approach, largely because of the drive to EMV migration and a lot of money has been invested in that. EMV remains the main priority at the moment, so we are watching the technology and business case improve in other regions to see if it makes sense".*

Certainly, recent developments suggest that several issuers have been watching developments in the US and Asia-Pacific keenly.

UK: RBS the first to trial PayPass in Europe

In early 2006, Royal Bank of Scotland, one of the largest card issuers in the UK, became the first to announce a trial of contactless payment technology in Europe. The trial will involve MasterCard's PayPass programme, and is scheduled to run in the summer of 2006. The number of customers and merchants to be involved is unclear at present.

Iain Clink, managing director, RBS Group Cards Business commented: *"We believe that the use of the MasterCard PayPass contactless technology provides an exciting opportunity to address the low value payment needs of both consumers and retailers"*.

This is a major development for both the UK and Europe, as the success of contactless payments in both the US and Asia-Pacific suggests that a full roll-out will be likely, provided there are no serious problems with the trial.

However, Transport for London has dropped its own contactless plan

Transport for London (TfL), the operator of the London's public transit system, has shelved its plans to extend acceptance of its pre-paid contactless ticketing system, Oyster, beyond the confines of the transport network. It had initially planned to roll out acceptance to some merchant outlets in and around the transport network, following the same model as Octopus and EZ-Link in Hong Kong and Singapore respectively, and had opened a tender process for the necessary infrastructure.

Barclays Bank, PayPal, and RBS all submitted bids, but the cost of the project was deemed prohibitive. A TfL spokesman commented: *"The proposals discussed were just too expensive for us to consider"*. It has since emerged that TfL may be considering adding the Oyster functionality accepted on the London transport network to a co-brand credit card.

This is an interesting development, particularly in the light of Citibank's trial of MasterCard's PayPass technology on the New York transport system. Clearly, the greater the acceptance of a payment piece, the greater the value for the consumer. Extending a closed transport network to other outlets is therefore not going to be as effective as having a transport system able to accept contactless general purpose cards.

Germany: Vodafone launches contactless transport payments

In early 2006, Vodafone D-2, one of the largest mobile phone networks in Europe, announced that it plans to offer customers in Frankfurt the functionality to pay for bus fares via a NFC application in the mobile phone handset.

As in the contactless mobile payment trials in Asia-Pacific, Nokia is the principal handset manufacturer. However, the key difference between this trial and those in Asia-Pacific is that Vodafone's proposition is proprietary and based on the SIM card in the phone and the standard billing structure, as opposed to a programme operated by one of the major international card schemes.

Vodafone reports that it is also in discussions with card issuers, who are interested in how mobile payments can reduce card issuance costs. Other future applications include those linked to registration for the German health services.

Summary

The key learnings from this chapter appear to be that contactless payments are now a reality in several markets, and look set to become a reality in many more. The full commercial rollout in the US is particularly significant, as this demonstrates clearly that the both the technology and the business model behind contactless payments are sound.

SIZING THE CONTACTLESS OPPORTUNITY

Introduction

As the previous chapter has demonstrated, contactless payments have been successfully trialed and launched in several markets. This therefore makes a discussion of the potential market size for contactless payments highly relevant.

This chapter covers the methodology behind and output from Datamonitor's *Contactless Payment Market Opportunity Model*. This model breaks down the value of cash payments made in six key sectors in 41 markets globally to show the countries and retail sectors offering the greatest potential for contactless payments.

Following a detailed explanation of the model, the rest of this chapter is devoted to analysis of the contactless payment opportunity in three regions:

- The Americas;
- Asia-Pacific;
- Europe.

Datamonitor's Contactless Payment Market Opportunity Model

This section provides an introduction and then a brief overview of the methodology and key assumptions behind this model. Hopefully, this explanation will provide sufficient background for readers to understand how the model was constructed and the reasoning behind some of the assumptions made. However if you have any further questions please do not hesitate to contact Kieran Hines, the report author and analyst behind the model, at khines@datamonitor.com.

The model covers 41 countries in three global regions, and focuses on six key retail sectors in each

This model has been designed to provide a broad scope of international coverage, while at the same time allowing a narrow enough focus to make the results meaningful.

The model presents data for 41 countries in three regions

In terms of geographical scope, the model covers 41 different countries spread across three regions:

- Americas;
- Asia-Pacific (covering Australasia and South-East Asia);
- Europe.

A full list of the countries covered is in Table 3 below.

Table 3: Geographic coverage in Datamonitor's Contactless Payments Market Opportunity Model, 2006

Americas	Asia-Pacific	Europe	
Argentina	Australia	Austria	Poland
Brazil	China	Belgium	Portugal
Canada	Hong Kong	Czech Republic	Spain
Chile	India	Denmark	Sweden
Colombia	Indonesia	Finland	Switzerland
Mexico	Japan	France	Turkey
US	Malaysia	Germany	UK
Venezuela	New Zealand	Greece	
	Philippines	Hungary	
	Singapore	Ireland	
	South Korea	Italy	
	Taiwan	Netherlands	
	Thailand	Norway	

Source: Datamonitor

DATAMONITOR

This spread of markets includes all of the established card markets in each region, as well as several markets that are in the earlier phases of market development, such as India and China. In this way, it is clear to see the where opportunities exploitable both now and in the future are to be found.

Market sizing data is presented for each of the key retail sectors

While the geographical scope of the model is broad, the market sizing data is restricted to the six retail sectors offering some of the largest opportunities for the use of contactless payments, namely:

- Pubs & bars;
- Nightclubs;
- Fast food outlets (quick service restaurants);
- Petrol forecourt/service station fuel and retail;
- Convenience stores;
- Vending machines.

In each of these sectors there are particular benefits for merchants to gain from speedier customer throughput at the POS, while average ticket values are typically quite low, and cash payments are commonplace. As a result, these sectors are priority targets for those issuers considering offering contactless payments.

Through focusing only on these key markets, Datamonitor's *Contactless Payment Market Opportunity Model* aims to provide the clearest picture of the size of the opportunity available in each of the markets covered.

It is also important to note that, while some other sectors offering potential uses for contactless payments have not been included in the model (for example, public transport and car parking), the sectors that have been included will provide a very clear guide to overall market opportunity.

Successfully launching a new technology such as contactless payments, a process that has required significant merchant input in the trials and launches conducted to date, will involve carefully targeting the merchant sectors that will offer the greatest initial benefits. In Datamonitor's view, a sector-by-sector view looking at only a few merchant areas is therefore a more useful tool than a market aggregate view of cash payments.

Methodology and key assumptions

Once the markets and merchant sectors had been identified, there were three stages in the creation of this model.

Stage 1: Collection of total sales revenue by sector

The first task in building this model was to collect data on the monetary value of total sales for each of the markets and sectors covered. Due to the unavailability of 2005 numbers for some markets, the most recent data available for all of the sectors was 2004.

Datamonitor's Consumer Products and Energy & Utilities divisions were important sources for this information, providing data covering the majority of the countries and sectors required. The addition of further countries and the filling of gaps in sector coverage for some markets was completed through additional research and estimation, where required.

Stage 2: Breaking down this sales data by transaction value

The next step was to segment these total sale values by transaction value band. Data from a survey of merchants in each of the sectors of interest provided a breakdown of the proportion of sales in each of 12 value ranges. This was applied to the sector total value to provide the total value of payments in each sector, by value range.

These value ranges are shown in Table 4 below.

Table 4:	Payment value ranges in Datamonitor's Contactless Payments Market Opportunity Model, 2006			
	Lower limit, US$	**Upper limit, US$**	**Lower limit, €**	**Upper limit, €**
Band 1	$0.00	$0.10	€ 0.00	€ 0.08
Band 2	$0.10	$0.25	€ 0.08	€ 0.20
Band 3	$0.25	$0.50	€ 0.20	€ 0.40
Band 4	$0.50	$1.00	€ 0.40	€ 0.80
Band 5	$1.00	$2.00	€ 0.80	€ 1.61
Band 6	$2.00	$5.00	€ 1.61	€ 4.02
Band 7	$5.00	$10.00	€ 4.02	€ 8.04
Band 8	$10.00	$25.00	€ 8.04	€ 20.10
Band 9	$25.00	$50.00	€ 20.10	€ 40.20
Band 10	$50.00	$100.00	€ 40.20	€ 80.39
Band 11	$100.00	$250.00	€ 80.39	€ 200.99
Band 12	$250+		€ 201+	

Source: Datamonitor

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It is worth noting that the survey in question was only carried out in the UK. Therefore, one important assumption in this model is that the spread of payments in each sector is consistent across each market. This simplifying assumption was key in being able to generate a global output.

Stage 3: Determining the value of cash payments within each of the individual value bands

Datamonitor's merchant survey also provides a breakdown of payments in each of the value bands by payment method. Applying the proportion of cash payments in each of the value bands to the values calculated in *Stage 2* results in estimates for the value of cash payments made at the sector level in each of the markets in the model.

Again, the survey data applies to the UK only but has been applied to all markets. This therefore means that an assumption of the model is that the way in which payments are made in each sector and market is entirely consistent.

Stage 4: Determining the range of values for contactless payments

The final stage in producing this model was to set a value range to represent the potential target market for contactless payments. This range was set at **US$0-25** (€0-20).

Datamonitor's interview contacts have confirmed that there is no 'minimum' value for contactless payments, as all low value transactions are targeted by this technology. At the upper end of the scale, US$25 has emerged in the US as the level beyond which any contactless transaction must be verified by the cardholder. As this effectively makes the transaction a regular card payment, it is therefore the fixed upper value for contactless payments.

Stage 5: Preparing the output

Summing the transaction values calculated for all of the bands below a value of US$25 provides the output for the model.

It is important to note that the model output reflects the ***size*** of the ***potential*** market for contactless payments in terms of the ***value*** of cash transactions that it could look to replace. For this reason, markets with a relatively high cost of living will naturally have a greater value of potential transactions to replace than one in which prices are generally low. As a result, China and India (two of the most populous countries in the world) are shown to have a lower potential opportunity for cash replacement than smaller, richer, countries such as Japan and Australia.

Contactless payments – a global opportunity of US$724.2 billion

This section presents and provides analysis of the global output from Datamonitor's *Contactless Payment Market Opportunity Model*. In addition to the graphics and data presented in this chapter, please note that the full output from the model is available as an Excel datapack accompanying this report.

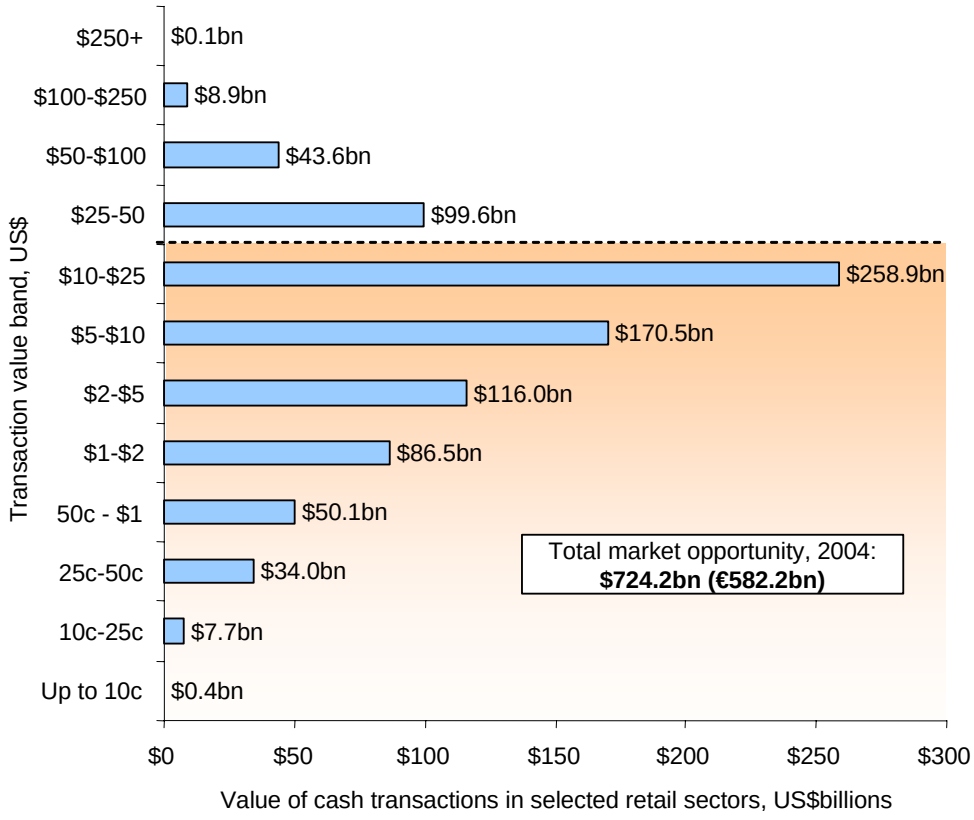
The themes covered in this section are:

- The size of the global contactless payment opportunity;
- The sectors offering the greatest potential;
- The breakdown of the global contactless payment opportunity by region.

Across each of the regions covered, the combined value of cash payments in the selected sectors was US$724.2 billion in 2004

Analysis of the output from the model demonstrates the sheer scale of the opportunity available in the chosen sectors. As Figure 5 shows, the total value of cash transactions below US$25 across each of the three regions covered was **US$724.2 billion** (€582.2 billion) at the end of 2004.

Figure 5: The global market opportunity for contactless payments in the selected sectors was US$724.2 billion, 2004



Note: The data behind this graphic can be found in the accompanying datapack.

Source: Datamonitor Contactless Payments Market Opportunity Model DATAMONITOR

This therefore represents an enormous potential opportunity for contactless payments. To put this in context, $724.2 billion is equal to 27 per cent of the total value of general purpose payment card transactions in the whole of Western Europe

in 2004. Capturing even a fraction of this market would therefore generate significant revenue growth for card issuers.

Transactions in the range $5-25 present the greatest opportunity

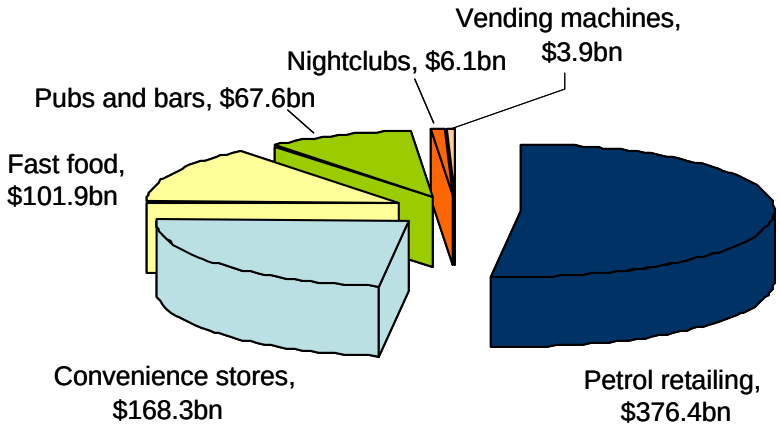
Within this total, transactions of between $5 and $25 in value account for the bulk of the overall opportunity. The value of cash transactions in this range alone in the selected sectors was worth **$429.4 billion** (€345.2 billion), clearly demonstrating the scale of the potential market for card issuers to look to tap into.

In addition, there is also a very large potential market for contactless in micropayments. The global value of transactions made by cash below a value of $2 in 2004 was $178.8 billion (€143.8 billion).

Service station retailing accounts for more than half the value of cash payments in the target value range

The largest potential market opportunity for contactless payments is in the petrol/service station retail sector. As shown in Figure 6 below, the value of cash transactions below $25 for both petrol and service station based convenience retail was US$376.4 billion (€302.6 billion) in 2004, accounting for 52 per cent of the total global contactless payment opportunity. While the value of service station spending has been partially inflated by high oil prices, petrol retailing is nevertheless one of the key sectors contactless issuers should focus on.

Figure 6: Petrol station retailing accounts for more than half the value of cash payments below $25, 2004



Note: The data behind this graphic can be found in the accompanying datapack.

Source: Datamonitor Contactless Payments Market Opportunity Model

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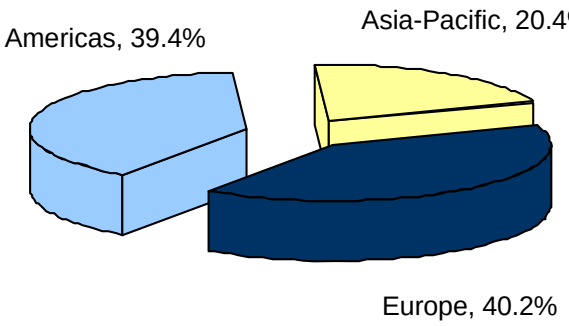
Convenience stores and fast food restaurants also represent a large potential market for contactless payments. In 2004, the value of cash payments below $25 in these sectors was a combined $270 billion (€217 billion).

Europe represents the largest opportunity at the regional level

At the regional level, Europe offers the largest potential market for contactless payments, ahead of both the Americas and Asia-Pacific. As Figure 7 shows, at the end of 2004, Europe accounted for 40.2 per cent of the value of cash payments in the selected sectors below a value of $25. This is slightly ahead of the Americas, which accounted for 39.4 per cent of the total, and almost double the estimated size of the opportunity in Asia-Pacific.

Figure 7: Europe represents the largest contactless payment opportunity at the regional level, 2004



Note: The data behind this graphic can be found in the accompanying datapack.

Source: Datamonitor Contactless Payments Market Opportunity Model DATAMONITOR

Americas: the US accounts for the bulk of the contactless payment opportunity

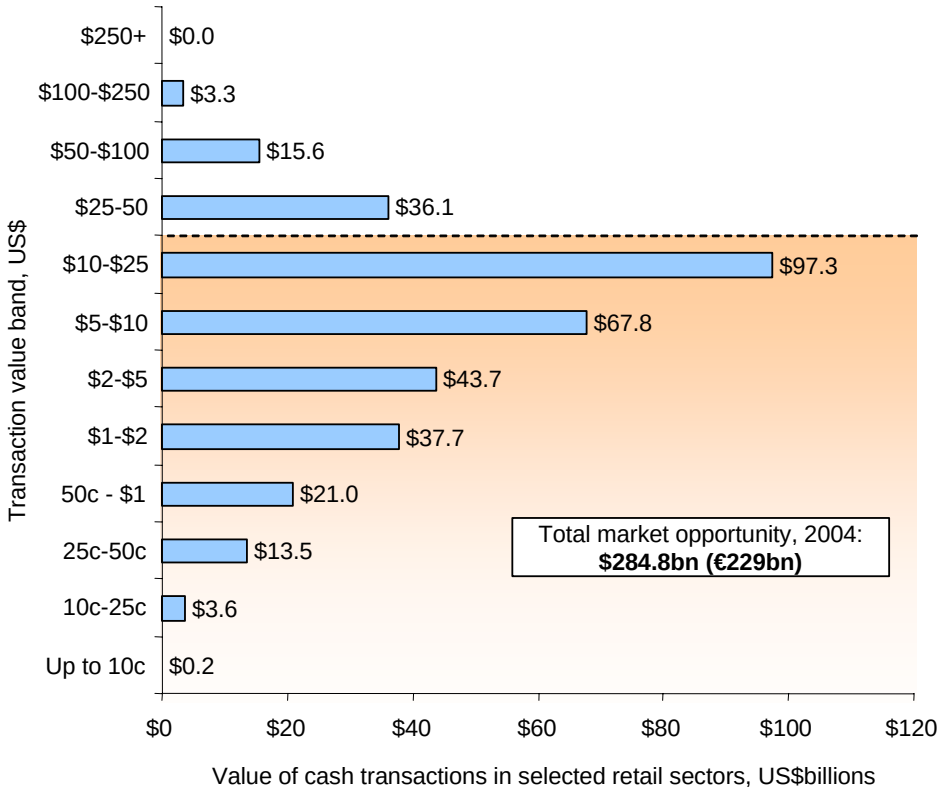
This section provides analysis of the output from the model looking at the Americas. The themes covered in this section are:

- The size of the contactless payment opportunity in the Americas as a whole;
- The sectors offering the greatest potential;
- The breakdown of the global contactless payment opportunity by country, focusing on the three largest potential markets.

Across the Americas, the total contactless payment opportunity is US$285 billion

The output from the model identifies a significant opportunity for contactless payments across the Americas. As Figure 8 demonstrates, in the sectors covered by the model, the total value of payments below a value of $25 made by cash was **US$284.8 billion** (€229 billion) in 2004.

Figure 8: The market opportunity for contactless payments in the Americas was US$284.8 billion in 2004



Note: The data behind this graphic can be found in the accompanying datapack.

Source: Datamonitor Contactless Payments Market Opportunity Model

DATAMONITOR

Within this total, the payment range $5-25 presents the largest opportunity. The value of cash transactions in this bracket was $165 billion (€132.7 billion) in 2004, with $97.3 billion (€78.2 billion) in the range $10-25 alone. In addition to the scale of the opportunity in these relatively low value payments, there is also considerable potential in micropayments; cash payments below $2 totalled an estimated $76 billion (€61 billion).

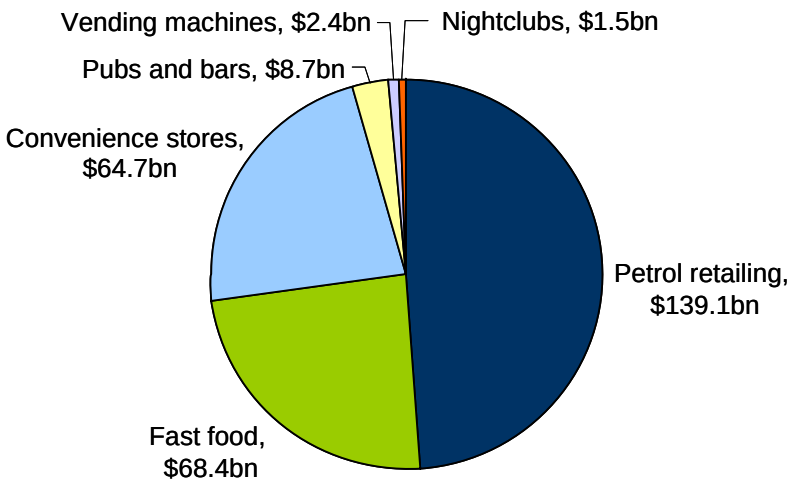
Petrol retailing presents the single largest opportunity for contactless payments in the Americas

Perhaps unsurprisingly, given the influence of the US market within the overall figures for the Americas, petrol retailing is the single largest potential market for contactless payments in this region. In 2004, the value of cash payments below a value of $25 for

both fuel and non-fuel items in this sector was **US$139.1 billion** (€111.8 billion). This figure is greater than the total household consumption in both Denmark and Portugal in the same year, and is clearly an enormous potential opportunity for issuers to target.

Equally unsurprising, again given the strength of the US influence in this region, is the scale of the opportunity available in the fast food sector. The opportunity here is estimated to have been US$68.4 billion (€55 billion) in 2004. Indeed, this is only slightly greater than the estimated value of low value cash payments in the convenience store market. Figure 9 shows the sector breakdown of the potential market for contactless payments in the Americas.

Figure 9: Petrol retailing and fast food are a US$207.5 billion contactless payment opportunity in the Americas, 2004



Note: The data behind this graphic can be found in the accompanying datapack.

Source: Datamonitor Contactless Payments Market Opportunity Model

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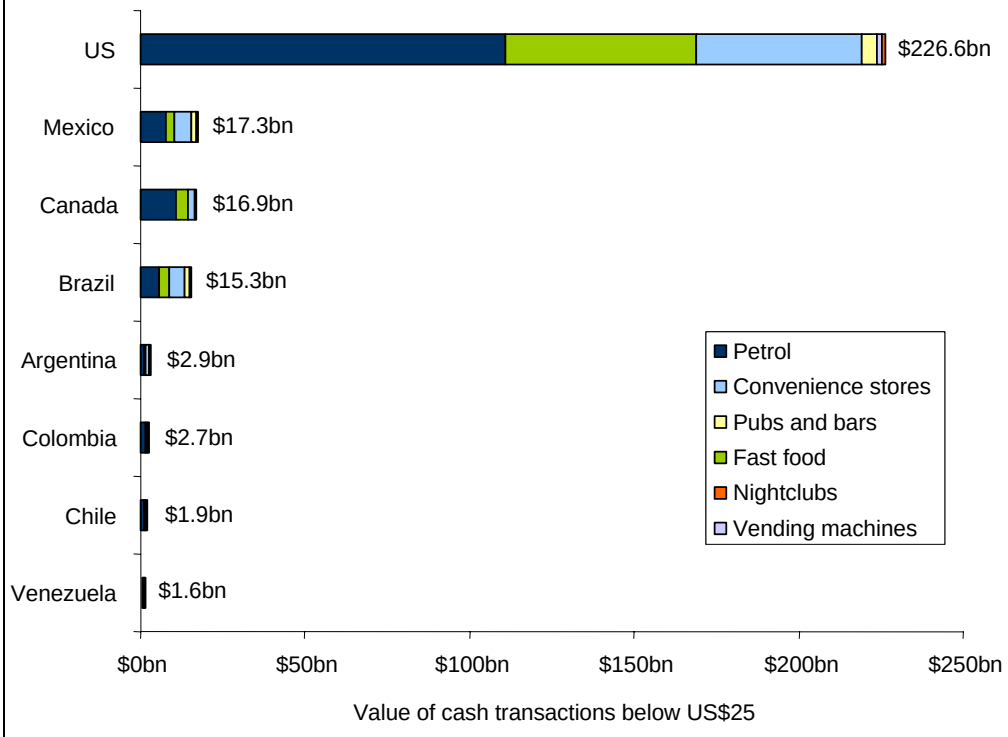
The US, Mexico, and Canada are the largest potential markets for contactless payments

Analysis of the regional data at the country level shows the US, Mexico, and Canada to have the highest levels of low-value cash payments in the sectors covered by the model. This therefore shows that these markets present the greatest potential market for the rollout of contactless payments in the Americas.

As Figure 10 shows, the US is far and away the largest market in the region, with **US$226.6 billion** (€182.2 billion) of low value cash transactions made in 2004. This is more than 13 times the value of low value transactions made by cash in Mexico which, with **$17.3 billion** (€13.9 billion), is the second largest potential market in the region. Canada offers the third largest potential market for contactless payments, with $16.9 billion (€13.6 billion) of cash transactions made in 2004.

Figure 10: The US, Mexico, and Canada present the largest potential opportunity for contactless payments, 2004



Note: The data behind this graphic can be found in the accompanying datapack.

Source: Datamonitor Contactless Payments Market Opportunity Model

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As in the case of Asia-Pacific, the regional opportunity is concentrated in only a few markets

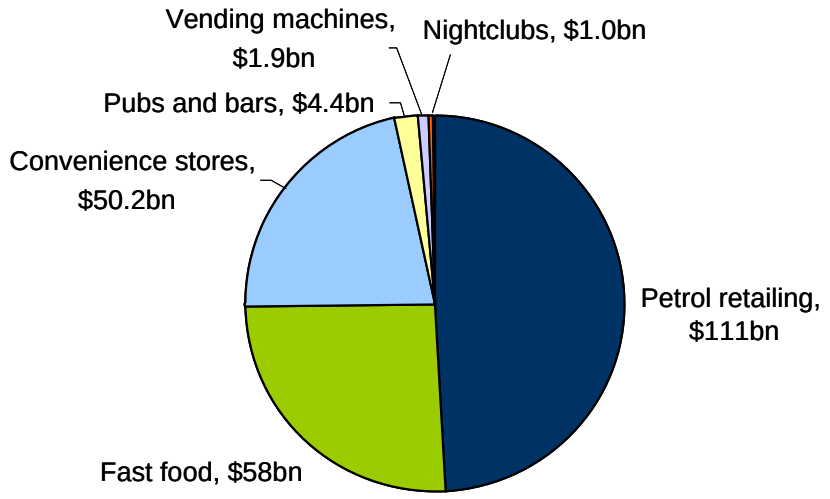
As in Asia-Pacific, the overall opportunity in the Americas is largely concentrated in a handful of markets, with the three largest markets accounting for 91.5 per cent of the total for the Americas. Within this, the US dominates, accounting for 79.5 per cent of

the total value of cash transactions below $25 in the region as a whole; unsurprising perhaps given the size of the US economy compared to those of its neighbours.

The petrol retail and fast food markets represent the largest opportunites in the US market

In line with the regional level findings, the petrol retail and fast food markets are those with the highest concentration of low value cash payments in the US market. As Figure 11 demonstrates, the opportunity for contactless payments in US petrol retailing was US$111 billion (€89.2 billion) in 2004, a total which accounts for almost 80 per cent of the total petrol retailing potential for the Americas as a whole.

Figure 11: Petrol retailing and fast food present the largest opportunities in the US, 2004



Note: The data behind this graphic can be found in the accompanying datapack.

Source: Datamonitor Contactless Payments Market Opportunity Model

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It is interesting to note that the value of low value cash payments in the US petrol retailing sector alone is over six times greater than the total for all sectors in Mexico.

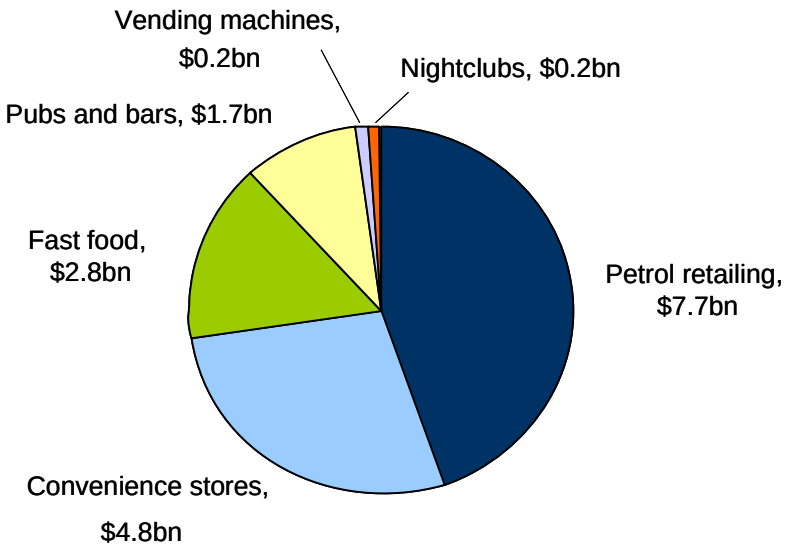
The fast food and convenience store sectors also offer a significant opportunity, with an estimated value of cash transactions in these two sectors of $58 billion (€46.6 billion) and $50.2 billion (€40.4 billion) respectively. Given the sheer scale of this

market opportunity, it is no surprise that US issuers have been the first to trial and roll out contactless payments.

The petrol retail and convenience store sectors offer the greatest opportunities in Mexico

As in the US market, the low value cash payment opportunity is greatest in the petrol retail sector. Figure 12 shows that, according to Datamonitor's *Contactless Payment Market Opportunity* Model, US$7.7 billion (€6.2 billion) of transactions below $25 in value were made by cash in this sector in 2004, as compared to US$4.8 billion (€3.9 billion) in the convenience store sector.

Figure 12: Petrol retailing and convenience stores offer the greatest opportunities in Mexico, 2004



Note: The data behind this graphic can be found in the accompanying datapack.

Source: Datamonitor Contactless Payments Market Opportunity Model

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As in the case of China, the Mexican card market is relatively undeveloped, and this presents a large barrier to the rollout of contactless payments. However, the size of this potential opportunity will make this market particularly attractive in the future.

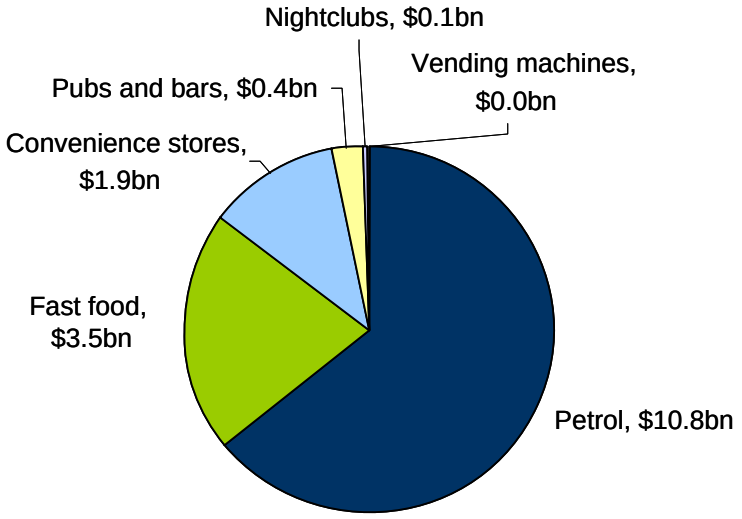
Petrol retailing and fast food lead the way in Canada

In keeping with the findings at the regional level, petrol retailing is the sector offering the greatest opportunity for contactless payments in Canada. As shown in Figure 13, cash transactions in this sector below a value of $25 were US$10.8 billion (€8.7 billion) in 2004; the second largest total for petrol retailing in the region.

This sector is more important within the context of the Canadian market than any other in the region. The value of cash payments in petrol retailing accounts for 64.3 per cent of the total contactless opportunity in Canada, compared to 48.8 per cent for the Americas as a whole.

The fast food sector offers the second largest potential market in Canada; US$3.2 billion (€2.8 billion) of cash transactions were made in this sector in 2004.

Figure 13: Petrol retailing and fast food are the most important sectors in Canada in terms of the contactless payment opportunity, 2004



Note: The data behind this graphic can be found in the accompanying datapack.

Source: Datamonitor Contactless Payments Market Opportunity Model DATAMONITOR

Asia-Pacific: Japan and China present the greatest opportunities

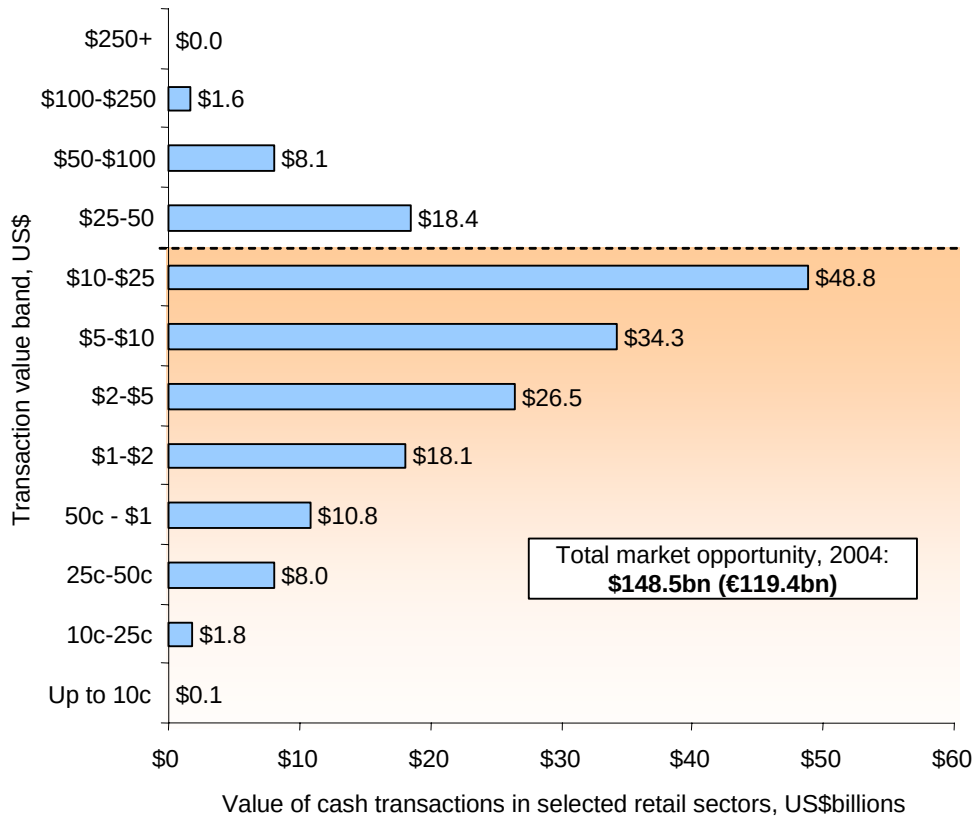
This section provides analysis of the model output for the Asia-Pacific region. The themes covered in this section are:

- The size of the contactless payment opportunity in Asia-Pacific as a whole;
- The sectors offering the greatest potential;
- The breakdown of the global contactless payment opportunity by country, focusing on the three largest potential markets.

Across the region, the total contactless payment opportunity is US$149 billion

The results of the model clearly show a significant opportunity for contactless payments in the Asia-Pacific region. As shown in Figure 14 below, in the six sectors covered by the model, the total value of cash payments below a value of US$25 (€20) in 2004 was **US$148.5 billion** (€119.4 billion).

Figure 14: The market opportunity for contactless payments in the Asia-Pacific region is US$148.5 billion, 2004



Note: The data behind this graphic can be found in the accompanying datapack.

Source: Datamonitor Contactless Payments Market Opportunity Model

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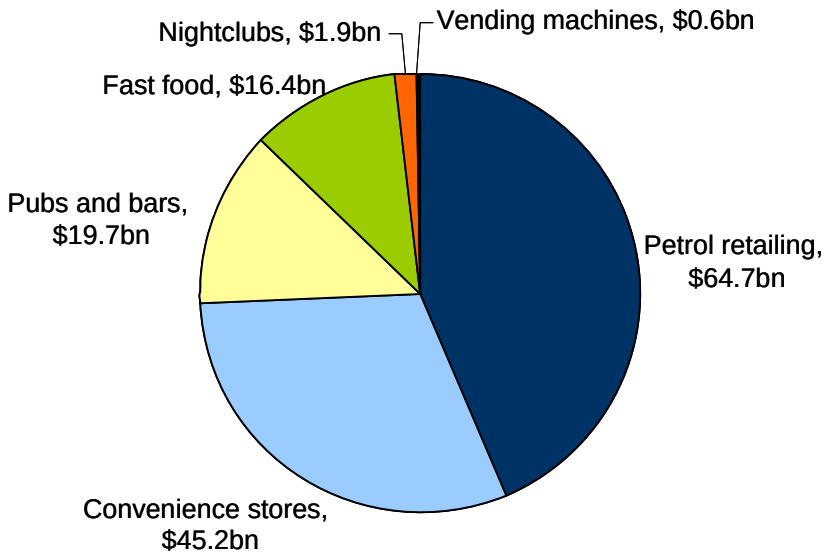
Within this, payments of a value of between US$5 and US$25 offer the largest opportunity. The value of transactions in this bracket was $83.1 billion (€66.8 billion) in 2004, with $48.8 billion (€39.2 billion) in the $10-25 band alone.

Petrol station retailing offers the greatest opportunity, but convenience stores also hold significant potential

At the sector level, petrol station retailing and convenience stores present a huge opportunity, accounting for a combined US$109.9 billion (€88.4 billion) of cash payments below $25. This is equal to 74 per cent of the total value of payments in the six sectors covered by the model. This is shown in Figure 15 below.

Figure 15: Petrol station and convenience store retailing are a US$109.9 billion opportunity in Asia-Pacific, 2004



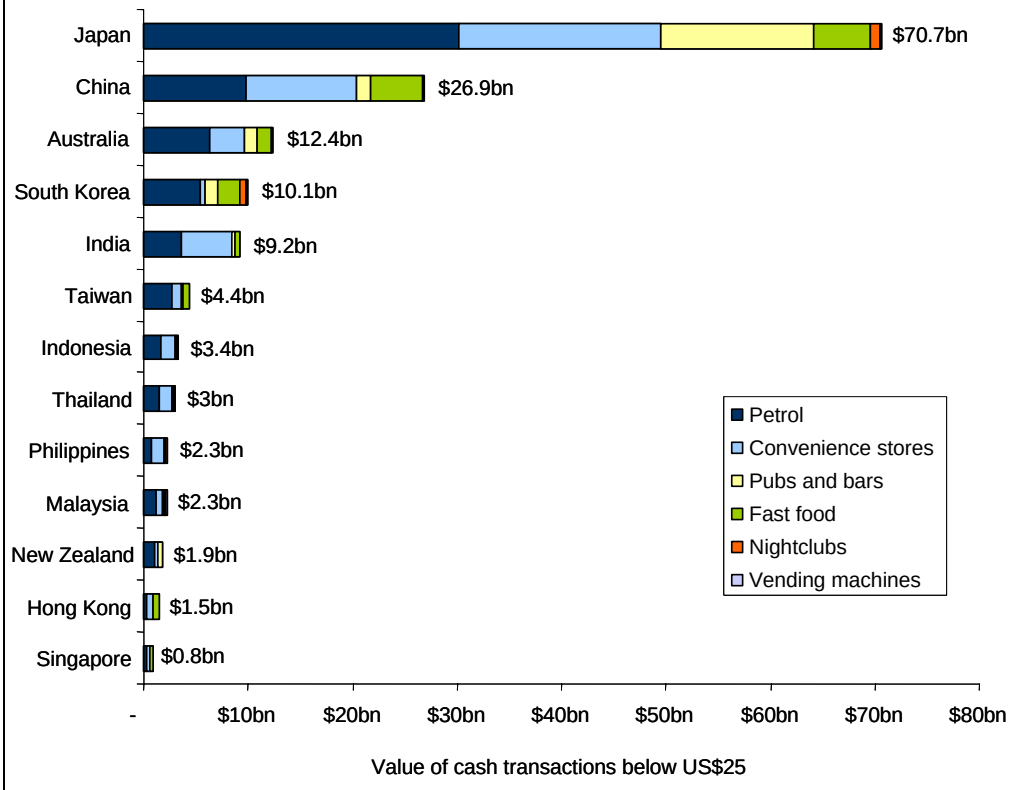
Note: The data behind this graphic can be found in the accompanying datapack.

Source: Datamonitor Contactless Payments Market Opportunity Model DATAMONITOR

Japan, China, and Australia are the largest potential markets for contactless

Analysis of the regional data at the country level shows Japan, China, and Australia to be the three markets that offer the greatest theoretical opportunity for contactless payments in the Asia-Pacific region. As Figure 16 shows (below), Japan is the leading market in the region by some distance, with **$70.6 billion** (€58.8 billion) of cash transactions made in the selected sectors in 2004. China enjoys the second highest level of cash transactions by value, with **$26.9 billion** (€21.6 billion), while Australia is third with **$12.4 billion** (€10 billion).

Figure 16: Japan and China present the largest opportunity for contactless payments, 2004



Note: The data behind this graphic can be found in the accompanying datapack.

Source: Datamonitor Contactless Payments Market Opportunity Model DATAMONITOR

There are huge differences in the size of the contactless opportunity across the region

This graphic also underlines the huge differences that exist in the spread of the potential opportunity for contactless payments in the region. Japan and China dominate the total for the region, accounting for almost two thirds of the estimated $148.5 billion opportunity, while the value of low value cash transactions in the 8 smallest markets in Asia-Pacific were all below $4.5 billion.

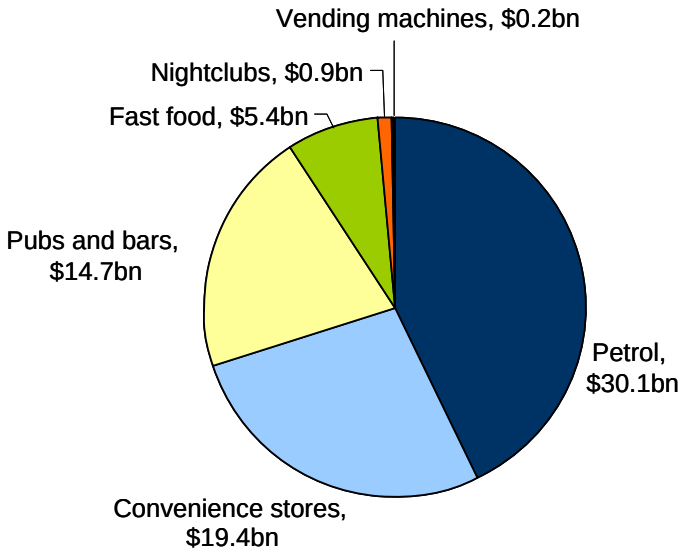
Interestingly, this group of the 8 smallest markets includes the few countries in which contactless payments have already been launched or are in the process of trialing. Malaysia, Taiwan, and South Korea are shown to have far lower potential market

opportunities than China and Australia, which have yet to see any significant developments to date. This clearly demonstrates the fact that market conditions play a far more important role in the success of contactless than the size of the market opportunity alone.

The petrol retail and convenience store sectors in Japan are particularly attractive

In line with the Asia-Pacific region as a whole, the petrol retail and convenience store sectors offer the largest cash replacement opportunities in Japan. As Figure 17 shows, the value of cash transactions below $25 in the petrol retail sector is estimated to have been US$30.1 billion (€24.2 billion) in 2004; a figure greater than the total estimated market opportunity in each of the other countries in the region. The opportunity in the convenience store retailing is similarly large, estimated to be $19.4 billion (€15.6 billion).

Figure 17: Petrol retailing and convenience stores present the greatest opportunities in Japan, 2004



Note: The data behind this graphic can be found in the accompanying datapack.

Source: Datamonitor Contactless Payments Market Opportunity Model

DATAMONITOR

It is clear from Figure 17 that the opportunities for contactless payments are particularly strong in Japan. Indeed, while the $14.7 billion (€11.8 billion) of cash

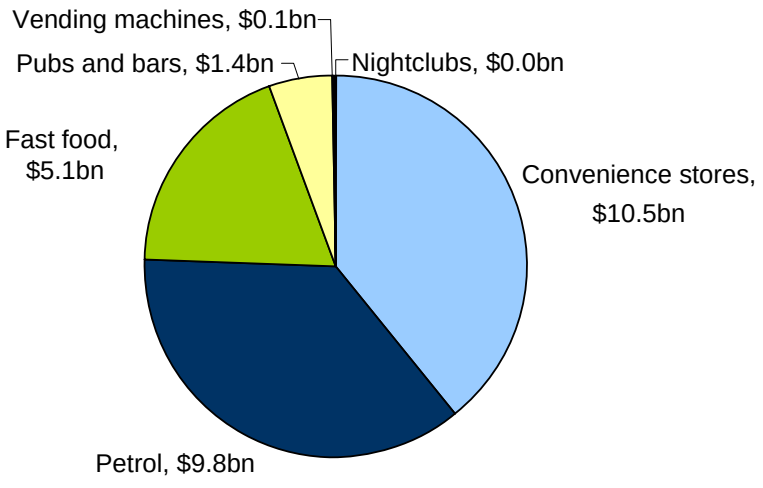
payments in the pubs and bars sector is small compared to those in the petrol retail market in Japan, this sum is still greater than the total market opportunities in every other market bar China.

There is also a very large opportunity in vending, with an estimated $200 million (€161 million) in cash transactions made in 2004. Clearly therefore, any card issuer capturing just a portion of the transactions in any of these sectors would enjoy a significant upturn in revenues.

The convenience store market provides the greatest potential in China

Interestingly, the convenience store sector presents the largest cash replacement opportunity in China. This is a marked difference from the total at the regional level, at which petrol retailing dominates. As Figure 18 shows, Datamonitor estimates that the value of cash payments in the convenience store sector below a value of $25 was US$10.5 billion (€8.4 billion) in 2004, while the value for petrol retailing was US$9.8 billion (€7.9 billion). The fast food sector also presents a significant opportunity for contactless payments, with an estimated US$5.1 billion (€4.1 billion) of cash transactions.

Figure 18: Convenience stores are the sector presenting the greatest contactless payment opportunity in China, 2004



Note: The data behind this graphic can be found in the accompanying datapack.

Source: Datamonitor Contactless Payments Market Opportunity Model

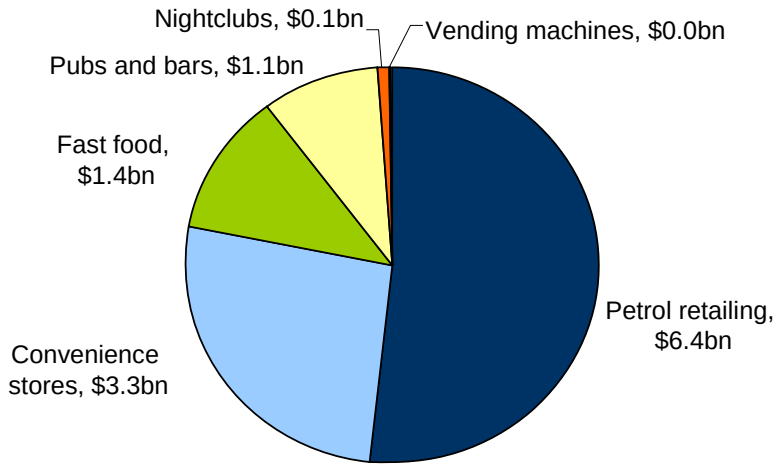
DATAMONITOR

It is worth noting that the card market in China is still at the early stages of development, and that this effectively rules out the rollout of contactless payments in this market. However, this market offers huge potential – not least as the value of payments in each of these sectors is likely to grow considerably as the economy in China continues to expand – and this will provide issuers with a further incentive to continue to expand the card issuance market and infrastructure.

In line with the rest of the region, the biggest opportunities in Australia are in petrol retailing and convenience stores

In keeping with the findings at the regional level, petrol retailing, followed by convenience stores, are the two sectors offering the greatest potential for contactless payments in Australia. As Figure 19 shows, the value of cash payments in petrol retailing was US$6.4 billion (€5.1 billion) in 2004, while the opportunity in the convenience store sector was US$3.3 billion (€2.6 billion).

Figure 19: Petrol retailing offers the largest opportunity in Australia, 2004



Note: The data behind this graphic can be found in the accompanying datapack.

Source: Datamonitor Contactless Payments Market Opportunity Model

DATAMONITOR

Europe: the UK and Germany present the greatest opportunities

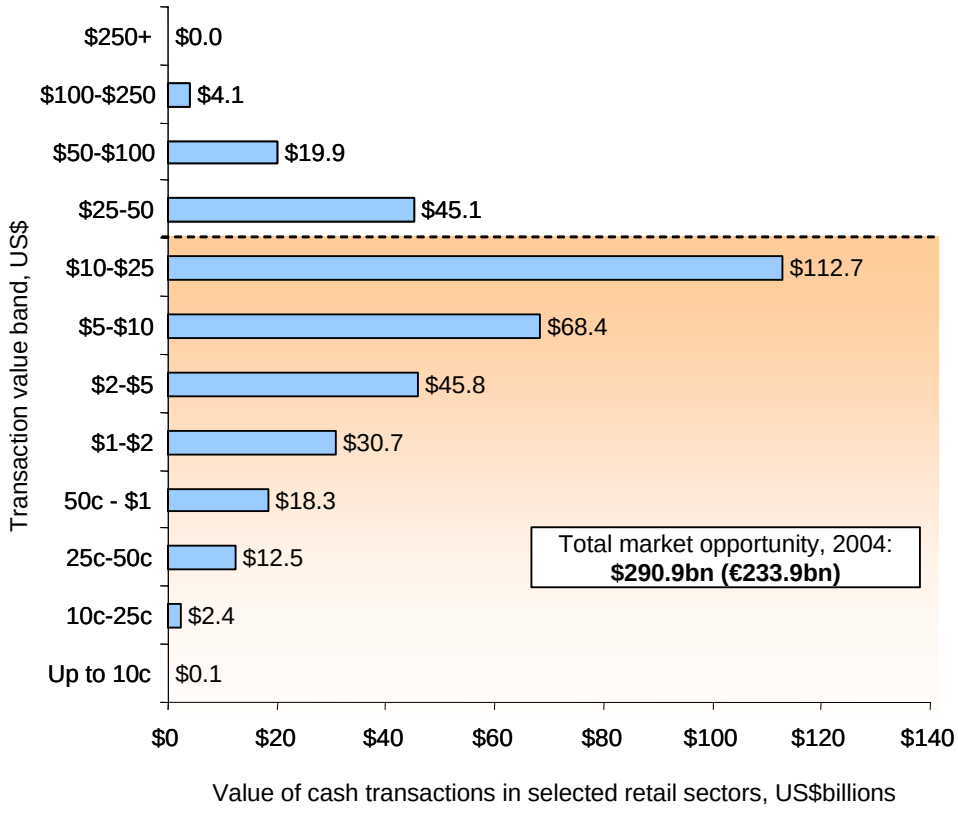
This section provides analysis of the output from the model looking at Europe. The themes covered in this section are:

- The size of the contactless payment opportunity in Europe as a whole;
- The sectors offering the greatest potential;
- The breakdown of the global contactless payment opportunity by country, focusing on the three largest potential markets.

Across the region, the total contactless payment opportunity is US$291 billion

The output from Datamonitor's *Contactless Payments Market Opportunity Model* shows that there is significant potential for contactless payments in Europe. As Figure 20 shows, the estimated value of cash transactions below $25 in the six selected sectors was **US$290.9 billion** (€233.9 billion) in 2004.

Figure 20: The potential market for contactless payments in Europe is US$290.9 billion, 2004



Note: The data behind this graphic can be found in the accompanying datapack.

Source: Datamonitor Contactless Payments Market Opportunity Model

DATAMONITOR

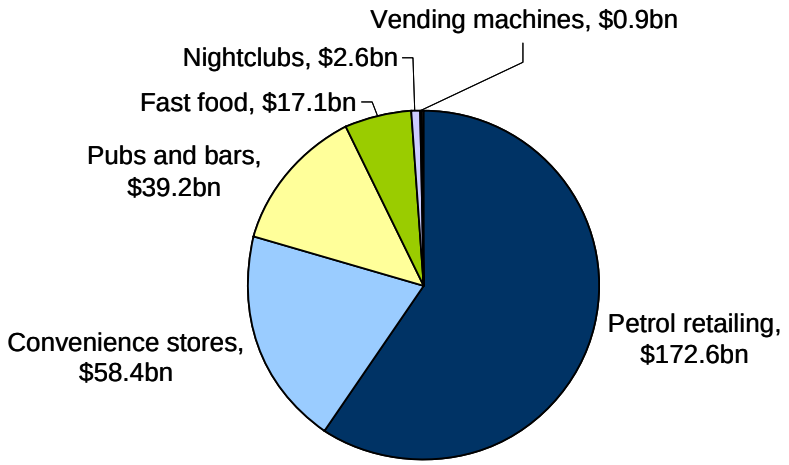
In line with the findings for the Asia-Pacific and Americas regions, transactions between US$5 and US$25 offer the greatest opportunity. The value of cash payments in the selected sectors in this range was US$181.2 billion (€145.7 billion) in 2004. In addition, there is also a very large potential market in micropayments. The value of cash transactions below $2 was US$63.9 billion (€51.4 billion).

Petrol retailing and convenience stores are the two sectors offering greatest potential

At the sector level, petrol retailing and convenience stores are shown to be the sectors offering the largest potential market for contactless payments. As shown in Figure 21, Datamonitor estimates that the value of cash payments below $25 in these

two sectors was $109.9 billion (€88.4 billion) in 2004, equal to 79 per cent of the total combined market opportunity for Europe. It is interesting to note that this compares to 74 per cent of the total for these two sectors in Asia-Pacific, and 72.8 per cent in the Americas.

Figure 21: Petrol retailing and convenience stores are a US$231 billion opportunity in Europe, 2004



Note: The data behind this graphic can be found in the accompanying datapack.

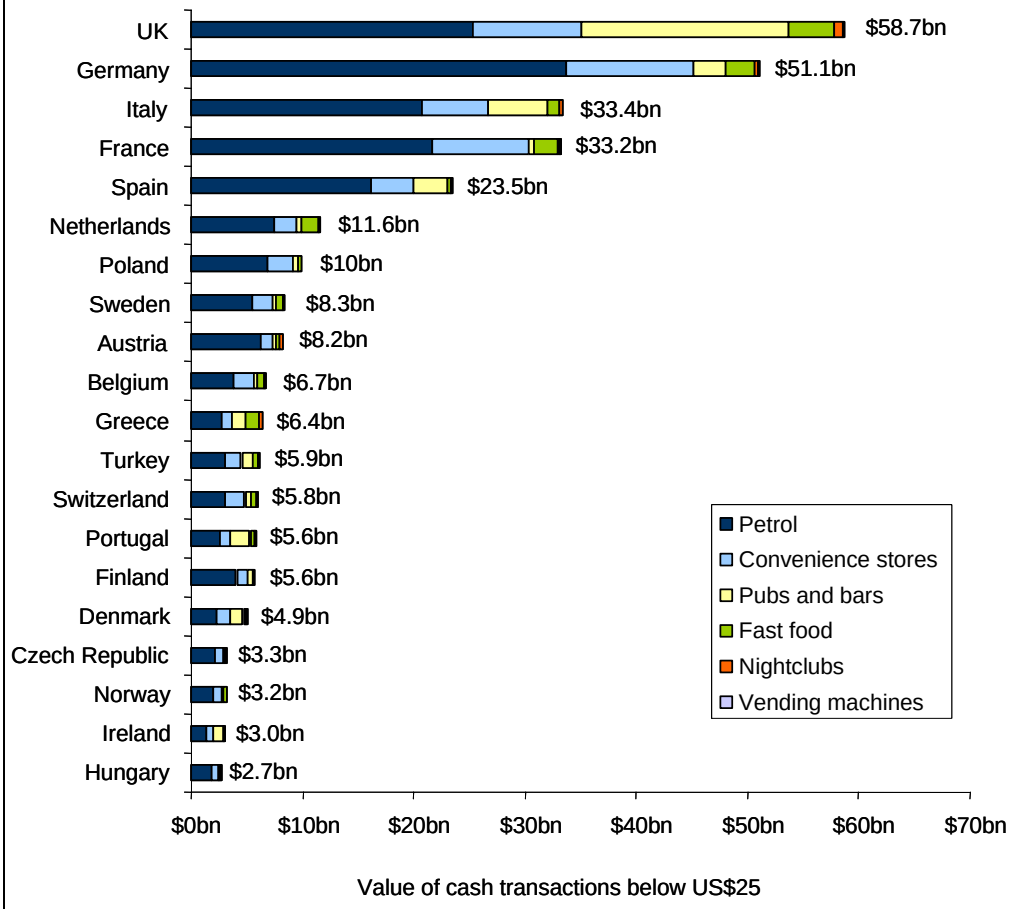
Source: Datamonitor Contactless Payments Market Opportunity Model

DATAMONITOR

The UK, Germany, and Italy are the largest potential markets in Europe

Analysis of the regional data at the country level shows that the UK, Germany, and Italy demonstrated the highest levels of low value cash payments in Europe in 2004, and are therefore the markets offering the greatest theoretical potential for contactless payments. As Figure 22 demonstrates, the UK is the leading market in the region, with low value cash transactions of **US$58.7 billion** (€47.2 billion) in 2004. This compares to **US$51.2 billio**n (€41.2 billion) in Germany, and **US$33.4 billio**n (€26.9 billion) in Italy.

Figure 22: The UK, Germany, and Italy present the largest opportunity for contactless payments in Europe, 2004



Note: The data behind this graphic can be found in the accompanying datapack.

Source: Datamonitor Contactless Payments Market Opportunity Model DATAMONITOR

To place these values in context, the estimated value of cash payments in these six sectors in the UK is equal to 7.7 per cent of total general purpose card transaction values in 2004. The figures for Germany and Italy are 9.6per cent and 26.1 per cent respectively.

The distribution of this opportunity is more even than in other regions

Unlike the position in Asia-Pacific and the Americas, the potential market for contactless payments is more evenly spread across the region. The share of the

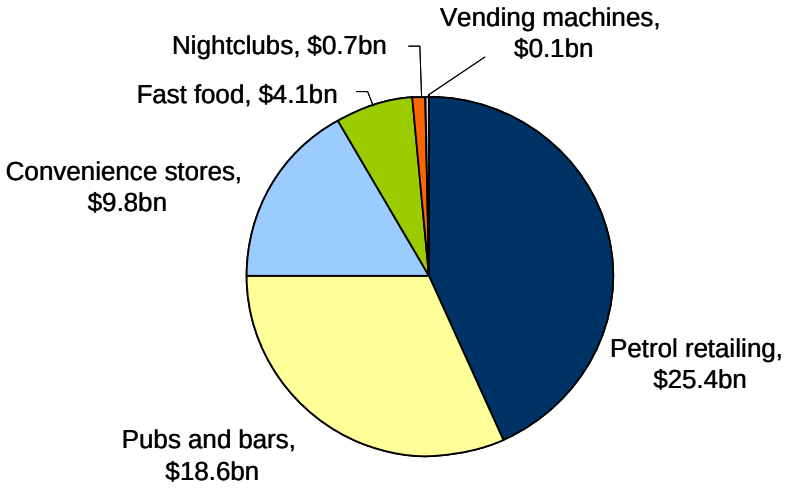
regional total accounted for by three largest markets is just 49.2 per cent, as compared to 91.5 per cent for the Americas and 74 per cent in Asia-Pacific.

Petrol retailing and pubs and bars present are the largest sectors in the UK

In line with the regional level findings, petrol retailing is the largest potential sector for contactless payments in the UK. As Figure 23 shows, the value of cash payments for both fuel and service station convenience retailing was an estimated US$25.4 billion (€20.4 billion) in 2004. What is interesting is the prominence of pubs and bars. This sector has emerged as the second largest in terms of the value of cash payments below $25, with estimated transaction values of US$18.6 billion (€14.9 billion); the highest total in Europe.

The convenience store sector is also a major opportunity in terms of the value of cash transactions, accounting for US$9.8 billion (€7.9 billion) in 2004.

Figure 23: Petrol retailing and pubs and bars present the greatest opportunities in the UK, 2004



Note: The data behind this graphic can be found in the accompanying datapack.

Source: Datamonitor Contactless Payments Market Opportunity Model

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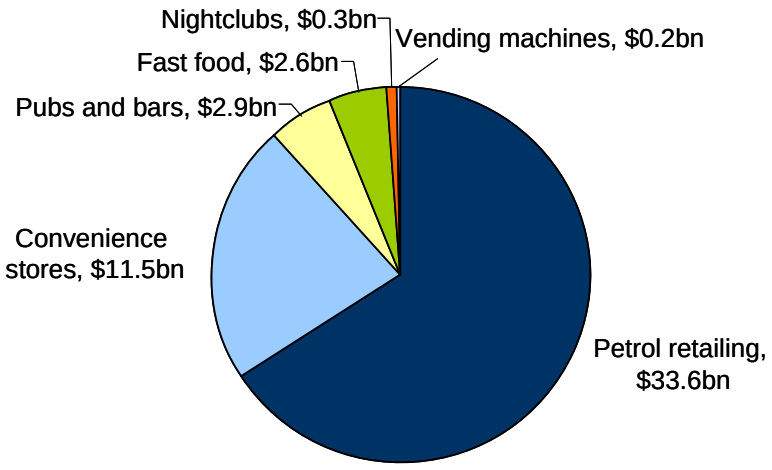
The largest opportunities in Germany are in petrol retailing and convenience stores

The most important opportunities for contactless payments in Germany are in petrol retailing and convenience stores. The estimated value of cash transactions below $25 in petrol retailing was US$33.6 billion (€27 billion) in 2004, while the value for convenience stores was US$11.5 billion (€9.2 billion). It should be noted that, in both sectors, the German market accounts for the highest total in Europe.

There is also a considerable opportunity in vending, in which low value cash payments of US$170 million (€136 million) were made in 2004. This is the third area in which Germany accounts for the highest total in the region. The potential contactless payment opportunity in Germany is shown in Figure 24 below.

Figure 24: Petrol retailing and convenience stores present the greatest opportunities in Germany, 2004



Note: The data behind this graphic can be found in the accompanying datapack.

Source: Datamonitor Contactless Payments Market Opportunity Model

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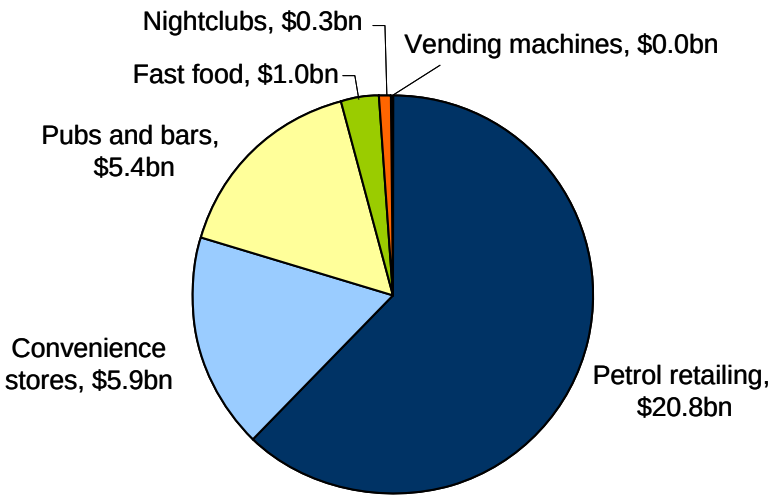
The contactless payment opportunity in Italy is concentrated in the petrol retailing and convenience store sectors

As in the case of the German market, the sectors offering the greatest opportunity for contactless patents in Italy are petrol retailing and convenience stores. As Figure 25 demonstrates, the estimated value of cash payments in petrol retailing below $25 was

US$20.8 billion (€16.7 billion) in 2004. Despite being the largest sector in Italy, it should be noted that this is slightly lower than the total estimated for France.

The convenience store and pubs and bars sectors also present a huge potential opportunity. The value of estimated cash spending in these markets in 2004 was US$5.9 billion (€4.7 billion) and US$5.4 billion (€4.3 billion) respectively.

Figure 25: Petrol retailing and convenience stores present the greatest opportunities in Italy, 2004



Note: The data behind this graphic can be found in the accompanying datapack.

Source: Datamonitor Contactless Payments Market Opportunity Model

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Summary

The potential market opportunity for contactless payments is huge. Even in Singapore, the country offering the smallest potential opportunity of those covered, Datamonitor estimates that there are US$839 billion of cash transactions to be targeted. This alone represents a very large potential market; an issuer capturing even a portion of this would enjoy significant revenue growth.

However, the size of the market opportunity is not the only factor to be considered when it comes to contactless payments. There are a number of other factors that need to be in place for contactless to work, and this effectively rules out the

introduction of contactless into many markets. The next chapter outlines these factors and identifies the markets where growth in contactless payments is likely to be strongest over the next five years.

THE FUTURE DECODED

Introduction

The previous chapters in this report have been focused on current developments in contactless payments. This chapter looks ahead to provide Datamonitor's view of how contactless payments will develop over the next five years.

The future looks bright for contactless payments

The success of the rollouts suggests that the technology and the business model works for all parties

As with all new payment technologies, the likelihood of success depends entirely on the robustness of the business case for both card issuers and merchants. Clearly, neither party would make the investment required for contactless payments unless the benefits were clear and substantial. The success of the rollouts in both Asia-Pacific and the US suggest that each of the individual stakeholder groups see sufficient value in the proposition for this to be a success.

This fact alone suggests that stakeholders in other markets will see equivalent benefits from contactless, and that future launches in other markets are not only likely, but are also likely to succeed.

However, the costs of merchant acceptance are a potential problem area

One important aspect of the business case for contactless payments from the merchant side is the cost of acceptance, and getting this issue right is central to a successful rollout. As one industry executive interviewed for this report noted:

"The big thing for the banks to understand is the right way to price this new solution. We need to find the right pricing model to be profitable – to not destroy the value for the issuer but not be too high for the merchant".

Highlighting the costs of cash payments relative to cards is one element of this solution, but a different pricing structure must be adopted for contactless payments on the acquiring side. Clearly, merchant service charge structures differ by both card

type and market, and cover a mixture of both *ad valorem* and fixed tariff depending on both the card type and market. Finding a way for this pricing structure to allow the fixed costs of processing the transaction to be covered, while at the same time not making contactless payments uneconomical for merchants to accept is the key.

One solution would be for acquirers to bundle all contactless payment transactions below a certain value, effectively treating a group of these as a single transaction. Transactions above this level could be treated as any other card transaction. Clearly, this could potentially involve both issuers and acquirers accepting a small loss on the bundled low value payments, but still gaining overall by virtue of the higher volume of card payments being made.

A number of potential problems have been either solved or mitigated

In Datamonitor's previous coverage of this topic, BFFS0280 *Contactless Payments*, a number of important problems with the concept were identified. These were:

- Interoperability – contactless readers must be able to accept all contactless cards;
- Security – a big concern for both issuers and consumers;
- Cost – contactless payments will impose a large cost on issuers.

In each of these cases, full or partial solutions have been developed.

A lack of interoperability is an obvious concern, but co-operation between the schemes should prevent this

One of the biggest potential obstacles to any new payment technology is merchant acceptance. A lack of a widespread acceptance network has contributed to the failures of both ePurses and mPayments to achieve widespread popularity, and this is therefore a very real issue in the case of contactless payments.

Several commentators have highlighted the issue of POS terminal interoperability as a huge potential barrier to the take up of contactless payments. Each of the major international card schemes has developed its own contactless program, and a lack of interoperability in merchant acceptance appeared to be a problem in the making. If consumers could not be sure that their contactless payment piece would be accepted in all contactless terminals, the chances of it being used would be greatly diminished.

As expected, the schemes have collaborated on a common protocol for the interface between the payment piece and terminal. As a result, any POS terminal able to accept the contactless transactions of one scheme is able to accept the contactless transactions of any of the other international schemes. One industry executive interviewed for this report commented:

"[Contactless] *terminals are fully interoperable with the contactless programs of all schemes. MasterCard has licensed the communication interface (between chip and terminal) to each of the other schemes"*

Security remains a concern, but the potential losses can be limited

Another potential issue in the rollout of contactless payments is security. Without the need to authorize any transaction below the contactless value threshold, there is a large potential opportunity for fraudulent use. This would be of concern to both consumers and card issuers, who would be exposed to both additional inconvenience and fraud losses as a result of any lost or stolen cards.

Clearly, the nature of the functionality offered by contactless payments would make any complete solution impossible (and, for this reason, US contactless transactions are all verified online). However, there are options for contactless programs based on EMV.

Datamonitor understands that the EMV technology embedded in these more advanced programs can be used to place a cap on the number or value of consecutive unauthorized contactless transactions. Once the threshold is reached, the consumer will be asked to verify the transaction using either a PIN or signature as appropriate. Clearly, while this cannot entirely stop contactless card fraud, it can significantly limit it.

The costs of launching contactless were seen as a potential problem

The other potential problem with contactless was, and still remains, one of costs. Reissuing cards, working with merchants, and meeting the additional costs of fraud were all identified as big potential hurdles for card issuers.

On this issue, the success of the rollouts in the US and markets in Asia-Pacific suggests that these costs are not a problem. At present, contactless payment technology is relatively new and, volumes are low. As a consequence, the production of the hardware associated with it is expensive. Datamonitor understands that the cost of a card able to make both standard and contactless transactions involves a

premium of around €1 on the price of a standard EMV compliant card. This places the cost of each product at around €2.50. However, industry opinion suggests that these costs will fall dramatically over time.

In many ways, this goes back to the basic business case for contactless payments, and it certainly appears that the potential benefits of contactless payments are seen to be sufficiently in excess of the costs for the issuers that have launched. It is also worth noting that the cost differential for US issuers in moving from a magnetic stripe card to a mag stripe and contactless chip card is even greater. This further highlights the strength of the contactless business case.

However, contactless is still unlikely to be an overnight success

Despite the success of each of the contactless product launches to date, it would be premature to assume that contactless payments will succeed overnight. Aside from the more basic issues of raising consumer awareness, the issues outlined above with respect to the merchant business case and to potential costs require careful consideration and solving.

In addition, there is still no guarantee that contactless payments will succeed in the longer term. Certainly, the trials and launches conducted to date suggest that the response of consumers, merchants, and issuers has been positive. However, it is important that the lessons from the failures of both ePurse technology and mPayments are borne in mind.

Generating momentum is the key

One important theme in all product launches is momentum. In order for a payment technology such as contactless to succeed, issuers need to generate a virtuous cycle of both merchant acceptance and consumer interest, and this is what requires the initial investment. If these interest groups are not satisfied, and at an early stage, the product launch is placed in jeopardy – the experience of ePurse program Mondex in the UK is evidence of this.

Ensuring both a high level of merchant acceptance and generating sufficient consumer enthusiasm is a potentially expensive process requiring a large investment upfront. For this reason, there will always be a significant risk with any product launch of this kind.

In addition, even the most successful launches take time. One industry executive interviewed for this report suggested that: *"Any issuer would need to be prepared for an adoption curve…it takes time for consumers to understand and utilize this technology"*.

Issuers considering contactless should learn from the US rollout

The largest scale rollout of contactless payments to date has occurred in the US and as a result, the experience of issuers in this market provides a clear guide to inform the strategy of any other issuer considering launching contactless payments.

Working with merchants is key to a successful launch

Perhaps the most important finding from the launch of contactless payments in the US is that working with merchants to develop acceptance is central to getting contactless payments off the ground. On the consumer side, the feeling is very much that generating awareness of the functionality on offer is sufficient to raise demand. As one industry executive interviewed for this report noted: *"The big challenge is on the acquiring side, as consumers love it."*

There are several factors to consider here:

- Having a carefully targeted acquiring strategy;
- Providing the financial backing and training necessary to ensure the program works.

Targeting the right merchants is important in rapidly building acceptance

The carefully targeted acquiring strategy followed by Chase Bank in the US provides something of a blueprint for issuers in other markets to follow when it comes to building and driving acceptance. Large retail chains, in the appropriate sectors for contactless payments, are the most obvious place to start. As one industry executive interviewed for this report commented:

"The place to start is by targeting big chains or franchises in low value payment markets where cards are already accepted. These merchants already understand the cost of cash so are receptive to this idea".

In addition to contactless payments having a strong appeal to these merchants, building acceptance among large chains offers the opportunity to rapidly extend acceptance across multiple outlets. In this way, a critical mass of merchants can be built up relatively quickly.

Making the necessary investment in physical and human capital to ensure a smooth operation

The US launch of contactless payments has also shown that issuers may be required to make a financial investment in this initial building of the acceptance network; Datamonitor understands that Chase made financial support available to merchants participating in this early phase of its launch.

In addition, further work and investment is required to ensure that the customer experience runs smoothly. Arranging for adequate testing of the technology and providing training for POS staff are further areas in which investment is required. As one industry executive interviewed for this report noted: *"This needs to work first time; we need the merchants and consumers to have a joint positive experience"*.

Looking ahead, growth in the US and Asia-Pacific looks set to continue, while there will soon be activity in Europe

Americas – success of Chase will inspire others to roll out contactless

As discussed in Chapter 2, *Recent Developments in Contactless,* the success of Chase Bank's launch suggests that growth will almost certainly continue in the US market over time. The strength of the response from both consumers and, more importantly, merchants demonstrates that the business case for contactless payments is a strong one.

It should be remembered that there is a growing list of card issuers who have announced either trials or launches of contactless recently, and the strength of the issuer response will also drive growth in the US.

Outside of the US, the future is less clear

Beyond the US, there appears to be little going on in the Americas. Certainly, the need for a developed acquiring infrastructure significantly reduces the growth

opportunities in Latin and South America, but Canada does represent a large potential market.

Over time, it appears likely that Canadian banks will also look to launch contactless payments as their success in the US market grows. An important influence here will be those banks active in both the US and Canada.

Asia-Pacific – interest is strong in several markets, and this will drive future growth

Contactless payments have developed well in several markets across this region to date, most notably in Malaysia, Taiwan, and South Korea, demonstrating the opportunities that exist across Asia-Pacific. Clearly, both consumers and merchants understand contactless well, and this is likely to help generate future growth in these markets. As one industry executive interviewed for this report noted: *"Asia is embracing contactless at full speed".*

Also important in this region is the level of merchant EMV coverage, which is a key requirement for the contactless programs of both MasterCard and Visa.

Further trials hold the key to growth

There are a large number of trials ongoing in several markets across the region, and this is likely to provide a platform for future growth. Japan and Australia are key potential markets in this region, and trials in both of these countries suggest that a launch in each will be likely.

Europe – current interest suggests strong growth in the future

At present, there have been no trials of contactless payments in Europe, certainly not any involving card based forms. However, it is only a matter of time before there are significant developments; Datamonitor understands that there are several banks from across Europe in discussions to trial contactless in the near future.

EMV migration is the important factor in European development

As the contactless payment programs outside the US require an EMV compliant infrastructure, it is the level of migration that appears to be determining the future development of contactless in the region. There are two reasons for this.

The first is one of resources. The business case for the migration to EMV is built around fraud prevention and this has worked well, particularly in the UK. However, it has been a costly transition for both issuers and merchants, and the feeling is that issuers view contactless as a way to leverage this investment and create value for their customers.

Perhaps more practically, the need for an EMV compliant acquiring infrastructure also drives the opportunity. For this reason, those markets most advanced in this respect are viewed as the most relevant targets.

However, it is worth noting that those markets with a low level of EMV migration are also theoretically strong targets. Certainly, the business case for EMV from the merchant perspective is greatly enhanced by the prospect of contactless payments, with the result that a successful trial can act as spur for a more rapid EMV migration.

Legacy ePurse systems also present an opportunity

In several markets, including the Netherlands, Belgium, and Germany, legacy ePurse systems are in existence. A benefit of the drive to create a Single European Payments Area (SEPA) in the region is that these ePurse programs will need to be replaced, as they cannot be used throughout the region (a key requirement of SEPA).

For issuers involved in these programs, contactless payments may be an attractive solution. Aside from the fact that the programs of the international schemes can be used internationally in the same way that a standard card can, therefore making them SEPA compliant, there is no need to pre-load any credit or debit based product.

The UK is seen to be the biggest prospect for contactless in Europe, but several other markets offer strong potential

In terms of the future development of contactless payments in Europe, it appears likely that issuers across the region will be running trials in the very near future. In the view of those industry insiders interviewed for this report, markets such as the UK, France, Germany, Spain, and Turkey will lead the way.

The UK appears to be the biggest prospect of all. RBS has already announced a trial of MasterCard's PayPass in the summer of 2006, and Datamonitor understands that at least two further players plan to run trials around the same time. Certainly, the UK has both the EMV compliant infrastructure in place, and a consumer base fully conversant with the use of payment cards, suggesting a good chance of success.

Datamonitor also understands that some of the major banks across Spain, Germany, and Turkey have shown a strong interest in running contactless payment trials, while markets such as France and those across the Nordic region also present a huge potential opportunity going forward.

Looking ahead, it does indeed appear that contactless payments will make an appearance in Europe in the near future. While the timescales and markets are currently unclear, the strength of the appetite for this technology puts this beyond doubt.

APPENDIX

This chapter presents data and information designed to support the main body of the brief. Specifically, it provides the following:

- **Supplementary data –** all data tables for graphics presented in the preceding chapters and other data tables that Datamonitor feels may aid readers;
- **Definitions –** definitions of the key technical terms used in the brief;
- **Research methodology –** details of the process behind the compilation of this brief and any specific datasets;
- **Relevant links –** website links to the websites of any organizations mentioned in the main body of the report;
- **Future readings –** details of current and forthcoming Datamonitor publications related to this subject area;
- **Datamonitor's custom research capabilities –** details on Datamonitor's custom solutions service;
- **Cards & Payments Team contact details –** email addresses and telephone numbers for the team behind the brief;
- **How to contact experts in your industry –** contact details for Datamonitor's various practice areas.

Supplementary data

Table 5: Combined household expenditure of France, Germany, Italy, Spain, UK, and USA split by payment method, 1999-2003					
	1999	**2000**	**2001**	**2002**	**2003**
Pay now cards	3.3%	3.9%	4.8%	5.6%	6.5%
Credit cards	8.8%	9.3%	10.0%	10.4%	10.6%
Deferred debit/charge cards	3.6%	3.9%	3.9%	4.1%	4.2%
Credit transfer	13.4%	13.1%	13.1%	13.2%	13.5%
Direct debits	8.8%	8.9%	9.1%	9.3%	9.2%
Cheques	40.5%	39.4%	37.6%	36.6%	35.6%
Cash estimate	21.6%	21.5%	21.4%	20.8%	20.4%
Total household expenditure	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Note 1: For notes on the methodology behind this data, please refer to BFFS0345 *Consumer Spending Patterns – Where Do Cards Fit In?*

Note 2: US general-purpose card data includes commercial cards

Note 3: 'Cash estimate' is a residual including cash, other electronic money (such as e-purse) and private label card transactions

Note 4: To remove the effect of exchange rate fluctuations, figures for the UK and US markets have been converted from national currencies into EUR using the 1999 exchange rates

Source: Datamonitor, APACS Plastic Card Review 2004, BIS: *Statistics on Payment and Settlement Systems in Selected Countries 1999-2003,* Bundesbank: *Payment System in Germany*, Diners Club Europe, www.directdebit.co.uk, ECB Blue book, Eurostat, German Bankers' Association, ONS, MasterCard, US Federal Reserve, Visa.

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Definitions

Card scheme

A card scheme provides products, systems and services for banks and other financial organizations. It does not issue cards directly to consumers. For instance, Visa and MasterCard are card schemes.

Chip card

Also known as an IC (integrated circuit) card (ICC) or smart card. A card containing one or more integrated circuits (chips) for identification, data storage or special

purpose processing. May be used to authorize PINs, validate purchases, store electronic money or similar tokens, verify account balances and store personal records.

Credit card

A revolving credit card provides consumers with access to a line of credit. Consumers make payments using their card and receive a bill at the end of the billing cycle. The card issuer usually demands a minimum payment against the outstanding balance, but beyond this the customer can choose how much of the bill he wishes to repay, up to and including 100 per cent of the balance outstanding. Any balances that are not repaid within the interest-free period offered by the card incur interest at the rate advertised by the card issuer. A revolving credit card may or may not be linked to a customer's bank account.

Debit card (pay now)

A debit card allows customers to pay for purchases using a plastic card. The money is then drawn directly from the customer's current account to pay the merchant. Customers verify payments either by signing a receipt or by entering a personal identification number (PIN). A debit card does not offer access to a line of revolving credit and is always linked to a customer's account.

EMV

EMV (Europay, MasterCard, Visa) is the name given to the specifications drawn up by the EMV working group to ensure interoperability of smart cards across competing payment systems.

General purpose

Refers to bank issued payment cards as opposed to private label cards. They are referred to as general purpose as they can be used in any outlet that accepts cards affiliated to international and local schemes, while private label cards are typically restricted for use in retailers affiliated to that label.

Interchange

Interchange is paid by merchant acquirers to card issuers. The fee is used to cover: the processing costs of the transaction; the grace period associated with pay later

cards and the payment guarantee offered to merchants in the case of fraudulent transactions. The interchange constitutes a large part of the MSC paid by merchants. As with MSCs, interchange on pay later cards is typically set as a percentage of the transaction value and where it exists for debit cards, it is normally set at a flat rate. In most instances, interchange is set at scheme level, with different rates set for domestic, intra-regional and inter-regional transactions. Interchange set at scheme level is known as the fallback rate. The possibility also exists for issuers and acquirers to set their own interchange rates. Interchange set in this way is known as bilateral interchange. In reality few bilateral agreements exist and the fallback interchange rate is most commonly used.

Macropayment

A macro-payment is typically defined as a payment that is over €10.00 in value.

Micropayment

A macro-payment is typically defined as a payment that is less than €10.00 in value.

Merchant acquiring

Merchant acquiring is considered a key business banking service. The service consists of forming relationships with merchants for the acceptance of payment card transactions. Merchant acquirers lease PoS terminals to merchants (though larger merchants typically operate their own POS systems) and arrange for the processing of the transactions. Processing can be kept in-house or outsourced.

Merchant Service Charge (MSC)

Merchant Service Charges are the fees that merchants pay to their merchant acquirer for accepting and processing payment card transactions. For credit cards the fee is typically a percentage of the total value of the transaction, while for debit cards it is often (but not always) a flat fee, regardless of the transaction value. This is also referred to as the merchant discount rate.

mPayment (mobile payment)

An mPayment, or mobile payment, is a payment for goods or services that occurs from a mobile device, such as a mobile phone or a personal digital assistant (PDA).

POS terminal

Point of sale terminal – an electronic terminal that allows merchants to accept card payments

Smart card

Strictly, an integrated circuit (IC) card containing a microprocessor that is capable of performing calculations and storing information. Also referred to as a Chip card.

SMS

SMS (Short Message Service) is a service for sending messages of up to 160 characters (224 characters if using a 5-bit mode) to mobile phones that use GSM communication. GSM and SMS service is primarily available in Europe.

Research methodology

Datamonitor's *Contactless Payments 2006* has been compiled on the basis of comprehensive secondary and primary research.

Secondary sources

Secondary sources that have been used to contribute to data tables and graphics are cited at the bottom of the graphic or table in question. In addition, links to all organizations used in the compilation of the brief are given under the 'Relevant Links' section on pages 80-81.

In addition to the secondary sources used directly in the brief, Datamonitor also gathered background research using news article database www.factiva.com

Primary sources

Datamonitor conducted interviews with a number of executives in the industry.

Future readings

Table 6: Current relevant Datamonitor publications, 2006

Title	Library Code	Publication date
Contactless Payments	BFFS0280	Jul-04
Mobile Payments	BFFS0346	Jul-05
Western European Cards Database 2005	IMFS0128	Nov-05
EMV Migration in Europe	BFFS0402	Nov-05
Plastic Cards in Australia 2005	DMFS1813	Nov-05
Payment Cards in Germany 2005	BFFS0406	Nov-05
Payment Cards in Italy 2005	BFFS0408	Dec-05
Plastic Cards in Singapore 2005	DMFS1835	Dec-05
Plastic Cards in Hong Kong 2005	DMFS1836	Dec-05
Payment Cards in France 2005	BFFS0410	Dec-05
Payment Cards in Spain 2005	BFFS0407	Jan-06
Payment Cards in the Netherlands 2005	BFFS0409	Jan-06
UK Personal Lending 2006	DMFS1817	Jan-06
The Future of Co-Branded Credit Cards in Australia	BFFS0425	Feb-06

Source: Datamonitor DATAMONITOR

Table 7: Future relevant Datamonitor publications, 2006

Title	Library Code	Publication date
Premium Credit Cards in Asia-Pacific 2006	DMFS1918	Jun-06
North American Cards Database 2006	IMFS0129	Jun-06
UK Plastic Cards 2006	DMFS1877	Aug-06
Western European Cards Database 2006	IMFS0137	Sep-06

Source: Datamonitor DATAMONITOR

Relevant links

American Express ExpressPay	www.americanexpress.com/expresspay
Chase Bank (blink)	www.chaseblink.com

ez-link	www.ez-link.com.sg
Oyster	www.oystercard.com
MasterCard PayPass	www.paypass.com
Visa	www.visa.com

Datamonitor's custom research capabilities

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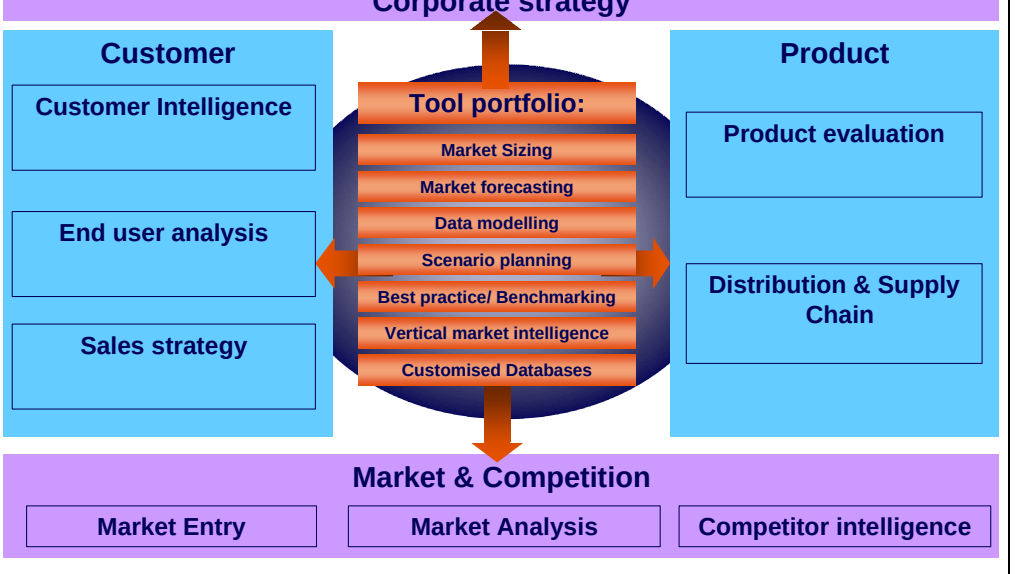
We have helped blue-chip companies across the world to compete successfully in a changing market. As well as our in-depth coverage of all the major financial services and technology markets, we also have considerable experience of finding solutions to more unusual or obscure requests, for which data is not currently available.

Our research and advice has contributed to a wide range of activities for our clients, including:

- competitor benchmarking;
- competitor intelligence;
- customer intelligence;
- customized databases;
- data modeling;
- distribution channel analysis;
- forecasting;
- international comparisons;
- market evaluation/entry;
- vertical market intelligence.

Figure 26: Datamonitor's Core Consulting Capabilities



Source: Datamonitor

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For further information about Datamonitor's financial services consulting capabilities, please visit our web site – www.datamonitor.com – or send an e-mail to: fsconsultancy@datamonitor.com

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Bold indicates the contact area for deeper content knowledge regarding this particular Market Report.