

Innovation in Payments

Discussion Paper

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The views expressed in this paper are those of its authors, Edgar, Dunn & Company, and do not represent the views of APCA, the Card Payments Forum or any of its participants.



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1 EXECUTIVE SUMMARY

The Board of APCA established the Card Payments Forum as a means of promoting industry-based and non-regulatory initiatives, for the promotion of competition with minimal regulatory overlay.

APCA has commissioned Edgar, Dunn & Company (EDC) to prepare this Discussion Paper on innovation in retail payment systems in advance of the next Card Forum meeting to be held in March 2009.

This Paper attempts to provide a fact based review of innovation in retail payment systems that have lead to enhanced consumer payment services in Australia and relevant overseas countries during the last 5-10 years. In doing so, it also explores the impact of pertinent variables that either drive or impede innovation.

The objective of this Paper is to provide a basis for discussion on the question of how to assess the optimal level of innovation for the Australian market.

Getting paid and paying are not simple matters, as businesses and consumers have considerable choice about the products and channels that they can use or offer. The breadth of choice appears to meet the varying needs of different consumers and businesses, but it has also created a very complex mesh of interconnected products and channels.

There are already a large number of electronic payment products in use. Electronic banking and the use of EFTPOS terminals are now a part of ordinary life for many Australians. There are also products such as direct credit and Scheme Debit that permit payments and purchases over the telephone or internet.

Although there is innovation in the industry, it is mostly focused on continuous improvement of new payment features and services, incrementally improving the value proposition to users. Technology adoption in payments is an evolutionary, rather than revolutionary process. Steady progress is being made in areas such as internet security and biometrics. The use of the mobile phone as a payment product or channel has also been piloted in Australia, with a wait of three or more years expected before they are introduced into the mainstream market (when they still may only appeal to a segment of consumers).

Key points arose from the research and subsequent interviews with payment industry participants. These points have been identified for further discussion for the next meeting of the Card Payments Forum.

- Innovation is not consistently defined across all industry stakeholders
 - Systemic versus Product
 - Repackaging versus Value Proposition

- Continuous versus Step Change
- Imitators versus Innovators
- There are differing views on the level of innovation the Australian market.
- Systemic innovation is important, but:
 - Competitive differentiation, cost savings and customer value can be generated through multiple incremental changes
 - The business case is harder to establish for systemic innovation than for incremental change
- The competitive environment in Australia is more aligned to incremental change and price competition than systemic innovation.
- Drivers of innovation are not as strong in Australia as in some other markets, in part because existing systems are ubiquitous and effective.
- The business case is key to innovation. This is impacted in Australia by:
 - Perceptions of low margins being generated in payments
 - Uncertainty regarding future revenue streams
 - Competition for funding and resources, combined with low expected rates of return
 - Insufficient drivers of demand, from both consumers and merchants
 - No one institution can usually drive or guarantee new standards for step change innovation, and competition attenuates collaboration
 - The business cases for technology-based payment systems are at best uncertain, especially in terms of revenues generated
- Collaboration (resulting in “co-opetition”) is seen as a key component of systemic innovation in payments.
 - The Australian market has existing vehicles/mechanisms for collaboration (e.g. CardLink, Vipro, Visa, MasterCard)
 - There have been some successes (e.g. BPAY, EFTPOS), some “failures” (e.g. Bill Express) and some deferrals (e.g. BPAY MAMBO)
 - The business case (for each participant) remains key to successful collaboration

A number of preconditions were suggested to increase the opportunity for systemic innovation in Australia. These include:

- A consistent regulatory framework
- Government investment in basic payments infrastructure
- Financial incentives/certainty
- The completion of major core banking system upgrades (permitting a more “plug & play” approach to new approaches)

2 OVERVIEW

2.1.1 Background

In the past, the Reserve Bank of Australia (RBA) has been critical about what it sees as a lack of systemic innovation in Australia's payment systems, arising from insufficient coordination amongst the key stakeholders in the industry. For example, in 2007, the RBA stated that:

*"the relatively slow pace of innovation over recent years largely reflects governance and co-ordination issues in some of Australia's payment systems, rather than the regulatory environment. Notwithstanding this, over the longer term, innovation is more likely to occur in a regime under which the regulatory arrangements are relatively stable and industry participants can make long-term plans."*¹

The Board of APCA established the Card Payments Forum as a means of promoting industry-based and non-regulatory initiatives, for the promotion of competition with minimal regulatory overlay.

At the inaugural meeting of the Forum, held on 27 October 2008, participants agreed to commission further work into the issue of payment innovation.

APCA has commissioned Edgar, Dunn & Company (EDC) to prepare this Discussion Paper on innovation in retail payment systems in advance of the next Card Forum meeting to be held in March 2009.

2.1.2 Objectives

This Discussion Paper provides a fact based review of innovation in retail payment systems that have lead to enhanced consumer payment services in Australia and relevant overseas countries during the last 5-10 years.

The Paper will compare and contrast such innovations in Australia with those seen overseas. In doing so, it explores the impact of pertinent variables including, but not limited to:

- market size, and the effect on return on investment and level of innovation
- the level of infrastructure
- competition versus coordination amongst industry players
- specific problems/issues/opportunities/circumstances that drove innovation

¹ Reform Of Australia's Payments System: Conclusions of the 2007/08 Review, RBA September 2008, page 15.

The Paper provides a basis for discussion on the question of how to assess the optimal level of innovation for the Australian market.

2.2 METHODOLOGY

This Discussion Paper was developed through generating the required information by undertaking five areas of activity, as described below.

2.2.1 Payments Experience

This involved researching innovation in retail payment systems in Australia and overseas. EDC reviewed previous information gathered from our experience in this area in recent years. This information created a base on which to analyse the innovation in the Australian and overseas retail payment markets.

2.2.2 Industry Interviewees

This involved interviewing managers within Australian payments organisations. EDC sought to understand, amongst other things, the context of innovations, their drivers, the organisation dynamics surrounding them, and their impact on the Australian market.

Respondents included Commonwealth Bank of Australia, Westpac, National Australia Bank, Australia and New Zealand Banking Group Limited, BPAY, Paymate, Emue, S2 Intelligence, Coles, Woolworths, MasterCard, Visa, and Tyro.

Areas of discussion/investigation included:

- The evolution of retail payment systems in Australia
- The dynamics of and the trends in innovation within the Australian payments market
- The primary drivers for innovations in Australia and the major constraints
- The role of regulation, competition, etc. on innovation in payments
- The Australian market versus overseas

2.2.3 List of Innovations

This involved developing a listing of various innovations in retail payment systems around the globe, but with a particular focus on rapidly growing/expanding markets and early adopters of new technology.

2.2.4 Selected Case Studies

This involved creating a "short list" of innovations on which twenty seven detailed case studies were developed.

Cases were prioritised using factors such as:

- Relevance to Australian conditions/environment
- Potential investment returns
- Likely impact on:
 - Cross border transactions
 - Australia's "standing" as a developed market

These cases can be found in the Appendices in Section 10.

2.2.5 Compose the Paper

The Discussion Paper was then developed against the objectives of the assignment (listed in section 2.1.2) and the content requirements as agreed with APCA.

2.3 INNOVATION DEFINED

Innovation: creating value by doing things differently²

The term innovation is generally understood to mean the successful introduction of a new thing or method that creates value. It may refer to incremental, radical, and revolutionary changes in thinking, products, or processes. Or it may simply be small variations leading to continuous improvement, rather than substantially different changes.

The key element of what defines innovation in the financial services industry is that the change must increase value, either for the customer or the producer. The goal of innovation is positive change, to improve something.

The term “value” means different things to different people, and we would define it as –

$$\text{Value} = \frac{\text{Benefits}}{\text{Cost}}$$

such that, for example, different people or market segments can see different value in something that costs the same amount because they see/perceive a different package of benefits being delivered to them in their own specific situation.

Frame and White³ define a financial innovation as “something new that reduces costs, reduces risks, or provides an improved product/service/instrument that better satisfies participants’ demands.”

Systemic versus Product Innovation

It is important to distinguish between competitive innovation in products and services and systemic innovation in payments. Product and service innovation can be delivered by individual service providers, who may choose to invest in such innovation in order to gain an advantage in the marketplace over their competitors. Whereas, systemic changes require collaborative efforts of multiple players within the payments industry to enable service providers to efficiently and effectively deliver enhanced products and services to customers across the market.

Due to the network effect of payments, whereby there is a need to have a critical mass of “acceptors” and a critical mass of “payers” using the “new” payment

² Source: National Innovation System, Venturous Australia Building Strength In Innovation: Cutler & Company Pty Ltd 2008

³ Frame and White’s paper reviews the extent of empirical studies of financial innovation and covers articles concerning the environmental conditions (e.g., regulation, taxes, unstable macroeconomic conditions, and technologies) driving financial innovation.

method in order to have success, systemic innovation is much harder (and longer term) to achieve in the marketplace.

Continuous Improvement versus Step Change

There are also varying degrees of innovation from mere variations through to revolutionary change and transformation.

The Oslo manual's⁴ definitions draw a distinction between 'new and improved' and 'insignificant and minor', the latter of which are not considered to be innovation in their opinion.

However, the exclusion of minor innovations would ignore the possibility that a significant portion of growth in value may be due to incremental improvements.

It should also be noted that the majority of consumers can readily understand, accept and adopt incremental improvements in products and services, and feel confident in their usage (see Chapter 3 below regarding the factors affecting consumer choice of payment methods) because the change is minor. Whereas significant step change normally sees a much slower adoption curve amongst consumers, as it can present them with something "completely different" that takes time to comprehend and to gain confidence with.

Therefore, for the purposes of this paper, both major and minor changes will be considered, provided they add value to the organisation, the consumer, or the industry as a whole.

Repackaging versus Value Proposition Innovation

Product⁵ changes can be a simple variation or 'repackaging' of a product, for example issuing credit cards with a clear format, photos, curved corners or miniature in size. The fundamental nature of the payment product and its core value proposition have not been altered, but rather have been "repackaged". In the face of declining profit margins, it is possible that more 'expressive' cards will be developed which give the cardholder the opportunity to show their ethical values, affinities and personality in order to access/attract specific market niches. This would enable issuers to compete on dimensions other than price, thus allowing them to maintain profit margins.

On the other hand, product changes can be more revolutionary, in the form of products that offer a new value proposition to the consumer such as Emue's secure card⁶. This is embedded with a microprocessor, 8 digit alpha-numeric display, battery and a keypad to offer enhanced security capabilities for cardholders. Although the fundamental nature of the payment product has not changed, the perceived value proposition to the consumer has altered significantly.

We recognise such distinctions are subjective. However, for the purposes of this paper, we will only consider product innovation to be the creation of products that deliver a unique or enhanced value proposition to the consumer.

⁴ The Oslo Manual, produced by the OECD, aims to set a benchmark for innovation surveys and research.

⁵ 'Product' is understood to mean Products and Services

⁶ Full case study on Emue can be found in Section 11.1.

Improvements that are purely creative or aesthetic, i.e. repackaging, will not be considered as innovations.

Imitators versus Innovators

Innovative ideas can be original and unique or can be adapted from ideas elsewhere to fit the current circumstances and local markets.

Innovation frequently requires substantial investment in product and market development before sufficient demand materialises to achieve an acceptable return on investment. For that reason, followers or imitators lacking significant resources need to be able to quickly exploit competitors' innovations at home or abroad in an effort to remain competitive.

Organisations that follow a successful innovator are then investing in a proven technology that has already gained some market acceptance and raised the market's expectations. In essence, imitators are investing to remain competitive and to retain customers. ATMs and web-based banking are examples of retail payment innovations in Australia that were borrowed from overseas and then quickly matched by competitors.

Key Points

This paper will explore both systemic and product (both major and minor) innovation, provided they significantly change the value proposition to the user, and will cover novel ideas implemented first in Australia as well as those borrowed/imported from overseas. It will focus on innovation that increases competition, and therefore has the potential to increase value or decrease costs to the consumer, the supplier or to the payment system itself.

3 INNOVATION IN AUSTRALIA

Some of the industry players interviewed stated that the level of innovation in payments must be considered in the context of innovation in Australia in general, across all industries. This is because it is likely that innovation in payments will be influenced by the same factors that drive innovation in other areas in Australian business activities.

In order to put Australia's level of innovation in context, we reviewed how it compared to other economies in the World Economic Forum's annual Global Competitiveness Report.⁷

The World Economic Forum has based its competitiveness analysis on the Global Competitiveness Index (GCI), a comprehensive index for measuring national competitiveness, which captures the microeconomic and macroeconomic foundations of national competitiveness.

The GCI provides a weighted average of 12 different components or 'pillars', that impact on competitiveness, with business sophistication and innovation being two of those components.

The GCI indicates that certain components are more important to a country, depending on what stage of growth they have reached. Australia, being a developed country, is in what is called "the innovation-driven" stage, where the country is able to sustain higher wages and the associated standard of living only if its businesses are able to compete with new and unique products. At this stage, companies must compete through innovation (pillar 12), producing new and different goods using the most sophisticated production processes (pillar 11).

The following table indicates where Australia ranks in terms of innovation and business sophistication, and its competitiveness overall. Australia is ranked 22nd in innovation/sophistication out of 134 countries, but the report concludes that it should be higher, given its level of development, as shown by its ranking of 6th for Financial Sophistication.

The level of local competition was deemed to be above the mean (4.9) at 5.7, ranking it the 18th most competitive market across a range of industries.

⁷ Since 1979, the World Economic Forum's annual Global Competitiveness Reports have examined the many factors enabling national economies to achieve sustained economic growth and long-term prosperity. The reports aim to provide benchmarking tools for business leaders and policymakers to identify obstacles to competitiveness develop strategies to overcome them and assist in the formulation of improved economic policies and institutional reforms. The report reviews 134 countries.

Rank
(out of 134) (1–7)

Global Competitiveness Index

Australia

| | Rank | Score |
|--|-----------|------------|
| GCI 2008–2009 | 18 | 5.2 |
| GCI 2007–2008 (out of 131)..... | 19 | 5.2 |
| GCI 2006–2007 (out of 122)..... | 16 | 5.2 |
| Basic requirements | 15 | 5.7 |
| 1st pillar: Institutions..... | 12 | 5.7 |
| 2nd pillar: Infrastructure..... | 21 | 5.3 |
| 3rd pillar: Macroeconomic stability..... | 28 | 5.7 |
| 4th pillar: Health and primary education..... | 15 | 6.3 |
| Efficiency enhancers | 10 | 5.3 |
| 5th pillar: Higher education and training..... | 14 | 5.4 |
| 6th pillar: Goods market efficiency..... | 10 | 5.3 |
| 7th pillar: Labor market efficiency..... | 9 | 5.1 |
| 8th pillar: Financial market sophistication..... | 6 | 5.8 |
| 9th pillar: Technological readiness..... | 19 | 5.2 |
| 10th pillar: Market size..... | 19 | 5.0 |
| Innovation and sophistication factors | 22 | 4.7 |
| 11th pillar: Business sophistication..... | 26 | 4.9 |
| 12th pillar: Innovation..... | 20 | 4.5 |

The Innovation Index, developed separately by the US Council on Competitiveness in 1999⁸ also rated Australia 12th out of 17 major OECD countries. A projection to the year 2005 based on 1995 data only lifted Australia's ranking to 11th out of 17 countries.

Australian business expenditure on research and development as a share of GDP was markedly lower than the OECD average and was falling between 1995-96 and 1998-99, while the average for OECD countries continued to rise. 2001-02 was the second successive year of significant increase in Australia⁹, but total business expenditure on research and development was still lower than the OECD average.

However, this raises the question, if you can find an idea overseas that works and then introduce it into the local market, why spend the investment on R&D yourself? Australia's track record of borrowing/importing innovations from overseas (in payments, such as domestic debit, ATMs, prepaid, etc.) may well account for why Australian businesses are relatively low spenders on R&D.

Similar results can be found in the 2008 World Competitiveness Yearbook¹⁰ where Australia was ranked 7th out of 55, up from 12th in 2007. These results help put the level of payment innovation in context of the Australian industry overall: that is, Australia presently ranks reasonably, although not exceptionally well, against other countries. Hence one might not expect Australia to be on the leading edge of innovation in payments.

⁸ The Index has been used to track the innovative capacity of 17 OECD economies since 1973 and eight emerging economies since 1990. The index is based on per capita measures, such as total research and development personnel, total research and development investment, the percentage of research and development funded by private industry, the percentage of research and development performed by the university sector, spending on higher education, the strength of intellectual property protection, openness to international competition, and a nation's per capita GDP.

⁹ 2001/2002 are the most recent available numbers. The measure was then changed to the GCI as referenced in this document

¹⁰ The IMD World Competitiveness Yearbook includes a scoreboard presenting the 2008 overall rankings for the 55 economies covered. The full rankings can be found in the Appendix.

4 PAYMENT INNOVATION IN AUSTRALIA

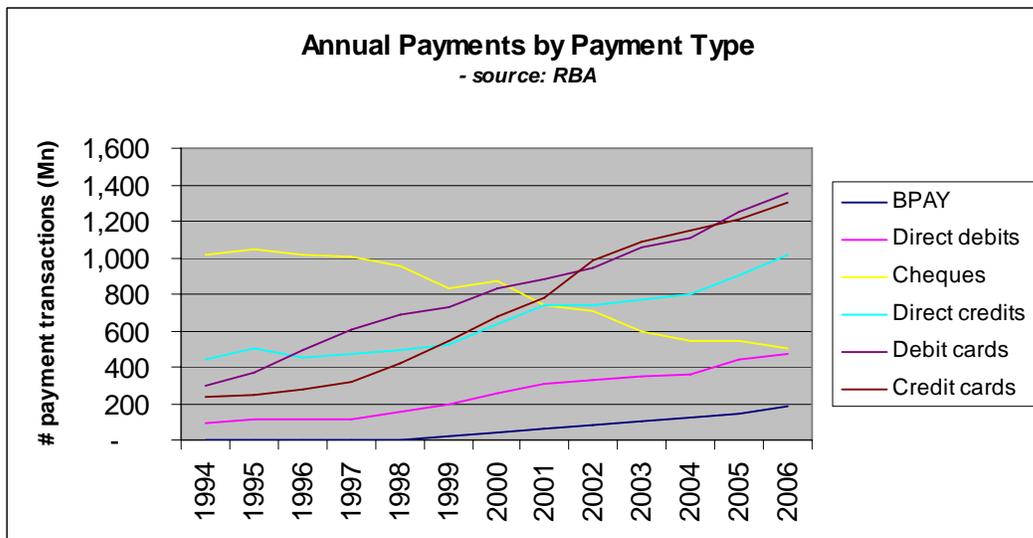
4.1 OVERVIEW

Significant shifts have occurred in the Australian payments landscape in the last decade. Paper methods such as cheques have been replaced to a large extent by more efficient electronic alternatives, with the remaining cheque activity appearing to be with businesses and older consumers.

Direct debits and direct credits have been operating for over 20 years. However, the channel they use has changed, moving from over-the-counter at a bank branch to the internet. This easier (and now fairly ubiquitous) access by consumers and businesses has seen a dramatic growth in these types of payments.

In 1990, the first prepaid stored-value cards were introduced by Telecom Australia (now Telstra). Today, prepaid cards are used in transport systems, retailers, supermarkets and even ATMs.

Over the last ten years Australia has seen the introduction of alternative types of electronic payments, including PayPal, BPAY, BillExpress and PostBillPay. Electronic payments have grown significantly in that time at the expense of cheques, which have decreased both in volume and value. Credit cards and EFTPOS have experienced the biggest growth in the number of transactions.



Payment system users have been quick to adopt new electronic channels such as the internet¹¹, which provide increased access to existing payment methods, such as credit and debit cards.

The Australian credit card market is now in the mature stage, having celebrated its thirty fifth birthday since the launch of Bankcard.¹² There is a growing and diverse range of credit card providers, including specialist card issuers and co-branded retailers. There are over a dozen different types of credit cards (i.e. rewards, low rate, cashback) offering more than 275 different card programs from over 70 institutions, with the top four players controlling more than 72% of the total market outstandings.

Given the current troubled economic environment, issuers have focussed on cardholder retention and the appetite for new acquisitions has reduced (unless achieved at low cost). The recent consolidation amongst the Australian banks has further increased the market share of the main competitors.¹³

4.2 HISTORY

A Case Study was conducted on innovation in the Australian Retail Banking over the fifteen years from 1981 to 1995.¹⁴ Firstly, the analysis showed that the majority of innovations were sourced externally, outside of Australia. Of the numerous documented innovations, none were conceived within Australia. Examples are as follows:

- ATMs (US, 1974) – Australia ATMs (Queensland Teachers Credit Union (1977)¹⁵/ (Westpac, 1981)
- EFTPOS (US, 1974) - Australia EFTPOS(Westpac, 1983)
- Affinity and Loyalty Credit Cards (US, 1980) – Australia (ANZ, 1988)
- Stored Value Cards (France, 1984)

Australia has tended to be more of a fast follower, having to develop differentiated competitive positions from products or processes built by institutions in other countries.

Secondly, the analysis showed that there was a high incidence of simultaneous adoption by competitors in the same or following year. This indicates that first mover advantage is not a strong driver for innovation, as many innovations, such as ATMs, do not realise their full value until adopted by a wider network. This factor could hinder the desire of organisations to invest heavily in new, large scale innovations as they may be unlikely to provide competitive advantage and therefore financial gains.

¹¹ 37% of adults over 16 surveyed by Roy Morgan in 2007 were "active internet banking users" and BPAY's Usage and Attitude study found that 86% of Australians used the internet to make a bill payment last year, an increase of six percentage points over 2007 figures.

¹² Bankcard, Australia's first credit card Scheme was launched in October 1974 and accepted at merchants in Australia, New Zealand and the Cook Islands. Bankcard was in operation for over thirty years, closing in April of 2007.

¹³ Westpac's merger with St George completed 17 November 2008; Commonwealth Bank acquired Bankwest 19 December 2008.

¹⁴ The Dynamics of Innovative Activity and Competitive Advantage Case Study examined the adoption of new products and processes in Australian Retail Banking over a fifteen year period.

¹⁵ Queensland Teachers' Credit Union Limited claims the first ATM in Australia in a Media release on 10 September 2007

Lastly, the results supported the position that large scale, internally generated, unique innovations do not provide the only means to deliver competitive advantage. Continuous improvement that is somewhat differentiated from competitors can also deliver superior financial performance.

This analysis was conducted over ten years ago, and therefore does not cover recent Australian developments. In some recent cases, Australian innovations are actually being commercialised overseas, rather than within the Australian marketplace, as is the case with Emue¹⁶, and therefore may be inadvertently overlooked when reviewing innovation in Australia.

Many of the industry players interviewed for this paper believed Australia compared favourably to other countries in instances of adopting innovative ideas into the local industry, and therefore continually improving the products, services and processes of the retail payment system.

¹⁶ Full Case Study can be found in Appendix 10.1.

5 DRIVERS OF INNOVATION

International comparisons with Australia of payment methods and channels show both similarities and significant differences in payment use. Cash is still a very important payment method everywhere. Australia is one of a group of countries that depends to a significant degree on direct debit and still to some degree on cheques¹⁷. Other countries have gone further in using direct debit payments, and other forms of electronic payments.

The differences in payment use from country to country can be a result of the presence or lack of certain drivers of innovation in the market. The key drivers of innovation come from a variety of sources, from the payees to the payers, and from the creators of the system to the regulators of the payment system.

Below are some of the key drivers of innovation in the global payments industry.

5.1 CONSUMER / MERCHANT DEMAND

Sometimes, innovations are developed to fill a gap in the market, or respond to a specific consumer or merchant need.

The larger merchants will tend to drive demand for innovation in an effort to increase speed, convenience and loyalty for consumers, and therefore decrease their costs and increase their revenues. This phenomenon has been increasingly observed in recent years around the globe.

When examining *consumer* demand for payment choice, it is helpful to review what shapes their choice of payment methods. The decision of a merchant to accept a payment system, or that of a consumer to choose a payment system for a particular type of transaction, reflects how the attributes of each approach meet the needs of individuals and businesses. The DCITA study¹⁸ put forward six attributes of payment products that are relevant to the choices made by consumers. These are explained in more detail in the Appendix.

- capability;
- cost;

¹⁷ The BPAY Usage and Attitude Study in 2009 found 77 % of people made payments by direct debit, 54 % queued to make payments (for instance, at the Post Office, bank or merchant) and 19% paid by cheque.

¹⁸ "Exploration of Future Electronic Payments Markets" ,Co-authored by EDC and the Centre for International Economics, published by the Australian Federal Department of Communications, Information Technology and the Arts in 2006, and sponsored by APCA and other industry participants.

- convenience;
- coverage;
- confidence; and
- confidentiality.

5.1.1 Capability

Technological change is at the heart of the process of introducing new opportunities for electronic payment. Changes in capability cover both products and channels. Some new capabilities add value by changing or shortening channels or payment supply chains. This type of innovation can provide a way of entry for new participants, especially for those outside the financial services industry, thereby challenging the role of traditional suppliers and intermediaries. Mediating services, such as PayPal, facilitate person-to-person transfers without the seller having to register as a merchant, as is required for accepting credit card payments.

5.1.2 Cost

Cost would normally be viewed as a strong driver of change. The impact of cost on payment choice, however, is a complex matter. This is because of the differences in capability outlined above, particularly where cost and price signals have been blunted in the market. The issue is further complicated by consumer expectations and the fact that in most cases the marginal cost to the consumer of making a payment is zero.

5.1.3 Convenience

Many of those interviewed believed that Australian consumers' expectations in terms of speed, real time, electronic channels, etc. are constantly increasing, especially amongst the younger generation.

5.1.4 Coverage

The increase in access to the internet is also associated with an increase in the use of electronic commerce. Making electronic payment options available in the real, as opposed to on-line, world (that is, expanding coverage) often involves a major investment in systems. This also applies to Over The Counter (OTC) payments where presently cash has full coverage where some payments products such as credit, and charge cards do not.

5.1.5 Confidence

For some time it has been known that trust and confidence are closely linked to a consumer's use of banking services. Similarly, it is likely that confidence is also a factor in the choice of a payment method.

Providers of new, innovative payment systems face a challenge to convince customers that their products or channels are trustworthy and users can rely on obtaining their purchase or not losing their money. This includes convincing users that the system is secure and that value will not leak through theft or fraud. It is notable

that convincing the general public that paper money was as valuable as gold was once a similarly difficult task.

The confidence consumers have in a payment method also depends on the associated payment channel. It is thus expected that confidentiality is a major factor influencing consumer views about electronic payments.

5.1.6 Confidentiality

Confidentiality is a major factor influencing consumer views about electronic payments, and media reports regarding fraud, identity theft and similar activities have heightened awareness and concerns in this area. Hence new methods/systems that provide consumers with greater security, actual or perceived, of their confidential/personal information have attraction.

5.2 PROFIT

Clear financial incentives that will allow participants in the system to either increase revenue or decrease costs will most certainly spur innovation.

The areas of focus are likely to be the large segments of the payments market or niche markets with limited, high cost payment options available, in an effort to reduce costs and/or grow market share.

As noted above, the larger merchants tend to drive innovation because a small cost saving per transaction on the large number of transactions that they handle can generate a significant amount of money.

The level and certainty of financial incentives will directly affect the likelihood of projects gaining approval. As noted above, interview respondents claim that they are experiencing margin erosion in payments as a result of increasing competition, customer expectations of lower pricing, higher compliance costs and higher losses as a result of current economic conditions. In the past when larger projects such as Bankcard, EFTPOS and BPAY were implemented, the financial opportunity for the banks was much larger. These circumstances make obtaining approval for the required investment in new payments infrastructure much more challenging, given a lower Return on Investment in the business cases (particularly against competing projects within the institutions), and the possibility that pricing will be regulated.

The market structure, as indicated above, can also have an effect as it dictates the level of funding required to make changes. For example, one of the main reasons that EMV adoption in the USA has been resisted is that the additional cost of card issuance and EMV compliant POS terminals required is larger than any expected gains. Large merchants in Australia also bear a similar cost burden for innovations involving POS terminals.

The realisation that the adoption path for a technology is not guaranteed also highlights some key risks in terms of profitability. The adoption path for a new electronic payments product may not reach a profitable level of penetration before it is replaced by a new technology, leading to a truncated adoption curve. This process is known as 'creative destruction' and imposes risk on businesses introducing

new products into the market, and even upon users in investing in systems to support new innovations¹⁹.

In today's economic environment, organisations are faced with having less opportunity for discretionary spend and innovations now have to compete with other investments, such as compliance initiatives (that take precedence). For that reason, many organisations prefer smaller, continuous improvements with lower associated investment and risk than major initiatives, which carry greater risk for the organisation and the payment system as a whole.

One advantage for global institutions, such as MasterCard, Visa, HSBC and some others, is that they can amortise their innovation costs over a vast global customer base.

Key insights from a US Study of electronic payments²⁰ were similar in those obtained in interviews with Australian payments organisations:

- Having a 'business case' for adopting an innovation in electronic payments systems and, particularly, identifying the demand for innovation are much more important than simply having access to the new technology that would permit the innovation.
 - Providers of payment services cannot assume that an innovative service will generate significant customer demand just because the service provides new technical capabilities in a creative way.
 - Providing a net benefit to the key participants in a transaction, such as banks, service providers, and end users, appears frequently to be the most important aspect of successful innovation.
 - Innovations that require little change from known and established practices/habits may be more readily accepted than those that are substantially new, unfamiliar and require a change in behaviour.
 - Using new technology to leverage existing payment systems enables firms to take advantage of established practices familiar to users and reduce their start-up costs.
- Innovative payment technologies frequently compete with older technologies for financial resources and management attention in a firm or industry.
 - Long-term projects or changes that threaten current business lines, especially profitable credit and debit card operations, may not receive organisational support because of departmental conflicts and short planning horizons.
 - Critical mass and network effects may delay adoption of an otherwise useful or cost-effective innovation, resulting in 'lock-in' of older products.

¹⁹ Purchasers of beta video recording systems that were eclipsed by VHS systems will be familiar with the costs and inconvenience involved with creative destruction.

²⁰ In their December 2002 report, *The Future of Retail Electronic Payments Systems: Industry Interviews and Analysis*, the Federal Reserve sought the views of more than 100 individuals within 49 private-sector payments system organisations and other interested parties, including government agencies, about improvements to the payments system, barriers to innovations encountered and the key issues that will shape its future.

5.3 COMPETITION / MARKET SHARE

In a mature payments market such as Australia's, maintaining a competitive advantage is key in acquiring and retaining customers.

Many players seek a first mover advantage using innovations to create product or process improvements in large, established markets or access an untapped market segment. Being the first to market with a proprietary technology can create an opportunity to generate revenue in this early phase of market development.

For example, Bank of America (BoFA) hired an innovation consultancy with the aim of determining how to get a particular consumer segment to open new accounts. They created a program called "Keep the Change"²¹ whereby every time a purchase is made with a BoFA debit card, the bank rounds up the purchase to the nearest dollar and transfers the difference from the cardholder's checking account into a linked "Keep the Change" savings account and provides a contribution from the bank to match a percentage of the transfers. The product benefits both the bank in acquiring new accounts and increasing transaction revenue by prompting customers to use Visa debit as well as the customers by encouraging them to save without actively trying.

The BoFA Keep the Change example is also an example of an organisation innovating through differentiation. BoFA created a unique product never seen before in the US, or any overseas market, in order to stand out from its competitors and drive new account growth. The underlying payment method, the debit card, did not change, but the value proposition to the consumer was fundamentally altered.

Australian institutions offering PayPass (MasterCard) and payWave (Visa) are driven by competition and the hope of obtaining and retaining customers in the long term, rather than by short term profit potential, given the products' limited acceptance at present and the cost of rolling out both the cards and the associated acceptance devices. To encourage adoption, exclusive arrangements were contracted, for example between Commonwealth Bank of Australia and MasterCard, in order to provide some period of competitive protection to the institution willing to make the investment and take the risk with the new contactless format.

There is also a school of thought that accessibility to new entrants is critical to competition which spurs innovation. This can be affected by market structure, regulation and the performance of the incumbents. Industry respondents offered differing views on accessibility in the Australian market. Some respondents suggested that there exist structural and regulatory impediments to new entrants, whilst others suggested that new entrants are discouraged by the competitive nature of the market and lack of available margins.

Maintaining of Brand Value was also proposed as a driver of innovation. Where the organisation has a positioning and Brand promise underpinned by innovation, there is a need to be seen by the market to be continually innovating and providing new offers to its customers. This Brand Value is seen to be key to maintaining and growing market share.

²¹ Full Case Study can be found in Appendix 10.3.

5.4 TECHNOLOGICAL ADVANCEMENTS

Advancements in telecommunications and information management have impacted the financial services industry and retail payment systems. New products and services such as smart cards, contactless cards, mobile payments and biometrics (where consumers could pay for goods and services with the swipe of their finger such as with Pay By Touch) were developed²² based on new technological capabilities. New methods of delivering financial services – especially via the internet – also emerged.

Typically, technology adoption has become a by-product of broader strategies, such as product differentiation to obtain competitive advantage or cost reduction.

Indeed the continual and rapid advancement of technology and computing, especially over the last 30 years, have created an expectation amongst consumers of a never ending stream of continuous product improvements and applications of technology in their everyday lives. In the Australian environment, the long period of unbroken economic growth (now threatened by the current global slow down) has further heightened consumer expectations.

5.5 LEVEL OF SECURITY

As noted in section 5.1.3, confidence plays a key role in a consumer's choice of payment method. The payment system is faced with security challenges such as identify theft, card counterfeiting, and authorisation of card-not-present transactions and funds transfers over the phone and over the internet.

Providers of new, innovative payment systems face a challenge to convince customers that their products or channels are secure and trustworthy, and that users can rely on obtaining their purchase or not losing their money.

Business cases for new payment innovation addressing these concerns need to prove that the benefit outweighs the cost (and/or the reduction in ease and convenience of use).

Companies such as Emue²³ believe that fraud is continuing to increase and EMV based cards, token and SMS based solutions are not addressing the core fraud issues. Emue has therefore invested in product innovation in addressing security concerns.

However, due to the complexity of security measures undertaken with electronic payments (for example encryption), consumers encounter problems in understanding the merits of various types of security measures and therefore may have difficulty in differentiating products based on their vulnerability to fraud and identity theft.

²² Pay By Touch was a privately held US company that enabled consumers to pay for goods and services with a swipe of their finger on a biometric sensor. It allowed secure access to checking, credit card, loyalty, healthcare, and other personal information, through the unique characteristics of an individual's biometric features, thereby creating a highly secure anti-identity theft platform. The company ceased operations in March 2008.

²³ Full case study on Emue can be found in Appendix 10.1.

5.6 INDUSTRY FRAMEWORK

Regulatory

In the current unstable global financial environment, it is more important than ever for countries to put into place the fundamentals underpinning economic growth and development. Innovation drives productivity improvements, which are fundamental to economic growth and, thus, to sustained economic prosperity.

It is believed by many of the industry players interviewed that the economic return possible from innovation in payments infrastructure could potentially be significant. However, the profit margins on payment transactions (of all kinds) have been decreasing, driven not only by increasing competition in the marketplace, but also a belief by users that their cost of payments should be constantly reducing or be zero. This means that making any business case for large scale, step change innovation in payments has become extremely challenging. For that reason, most players agreed that the government has a role to play in ensuring innovation and efficiency are driven into the payment network. Examples of government intervention/assistance that we have seen overseas includes –

- **China UnionPay's centralised retail electronic payments network in China:** effectively established at the behest of the Chinese Government and the People's Bank of China (PBOC)²⁴
- **Faster Payments in the UK:** developed by the banking industry at the behest of the UK government²⁵
- **Cheque levy in Ireland:** because no one bank, for competitive reasons, could dissuade consumers/businesses from using cheques and moving to electronic forms of payment, the Irish Government instituted a levy on issuing cheques as a direct financial incentive to use more efficient electronic formats

The Australian Government has recently passed an economic stimulus package with infrastructure as one of the main focuses. If the payments infrastructure was one of the beneficiaries of these funds, it could potentially support investment in innovation in payments, for example by providing financial incentives or reducing the overall costs for each player of implementing a new system, and thus increasing the likelihood of positive business cases being developed and approved.

The European Commission has deliberated on this same topic - *"...the inability of a system of private markets to provide certain goods either at all or at the most desirable or 'optimal level'. Market failure occurs, therefore, when private companies cannot or will not provide something because they cannot make a commercial return even where there is demand or need. Under these conditions, the rationale for public provision of or public assistance to private firms in providing this is normally justified as it will lead to employment and wealth creation that would not otherwise have occurred"*²⁶.

The regulatory environment was also seen by some industry players as a potential barrier to innovation. Some indicated that laws and regulations related to payments are viewed as being complex and confusing. Furthermore, uncertainty around future regulation of pricing, or government attempts to influence public opinion on

²⁴ Full Case Study can be found in Appendix 10.4.

²⁵ Full Case Study can be found in Appendix 10.4.

²⁶ "A Study of Business Support Services and Market Failure", European Commission, 2001.

pricing, can impact the business case for an innovation, particularly one requiring significant investment.

There are a reasonable number of regulators that play a role in the introduction of payment product innovations, and therefore dealing with the regulators sequentially sometimes means that changes required to meet the needs of one, require revisiting issues with regulators that had provided an earlier clearance.

Associations

Some industry coordination is required for those elements of innovation that would be shared across all players, and therefore benefit the whole. The remaining elements of innovations could be competitive in nature.

For example, Visa and MasterCard are schemes in which institutions cooperate as well as compete, or engage in “co-opetition”²⁷. At the time Visa and MasterCard were established, co-opetition provided the framework for addressing a number of issues related to transaction processing among (at that time) member banks. The idea behind co-opetition is to have cooperation where it makes sense (and does not infringe on the rights of the consumer) and competition everywhere else. In the example of the payment schemes, cooperation exists in brand advertising, technology and product development such as credit, debit, secured, smart cards, and prepaid. Competition exists in pricing, services, features and marketing.

This model has allowed for a global system that permits card issuers in different regions and countries to tailor their programs to local needs. This has enabled different kinds of cards and technologies to be tried in different countries. For example, high telecommunications costs encouraged the French card system to invest in “smart” cards, which authenticate transactions without connecting to a central computer. In contrast, low telecommunications costs in the United States encouraged card systems to invest in computerised switching technologies, which have reduced authorisation time to a few seconds.

Key Points

- When speaking to industry players, it was evident that the vast majority feel there is currently no overt consumer pressure for innovation, other than for increased speed, cross border payments and an ubiquitous Australian transit solution²⁸. However, a minority feel Australia does lack innovation when compared to other countries and the reason that consumers are not demanding innovation is because they ‘don’t know what they don’t know’.
- Product innovations offering unique value propositions still appeal to consumers, even if their development was not driven by consumer demand or recognisable need. Indeed, these are almost required to meet rising consumer expectations; but each requires some form of business case for its implementation. Bank of America’s Keep the Change program is an example of a unique value proposition that was

²⁷ Co-opetition is a term coined to describe cooperative competition. Co-opetition occurs when companies work together for parts of their business where they do not believe they have competitive advantage, and where they believe they can share common costs.

²⁸ This is the only payment need for which there has been recent overt public comment, with commuters particularly in Sydney becoming more frustrated with the State Government’s lack of progress in implementing a solution.

driven by the issuing bank's need to differentiate and that was widely accepted by consumers.

- Some industry coordination is required for those elements of innovation that would be shared across all players, and therefore benefit the whole. Most, if not all of the interviewees agreed that the Australian industry has experienced significant positive change since the inception of innovations such as EFTPOS and BPAY; but that building a business case for investment in enhancements or step change in these or other (potentially new) systems is considerably more difficult than in the past.
- Regulation can influence the pace of change and the rate at which payment products enter the market and the basis on which they compete. It can hinder or foster innovation depending on financial incentives offered, the level of certainty provided, access to entrants and level of support provided.
- Although first mover advantages can be realised in other markets, they may not be a strong driver for innovation in Australia, as many innovations do not realise their full value until adopted by a wider network. This factor could hinder the desire of organisations to invest heavily in new, large scale innovations as they may be unlikely to provide competitive advantage and therefore financial gains.
- Large scale, internally generated, unique innovations do not provide the only means to deliver competitive advantage. Continuous improvement that is somewhat differentiated from competitors can also deliver superior financial performance.

6 FACTORS THAT ENCOURAGE OR IMPEDE INNOVATION

This chapter reviews the main factors that may be promoting or limiting innovation in payments in Australia. It opens with a review of the experience of the Australian payments market in adopting new payments products. The chapter also analyses factors that may encourage or impede innovation and the development of the Australian payments market.

Evidence on barriers to innovation and adoption obtained from industry interviews and surveys of businesses and consumers are also reported.

The following factors all impact on the level of innovation of a particular country or industry: market structure, profit dynamics, infrastructure, adaptability, cooperation, and innovation culture.

6.1 MARKET STRUCTURE

- Network effect²⁹
- Market size
- Managerial scope
- Government structure

Network Effect

The network effect causes a chicken-and-egg problem in the adoption of new payment products because both consumers and merchants must adopt simultaneously, otherwise there is little incentive for either party to embrace the new instrument. Economists refer to this as a “two-sided market.”³⁰

Reaching a take off point or critical mass is also important. While technological applications may create new payment instruments and services, it is the demand from users that stimulates competition among providers and further drives its development. As users embrace new payment technology and instruments, other users become attracted to the service. The network effect derived from additional users within the network is often cited as critical to the success of new payment technology.

²⁹ The network effect is the phenomenon in which consumers of a good or service gain more utility from it as the number of other people that consume that good or service increases. An increase in the number of users of a ‘network’ good benefits other users. In the case of payment instruments, they are generally two-sided network goods because users of payment services benefit from an increase in acceptors of the payment instrument and vice versa.

³⁰ A market in which the businesses that serve as intermediaries have to get two distinct groups of customers on board to create a commercially viable product.

Success in establishing a new payments product network thus requires reaching a critical mass so that each side of the market can benefit from a minimum level of development. For example, the prospect for merchants investing in the capability to accept a card depends on the number of cardholders. On the other hand, the attractiveness of the card to potential cardholders depends on its convenience, which is partly determined by the number and location of merchants who accept the card.

The international payment networks have solved this 'chicken and egg' problem by making investments on both sides or employing other strategies to get both sides committed to the scheme. This same issue was confronted by BPAY in Australia, which required both a large base of internet banking consumers and a significant number of BPAY accepting billers, a situation which did not materialise until about five years after its original launch. Investors in new networks/systems have to be able, and be prepared to, carry the cost of the operation through the early years until "critical mass" is achieved; as well as weighing the possibility and risk that such critical mass may never be achieved.

The established financial institutions, such as credit card companies and banks, possess considerable market power due to the advantages derived from their established networks. With the exception of the mediating service PayPal, some entrants and innovations have failed because of their inability to establish a viable user base.

OnceOnline, an innovative Australian bill payment service launched in 2004 was less successful in overcoming this 'chicken and egg' dilemma. It only succeeded in signing up a dozen or so key billers, not enough to meet the needs of its customers, and therefore customers had to be migrated to other products.

Market Size

The market size can also influence the adoption process as set-up costs are related to the number of players and size of the existing infrastructure. New payment products and services may impose start-up costs such as investments in new or additional equipment for individual banks and merchants, vendor terminals, dedicated communications hook-up and installation fees charged by payment and communications providers. There are also learning costs associated with new technology. Furthermore, there may be legal and security concerns affecting the demand for new technology which involve expense to resolve or clarify.

Australia's population is small compared to some other markets, and to gain a reasonable return on investment in Australia may require the adoption of a payment innovation by a significantly higher percentage of the population than might be necessary in a more populous market.

Managerial Scope

Some interview respondents felt that at the time that BPAY was developed in the 1990's banking executives had a wider purview across the business: such that, in some cases, they managed credit and debit, as well as issuing and acquiring. With this business structure placing more responsibility under one person, gaining approval of business cases for investment was thought to be simpler. Today, most banks are now organised into much smaller, specialised units, making it more difficult

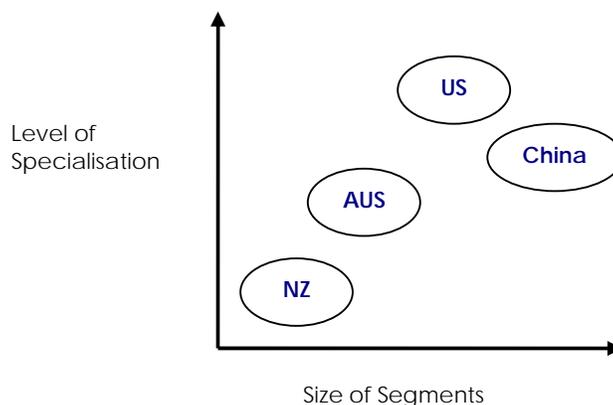
to gain approval for innovation investment and development across all the required/impacted business units.

Organisations require empowered leadership and market coordination to make things happen at a systemic level. For example, New Zealand has a reputation for having a greater appetite for change, as evidenced by their ability to adopt payment innovations such as PIN on credit and credit card enabled parking meters before most other countries. This ability to introduce new innovative payment mechanisms is likely aided by the fact that their smaller market size promotes, or perhaps almost requires, coordination amongst the players and provides a wider breadth of responsibilities for individual banking managers, likely making decision making and gaining approval for investments easier.

On the opposite scale, the United States and China have large markets that can then be split into small specialised segments. This finer level of segmentation allows for pilot testing to occur, because each segment is still of significant size and is likely managed by someone empowered to make decisions for that individual segment. For example, the US has recently piloted smart card technology in a number of unique segments in an effort to minimise risk to the entire card portfolio.

Australia, however, falls more in the middle ground, where it could be argued that its market size is not large enough to warrant management of specialised segments. Therefore, the risk of introducing innovations on the entire customer base is larger and would require approval by upper management, potentially hindering approval for investment spend.

Illustration of Specialisation & Segment Size



Government structure

The lack of a national contactless smart card transit solution in Australia was considered by some interview respondents to be due to the State/Federal Government structure, with each State Government developing their own system in isolation. The adoption of one single system across all of the capital cities would have likely permitted the amortisation of costs across more cards and points of acceptance, and a more rapid deployment.

Similar comments were made regarding the development of motor vehicle eTags in Australia, whereby initially individually owned motorways/tunnels/crossings launched separate and non-interoperable electronic tag formats, even in the same city e.g.

Sydney. Eventually, and presumably with some governmental intervention, all tags became interoperable.

6.2 INFRASTRUCTURE

Both the level and architecture of the market structure can either be drivers or barriers to innovation.

Level of Development

Australia's payment market is already quite developed in contrast to many other Asia Pacific countries. The penetration level of bank accounts, ATMs, POS terminals, internet and mobile phones amongst the population are all high. With nearly all Australian adults (and many children) having an existing banking relationship, their expectation is that their bank and transaction account will have some involvement with the payments that they make

In contrast, for example, the main catalysts in the successful adoption of G-Cash³¹ mobile SMS payments (P2P and P2B) in the Philippines was the lack of sufficient POS infrastructure (across the 6,000 islands) and the high percentage of unbanked consumers in the population - versus the ubiquitous coverage of GSM mobile telephony and the high level of mobile phone ownership.

Therefore one might not expect to see the same level of innovation in certain areas of payments, such as SMS based mobile payments (as opposed to mobile banking) in developed countries such as Australia, where multiple effective alternative payment methods are already available - with any new system/method having to compete with the well established and operating methods.

Structural Architecture

Historically in Australia, banking systems and payments systems have been closely integrated. The structure of the APCA demonstrates this with its Consumer Electronic Clearing System management committee comprising banks, credit unions, building societies, merchants and others.

Australia's EFTPOS network is based on bilateral arrangements between the EFTPOS service providers. Unlike some other countries, there is no central EFTPOS provider. Australian EFTPOS cards can be used at any EFTPOS terminal via an interoperable system administered through the CECS arrangements and with bilateral arrangements between each EFTPOS service provider.

It might be argued that improved efficiency and lower costs might result from one centralised network and switching architecture, such as exists in China UnionPay, but it becomes hard to make a financial business case for moving from the current structural architecture that is working adequately today.

³¹ Full Case Study can be found in Appendix 10.4.

6.3 ADAPTABILITY

Adaptability plays an important role in the innovation process. One of the nine elements of the 'winning'³² framework for Australian organisations in the "First XI" study was found to be the ability to adapt rapidly. Adapting rapidly was found to result from a culture open to experimentation and managed risk, coupled with the need for strategic and operational flexibility, which was seen to require continuous improvement and innovation.

Thus the First XI study found that in order to be adaptable, an organisation needed to both innovate and continuously improve. Keeping the strategy and operations somewhat flexible helps to allow rapid innovation.

However, establishing continuous improvement as a goal encourages people in all parts of the organisation to find ways to improve their operations, improve their efficiency and find new sources of revenue.

The study of the 11 high-performing organisations in Australia concluded that 'innovation in Australia is not generally big bang/big idea innovation' (p 100). It found that innovation by the First XI included:

- borrowing ideas from overseas,
- process innovations, and/or
- product and service innovations.

Although the organisations separated innovation from continuous improvement, they saw them collectively as part of an element of their winning framework to adapt rapidly – suggesting the importance of both for high performance.

6.4 COMPETITION VERSUS COLLABORATION

Successful systemic innovation (across the payments network) requires partners, collaborators and alliances. These ideas are then built on and become enhanced through input from different groups, from different locations adding different skills, disciplines and experiences.

The implementation of Chip & PIN is a good example of how collaboration amongst competing players in the market can deliver innovative products to consumers.

As previously noted in Section 5.6, Visa and MasterCard themselves can be viewed as a co-opetitive organisations, at least prior to their public listings. This is based on the following principles for a co-opetitive entity:

- It should be equitably owned by all participants
- It should be open to all qualified participants
- Authority should be equitable and distributive
- To the maximum degree possible, everything should be voluntary.

³² In *Innovation in Winning Organisations in Australia: Myths and Realities*, Graham Hubbard reveals the innovation lessons of a 25-year study of 11 top-performing Australian organisations in the First XI Study in 2007.

Partaking in an organisation with the above principles enabled the US banks to achieve what they likely could not have done on their own without taking on substantial risks. The co-opetition model gave each member bank control over its own products while allowing them to gain national reach and compete with American Express and Diners Club.

Participating firms are not the only players that need some level of interaction before innovation can be realised. Interrelationships exist with governments, regulators, suppliers and with other players in the economy (e.g. technology and infrastructure institutions).

John Bessant in *Using Learning Networks as an Aid to Innovation*³³ reminds us that while innovation is a competitive weapon, it is sometimes best fostered by collaboration. He states that companies are increasingly coming together in learning networks to collaborate on a regional or technological basis.

The First XI study found another key element of the winning framework, a practice identified as 'looking out, looking in'. First XI organisations are externally focused in a number of ways:

- They are focused on customers
- They work with other organisations
- They are focused on the future
- They are thinking outside Australia
- They have a sense of community responsibility.

Of these, working with partners is the most obvious link for innovation. For instance, while Macquarie Bank is widely admired for its new product and service developments, most of Macquarie's activities involve working in a joint venture or consortium with one or more partners.

These First XI findings about the importance of working with others to innovate are supported by other research. For instance, Frost and Sullivan (2006)³⁴ found that extensive collaborators outperformed in both growth and profitability. They also found that business performance is improved by three things: collaboration, strategic orientation and market opportunities. They concluded that collaboration had the most significant impact on performance.

Although the Australian payments industry has previously shown the ability to collaborate in order to innovate, for example with the implementation of EFTPOS and BPAY, more recent projects have encountered difficulty in gaining agreement from institutions, as shown by the deferral of project MAMBO³⁵. In November 2008, BPAY confirmed its MAMBO project had been deferred following a 12 month assessment, when the major banks asked BPAY to end its current round of development work on the industry initiative and revisit the project in mid 2009.

³³ Included in "Inside the Innovation Matrix", The Australian Business Foundation, 2008.

³⁴ In 2006 946 decision makers in six industries including Financial Services, across eight countries including Australia were surveyed.

³⁵ Project MAMBO would have allowed individuals to register for their own BPAY code which could be used to facilitate payments. Consumers could then port their number from bank to bank without the need to re-establish direct debits or credits, and use it to enable online payments.

Project MAMBO was proposed as one way for the banks to protect their market share in a payments industry rapidly being challenged by non-banks such as PayPal. However, the business case was not deemed sufficiently strong by all potential participants in the current environment.

A recent study from Javelin Strategy & Research in the US³⁶ has found that consumers are rapidly turning away from credit cards for online purchases. Indeed, Javelin is predicting nearly one-third of retail transactions will be made using alternative payment methods by 2013, many of which bypass banks and traditional card schemes. They note that this move to alternative methods from traditional credit cards is primarily being driven by security concerns with credit cards, by the growth of auction sites that require alternative forms of payments, and by the convenience of not having to remember/enter a card number.

In addition, a Cisco poll in the US³⁷ has also found alternative payments are growing in popularity, with over 35 per cent of those surveyed citing “frequent” or “very frequent” use of alternative payment options, including PayPal, Bill Me Later, Amazon Checkout and Google Checkout.

In Australia, debit card payments continue to be adopted at rapid rates, more recently spurred on by consumers’ concerns about their credit exposures and the comparatively high credit card interest rates. Alternative payment methods, although small in the overall market, continue to grow market share.

Centricom-owned, Australian alternative payment company POLi³⁸ is also making inroads in the UK and has received the endorsement of New Zealand’s TSB Bank. POLi’s Chief executive officer Simon Warner was quoted as saying “the credit crunch is forcing banks in the UK to innovate in order to survive, as in the UK they have to have five different payment options to meet consumer demand. Most online payment services in Australia offer credit card as their only payment method, despite the amount of evidence that consumers want choice when it comes to making online payments. I wonder whether the credit crunch and the associated declining use of credit cards will drive Australian banks to innovate in regard to alternative payment methods?”³⁹

6.5 CULTURE FOR INNOVATION

Japan and Korea were put forward as examples of innovators in the payments market, while Australia is viewed more as a quick follower. It is possible that these countries have a culture that enables experimentation and managed risk more readily than in Australia, in part because consumers appear to value “the latest thing” more highly.

³⁶ Posted in Javelin News 15 January 2009.

³⁷ Cisco IBSG surveyed more than 1,500 consumers to better understand how their behaviours and perceptions shape commerce landscape of shopping and payments. Cisco IBSG monitors what innovative companies are doing to attract and retain customers in retail and related industries to help financial institutions take advantage of leading, innovative practices to remain relevant.

³⁸ POLi is an online payment system that allows payments to online merchants directly from the customer’s banking account via their internet banking facility. Full Case Study is included in Appendix 10.2.

³⁹ Speaking to Charis Palmer of The Better Banking Blog, 13 November 2008.

Countries/societies with a better experience from increases in the level of innovation are seen to develop and adapt innovation more quickly because the risks are lower and easier to manage.

However, as noted above, innovations that require little change from known and established practices/habits/behaviours may be more readily accepted by users than those that are substantially new and unfamiliar. This is because the cost in terms of re-education, skills development and developing trust in moving from one product is minimised if the new product has similar attributes to the incumbent.

6.6 KEY POINTS

Many factors in a country or industry (from appetite for risk, financial incentives, market size through to cooperation amongst industry players) will work together to either spur or deter innovation.

The level and rate of adoption for new forms of payment are determined by the characteristics of the product, the additional net benefits it provides to users over and above substitute products, and the barriers to adoption. Due in part to the extensive choice of payment systems already in existence, Australia has a number of barriers to the development and adoption of innovative, new payment methods.

Innovation may be less attractive in Australia and other specific markets due to a variety of reasons:

- A perceived lack of demand
 - One might not expect to see the same level of innovation in certain areas of payments, such as SMS based mobile payments (as opposed to mobile banking) in developed countries such as Australia, where multiple effective alternative payment methods are already available - with any new system/method having to compete with the well established and operating methods.
- High investment required in infrastructure and therefore low profit incentives
 - There are significant long-term infrastructure investments in setting up and maintaining new payment systems that will reach and retain a critical mass of users. New services will initially incur losses before being able to experience the benefits from the significant sunk costs. Therefore, potential investors in new payments products and channels may perceive investment is relatively unattractive, due to:
 - uncertainty about whether they will be widely accepted in the marketplace due to the difficulty in changing or maintaining consumer perceptions and tastes
 - concerns whether regulation will allow them to operate
 - fears that superior technology may be introduced before a critical mass can be established.
 - As it is costly to learn to use new products and to develop trust and confidence, consumers and merchants may be biased towards using the current payments system. This is especially the case if the value

(increased benefits and/or lower costs) from switching payments products or channels does not represent a significant portion of their income or total cost base.

- Payments organisations faced with lower margins have less opportunity for discretionary spend, and innovations now have to compete with other investments, such as compliance initiatives. For that reason, many organisations prefer smaller, continuous improvements with lower associated investment and risk than major initiatives, which carry greater risk for the organisation and the payment system as a whole.
- Providing a net benefit to the key participants in a transaction, such as banks, service providers, and end users (payer and payee) appears to be the most important aspect of successful innovation.
 - Could some larger merchants be incentivised by acquirers or other parties to take on new innovations with large costs, such as contactless, to foster adoption and 'get the ball rolling'?
 - Would there be an impact on the level of innovation if organisations were allowed commercial/competitive advantage for a short time for innovations before the competition was allowed to replicate?
- The practices of existing players
 - Frost and Sullivan (2006)⁴⁰ found that extensive collaborators outperformed in both growth and profitability. Some industry players have a stronger reputation for collaboration than others.
- Limited interoperability with existing electronic payment system
- Limited ability to achieve scale efficiencies
- Lack of key standards and coordination amongst industry players.
 - Australia's EFTPOS network is based on bilateral arrangements between the EFTPOS service providers. Unlike some other countries, there is no central EFTPOS provider. Australian EFTPOS cards can be used at any EFTPOS terminal via an interoperable system administered through the CECS arrangements and with bilateral arrangements between each EFTPOS service provider. It might be argued that improved efficiency and lower costs might result from one centralised network and switching architecture, such as exists in China UnionPay; but it becomes hard to make a financial business case for moving from the current structural architecture that is working adequately today.

⁴⁰ In 2006 946 decision makers in six industries including Financial Services, across eight countries including Australia were surveyed.

7 AUSTRALIA'S INNOVATION COMPARED

7.1 SITUATION ANALYSIS: DRIVERS

To help establish the relative impact of different drivers of innovation, EDC has developed the assessment framework outlined in the figure below.

An 'L' (low) rating indicates that this driver has little or no impact on innovation (and conversely an "H" rating indicates high impact) either because it is unimportant or because there are no issues driving innovation. For example, "Consumer Demand" rates an "L" for Australia because consumers are largely seen as satisfied with the range and effectiveness of payment options available, not because it is unimportant.

The UK was chosen for the comparison as it is culturally and developmentally similar to Australia in terms of payments. China was chosen as an example of a rapidly developing market.

| Factors that Drive or Impede Innovation | Degree of Influence of Factors on Driving Innovation | | |
|---|--|----|-------|
| | AUS | UK | CHINA |
| Consumer Demand | L | L | H |
| Merchant Demand | M | M | L |
| Profit/Market Share Growth Targets | L | L | L |
| Technological Advancements | L | L | M |
| Security | L | M | H |
| Government Regulation/Policy | L | M | H |
| Scheme Regulations/Mandate | M | H | L |
| Market Structure | L | L | M |
| Competition (Home & Abroad) | L | L | H |
| Infrastructure | L | L | H |
| Adaptability/Continuous Improvement | M | M | H |
| Industry Coordination/Collaboration | L | M | M |
| Innovation Culture | M | M | M |
| | | | |

The evidence of the assessment indicates that there are relatively few strong drivers for large scale innovation in Australia at this time, therefore continuous improvement tends to be a higher focus.

7.2 SITUATION ANALYSIS: CHOICE

Many of the industry players interviewed for this study believe that the current payment system offered Australian consumers a wealth of choice when making payment decisions.

However, the RBA has stated that although Australia has a reasonable record in terms of payments system innovation, clearly some of the systems are no longer at the cutting edge.⁴¹ The central bank believes that there is still scope for providers of payment services to offer users of those services with more flexibility and more choice, and to do so at lower cost.

To that point, we will focus on the payment choices available to Australian consumers in the various payment categories, and compare those to payment choices available in overseas markets.

As noted in Section 6.3, Australia is a mature market with a well developed infrastructure, which is the basis for the view by some industry players that consumers have plenty of options and, in some cases, “too much choice” when it comes to payment methods.

The figure below shows that Australia compares favourably in consumer payment choice to the United States, a market deemed to be in a similar or more mature state, and to Singapore, a market seen as a progressive payments market.

| Payment Alternatives | AUS | Singapore | US |
|-------------------------------|---|--|---|
| Bill Payment | Cash in person at AusPost, Direct Credit ⁴² , Direct Debit, Debit Card (EFTPOS & Scheme), Cheque, Credit Card (Mag Stripe or EMV), Charge Card, BPAY | Cash at SingPost, Direct Credit, Direct Debit \, Debit Card (NETS & Scheme), Cheque, Credit Card (Mag Stripe/EMV), Charge Card, Mobile Banking, ATM, Kiosk (AXS) | Direct Credit, Debit Card (PIN and Scheme), Cheque, Credit Card (Mag Stripe), Charge Card |
| Over The Counter (OTC) Retail | Cash, Debit Card (EFTPOS & Scheme), Cheque, Credit Card (Mag Stripe or EMV or contactless), Charge Card, Prepaid Stored Value | Cash, Debit Card (NETS & Scheme), Cheque, Credit Card (Mag Stripe or EMV or contactless), Charge Card, Prepaid Stored Value | Cash, Debit Card (EFTPOS & Scheme), Cheque, Credit Card (Mag Stripe or contactless), Charge Card, Prepaid Stored Value, BillMeLater |
| Online | Direct Credit, Credit Card (Mag Stripe or EMV), Scheme Debit, PayPal, Paymate, POLi, Google Checkout | Direct Debit (merchant and through i/net banking), Credit Card (Mag Stripe or EMV), Scheme Debit, PayPal, Alipay, Google Checkout (for merchants in UK& US) | Direct Credit, Credit Card (Mag Stripe), Scheme Debit, PayPal, Paymate, Google Checkout, Biometrics, |

⁴¹ Phillip Lowe, Assistant Governor, Financial System, RBA, addressing Banktech conference in Sydney, Australia 16 September, 2005

⁴² Direct Credit is when a payer initiates a direct entry to a recipient directly from their bank account, versus Direct Debit where a pre-authorised debit occurs on the payer's bank account initiated by the recipient; Direct Entry transactions include both Direct Credit and Direct Debit transactions, and these are transactions which are not settled in real time.

| Payment Alternatives | AUS | Singapore | US |
|---------------------------------------|--|--|--|
| Other Remote (Mobile/ Telephone/Mail) | Credit Card (Mag Stripe or EMV), Scheme Debit, Mobile Phone e-wallets | Credit Card (Mag Stripe or EMV), Scheme Debit, Mobile banking | Credit Card (Mag Stripe), Scheme Debit, Mobile Phone e-wallets |
| Low Value | Cash, Credit Card (Mag Stripe, EMV or Contactless), Debit Card, Contactless Card or Mobile Phone | Cash, Credit Card (Mag Stripe, EMV or Contactless), Debit Card, Prepaid (Cashcard & EziLink) | Cash, Credit Card (Mag Stripe), Debit Card, Contactless Card or Mobile Phone |

7.3 SITUATION ANALYSIS: INNOVATIONS

Provided below are examples of product and systemic innovations in payments in Australia. Some have been borrowed from overseas and adapted for the Australian marketplace, while others were industry firsts. The majority listed here are large scale innovations, as the significant number of smaller, continuous improvements would be difficult to capture.

Some are now well established, having been adopted over the last ten years, while others are more recent additions.

| AUSTRALIAN INNOVATIONS | | |
|---|---|--|
| | Product/Service | Systemic |
| Bill Payment | | BPAY, BillExpress, POSTBillPay, OnceOnline |
| OTC Retail | Companion Cards, Reloadable and One-off Prepaid Cards (General and Gift), Merchant Funded Rewards, Emue Secure Card, New Store Cards (Woolworths Contactless Everyday Money MC, DJ's Amex card and GE's Myer Visa Card) | Polymer Bank Notes, EFTPOS/Cash Out, Reverse EFTPOS, Combo Cards, EMV/Chip & PIN, Scheme Debit PIN at POS on credit, Dynamic Currency Conversion, Mobile POS Terminals |
| Online | | PayPal, Paymate, POLi, Verified by Visa, 2 Factor Authentication, |
| Mobile (and other remote channels) | | Mobile trials with chip (Telstra/NAB Visa); Mobile payments using PayPal on your iphone; Visa Money Transfer |
| Low Value | etag/Citylink, Self Service Vending machines (i.e. parking meters) Reloadable Prepaid | Contactless/PayPass & payWave, |

Bill Payment

BPAY, Bill Express⁴³ and POSTbillpay use the existing direct credit system as their method/channel for transferring funds. They also transfer additional information to the receiver of funds for reconciliation purposes (such as a customer number or bill number). BPAY has seen rapid growth in recent years, driven by the increased use of internet banking in Australia.⁴⁴

OTC Retail

This segment has seen a great deal of innovation in recent years, primarily in the area of cards, from the introduction of Scheme Debit (which adds value in its acceptance capability online and overseas), to the recent introduction of new Store Cards offering consumer rewards for loyalty.

The last six months has seen a large number of new card products introduced. Three of those are affiliated with retail stores – the Myer Visa card from GE Money, the Woolworths Everyday Money card from HSBC, and the David Jones AMEX card. These cards offer rewards to consumers whose spending habits suit the affiliated groups of stores, where they can earn bonus rewards points. However, in terms of innovation, they tend to be “repackaging” of existing payment formats.

Online

PayPal

Founded in 1998, PayPal enables any individual or business with an email address to send and receive payments online. PayPal's service builds on the existing financial infrastructure of bank accounts and credit cards to create a global, real-time payment service. PayPal now has over 150 million account members worldwide, and is available in 56 countries and regions.

Paymate

Paymate provides a mechanism for credit card and bank-to-bank transactions to be conducted online. It provides an intermediary service permitting customers to use their credit card or direct debit facility to make a payment to a seller who receives the payment into their nominated bank account. Transaction fees apply for both seller and buyer.

POLi⁴⁵

POLi recognised the consumer demand for security and alternate payments methods for those without credit cards. It targets those who want to shop online but do not have or want to use a credit card. POLi allows payments to online merchants directly from the customer's banking account via their internet banking facility while eliminating the need for merchant to capture and store sensitive customer data as the customer is using their existing online bank application. Since its launch in 2007, it has been rolled out in Australia, New Zealand, South Africa and the UK

⁴³ Bill Express called in Corporate Administrators during July 2008, and more than 3000 newsagents across Australia were then unable to process bill payments or pre-paid mobile vouchers through its systems.

⁴⁴ BPAY published a summary of the finding from the “Usage and Attitude study” in 2009 that found that 86 per cent of Australians used the internet to make a bill payment last year, an increase of 6% over 2007. Of those, 71% used the BPAY service which now has more than 16,000 billers and is adding new biller codes at a rate of approximately 1000 per year.

⁴⁵ Full Case Study can be found in Appendix 10.2.

Mobile/Low Value Payments

NAB, Telstra and Visa have joined to pilot the first Australian mobile application of near-field communication (NFC) payment technology. Consumers download the NAB Visa credit card software application to their Telstra SIM remotely, and then use their mobile phone to purchase goods and services by simply waving their phone over a participating merchant's Visa payWave enabled reader.

The three month trial in Melbourne's Docklands has proven a success and hailed as a true collaboration of a major bank, global payments network and mobile network operator, as well as various supporting partners.

With all the technology components for NFC infrastructure increasingly available in the volume required for mass roll-out, innovation in contactless payment will come from how the companies involved collaborate to bring useful services to market for consumers. The collaboration between NAB, Visa and Telstra provides a good model for future industry roll-outs.

Unlike localised contactless card or phone trials and closed loop proprietary systems, the initiative aims to enable consumer users to shop at any contactless enabled merchant around the world when the solution is commercialised.

Security

A great deal of recent payment innovation has centred on security that covers all payment categories, from bill payment through to low value payments.

Developments have been made in EMV Chip (launched in 2001), Two Factor Authentication, fraud detection software, and PIN at POS for Credit was launched in Australia in June of 2008.

The use of a PIN on a credit card is deemed to be more secure than signature and aims to speed up and simplify the purchase process. Most card providers offer PIN-enabled cards so that users can now choose whether they want to enter a PIN number or sign for purchases at the point of sale. Unlike some other countries, which have implemented a mandate for when all purchases will be PIN at POS, Australian cardholders will still be able to sign for their purchase if they choose. The plan is for all terminals to be EMV compliant by 2012 and ATMs to use EMV on all transactions by 2013.⁴⁶

In addition, Emue, a Melbourne-based firm has developed a new product to combat online credit card fraud. They offer a new card equipped with a keypad and number display. When the correct PIN is entered, the card displays a one-off three-digit security code used to complete an online transaction. This unique method of verification ensures that the person performing the transaction is the actual cardholder.

⁴⁶ According to interview with Visa

7.4 ASSESSMENT: KEY POINTS

7.4.1 Drivers

The evidence of the assessment indicates that there are relatively few strong drivers for large scale innovation in Australia at this time, therefore continuous improvement tends to be a higher focus.

7.4.2 Choice

As noted in Section 6.3, Australia is a mature market with a well developed infrastructure, which is the basis for the view by some industry players that consumers have plenty of options and, in some cases, "too much choice" when it comes to payment methods.

The comparative analysis shows that Australia compares favourably in consumer payment choice to both the United States, a market deemed to be in a similar or more mature state, and Singapore a market seen to be a progressive payments market.

It offers a range of payment methods across all categories from traditional bill payment and over the counter retail to growing online payments and more alternative payments such as contactless and is even piloting mobile payments.

7.4.3 Innovator or Imitator?

Fast Followers

When compared to the competition (as seen in Section 8), Australia has more innovations adopted from overseas markets than it does unique, revolutionary ideas.

However, as outlined in Section 4.2, Australia has a history of being a fast follower in its approach to innovation adoption. While taking an idea from overseas is not a breakthrough innovation, if the product, service or process introduced into Australia is a first, it will have the same effect in the local market as if it were a local innovation, as was the case with the introduction of ATMs and EFTPOS.

Continuous Improvement

Most industry players agreed that ongoing improvement in the technology used in Australia's payments system is imperative to improving the efficiency of the system over time. There were differing opinions among those interviewed as to the level of improvement required. Some felt, for instance that continuous improvements in areas such as the creation of a single CRN for consecutive BPAY payments were just as important in delivering value to customers as large scale technological change.

Continuous improvements are preferred by many players because they are easier to implement, more tangible, require less complex business cases, are more accepted by consumers and offer lower risk because they can exit if required to with fewer consequences.

Step Change, on the other hand is less likely to be implemented as it requires a more 'blue sky' business case which makes gaining approval more difficult, higher investment, higher stakes and offers more risk of failure due to the deterrents such as

the network effect (needing critical mass of payers and acceptors) and the requirements for more consumer education and awareness for adoption.

When compared to other countries, Australia has more examples of continuous improvement than it does of large scale, step change innovation. However, as seen in the results of the survey in Section 4.2, step change and revolutionary innovation is not always necessary, and in many cases, continuous improvement that is somewhat differentiated from competitors can also deliver superior financial performance.

8 GLOBAL TRENDS AND INNOVATION

In October of 2008, Edgar, Dunn & Company conducted a survey of 320 payments professionals globally on major product initiatives, major technology developments or emerging products and technologies.

There was a fair degree of commonality in recent trends which are outlined below:

- Technologies addressing security and fraud were clearly perceived to have had the greatest impact
- Peer-to-peer was considered to have had the greatest impact in terms of new entrants, driven by PayPal
- Whilst internet payment products were expected to emerge post 2000, the impact of debit has been a surprise to many
- Regulators figured as the most influential market participant – in stark contrast to a decade earlier
- With regulators being so influential, it is perhaps not surprising that events instigated by regulators are perceived to have had the greatest impact

Future trends are anticipated....

- Looking to the next 5 years, products leveraging mobile / contactless channels are clearly considered likely to have the greatest impact
- Drivers of change are expected to be regulatory scrutiny, mergers and acquisitions, interchange reviews, scheme IPOs and the credit crunch

8.1 INTERNATIONAL INNOVATION CASE STUDIES

Relevant examples are included from a range of markets, including the North American, Asian and European markets these are highlighted in the table below.

A range of criteria was used to help to structure the list to ensure representation across many areas including market size, maturity of the economy and payment systems, categories of innovations, success of adoption, and drivers of success.

The table highlights examples of innovations available in Australia, and examples of innovations in the other markets that are not yet fully established in Australia.

| Categories/ Geographies | AUS | US/Canada | UK | Rest of Europe/Africa | Rest of Asia Pacific |
|------------------------------------|--|--|---|---|--|
| Bill Payment | BPAY, BillExpress, POSTBillPay, OnceOnline, BilltoBill | BillMeLater | | | Bill Payment Kiosks (Singapore) |
| OTC Retail | Companion Cards, Prepaid Cards Merchant Funded Rewards, Emue Secure Card, New Store Cards, (EFTPOS/Cash Out, Reverse EFTPOS, Combo Cards, EMV/Chip & PIN, Scheme Debit PIN at POS on credit, Dynamic Currency Conversion, Mobile POS Terminals | Merchant Funded Rewards, Citi 'Thank You', Relationship Rewards; BofA Keep the Change, Decoupled Debit | Chip & PIN | | |
| Online | PayPal, Paymate, POLi, Verified by Visa, 2 Factor Authentication | Google Checkout, Interac Online Pymt & EMT | | iDeal online debit (Dutch), Moneybookers (UK/Europe) | Motorola's MWallet (China) |
| Mobile | Mobile trials with chip (Telstra/NAB Visa), Mobile payments using PayPal on your iphone, Visa Money Transfer | Obopay | | Wizzit (S. Africa) M-PESA (Kenya) Vodafone Cash (Egypt) | DoCoMo (Japan), CUP & Mobilepay (China), i-mode (Japan), SK Telecom, KTF, & LG Telecom (Korea) G-Cash (Philippines) SmartPay (Philippines) |
| Low Value | PayPass/ payWave, etag/Citylink, Self Service Vending machines (i.e. parking meters), Reloadable Prepaid | Exxon Speedpass, AMEX ExpressPay, PayPass/ payWave | Faster Payments, Oyster Transit, PayPass/ payWave | Moscow Social Card (Russia), PayPass/ payWave | Octopus (HK), EZ-link (Singapore), Suico (Japan), Moneo (France) PayPass/ payWave |

There are a large number of electronic payment technologies emerging in international markets. The payments landscape is becoming more complex as new payment alternatives, end-user interfaces, authentication methods, acceptance interfaces and alternative networks are introduced.

The current focus of most innovation in this area is on the front end systems, that is those that interface with the payers and payees. Security is also a key area of development.

Specific innovations are outlined below, with full case studies on selected innovations included in the Appendix.

Bill Payment

Motorola's M Wallet

In a significant deal for Motorola, Union Mobile Pay (UMP), China's largest mobile phone-based banking and payments service supplier, has deployed the US technology developer's M-Wallet mobile banking and payments solution. Included in the deployment is Motorola's back-office management platform providing interoperability between mobile network operators (MNO), banks and merchants.

For consumers, Motorola's M-Wallet provides banking functions such as money transfers, bill payments, utility payments and account inquiries. In addition, M-Wallet facilitates electronic ticketing and business to-consumer solutions for merchants such as electronic coupons and prepaid cards.

OTC Retail

Decoupled Debit

Merchant feedback to Capital One suggested that a gap existed in the available payment products a merchant could offer to their customers. Debit has been outside the control of the merchant, as it has remained aligned with the banking relationship of the consumer. In 2007, Capital One in the US piloted the first decoupled debit card product. Benefits are seen for debit Service Providers in terms of revenue and stronger merchant relationships, for Merchants in lower acceptance costs and increased sales and customer loyalty, and for the cardholders in the opportunity to earn more loyalty points than traditional programs and no need to switch banks to participate in the programs.

Online

Faster Payments⁴⁷

As an outcome of the report on innovation and competition in the UK banking industry published in 2000, the government sought to increase innovation in the UK banking environment. Faster Payments was launched in May 2008 and was the first new payments service to be introduced in the UK for more than 20 years. For the first time, phone, internet and standing order payments can be conducted within a few hours. The Faster Payments Service enables electronic payments, typically made via the internet or phone, to be processed in hours rather than days. VOCA effectively created a system with a dial that could be turned to speed up or slow payments on

⁴⁷ Full Case Study can be found in Appendix 10.4

request. Turn the dial up to 3 three day delay in payments or down toward intra day payments or even clearing and settlement every 15 minutes.

Moneybookers⁴⁸

In April 2002 the UK became the first European Union country to implement the European Commission (EC) Electronic Money Directive. The directive allowed the establishment of regulated e-money service suppliers to take deposits but not pay interest or extend credit to customers. In February 2003 Moneybookers established a first mover's advantage by becoming Europe's first regulated electronic money (e-money) issuer. Their focus is on addressing consumer demand for simplicity, cost competitiveness and security. The service enables users to upload money to a virtual account - or e-wallet - which can be used to pay for goods and services online and send money to anyone with an email address. Recipients could then receive payment via a Moneybookers correspondent bank in their country or, if they are not a customer, have the amount paid out in cheque form. Payments are made instantly. They are now Europe's fastest growing internet- based person-to-person and business-to customer payments services

Mobile

The use of the mobile phone as a payment channel is growing quickly, especially as new forms of services become available over mobile phones. A significant driver will be the emergence of what has been referred to as 'Gen-M kids' (adolescents currently in middle/high school) who already make considerable use of mobile phones.

The use of mobile phones as a payment device is being tested in the marketplace, particularly in Japan and South Korea. These approaches bundle features of mobile phones with other payment systems. Some short extracts from recent business journal articles about these changes are presented below.

NTT DoCoMo in Japan has launched a full mobile payments system that will include a proprietary credit card.

Phones that double as credit cards

'... After introducing handsets last year that double as debit cards—allowing users to pay for small purchases such as soda or coffee from vending machines and convenience stores—the company this year plans to make those phones full-fledged credit cards. To boost its efforts to make mobiles the new way to pay, DoCoMo is taking a 34 per cent stake in Sumitomo Mitsui Financial Group Inc.'s credit card business. In late April, DoCoMo said it would pay US\$935 million for the stake in Japan's second largest credit card issuer. DoCoMo has also held talks with Japan's No.1 issuer, JCB International Co., about some sort of tie-up, though no details have been released... The logistics of the enterprise, though, are daunting. For starters, it will require new phone-friendly scanners to be rolled out at the thousands of outlets that accept Sumitomo Mitsui cards.'

Will that be cash, credit, or cell?

⁴⁸ Full Case Study can be found in Appendix 10.4.

'Finally, the technology is at hand to turn phones into virtual wallets... Now, so called mobile commerce seems poised to make a lasting comeback. Services are already up and running in Japan, South Korea, Germany and elsewhere. Analysts and wireless execs believe the time is ripe for mobile commerce. Cell phones have become one of the few items that many people – nearly 2 billion worldwide—rarely leave home without. Consumers will use their phones to beam data to electronic checkout systems, which will authorise the purchase of everything from groceries to a new refrigerator.'⁴⁹

Countries with large unbanked populations have seen the greatest increase in innovations in mobile payments over the last few years. In Africa alone at least four new services have been announced since late-2008 and include one by UK bank Standard Chartered in Uganda in a venture with MNOs Warid Telecom and Zain.

Africa is where some of the world's most innovative mobile banking ventures have been established, among the most unique of these is South African Wizzit Bank, who in early-2002 set out to find a solution to provide a low-cost, comprehensive banking service to the country's then 16 million unbanked adults. The obvious delivery channel for the service was the mobile phone - of which there are today⁵⁰, 39 million in use in South Africa, a country with a total population of 47 million.

WIZZIT⁵¹

Their objectives, as stated by co-founder Brian Richardson was to bring the bank to the unbanked not the unbanked to the bank. A key element in Wizzit's formation was the backing it received from the South African Bank of Athens (SABA), a wholly-owned subsidiary of the National Bank of Greece. Wizzit gained account interoperability with the rest of the banking system. Wizzit has been successful due to a business model that takes into consideration and does not disenfranchise any of the key players, regulators, big banks, MNOs, payment card associations and remittance companies.

M-PESA⁵²

M-PESA is an SMS-based payments service launched in mid-2005 by UK MNO Vodafone in Kenya in conjunction with local j MNO Safaricom and microfinance organisation Faulu Kenya. A bank account is not required to become an M-PESA customer. M-PESA's services include depositing cash into and withdrawing cash from M-PESA accounts, mobile-to-mobile transfers, buying Safaricom airtime, paying bills and making repayments on loans from Faulu Kenya. M-PESA agents, of which there are some 5,000, provide account loading and cash withdrawal services while cash can also be withdrawn at specially equipped ATMs.

M-PESA offers the perfect example of the potential of mobile payments in developing markets. It appeals to the mass market, replaces cash with electronic money, reduces transaction costs for the least well off, provides new functionality including remote payments and, provides an infrastructure that delivers capability and efficiency to the microfinance world. In this respect it offers value to the consumer, the merchant and the industry as a whole.

⁴⁹ Sources: Business Week (6 June and 27 June 2005).

⁵⁰ According to United Nation's body the International telecommunication Union

⁵¹ Full Case Study can be found in Appendix 10.4.

⁵² Full Case Study can be found in Appendix 10.4.

Low Value

Contactless cards

Contactless payments enable an electronic payment to take place by waving or passing a payment device (a card, a key fob, or similar) near a reader without contact or hand-over of the card or device to the merchant.

Contactless payment devices have an embedded microprocessor chip that stores all of the customer and credit/debit card information, and a magnetic loop antenna to transfer the information to the reader. Two technologies used for contactless or proximity payments are:

- Radio Frequency Identification (RFID), used in most contactless payment system products. The MasterCard PayPass ISO/IEC 14443 Standard has been adopted by Visa and—with a few customisations—by American Express; and
- Near Field Communications (NFC), a radio frequency technology developed by Phillips and Sony in 2002. It is used to connect a wide range of devices.

Since 1997 there have been a number of significant and successful introductions of contactless stored-value cards. Several primary contactless products have entered the US payments market:

- **Exxon Speedpass**, which was launched nationally in the US in 1997 by Exxon. It is linked to an established Exxon Mobil account or other payment account chosen by the consumer. There are over 6 million accounts activated in the US.
- **American Express Expresspay**, which was first trialled in 2002. It is linked to an existing American Express account or a stored-value account associated with a credit account. It is currently accepted by over 400 merchants in the US. American Express has announced plans to offer Expresspay to all US cardholders (40 million), in addition to conducting trials in Asia (for example, Singapore).
- **MasterCard PayPass**, which was first trialled in the US in 2002, and **Visa payWave**, which was launched in early 2005. Chase, CitiBank and MBNA have all rolled-out programs in the US. These products are designed to minimise payment system impact; magnetic stripe data is transmitted to a reader and is then processed like a normal debit or credit transaction.

Outside of the US, these are typically initiated within the mass transit ticketing systems, due to their quick transaction speeds. They have successfully enabled an electronic product to replace many small value cash transactions

- **Octopus Card (Hong Kong)** - Octopus, launched in 1997 has now issued more cards than there are residents in Hong Kong. With 12 million cards in use, the Octopus card system processes 8.7 million transactions per day, at an average value of HK\$7. On average, an Octopus card has a stored balance of HK\$65. Octopus was initially established for ticketing purposes on Hong Kong's mass transit systems. It has since expanded to include parking meters, photocopiers and items at many retail outlets, particularly those situated around the mass transit infrastructure. In 2004, 78 per cent of Octopus revenue was derived from transport, with 20 per cent of revenue derived from retail purchases, a figure that is expected to rise to closer to 40 per cent by 2013.
- **EZ-Link card (Singapore)** Initiated in 2002, EZ-Link now has over 7 million cards on issue in Singapore and processes over 4 million transactions per day. Initially launched to provide ticketing to the Singapore mass transit systems, EZ-Link cards are now expanding into the retail space for small value transactions. Parking meters

and retailers, including 7/11, cinemas, McDonalds and local libraries are amongst the locations that now accept EZ-Link.

- Other examples of stored-value, contactless cards include the Oyster card in London⁵³, the Suico card in Tokyo, and the Moneo in France.

Security

Security innovations have covered all payment categories and included a range of new products and processes including EMV, 3D Secure, Digital Signatures, Passmark Authentications, Two Factor Authentications and Biometrics such as PC Fingerprinting. Innovation in this area is typically driven by high fraud levels – which have not hitherto been experienced in Australia.

Chip & PIN

On February 14, 2006, the UK cards industry completed its migration away from the magnetic stripe to chip-based products under the EMV54 standard. The primary driver for this change was to reduce counterfeit and lost / stolen fraud levels on UK issued payment cards.

While chip and PIN has clear benefits in terms of fraud reduction, it also has other potential future benefits. It is possible in the future for issuers to exploit chip technology to offer additional features on payment card such as contactless and personal data storage.

Biometrics

Automated identification of individuals by analysing bodily characteristics is known as biometrics. Due to its strong security features, biometrics is well suited for relatively high-risk transaction environments.

Common types of biometric technologies under development or in use today include: fingerprints, voiceprints (voice recognition), hand geometry, signature verification and retina eye scan (iris recognition). Biometrics have been used for several years in high-risk, closed-loop environments (for example, building security and high-security network access).

Payment applications using biometrics are emerging. The majority are using fingerprints for identification to make a payment in lieu of a signature or PIN that can be copied or stolen. The Pay-by-Touch application used in selected supermarkets in the US was an example of this technology.

Authentication methods for internet payments are still emerging, and customers remain concerned that their payment or personal information are not secure.

⁵³ Full Case Study can be found in Appendix 10.4.

⁵⁴ EMV represents the smart card payment system that is advocated by VISA and MasterCard

9 FINDINGS

The objective of this Paper was to provide a basis for discussion on the question of how to assess the optimal level of innovation for the Australian market.

This section summarises and raises payment points that warrant further consideration by banks, financial system regulators and other payment system providers.

Getting paid and paying are not simple matters, as businesses and consumers have considerable choice about the products and channels that they can use or offer. The breadth of choice appears to meet the varying needs of different consumers and businesses, but it has also created a very complex mesh of interconnected products and channels.

There are already a large number of electronic payment products in use. Electronic banking and the use of EFTPOS terminals are now a part of ordinary life for many Australians. There are also products such as direct credit and Scheme Debit that permit payments and purchases over the telephone or internet.

Although there is innovation in the industry, it is mostly focused on continuous improvement of new payment features and services, incrementally improving the value proposition to users. Technology adoption in payments is an evolutionary, rather than revolutionary process. Steady progress is being made in areas such as internet security and biometrics. The use of the mobile phone as a payment product or channel has also been piloted in Australia, with a wait of three or more years expected before they are introduced into the mainstream market (when they still may only appeal to a segment of consumers).

Key points arose from the research and subsequent interviews with payment industry participants. These points have been identified for further discussion for the next meeting of the Card Payments Forum.

- Innovation is not consistently defined across all industry stakeholders
 - Systemic versus Product
 - Repackaging versus Value Proposition
 - Continuous versus Step Change
 - Imitators versus Innovators
- Systemic innovation is important, but:
 - Competitive differentiation, cost savings and customer value can be generated through multiple incremental changes
 - The business case is harder to establish for systemic innovation than for incremental change
 - Requires a more significant investment

- May require efforts to build consumer/merchant education and confidence
 - The benefits are harder to quantify
 - First mover advantage is limited
 - The risks are higher
- The competitive environment in Australia is more aligned to incremental change and price competition than systemic innovation
 - Market entry is difficult for new players
 - The market is small (in global terms) but its main participants are of a significant size, with involvement in multiple links of the value chain
 - Government is fragmented. This has impacted Transit and Tolling initiatives (areas where they has been demonstrable consumer demand for innovation)
 - The market is comparatively isolated, in that systemic innovations overseas do not have the same impact as they would, for example, between neighbouring countries in Europe
 - Major players may be more focussed on each other than on the wider market and external threats
 - Innovations that require little change from known and established practices/behaviours may be more readily accepted by consumers than those that are substantially new and unfamiliar.
- Drivers of innovation are not as strong in Australia as in some other markets, in part because existing systems are ubiquitous and effective.
 - From a consumer perspective, Australia has a highly banked population (with transaction accounts), high penetration of POS terminals, high uptake of internet banking, low fraud, effective cheque clearance, significant choice of payment options and low cost
 - Due to the perceived risk-return, most financial institutions prefer to be technology 'fast followers' than pioneers.
- The business case is key to innovation. This is impacted in Australia by the following:
 - Perceptions of relatively low margins being generated in payments
 - Uncertainty (both market and regulatory) regarding future revenue streams
 - Competition for funding and resources, combined with low expected rates of return
 - Insufficient drivers of demand from both consumers and merchants
 - No one institution can usually drive or guarantee new standards for step change innovation, and competition attenuates collaboration
 - The business cases for technology-based payment systems are at best uncertain, especially in terms of revenues generated
- There are differing views on the level of innovation the Australian market.
 - The Schemes and larger financial institutions tend to score Australia highly and argue that the market is well served and highly competitive
 - The Regulator, large merchants and market entrants are more critical
 - BPAY and EFTPOS were put forward as notable, highly successful innovations

- Transit and toll payments were most often cited as areas of weaknesses especially when compared to international markets, with successful systems such as Oyster, Octopus, and EZlink put forward
- Collaboration (resulting in “co-opetition”) is seen as a key component of systemic innovation in payments.
 - The Australian market has existing vehicles/mechanisms for collaboration (e.g. CardLink, Vipro, Visa, MasterCard)
 - There have been some successes (e.g. BPAY, EFTPOS), some “failures” (e.g. Bill Express) and some deferrals (e.g. BPAY MAMBO)
 - The business case (for each participant) remains key to successful collaboration

A number of preconditions were suggested to increase the opportunity for systemic innovation in Australia. These include:

- A consistent regulatory framework
- Government investment in basic payments infrastructure
- Financial incentives/certainty
- The completion of major core banking system upgrades (permitting a more “plug & play” approach to new approaches)

10 APPENDIX

The following are case studies outlining select innovations, their drivers and the reasons the organisations were successful in getting the innovations to market.

10.1 AUSTRALIAN PRODUCT INNOVATIONS

| Innovation #1 | Companion Cards |
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| Category | OTC Retail |
| Driver of Innovation | <ul style="list-style-type: none"> ➤ Competition <ul style="list-style-type: none"> ○ American Express was seeking increased exposure across the market. They needed to address the widely held belief by consumers that American Express cards are not accepted in enough places, hence they need to also carry a Visa or MasterCard if they want to capture as many purchases as possible on credit. ➤ Regulatory Reform / Profit <ul style="list-style-type: none"> ○ Banks were seeking to retain their high value points-seeking customers after reducing the value of their rewards programs following the RBA interchange reforms. |
| Overview | <ul style="list-style-type: none"> ➤ In February 2004, Westpac became the first issuer in Australia to offer a 'Companion Card' product when it added an American Express card to the Altitude MasterCard product. ➤ Existing Altitude customers were issued with an American Express card to join their MasterCard, and new customers were issued with the two cards. |
| Application | <ul style="list-style-type: none"> ➤ American Express is partnering with banks to allow products that contain both an American Express card and an alternative scheme card (i.e. either Visa or MasterCard). ➤ The products are aimed at consumers who wish to maximise their rewards points through use of an American Express card (as higher points earn rates are offered on American Express cards), but also wish to maximise the acceptance of their credit card through the use of a Visa or MasterCard. |
| Benefits | <p>American Express</p> <ul style="list-style-type: none"> ➤ Gain exposure to a wider group of customers that may not have considered American Express cards previously, with the ultimate aims of: <ul style="list-style-type: none"> ○ Increasing total American Express card holders in Australia ○ Increasing consumer demand to use American Express cards at |

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| | <p>more merchants, leading to increased merchant acceptance</p> <ul style="list-style-type: none"> o Creating loyalty to the brand <p>Issuer</p> <ul style="list-style-type: none"> ➤ Increase the competitiveness of their loyalty programs, due to higher points earn rates able to be provided on the American Express cards ➤ Retention of high value points-seeking customers that may have chosen the richer American Express Membership Rewards program over the issuer's own diluted proprietary program <p>Cardholder</p> <ul style="list-style-type: none"> ➤ Increased benefits associated with American Express (e.g. travel-related services, Selects program, prestige) ➤ Increased value of rewards program with |
| Results | <ul style="list-style-type: none"> ➤ Following the success of the Altitude product, Westpac issued the white label Qantas direct earn 'Earth Card' as a companion card product. ➤ NAB followed soon after, changing its co-branded Velocity cards from single Amex or Visa cards to a combined companion card program. ➤ NAB's new Qantas direct earn cards, launched at the end of 2008, are also companion cards. |
| Success Factors | <ul style="list-style-type: none"> ➤ Consumer demand was high for a competitive rewards program with strong earn rates ➤ Adaptability – The banks adapted rapidly to the loss in revenue from regulatory reforms to create a new product to meet consumer demand ➤ Profit Dynamics – The new product provided a financial benefit to all key parties ➤ Collaboration – successful relationships between banks, American Express and other schemes |

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| Innovation #2 | Mobile/Smart Card Parking Meter Payments |
| Category | Low Value Payments |
| Driver of Innovation | Technological advancements Consumer convenience Increased Security for Councils as meters are 'cashless' |
| Overview | <ul style="list-style-type: none"> ➤ In August 2001, Leichardt Municipal Council in Sydney trialled a pilot program of allowing parking meter fees to be paid using a mobile phone or smart card ➤ This trial was a world first to integrate mobile phones, meters, payment and infringement capabilities ➤ The mobile payment software was developed in Australia by Soprano |
| Application | <p>Parking meter payments</p> <ul style="list-style-type: none"> ➤ The user keys a parking meter number into a mobile phone (at the cost of a call) and then charges the parking to a user's account ➤ The software used in the system is able to send a signal to a mobile phone warning if a parking meter is about to expire and allow the user to top up the meter by phone. ➤ A council parking officer, using a phone, is able to see who has parked legally or otherwise, whether the driver has paid by their phone, smartcard or coin, and book offenders in real time. |
| Benefits | <p>Consumer</p> <ul style="list-style-type: none"> ➤ Convenience of not having to carry coins <p>Local councils</p> <ul style="list-style-type: none"> ➤ Reduced downtime of parking meters - cashless parking meters have around 0.7% downtime compared to up to 6% for cash parking meters (which are commonly vandalised) |
| Results | <ul style="list-style-type: none"> ➤ There were issues in the early use, including that only Telstra subscribers were able to pay by phone, and consumers found it difficult to use ➤ Various councils in major Australian cities have now implemented mobile payment alternatives for parking meters, with Sydney the first to commence on a wide scale in 2003. |
| Success Factors | <ul style="list-style-type: none"> ➤ Cooperation with councils and mobile phone providers ➤ Satisfies consumer demand of convenience ➤ Available on all mobile phone networks, giving critical mass and assisting in overcoming the network effect |

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| Innovation #3 | Prepaid Cards |
| Category | OTC Retail |
| Driver of Innovation | Technology Merchant Demand to increase loyalty Consumer Demand among the unbanked population |
| Overview | <ul style="list-style-type: none"> ➤ A pre-paid card contains monetary value that can be used by its holder at retailers and online merchants just the same as a traditional credit card. It can be one-off or reloadable. ➤ The gradual incremental innovations to prepaid products can be seen in the history of prepaid cards in Australia: <ul style="list-style-type: none"> ○ Closed-system prepaid products in Australia began in the late 1980's/early 1990's with university photocopy cards and phone cards. ○ These were followed by closed-system gift cards in the mid-1990s. ○ Open-system prepaid cards began in 2002 when Travelex launched their pre-paid travel cards. ○ Open-system gift cards were introduced in 2006 with the ANZ Visa gift card. ○ Both Closed and Open loop card are now available at numerous merchants and POS locations such as AusPost |
| Application | <ul style="list-style-type: none"> ➤ There are two types of prepaid cards available: <ul style="list-style-type: none"> ○ Closed-loop (offered by a single merchant / merchant chain for use within their store/service network only – e.g. Telstra pre-paid phone card) ○ Open system (branded by a payment card network such as Visa or MasterCard, for use at any merchant that accepts these payment cards) ➤ Although there are no interest charges there are cash withdrawal, usage and top-up fees associated with the card. |
| Benefits | <ul style="list-style-type: none"> ➤ Consumer Demand – convenience, confidence (safer than carrying cash, security online), confidentiality, enables budget control, gift-giving ➤ Issuer / Merchant - Access to new markets, Attract new customers, strengthen relationships with existing customers, reduced overhead, revenue benefit of breakage, cost savings versus paper vouchers |
| Results | <ul style="list-style-type: none"> ➤ Starting from a low base, pre-paid cards experienced high growth in recent years with number of cards in circulation up by 56% in 2007 to a total of over 3 million⁵⁵. |
| Success Factors | <ul style="list-style-type: none"> ➤ Incremental innovation – incremental improvements to the prepaid proposition has seen more consumers adopt the products as they witness the benefit over time from one off closed loop cards to reloadable open loop cards with wider acceptance ➤ Leverage overseas experience |

⁵⁵ Euromonitor 'Pre-paid Card Transactions – Australia', 25 Mar 2008

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| Innovation #4 | Emue |
| Category | Online Payments |
| Driver of Innovation | Security & Consumer Demand ⁵⁶ |
| Overview | <ul style="list-style-type: none"> ➤ Founded in Australia May 2006 ➤ End-to-End Mutual Authentication = E-MU-E ➤ Emue's focus is to develop and deploy innovative, competitive and consumer friendly identity protection and transaction integrity based solutions. ➤ Based on innovative Australian technology with global patents pending in key geographies. ➤ Offering 'The World's Most Secure Credit Card' ➤ The Emue Card is the world's first embodiment of a micro-processor, 8-digit alpha-numeric display, battery and 12 button keypad, embedded within a credit, debit and/or ATM card. ➤ Integration - The Emue solution provides enhanced security capabilities for key payment process such as online retail purchases, POS and ATM, without the need for changes to the underlying infrastructure. |
| Application | <p>ONLINE SHOPPING -CVV</p> <ul style="list-style-type: none"> ➤ Provides a PIN generated variable Card Verification Value (CVV) for online merchant, enhanced POS and ATM processing. ➤ Synchronization of the CP with CNP experience ➤ Secret PIN never keyed into an un-trusted third party device ➤ Card issuer control over online purchase authorization ➤ Minimal change to processing software ➤ Leverage existing hardware infrastructure <p>ONLINE BANKING -PASS</p> <ul style="list-style-type: none"> ➤ The PASS feature provides a PIN generated One-Time-Passcode (OTP) for use when logging on resulting in no additional static passwords being required as part of the authentication input string ➤ Enhanced CNP stronger authentication ➤ Secret PIN/Password never transmitted ➤ Enterprise remote access ➤ Enhanced AF feature (refer 4-viii) ➤ Third Party Identity Protection ➤ Third party feature sharing ➤ Independent credential to device issuer ➤ Revenue sharing model |

⁵⁶ Emue conducted research of 400 Internet users indicating 70% were either "interested" or "very interested" in a single device in the wallet and 45% said they'd open a new account to get an Emue Card and 65% would recommend it to their family and friends.

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| | <p>TELEPHONE –ECHO</p> <ul style="list-style-type: none"> ➤ The ECHO feature enables consumers to determine the legitimacy of the entity they are talking with before they can disclose their own credentials ➤ Unique Reciprocal Authentication, independent of PING to prevent cross channel exploit ➤ Consumer protection from divulging credentials to un-trusted entity ➤ Secret PIN/Password never transmitted ➤ Termination of insecure wallet and non-wallet questioning for telephone identification ➤ Transaction signing activated through the ECHO mode (refer 4-iv) <p>SIGNING PAYMENTS -SIGN</p> <ul style="list-style-type: none"> ➤ The SIGN feature enables users to digitally sign funds transfers, CNP purchase requests or faxed trade deals independently of the need to carry a separate a smart card reader ➤ Non repudiation of CNP financial transactions ➤ Integrity and strong authentication of remote financial requests (including funds transfers, payments and faxed instructions) ➤ Secret PIN/Password never transmitted ➤ The ability to integrate with a third party identity protection service using separate credentials |
| <p>Benefits</p> | <ul style="list-style-type: none"> ➤ Security: As it mitigates: <p>Non Chip & PIN based card skimming, Un-trusted PIN input devices, Over reliance on physical signatures, Both CP and CNP retail fraud, ATM fraud, Keystroke logging, CNP purchase fraud through dynamic CVV, Extended threats to OTP (theft of OTP device and keystroke logging combined), Call centre fraud, Telephone payment fraud, Man-in-the-middle attack, Phishing, CNP funds transfer and payment fraud</p> <ul style="list-style-type: none"> ➤ Cost Saving as it mitigates third party deployment of multiple devices ➤ Convenience for consumers as they don't need to carry a cumbersome device or smart card reader; ➤ Convenience for users as it mitigates the use of public domain information for identification, such as date of birth and mother's maiden name |
| <p>Results</p> | <p>Awards</p> <ul style="list-style-type: none"> ➤ "Tomorrow's technology today award"; ➤ CMA top honour "Judge's Choice" Élan Award; and ➤ The "Technical Achievement" Élan Award. |
| <p>Success Factors</p> | <ul style="list-style-type: none"> ➤ Technological Advancements ➤ Meeting consumer demand for security - Competition is driving banks to find convenient and cost effective means to satisfy consumer demand for greater transaction security |

10.2 AUSTRALIAN SYSTEMIC INNOVATIONS

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| Innovation #5 | BPAY |
| Category | Bill Payment |
| Driver of Innovation | <ul style="list-style-type: none"> ➤ Industry coordination & collaboration - BPAY was established by the major Australian banks to provide customers with a convenient and secure way to pay their bills and to create a more efficient collection service for billers and financial institutions. ➤ Consumer Demand for convenience and security ➤ Competition from AusPost and internet payments drove the need for a solution that would strengthen customers relationship with their bank |
| Overview | <ul style="list-style-type: none"> ➤ BPAY was created in 1997 as a joint venture by the four main banks. ➤ BPAY started as a secure phone bill-paying scheme, and developed to offer electronic bill payment via the Internet. |
| Application | <ul style="list-style-type: none"> ➤ There are four main parties in a BPAY transaction: <ul style="list-style-type: none"> ○ Company issuing the bill to the consumer (Biller) ○ Biller's Financial Institution (Biller Institution) ○ Consumers (Bill Payers) ○ Bill payer's financial institution (Payer Institution) ➤ Billers enter into an agreement with their financial institution and BPAY in order to offer BPAY, and are then assigned a Biller Code ➤ BPAY payments are made within the secure environment of the Bill Payer's financial institution's I/net banking site or phone banking system ➤ As BPAY is part of Internet banking, consumers are also protected by the Electronic Funds Transfer Code of Conduct ➤ Information is passed through the BPAY system includes: <ul style="list-style-type: none"> ○ The Payer's instructions (the Biller Code, the Payer's customer reference number, the amount being paid) ○ Whether payment was made over the phone or using the internet ○ What type of payment account being used and from what bank ○ The date the payment was made and was settled. |
| Benefits | <ul style="list-style-type: none"> ➤ Consumers/Bill payers - convenience to pay bills at any time, flexibility to pay from a cheque, savings or credit card account, secure ➤ Billers - improves cash flow, access cleared funds, easy reconciliation of payments, good proposition for customers, offers a "green" choice with no paper remittance required |
| Results | <ul style="list-style-type: none"> ➤ Over 170 Australian financial institutions, ranging from banks to credit unions and covering about 90% of the consumer banking market, belong to the scheme. ➤ In 2007, Australians made 185 million BPAY payments worth over \$145bn |
| Success Factors | <ul style="list-style-type: none"> ➤ Collaboration and cooperation by all parties ➤ Market structure (Wide managerial scope) ➤ Positive profit dynamics for all parties |

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| Innovation #6 | Combo Cards |
| Category | OTC Retail |
| Driver of Innovation | <ul style="list-style-type: none"> ➤ Consumer demand for convenience ➤ Issuer demand to reduce cost |
| Overview | <ul style="list-style-type: none"> ➤ 'Combo cards' were developed by Australian banks in the mid 1990's.⁵⁷ ➤ These cards enable both credit card and proprietary debit card transactions using a single piece of plastic |
| Application | <ul style="list-style-type: none"> ➤ Combo cards can be used to make credit transactions, withdraw cash from ATMs, conduct other ATM transactions, and make debit transactions through EFTPOS |
| Benefits | <p>Consumer</p> <ul style="list-style-type: none"> ➤ Convenience – only have to carry one piece of plastic for all transactions <p>Issuer</p> <ul style="list-style-type: none"> ➤ Cost savings – only have to issue one plastic for multiple products ➤ Customer satisfaction – offering the consumer a convenient product |
| Results | <ul style="list-style-type: none"> ➤ Australia is still one of only a few countries globally to offer this card solution ➤ However, this product has caused complications for the roll out of chip cards in Australia |
| Success Factors | <ul style="list-style-type: none"> ➤ Systems and Issuer alignment ➤ Profit as it is more cost effective for issuers |

⁵⁷ Australian Bankers Association, 'Competition in Banking', July 2008

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| Innovation #7 | Woolworth's Contactless Pay at the Pump |
| Category | Low Value Payments / Contactless |
| Driver of Innovation | <ul style="list-style-type: none"> ➤ Cost reduction in speed of transaction ➤ Differentiation ➤ Customer Demand for Convenience |
| Overview | <p>Woolworths Limited is a leading Australian retail company with more than 3000 retail stores, petrol outlets and hotels in Australia and New Zealand.</p> <p>Woolworths is one of the newest players in the Australian financial services market with the launch of the company's Everyday Money division in 2008.</p> <p>The Woolworths Everyday Money Credit card has features such as EMV chip security, the use of chip and PIN technology and contactless payment technology.</p> <p>To enable Woolworths Everyday Money Customers to benefit from the convenience of contactless payments technology, Woolworths has launched Epump, a contactless payment facility that allows Woolworths customers to pay for their fuel at the pump at Woolworths petrol outlets with PIN and chip security.</p> |
| Application | Woolworths customers hold their Everyday Money Credit Card close to the centre of the reader on the pump, enter their PIN, follow the prompts given to them on the screen and lift the nozzle and fill their car's fuel tank. |
| Benefits | <ul style="list-style-type: none"> ➤ Epump protects against non-payment risk arising from drive-offs by performing a pre-authorisation before the customer fills clearing any unused reserved amount upon the transaction completion. ➤ It also enables customers to electronically redeem fuel discount offers through Woolworths loyalty program, and supports mandatory PIN entry for increased customer security. Customers will also be given access to their tax invoices and fuel purchase history through web portal. |
| Results | <ul style="list-style-type: none"> ➤ The division's first product, the Everyday Money Credit Card was named most innovative product by Australia's Money Magazine. ➤ Epump was trialled in early 2009 with plans to make it available at over 300 participating CALTEX WOOLWORTHS/SAFEWAY co-branded fuel outlets by end of this financial year. Epump aims to help reduce congestion in the petrol forecourt and reduced queuing time to pay in-store, therein benefiting all petrol customers. |
| Success Factors | <ul style="list-style-type: none"> ➤ Recognising consumer demand for convenience ➤ Leveraging successful strategies seen overseas (such as Exxon's Speedpass) and adapting them to the local market and conditions |

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| Innovation #8 | Paymate |
| Category | Online Payments |
| Driver of Innovation | Consumer Demand- Paymate was established to bridge the gap in payment services between business needs and bank offerings. |
| Overview | Paymate was launched in 2000, and provides secure, Internet-based payment services |
| Application | <ul style="list-style-type: none"> ➤ Express payments: In 2002 Paymate Express was launched, which does not require buyers to register to make credit card payments. Even for person-to-person transactions, Paymate enables receipt of online payments via credit card without needing to have a merchant facility with a bank nor a secure website nor gateway processor service. ➤ Recurring payments: Buyers can set up a Recurring Payment option with any Express Payment, via credit card. Payments can be weekly, fortnightly or monthly and normal fees apply for every payment. Recently this was extended to sellers. Sellers can now set up recurring payments to accept subscription payments, instalment payments, or to charge customers on a regular basis. ➤ Moto payments: This is a service to sellers who may receive orders over the telephone or in the mail. Mail Order/Telephone Order (MOTO) Payments are useful for sellers who may receive orders offline but have a valid authority to debit a customer's credit card for the payment. This secure online service can also act as a Virtual POS terminal for merchants with small volumes, saving costs of equipment and line rental. ➤ Cross-border payments: In 2003, Paymate launched www.myexports.com.au, a portal for Australian small business exporters to bill and collect payments from clients in the USA, Hong Kong and Singapore. Paymate's Express TT service was the first Australian cross-border payment service to enable bank account to bank account payments via the Internet. In partnership with DHL, the portal enables exporters to also order, pay for and track cross-border shipments via Paymate's Express Shipping service. ➤ China payments service: Paymate joined forces with Alipay (China's largest online payment provider), in 2007 to enable Australian sellers to receive payments from China via an integrated cross-border service. ➤ Ebay: In 2009, Paymate announced a US payments service for US sellers, along with integration into Checkout on www.eBay.com, the world's largest online marketplace |
| Benefits | <ul style="list-style-type: none"> ➤ Consumers - Secure, safe and reliable online shopping, Enables personal sellers to receive credit card payments securely and easily ➤ Merchants - Secure, safe and reliable online selling, Ability to set up recurring payments, Fast receipt of payment, Low fees |
| Results | ➤ Paymate now has registered buyers in 57 countries around the world and sellers in Australia, New Zealand and the USA |
| Success Factors | <ul style="list-style-type: none"> ➤ Taking advantage of consumer demand and gap in marketplace ➤ Relationships with partners that offer Paymate payment option |

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| Innovation #9 | eWAY |
| Category | Online Payments |
| Driver of Innovation | Merchant and Consumer Demand |
| Overview | <ul style="list-style-type: none"> ➤ eWAY is an online payment provider allowing web sites to talk directly to the banking network to process online payments. ➤ The company has seen significant growth in the online payments industry over the last 10 years of operation in Australia. In 2007, the company established a UK subsidiary in the United Kingdom and in New Zealand. ➤ While traditionally online payments have tended to be processed on credit card, the need to provide more options and more flexibility for online customers has seen a push from merchants for other solutions. |
| Application | <p>Its Direct Debit Payment solution:</p> <ul style="list-style-type: none"> ➤ Allows Internet merchants to debit their customers' bank account without the hassle of processing and storing their details; ➤ Allows merchants to manage their direct debits payments online, with customer and payment details all controlled through the online interface developed by eWAY. ➤ Provides a dispute resolution area, where merchants can access their customer's Direct Debit Agreement online, where it is stored as a digital copy. |
| Benefits | <ul style="list-style-type: none"> ➤ eWAY processes and stores the authority form on the merchant's behalf, allowing instant access in dispute cases. eWAY removed the hassle for merchants of storing the form. |
| Results | <ul style="list-style-type: none"> ➤ Hundreds of merchants signing up in the first two weeks of its release⁵⁸. ➤ eWAY work in developing the Direct Debit Payment solution has been recognised with the announcement that the solution is a finalist in the CeBIT.AU Excellence in Technology Services Award. |
| Success Factors | <ul style="list-style-type: none"> ➤ Meeting needs of merchants by offering a more cost effective method than merchant service fees (MSF) ➤ Collaboration amongst network players to increase users/billers ➤ Meeting consumer demand for a payment mechanism to allow online payment from a deposit account |

⁵⁸ Per Matt Bullock, CEO of eWAY in an eWAY press release on 18 May, 2008.

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| Innovation #10 | NAB, Telstra & Visa Mobile Phone and Credit Card Contactless Pilot |
| Category | Mobile Payments |
| Driver of Innovation | <ul style="list-style-type: none"> ➤ Technological Advancement ➤ Lower Costs |
| Overview | <ul style="list-style-type: none"> ➤ In pilot from August 2008 the NFC Contactless mobile payments service is the first Australian mobile application of near-field communication (NFC) payment technology, loading a NAB Visa credit card securely onto a Telstra SIM card within a mobile phone handset. ➤ 3 months trial at Melbourne's Docklands ➤ Consumers download the NAB Visa credit card software application to their Telstra SIM remotely, and then use their mobile phone to purchase goods and services by simply waving their phone over a participating merchant's Visa payWave enabled reader. The costs of purchases were charged back to their NAB Visa credit card account. |
| Application | <ul style="list-style-type: none"> ➤ Use of the USIM as the secure element, capable of housing a Visa payment application in a dedicated security domain for a single bank, and connected to an NFC chip through the industry standard Single Wire Protocol (SWP). ➤ Enabling remote Over-The-Air (OTA) card personalisation, allowing customers to activate their handsets for payment without visiting a bank branch or other distribution point. ➤ Support for OTA lifecycle management functions, including the ability to block, unblock, or delete an application in the field - as well as the capacity to update offline risk management parameters in a payment application based on the EMV standard for chip-based payment services, thereby allowing a high incidence of quick and convenient offline transaction authorisations. ➤ Implementation of smart poster technology to provide marketing opportunities and coupons. |
| Benefits | <ul style="list-style-type: none"> ➤ Faster and more convenient payments by requiring less time at the checkout and no fumbling around for cash or coins. ➤ The proof of concept trial in Melbourne was part of the GSM Association (GSMA) pay-buy-mobile global initiative. This means the technology deployed in the Melbourne trial is eventually meant to be interoperable with the technology being developed and endorsed globally. ➤ Unlike localised contactless card or phone trials and closed loop proprietary systems, the GSMA initiative aims to enable consumer users to shop at any contactless enabled merchant around the world when the solution is commercialised. ➤ An end-to-end system that is easy for merchants and customers to use, is secure and has a clear set of processes to manage disputed transactions. |
| Results | <ul style="list-style-type: none"> ➤ With all the technology components for NFC infrastructure increasingly available in the volume required for mass roll-out, innovation in contactless payment will come from how the companies involved collaborate to bring useful services to market for consumers. The collaboration between NAB, Visa and Telstra provides a good model for |

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| | <p>future industry roll-outs.</p> <ul style="list-style-type: none"> ➤ Selected by independent newswire FinExtra as one of the most innovative projects in the payments industry over the past 12 months. The project is now being featured on the FinExtra Innovation Showcase ➤ Results from Australia’s first trial of contactless mobile phone payments show a strong appetite for the technology and give participants the impetus to continue to work towards commercialisation of the technology. ➤ The trial exceeded expectations, with 90 percent of participants very or extremely satisfied with the contactless mobile phone payment system and 95 per cent saying they were likely or extremely likely to use this technology in the future.⁵⁹ |
| <p>Success Factors</p> | <ul style="list-style-type: none"> ➤ The service deployed in the Melbourne trial is a true collaboration of a major bank, global payments network and mobile network operator, as well as various supporting partners |

⁵⁹ The research was conducted by Synovate with fieldwork conducted between September and November 2008. The research consisted of three parts: an online survey with participants, a qualitative online blog and in-depth interviews with participating merchants.

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| Innovation # 11 | POLi |
| Category | Online Payments |
| Driver of Innovation | Consumer demand for security and alternate payments methods for those without credit cards |
| Overview | <ul style="list-style-type: none"> ➤ POLi is an innovative online payment system developed by Centricom Pty Ltd ➤ Targets those who want to shop online but do not have or want to use a credit card |
| Application | <ul style="list-style-type: none"> ➤ Allows payments to online merchants directly from the customer's banking account via their internet banking facility |
| Benefits | <ul style="list-style-type: none"> ➤ Chief executive officer Simon Warner says: "We actually consider ourselves bank-friendly." So friendly, in fact, Centricom even offers a solution where banks receiving funds via POLi could clip the ticket and earn revenue from the service. Warner says the credit crunch is forcing banks in the UK to innovate in order to survive. "In the UK they have to have five different payment options.⁶⁰ ➤ "Unlike BPay and PayPal, POLi allows instalment payments and can therefore be used for payments such as insurance payments, so this may address the needs of customers who do not want to use their credit card online." |
| Results | <ul style="list-style-type: none"> ➤ Eliminates the need for merchant to capture and store sensitive customer data as the customer is using their existing online bank application ➤ Since its launch in 2007, it has been rolled out in Australia, New Zealand, South Africa and the UK ➤ Currently being distributed through Europe as a result of a JV between Centricom and NETELLER ➤ POLi states it is yet to record a single fraudulent transaction |
| Success Factors | <ul style="list-style-type: none"> ➤ Addressing consumer demand for security ➤ Recognising consumer demand for alternative online payment methods to credit cards (especially given the recent 'credit crunch') ➤ Offering financial incentives to banks using the service |

⁶⁰ Centricom CEO Simon Warner, "Second life for POLi". *The Sheet* 12 September 2008.

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| Innovation #12 | EFTPOS |
| Category | OTC Retail |
| Driver of Innovation | Infrastructure – need for a national payments system |
| Overview | <ul style="list-style-type: none"> ➤ Whilst the US implemented the first EFTPOS system, it was limited to regional networks only. Australia was the first to take the EFTPOS concept and create a nationwide payment system. ➤ The EFTPOS system is built as a series of bilateral links between issuers and merchant acquirers. ➤ The first cards in Australia were issued in the 1980s. Initially these cards could only be used to make a purchase at merchants who used the same bank as the cardholder. However, as the system expanded, links between financial institutions were established and cardholders gained access to an increasing number of merchants. ➤ By the 1990s, merchants were able to accept cards from all issuers. |
| Application | <ul style="list-style-type: none"> ➤ Online-transaction handling system commonly used in retail trade. ➤ The buyer swipes their credit, debit or charge card through a magnetic-stripe reader and enters a personal identification number (PIN). The amount authorized by the buyer is electronically transferred from their account to that of the retailer. ➤ Allows debit cards with ATM access to withdraw cash at the time of purchase. |
| Benefits | <ul style="list-style-type: none"> ➤ Issuers -Customer satisfaction – provides customers with access to the national system ➤ Merchants -Faster, electronic reconciliation of payments ➤ Consumers – Convenience, do not have to carry cash & nationwide system |
| Results | <ul style="list-style-type: none"> ➤ In Australia, over the last 14 years EFTPOS has experienced a CAGR of 14% in the volume of transactions, and 16% in the value of transactions. ➤ The total number of EFTPOS transactions in 2008 was over 1.7 billion, and the total value in 2008 was over \$121 billion⁶¹ ➤ In December 2008, there were 669,600 EFTPOS terminals in Australia⁶² |
| Success Factors | <ul style="list-style-type: none"> ➤ Successful collaboration of merchants, issuers and payments clearing system ➤ Addressing consumer demand for a non credit card electronic payment method at the point of sale (POS) ➤ Market Structure – achieving critical mass of issuers and merchants to mitigate the network effect |

⁶¹ Source: RBA Bulletin Statistics, C04

⁶² Source: APCA

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| Innovation #13 | SMS 2 Factor Authentication |
| Category | Online Payments |
| Driver of Innovation | Security concerns from consumers and financial institutions around fraud identify theft, fraud, phishing, etc. |
| Overview | Two factor authentication means that a user needs to <u>know</u> something, e.g. a PIN or a password and <u>own</u> something, e.g. a security token or mobile device (security string can be delivered via a separate physical channel to the user's mobile phone), that they receive only once during authentication. |
| Application | Online Payments |
| Benefits | <ul style="list-style-type: none"> ➤ Since it has been implemented [at NAB]⁶³ as an out-of-band two-factor authentication system, it means that the authentication travels along an independent path -- an SMS mobile phone network, which defeats the classic man-in-the-middle attack,"⁶⁴ ➤ Convenience and security for consumers – When implemented as it was at NAB, where the second factor of authentication occurs at the transaction stage as opposed to when a user logs in, is the most secure method available to authenticate online transactions for the consumer market. |
| Results | <ul style="list-style-type: none"> ➤ At NAB, Approximately 3,500 people sign up to the authentication system each week, giving the bank a user-base of 375,000 customers on the system -- almost a third of its 1.3 million registered online banking customers. ➤ The Commonwealth Bank followed the NAB and implemented its system earlier this year. ➤ ANZ, Westpac, St George, SunCorp and Bankwest meanwhile have opted to wait for newer technologies to emerge, while the Bank of Queensland, HSBC and Bendigo Bank offer token-based two-factor authentication systems. ➤ It is expected by Blair at NAB that the emergence of banking on mobile phone platforms -- available today in places like Hong Kong but still about three years away for Australia -- is just one factor that will render SMS two-factor authentication obsolete, ➤ The key challenge posed by the emergence of mobile phone banking is that the phone and SMS networks will no longer be considered "out of band", which today is considered a key advantage of using SMS networks to deliver the one-time passwords, since it prevents "man-in-the-middle attacks |
| Success Factors | <ul style="list-style-type: none"> ➤ Technological Advancements ➤ Addressing consumer demand fro greater security for Internet banking transactions |

⁶³ Article, Liam Tung, ZDNet Australia, 07 December 2007 05:03 PM to National Australia Bank's general manager of technology, risk and security, Gary Blair.

⁶⁴ A man in the middle attack is when an attacker gets between two transacting parties and either monitors or changes the messages without either participant's knowledge.

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| Innovation #14 | Scheme Debit |
| Category | OTC Retail |
| Driver of Innovation | <p>THEN: Regulatory Environment</p> <ul style="list-style-type: none"> ➤ The first Visa Debit cards were introduced in Australia in 1982 by building societies and credit unions. The introduction of these cards was partly in response to regulations that prevented non-bank financial institutions from issuing credit cards.⁶⁵ <p>NOW: Profit & Consumer Demand</p> <ul style="list-style-type: none"> ➤ After many years of low market share, Visa and MasterCard recognised an opportunity in expanding to new debit market segments – in particular, people without credit cards wishing to make online purchases |
| Overview | <ul style="list-style-type: none"> ➤ Scheme debit cards provide the user with debit functionality (i.e. purchases are deducted from the user's bank account) but with wider access to merchants as Scheme debit cards are accepted by any merchant within the scheme's network ➤ Scheme debit differs from EFTPOS debit in several ways: <ul style="list-style-type: none"> ○ The cardholder usually authorises the transaction by signing a receipt at the point of sale rather than by entering a PIN. ○ The card can be used to pay for goods and services in situations where the cardholder and merchant are not in the same location; examples include payments over the internet or telephone. ○ The cardholder is not able to obtain 'cash out' at merchants. ○ The card can be used internationally. ○ Scheme debit transactions attract the same protections as other scheme transactions, with so-called 'chargebacks' for customers whose cards are used fraudulently or where goods and services are not delivered as promised. |
| Application | <ul style="list-style-type: none"> ➤ Scheme Debit cards can be used to purchase goods or access cash across all merchant environments, from retail transactions to mail, telephone and internet transactions. ➤ When using the card, cardholders must verify their identity by signing a receipt at the point of sale, or by entering their PIN. |
| Benefits | <ul style="list-style-type: none"> ➤ Consumers - a wider range of merchant acceptance than PIN debit ➤ Online Merchants - Visa and MasterCard provide protection and potential fraud saving through Verified by Visa/MasterCard Secure Code |
| Results | <ul style="list-style-type: none"> ➤ At the end of Sept. 2006, Visa Debit card volume grew 18% over 2006, reaching US\$2.5 trillion and surpassing global Visa credit volume. There are more than 741 million Visa Debit cards in use globally, with 86 million debit cards in circulation in the Asia Pacific region⁶⁶. |
| Success Factors | <ul style="list-style-type: none"> ➤ Leveraging existing infrastructure and brand ➤ Addressed consumer demand for online/overseas debit functionality ➤ Profit for issuers versus EFTPOS |

⁶⁵ Reform of the EFTPOS and Visa Debit System in Australia., RBA, February 2005

⁶⁶ www.visa-asia.com

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| Innovation #15 | PayPass / payWave (contactless payment cards) |
| Category | Low Value Payments |
| Driver of Innovation | <ul style="list-style-type: none"> ➤ Consumer demand for speed and convenience ➤ Technological Advancement |
| Overview | <ul style="list-style-type: none"> ➤ MasterCard first launched PayPass contactless technology in the US in 2002, and Visa followed with payWave in 2005. ➤ In 2007, the Commonwealth Bank became the first Australian issuer to incorporate PayPass technology into its credit cards. |
| Application | <ul style="list-style-type: none"> ➤ Credit or debit cards are fitted with the usual chip or magnetic stripe for contact transactions, along with an embedded chip with the PayPass or payWave technology. ➤ Cardholder must wave their contactless card (or other device with associated contactless chip – e.g. Visa offers mini cards and tags in addition to the standard sized card) in front of the reader to make a payment ➤ The reader receives the payment information and then processes the transaction as any other standard Visa magnetic stripe or chip card transaction. ➤ The customer's signature is generally not required for low value transactions (i.e. less than US\$25) ➤ Macquarie Bank recently launched their Platinum Visa Card with the payWave technology. This card became the official credit card of the Sydney Cricket Ground (SCG) and Sydney Football Stadium (SFS). Contactless readers are gradually being rolled out across SCG and SFS food and retail outlets. ➤ The Woolworths Everyday Money Card from HSBC offers PayPass |
| Benefits | <p>Consumers</p> <ul style="list-style-type: none"> ➤ No swiping makes checkout faster and easier ➤ No signature is required for most purchases under US\$25 ➤ The consumer remains in control of their card during the transaction, reducing the risk of fraud ➤ Transactions are processed through the same payment network as magnetic stripe transactions. <p>Merchants</p> <ul style="list-style-type: none"> ➤ Decreases transaction time, speeds lines, and lowers abandonment ➤ Saves time on both sides of the counter; customer simply waves the card in front of the reader rather than swiping or handing the card to you or your employees ➤ Reduces cash management and slippage costs by decreasing cash handling ➤ Added speed and convenience help attract new customers and build loyalty ➤ Sets participating merchants apart from competitors in quick service industries, where speed and convenience are critical |

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| | <ul style="list-style-type: none"> ➤ Because consumers spend more when using cards than paying with cash, it encourages higher average tickets |
| Results | <ul style="list-style-type: none"> ➤ As of 3Q 2008, there are nearly 44 million PayPass cards and devices issued globally, and PayPass is currently accepted globally at more than 135,000 merchant locations ➤ Over 32,000 retailers from 20 top brands accept Visa payWave payments in the US – international acceptance is still fairly low |
| Success Factors | <ul style="list-style-type: none"> ➤ Collaboration and commitment of all parties – particularly merchants ➤ Recognising consumer demand for convenience and merchant demand for cost savings |

10.3 GLOBAL PRODUCT INNOVATION

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| Innovation # 16 | Band of America's Keep the Change Program |
| Category | OTC Retail |
| Driver of Innovation | Profit: <ul style="list-style-type: none"> ➤ BofA hired an innovation consultancy to help get a particular consumer segment to open new checking and savings accounts. |
| Overview | <ul style="list-style-type: none"> ➤ Every time a purchase is made with a BofA debit card, the bank rounds up the purchase to the nearest dollar and transfers the difference from the cardholder's checking into their savings account. ➤ BofA also matches 100% of transfers for the first three months, and 5% of the annual total, up to \$250 a year. |
| Application | <ul style="list-style-type: none"> ➤ Cards / accounts with a rewards program attached are not eligible for this program ➤ Matching funds are paid annually after the anniversary of enrolment on accounts that remain open and enrolled. ➤ Savings accounts eligible to receive matching funds include, but are not limited to, Regular Savings, which requires a minimum opening balance of \$25 and pays a variable Annual Percentage Yield that was .20% as of 02/16/09. ➤ Money Market savings accounts are also eligible. Fees could reduce earnings. |
| Benefits | <p>The bank</p> <ul style="list-style-type: none"> ➤ Encourages consumers to open new accounts with the bank ➤ Each time the Visa debit card is used for a credit transaction, Bank of America earns higher interchange <p>Consumers</p> <ul style="list-style-type: none"> ➤ Encouraged to save without having to actively try ➤ Access to 'free' money from the bank |
| Results | <ul style="list-style-type: none"> ➤ Since the launch, 2.5 million customers have signed up for Keep the Change. ➤ Over 700,000 have opened new checking accounts and 1 million have signed on for new savings accounts. ➤ These positive results are in spite of the fact consumers could earn higher interest rates in a longer term / internet savings account; demonstrating that a large number of people don't want the hassle of having to manage a savings account. |
| Key Success Factors | <ul style="list-style-type: none"> ➤ Strong marketing strategy ➤ Innovation culture to launch a never before tried product concept ➤ Recognising a consumer need of saving and a gap in the market for this type of product ➤ Profit – A business model that provides financial benefits to consumers as well as issuer |

10.4 GLOBAL SYSTEMIC INNOVATION

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| Innovation # 17 | China UnionPay (CUP) Network |
| Category | OTC Retail |
| Driver of Innovation | <ul style="list-style-type: none"> ➤ System efficiency/Profit ➤ Regulatory - Improves the unity and hence efficiency of the Chinese electronic payments network |
| Overview | <ul style="list-style-type: none"> ➤ Historically (pre 1990's), Chinese commercial banks issued their own proprietary payment cards, and these were not generally accepted by other banks (or their merchants) across mainland China. ➤ This poor inter-bank connectivity was inconvenient for many consumers and, amongst other reasons, resulted in limited use of electronic payments and the continued use of cash payments ➤ To unify the electronic payments network, the Chinese government decided on the establishment of China UnionPay (CUP) in 2002. ➤ Today CUP operates the national network interconnecting POS terminals, ATM's, the schemes and the financial institutions through its communication links, switches and processing centres. ➤ CUP also has ambitions to become an independent payments brand, both nationally and internationally. |
| Application | <ul style="list-style-type: none"> ➤ CUP (owned and supported by more than 80 of China's domestic financial institutions), authorises, clears and settles domestic transactions. As a result, there is increasing POS terminal sharing for domestic transactions (e.g. fewer cases of merchants having multiple terminals). ➤ The acquiring market in China is dominated by CUP, who is in a position to make more money from acquiring than others, as it obtains both the acquirer and network components of the merchant service fee. ➤ CUP is getting involved in all parts of the credit card value chain, including establishing itself as a loyalty service provider. |
| Benefits | <ul style="list-style-type: none"> ➤ Consumers - Travellers have the choice of a CUP card in addition to Visa/ MasterCard as the domestic market has a preference for local brands ➤ Issuers - CUP transaction fees are said to be less than Visa & MasterCard |
| Results | <ul style="list-style-type: none"> ➤ By the end of 2008, 196 CUP domestic member banks issued more than 1.8 billion cards. ➤ The number of domestic CUP merchants totalled 1.18 mn. with 1.85 mn. POS terminals, and ATMs reached nearly 160 thousand, increased by 7.8, 8.4 and 4.2 times respectively over the end of 2001 (prior to CUP). ➤ By the end of 2008, CUP cards could be used to withdraw cash from ATMs in 50 countries and regions abroad, and swiped for purchases on merchants' POS terminals in 30 countries and regions. |
| Success Factors | <ul style="list-style-type: none"> ➤ Government playing a role in the establishment of a national system to meet consumer demand ➤ Industry coordination / collaboration |

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| Innovation # 18 | Oyster (UK) |
| Category | Low Value Payments |
| Driver of Innovation | <p>Technology</p> <ul style="list-style-type: none"> ➤ Transport for London (TFL) recognised an opportunity to leverage contactless technology being introduced on other transport systems globally. ➤ Profit – Demand for a more cost effective payment method for transit ➤ Consumer Demand for a more convenient payment method for transit |
| Overview | <ul style="list-style-type: none"> ➤ The Oyster Card is an electronic ticketing system for TFL. It was first introduced in 2003 as a reloadable contactless prepaid card. ➤ Oyster can be used for payments on London’s Underground, DLR, tram and bus networks and on some national railways – TFL are now in the process of extending use to other national rail services. ➤ The Oyster Card is run and operated by TranSys – a consortium comprised of EDS, Fujitsu and Cubic. ➤ In December 2006 TranSys issued the first license for Oyster to Barclaycard, giving Barclaycard the exclusive rights to place Oyster onto its Visa credit cards (OnePulse card) for three years. |
| Application | <ul style="list-style-type: none"> ➤ The Oyster card can store up to three “period travel cards” and a pay-as-you-go balance. ➤ Barclaycard’s OnePulse card combines three different applications onto one card. The card will have the usual Oyster functions for transit (as above), as well as standard Chip & PIN function, and a new technology enabling contactless payment for low value transactions (under £10.00). ➤ It is rumoured that the Museums, Libraries and Archives Council (MLA) is interested in combining Oyster with a smart card membership scheme for all of London’s libraries. |
| Benefits | <p>Consumers</p> <ul style="list-style-type: none"> ➤ The need to carry cash for low value transactions will be reduced. ➤ Multi-function card enables use of one card for different payment transactions - also reduces number of cards carried in wallet. ➤ Cardholders can still maintain separate accounts, i.e. credit/debit card account will not be used when the Oyster function is used, and vice versa. <p>Transport for London</p> <ul style="list-style-type: none"> ➤ Almost three times as many passengers can pass an Underground ticket gate using Oyster card as can using printed tickets - 40 a minute compared to 15 a minute <p>Merchant</p> <ul style="list-style-type: none"> ➤ If the ‘wave and pay’ transactions are a cheaper form of payment acceptance for the merchant relative to cash, then the cost of handling cash will be significantly reduced. ➤ Increased footfall in stores and increased sales. |

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| | <ul style="list-style-type: none"> ➤ Increased speed at checkout. ➤ If the MLA does implement the Oyster as part of its membership scheme, it would enable MLA to obtain data for all cardholders using the libraries and a more efficient and wider membership scheme. <p>Issuer</p> <ul style="list-style-type: none"> ➤ Barclaycard has exposure to the 17 million Oyster Card users. ➤ Barclaycard can potentially sign up new customers, either for their credit card products or even for a current account and a debit card. ➤ With the OnePulse card, Barclaycard are likely to see an increased number of transactions by cardholders. ➤ As a merchant acquirer Barclaycard can sign on new merchants. ➤ Barclaycard has gained significant publicity from the new OnePulse product. |
| Results | <ul style="list-style-type: none"> ➤ Since its launch in 2003, Oyster has issued more than 17 million cards, with three quarters of all Underground and bus payments in London now being transacted by Oyster. ➤ 38 million journeys a week are made each week using Oyster ➤ Over 1,000 retail outlets (with over 6,000 terminals), including Coffee Republic, Threshers, Books Etc, YO! Sushi, Eat, Krispy Kreme and the Science Museum have been signed up to accept contactless OnePulse payments up to £10. ➤ Almost 1 million OnePulse cards have been issued |
| Success Factors | <ul style="list-style-type: none"> ➤ Collaboration (adding Barclaycard as a partner increases consumer user base and merchant acceptance and mitigates the network effect) ➤ Reliable infrastructure & technology ➤ Convenience for consumers ➤ Continuous improvement (Phased rollout to the public) adding new applications (credit card) and merchants ➤ Market Structure – Critical mass of market size of transit users and transaction volumes |

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| Innovation # 19 | Moscow Social Card |
| Category | Low Value Payments |
| Driver of Innovation | <ul style="list-style-type: none"> ➤ The initial services emerged from cost reducing exercises within the Moscow Metro transit system and the Mandatory Medical Insurance Fund. The programme was designed to evolve over time and to expand to include additional applications services. |
| Overview | <ul style="list-style-type: none"> ➤ In the early 90s, the Moscow city government created a platform through which to provide Moscow residents a combination of services. ➤ The programme commenced with the social security offering, combined with medical insurance and underground ticketing services. It has now evolved to include financial services. ➤ 3.5 million magstripe cards in issue at end of 2005, with the intention to migrate the offering to Chip by end of 2007 and EMV chip by end of 2008. |
| Application | <ul style="list-style-type: none"> ➤ Personal identification is the primary application, using a combination of the unique social ID number, issuer data, cardholder name, sex, and date of birth as identifiers. ➤ Social Security Information – Moscow department of Social Security. ➤ Medical Insurance information – Mandatory Medical Insurance fund, who provide a range of health insurance services ➤ Transit – Moscow Metro, Mosgortrans (overground transportation – Moscow bus, tram and trolleys, Moscow suburban railways). ➤ Discounts from selected merchants – the loyalty concept is still relatively undeveloped in Russia, but the ‘social discount’ programme is likely to evolve into a multiple closed loop programme or hybrid programme with selected merchants and open loop Visa functionality. ➤ Financial applications – Card issued by the Bank of Moscow with a Visa international product attached for selected customer segments. ➤ Other – free space on the magstripe/Chip for the addition of other applications. Current applications under discussion are mobile, internet and any merchant specific proprietary applications. |
| Benefits | <p>Consumers</p> <ul style="list-style-type: none"> ➤ Moscow residents received their benefits more effectively. Changes in benefits can be reflected by post-issuance updates on cards. ➤ Pharmacies can have updated prescriptions. ➤ Card acknowledges a consumer’s status in the community. ➤ Is used as a form of identification and access within government buildings. ➤ Cardholders living overseas can still use their card. ➤ Discounts could be incorporated onto the transit system – e.g. students, pensioners. ➤ One card in the wallet. <p>Merchants</p> <ul style="list-style-type: none"> ➤ Applications can be added and removed through the card lifecycle |

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| | <p>dependent on the customer requirements/eligibility.</p> <ul style="list-style-type: none"> ➤ Transit operators increased income due to improved efficiency: ➤ Moscow Metro – 20% Growth in income reported in 2003 ➤ Russian Railways reported an increase in income at stations equipped with turnstiles by 23% ➤ Interoperability with other transit operators – increased usage. ➤ Government is able to identify and provide benefits to citizens more effectively. ➤ Shared call centre costs. ➤ Introduction of a unique closed loop loyalty scheme for different customers at different merchants. <p>Issues</p> <ul style="list-style-type: none"> ➤ New business from citizens receiving benefits through their Bank of Moscow accounts. ➤ Additional merchant accounts. ➤ Top of Wallet effect for Bank of Moscow – becomes the preferred supplier. ➤ Greater customer retention rates. ➤ Low fraud losses, credit losses and chargebacks. ➤ Higher levels of customer satisfaction. ➤ Reduced marketing costs. |
| Results | <ul style="list-style-type: none"> ➤ Declared a successful programme by the Russian Government, and is likely to be extended to form a “Citizen card” with information on the EMV chip. Current cards on issue in excess of 3.5m – estimated growth to 10m by 2010. ➤ Additional banks and merchants will be invited to participate, supported by the same Global Platform enabling customers with other banking relationships to have access to the programme. ➤ Intention to expand the programme to other Russian cities and regions. ➤ Customer satisfaction high – 50% cardholders have applied to extend the number of applications available on their card (most particularly to include the Visa international payment capability). ➤ Multiple applications can co-exist on a card. The key is to develop accurate and maintainable databases using a unique social identifier number/code. ➤ |
| Success Factors | <ul style="list-style-type: none"> ➤ Collaboration and support from a group of key participants (Moscow Government, Moscow Metro, Visa, Bank of Moscow). ➤ Availability of required infrastructure - contactless readers, bar code readers must be available at each required location. |

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| Innovation # 20 | GCash (Philippines) |
| Category | Mobile Payments |
| Driver of Innovation | Consumer Demand of the unbanked population Technological Advancement - Goal to transform a mobile phone into a wallet |
| Overview | <ul style="list-style-type: none"> ➤ Launched in November 2004, GCash is Globe Telecom's mobile commerce service ➤ Enables access to a cashless & cardless method of facilitating money transfers with a SMS ➤ Requires a mobile phone and a one-time registration ➤ SMS costs only P1.00 (US\$0.02) ➤ Maximum transaction limit of P100,000 (US\$2,000) per month |
| Application | <ul style="list-style-type: none"> ➤ SIM card based solution (initially), switched to SMS based solution ➤ Domestic and international remittances ➤ Loan settlement ➤ Disbursement of salaries ➤ Payments for various goods and services ➤ Bills payment ➤ Donations |
| Benefits | <ul style="list-style-type: none"> ➤ Ease of use – enables access to a cashless & cardless method of facilitating money transfers with a SMS ➤ Fast, affordable and secure way to perform various transactions |
| Results | <ul style="list-style-type: none"> ➤ 500,000 merchants with prepaid telco load, available for Gcash ➤ 400 Gcash locations overseas in 15 countries, where 70% of overseas Filipinos live ➤ Cash in/out of Gcash accounts at 7,000 ATM's in Philippines, as well as merchants ➤ US\$100m / month is being moved through system ➤ It is expected unbanked users will migrate to being banked, but Gcash also has deals with many banks ➤ The SIM card-based solution was initially used, which required customers to purchase a new SIM card incorporating the mobile banking application. The uptake was low and after a year, Gcash moved to develop an application that did not require the user to swap their SIM |
| Success Factors | <ul style="list-style-type: none"> ➤ Consumer demand was high due to a large unbanked population and low cost for SMS ➤ Infrastructure - High consumer mobile usage ➤ Collaboration - Large number of participating merchants ➤ Updated SIM card solution that meets needs of consumers for convenience by not requiring them to change SIM cards |

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| Innovation # 21 | Decoupled Debit (US) |
| Category | OTC Retail |
| Driver of Innovation | <ul style="list-style-type: none"> ➤ Merchant Demand - Merchant feedback to Capital One suggested that a gap existed in the available payment products a merchant could offer to their customers <ul style="list-style-type: none"> ○ Credit, debit, and gift cards are the card-based payment options for most merchant transactions ○ However, debit has been outside the control of the merchant, as it has remained aligned with the banking relationship of the consumer ○ Creating the 'Decoupled Debit product' enables Capital One to close this gap for merchants |
| Overview | <ul style="list-style-type: none"> ➤ In the traditional debit card model, the account-owning institution also issues the debit card, with Decoupled Debit, these are split between two institutions ➤ In 2007, Capital One in the US launched the first decoupled debit card product |
| Application | Debit card products |
| Benefits | <p>Debit Services Provider:</p> <ul style="list-style-type: none"> ➤ Since Decoupled Debit transactions terminate with them, they earn the interchange revenue and they have the expense and risk associated with the transaction ➤ This interchange can be shared back with the merchant, and can also be used to fund more lucrative debit card reward programs ➤ Strengthened merchant relationship ➤ Strengthened consumer relationship ➤ Increased opportunity to cross-sell other products and services ➤ Increased visibility into consumer payment and buyer behaviours <p>Merchant:</p> <ul style="list-style-type: none"> ➤ Lower acceptance costs, especially for in-store purchases on a cobranded card (no interchange fee for on-us transactions) ➤ Increased sales ➤ Increased customer loyalty ➤ Visibility into customer purchases outside their stores <p>Cardholder:</p> <ul style="list-style-type: none"> ➤ Opportunity for enhanced debit rewards earnings <ul style="list-style-type: none"> ○ Traditional debit card reward program: \$.10 per \$100 spend ○ Decoupled Debit reward program: Average \$.46 per \$100 spend, at cobrand partner: \$.80 per \$100 spend ➤ More competition creates better products for the consumer ➤ Do not need to switch banks for better debit rewards program |

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| | <ul style="list-style-type: none"> ➤ Transaction float |
| Results | <ul style="list-style-type: none"> ➤ To date there has been slow consumer adoption, and high support costs required by the debit service providers. ➤ There are only a few implementations in the market: <ul style="list-style-type: none"> ○ Tempo – under the ‘DebitMan’ brand. Currently has 200,000 acceptance locations ○ PayPal issues their own PayPal MasterCard Debit Card, which functions as a Decoupled Debit solution ○ Capital One began working on decoupled debit more than 3 years ago, and began launched the product with a Sheetz cobranded card in May 2007. Presently, Capital One has suspended its pilot testing ➤ Decoupled Debit will have targeted up-take, but adoption and operational hurdles will hinder mass acceptance in the near-term. The challenge is determining if decoupled debit is more cost effective than other card solutions ➤ |
| Success Factors | <ul style="list-style-type: none"> ➤ Collaboration in building relationships with merchants and consumers ➤ Recognising merchant needs |

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| Innovation # 22 | Bill Me Later (US) |
| Category | OTC Retail |
| Driver of Innovation | Consumer reluctance in the early 2000's to pay for goods over the internet with a credit card |
| Overview | <ul style="list-style-type: none"> ➤ Bill Me Later is a convenient and secure way to pay on the web or over the phone. ➤ Bill Me Later enables users to "shop now, pay later". ➤ At checkout, users provide their birthday and the last four digits of their social security number to complete the purchase. |
| Application | Consumer purchases |
| Benefits | <ul style="list-style-type: none"> ➤ Consumers are able to purchase goods online without having to use a credit card ➤ Charges merchants a lower transaction fee for its Bill Me Later service than most credit card companies charge |
| Results | <ul style="list-style-type: none"> ➤ Bill Me Later's credit risk modelling and analysis have consistently performed better than the consumer credit industry average ➤ eBay acquired Bill Me Later in late 2008, to complement its PayPal product. ➤ eBay anticipates that Bill Me Later will generate an estimated \$150 million in revenue in 2009. ➤ The Bill Me Later, Inc. network includes more than 1000 online stores, catalogues and travel partners including Apple, Borders, Blue Nile, Bluefly, Continental Airlines, eLUXURY, Fujitsu, JetBlue, Overstock, QVC, Toshiba, Toys "R" Us, US Airways, Walmart.com and Zappos. ➤ An average of almost 3 million consumers per month are utilising Bill Me Later when shopping online, via phone and in-store. |
| Success Factors | <ul style="list-style-type: none"> ➤ Collaboration with merchants ➤ Recognising consumer demand for secure internet transactions |

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| Innovation # 23 | Faster Payments (UK) |
| Category | Bill Payment and Online Payments |
| Driver of Innovation | <p>Government</p> <ul style="list-style-type: none"> ➤ Don Cruickshank's report on competition in the UK banking industry was published on 20th March, 2000. The report was the result of an independent review of the banking industry commissioned by the government. ➤ The scope of the review included an examination of the levels of innovation, competition and efficiency both within the industry and in comparison to international standards. ➤ This was the main driver for change, with the report seeking to increase innovation in the UK banking environment. |
| Overview | <ul style="list-style-type: none"> ➤ Faster Payments is the first new payments service to be introduced in the UK for more than 20 years. ➤ For the first time, phone, internet and standing order payments can be conducted within a few hours. ➤ The Faster Payments infrastructure was launched on 27th May 2008. ➤ From that date, the founding member banks began gradually implementing their own plans to deliver the service to their customers. ➤ A phased approach to rollout has been adopted to help ensure that the service is launched smoothly, securely and with total reliability for customers. ➤ The new service runs alongside existing payment schemes in the UK such as BACS and CHAPS. |
| Application | <ul style="list-style-type: none"> ➤ Potential users of the Faster Payments Service are divided into two main categories: <ul style="list-style-type: none"> ○ Indirect users: This includes personal and business customers, as well as financial institutions who do not connect directly to the Faster Payments Service infrastructure, but who make faster payments via their bank. ○ Participants: There will be a number of distinct types of participant in the Faster Payments Service: <ul style="list-style-type: none"> ▪ Members (credit institutions with a settlement account at the Bank of England) ▪ Agencies (financial institutions who do not want or need to be full members of the Faster Payments Service can choose to become agency participants) ▪ Third-party beneficiaries (e.g. credit card issuers) ▪ Corporates |
| Benefits | <ul style="list-style-type: none"> ➤ The Faster Payments Service enables electronic payments, typically made via the internet or phone, to be processed in hours rather than days. VOCA effectively created a system with a dial that could be turned to speed up or slow payments on request. Turn the dial up to 3 three day delay in payments or down toward intra day payments or even clearing and settlement every 15 minutes. |

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| Results | <ul style="list-style-type: none"> ➤ Currently 13 banks and building societies are committed to the new service. ➤ In the future, other financial institutions will be able to join, either as members or to access the system through agency arrangements with a member - just as they do with other payment systems. ➤ Abbey National, part of the Santander Group, had difficulties in joining the group of UK clearing banks as a result of a refresh of their back-end legacy systems, and as a result subsidiary Abbey does not support Faster Payments for their clients ➤ To date, there have been around 90 million Faster Payment transactions conducted. This is considered a successful launch as there has been no brand, no marketing and no common customer proposition (this is up to each bank). ➤ Despite there being around 6 billion electronic transactions per annum, 90 million is considered a good start. ➤ Many customers don't even know Faster Payments has been implemented and only savvy customers are aware and choose to make ad hoc payments through their banks by selecting the date for the payment to be made the next day. This has proved to be very popular with consumers wishing to pay their credit card bills last minute – consumer's who are managing their budgets very tightly. ➤ Another area of success has been eBay payments where eBay merchants are offering the option for buyers to pay through their bank accounts using Faster Payments prior to sending the goods to the consumer. Furthermore, it allows for the eBay reference to be inserted into the transaction message. ➤ The next steps will be to seek ways to build upon the new infrastructure and exploit it for new applications. The first two are currently being explored , being 1) mobile payments (supported by Monitise which provides the Monilink service with Vocalink) and 2) online payments where e-commerce merchants would accept a Faster Payment in much the same way as iDeal and Giropay offer a means of online payment today in Netherlands and Germany, respectively (similar to BPAY) |
| Success Factors | <ul style="list-style-type: none"> ➤ Effective collaboration by participants ➤ Government support |

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| Innovation # 24 | Wizzit Bank (South Africa) |
| Category | Mobile Banking |
| Driver of Innovation | Customer Demand from the unbanked population |
| Overview | <ul style="list-style-type: none"> ➤ Established in 2002 to find a solution to provide a low-cost, comprehensive banking service to the country's then 16 million unbanked adults. Launched April 2005. ➤ At the time, the only bank focused on the unbanked and an early mover in mobile banking in general. ➤ Believe bank led model, as opposed to MNO led model is the correct one, therefore having no restrictions, therefore funds can be transferred from one account to another irrespective of the mobile network customer is subscribed to. |
| Application | <ul style="list-style-type: none"> ➤ Delivery channel for the service was the mobile phone (of which there 39 million in use⁶⁷ in South Africa, a country with a total population of 47 million. ➤ Rejected the typical SIM card based application used by G-Cash and M-PESA as it required customers to obtain a new SIM card. ➤ Instead, Wizzit used unstructured supplementary service data (USSD), unlike short message service (SMS), which is a store-and forward solution, USSD enables a real-time interactive session between the mobile phone and service provider. ➤ It is a feature as SMS and is available in an estimated 95 percent of handsets. There are no personal banking details loaded on the phone, a security feature that consumers like," he added. Additional transaction security is provided by a four digit PIN. |
| Benefits | <ul style="list-style-type: none"> ➤ Customer does not need to switch SIM cards ➤ System agnostic and is interoperable between all South African MNOs and banks. ➤ Affordable service with a real-time transactional capability. To open an account a ZAR39.99 (\$4) once-off fee is charged and thereafter, it is a pay-for-use service, with no monthly fees, no minimum balance requirements and no penalties for non-use or excessive use. ➤ Customers receive an optional MasterCard Maestro-branded debit card when they open an account. The card provides domestic and international access to ATMs and facilitates POS purchases and cashback transactions at numerous major South African national retailers' stores. ➤ Service backed up by enabling customers to make deposits at any of ABSA Bank's 800 branches and the South African Post Office's 2.600 outlets. Salaries and wages can also be deposited directly into a Wizzit account. Typical fees are ZAR4.99 for recurring debit orders and stop orders, ZAR2.99 for Wizzit-to-Wizzit account transfers, ZAR4.99 for Wizzit-to-non-Wizzit account transfers and ZAR0.99 for bill payments, prepaid electricity ➤ Convenience – it takes an average of 47 minutes to access a financial |

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| | service point, while it takes an average of 15 seconds to complete a mobile transaction. ⁶⁸ |
| Results | <ul style="list-style-type: none"> ➤ Invited to speak at numerous conferences including Clinton Global Initiative conference in 2008 ➤ Expanding beyond South Africa into other African countries and Eastern Europe |
| Success Factors | <ul style="list-style-type: none"> ➤ Successful due to business model that takes into consideration and does not disenfranchise any of the key players, regulators, big banks, MNOs, payment card associations and remittance companies. They are willing to work with all parties. |

⁶⁷ According to United Nation's body the International Telecommunication Union as at end of 2008

⁶⁸ Mobile Banking in Developing Markets, Electronic Payments International Jan 2009, Brian Richardson, Wizzit CEO

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| Innovation # 25 | M-PESA (Kenya) |
| Category | Mobile Payments |
| Driver of Innovation | Customer Demand from the unbanked population |
| Overview | <ul style="list-style-type: none"> ➤ A SMS-based payments service launched in mid-2005 by UK MNO Vodafone in Kenya in conjunction with local MNO Safaricom and microfinance organisation Faulu Kenya. ➤ A bank account is not required to become an M-PESA customer. ➤ M-PESA agents, of which there are some 5,000, provide account loading and cash withdrawal services while cash can also be withdrawn at specially equipped ATMs. ➤ Maximum transaction amount per day is KShs70,000 (\$880) and the maximum transferable per transaction is KShs35,000. |
| Application | <ul style="list-style-type: none"> ➤ M-PESA's services include depositing cash into and withdrawing cash from M-PESA accounts, mobile-to-mobile transfers, buying Safaricom airtime, paying bills and making repayments on loans from Faulu Kenya. ➤ Utilises a SIM based application that requires a customer to replace his or her existing SIM card. |
| Benefits | <ul style="list-style-type: none"> ➤ Reduction in transaction costs for lower income market ➤ Provides new functionality including remote payments ➤ Provides an infrastructure that delivers capability and efficiency to the microfinance world |
| Results | <ul style="list-style-type: none"> ➤ Considered to be a success, M-PESA reached the 5 million customer mark in January 2009, a total representing some 16 percent of Kenya's total population. ➤ M-PESA processes about 280,000 transactions per day with a total monthly value of about \$125 million. ➤ Backlash against new entrants - like mobile network operators - into traditional banking space has been seen. Banks have put pressure on the [Kenyan] central bank to put a heavier regulatory scrutiny on M-PESA. The 48 commercial banks in Kenya have a total of about 3 million customers and 750 banking outlets. |
| Success Factors | <ul style="list-style-type: none"> ➤ Consumer demand is met in that it offers efficient payment method at a lower cost ➤ Reliable Infrastructure |

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| Innovation # 26 | Moneybookers (UK) |
| Category | Online Payments |
| Driver of Innovation | <ul style="list-style-type: none"> ➤ Regulation - In October 2000 when the European Commission (EC) issued it's Electronic Money Directive. |
| Overview | <ul style="list-style-type: none"> ➤ In April 2002 the UK became the first European Union country to implement the directive into law, allowing establishment of regulated e-money service suppliers permitted to take deposits but not pay interest or extend credit to customers. ➤ In February 2003 it became Europe's first regulated electronic money (e-money) issuer. ➤ Focus is on crucial factors such as simplicity, cost competitiveness and security. ➤ Online merchants have adopted Moneybookers' service with the number offering its payment service ending 2008 at over 30,000. Among major global names is internet phone service provider Skype, an eBay unit, which uses Moneybookers to process payments internationally. From February 2009, eBay itself will add Moneybookers to its official list of payments methods. ➤ Moneybookers was incorporated in 2002 and received its Electronic Money Licenses in 2003. ➤ Last year, the company processed nearly \$4.00 billion (€2.85 billion) in payments. ➤ Currently, it is handling \$17.6 million (€13.0 million) a day. In 2007, Moneybookers sold a 51% stake to private equity firm Investcorp for \$148 million (€105 million). |
| Application | <ul style="list-style-type: none"> ➤ Moneybookers' service enables users to upload money to a virtual account - or e-wallet - which can be used to pay for goods and services online and send money to anyone with an email address. Recipients could then receive payment via a Moneybookers correspondent bank in their country or, if they are not a customer, have the amount paid out in cheque form. Payments are made instantly. ➤ Will offer a prepaid MasterCard to use at sites where Moneybookers is not a payment option. It expects most of those cards will be issued in Eastern and Southern Europe by banks in Germany and the U.K. ➤ Moneybookers USA will open this year, operating as a money transfer agent in all 50 states. In addition, U.S.-based payment gateway Cardinal Commerce will offer its 30,000 merchant customers access to Moneybookers' consumer base. EBay.com will integrate Moneybookers into its payment page beginning February 25. |
| Benefits | <ul style="list-style-type: none"> ➤ Cost competitive - Costs are 1 percent of transaction value with a maximum of €0.50. ➤ When a foreign currency is involved 1.75 percent is added to the applicable wholesale foreign currency rate to protect Moneybookers against adverse exchange rate moves. ➤ Moneybookers' fees make it a strong contender in the global remittance market where high fees are standard. For example, according to the World Bank for a remittance between the UK and South Africa, where |

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| | <p>Moneybookers has a correspondent bank, competitors' fees average 12.22 percent, ranging from 5.55 percent for a 24-hour service from LCC Trans- Sending to 22.1 percent for an instant service from MoneyGram.</p> <ul style="list-style-type: none"> ➤ The service claims to be highly flexible and easily customised for merchants. Moneybookers' service has evolved to the point where more than 60 local payment options are offered, while for customers using credit cards for merchant payments 200 countries are covered. Another attraction for merchants is Moneybookers' no charge-back policy. A service in which Moneybookers takes the risk. The system mitigates against fraud in a number of ways, from the basic approach of excluding customers from high-risk countries to sophisticated technology that, for example, can identify that a specific personal computer has already been used to open an account. ➤ In addition, instant credit checks on new customers are done, in Germany and if they have an unsatisfactory credit record they are asked to make a giro [instant bank account debit] payment instead of being offered a debit facility. |
| <p>Results</p> | <ul style="list-style-type: none"> ➤ Europe's fastest growing internet- based person-to-person and business-to-customer payments services. ➤ Moneybookers has a fast-growing network of correspondent banks which at the end of 2008 provided coverage of 39 countries in 29 currencies. ➤ More than 30,000 Web merchants worldwide offer Moneybookers as a payment option on their checkout page. Most are based in Germany, Austria, France, and the U.K. ➤ The majority of sales are for digital content, but some merchants are travel companies and others sell hard goods. 6.6 million Europeans who have registered with Moneybookers have chosen to provide the company with their deposit account details because they either don't have or don't want to use a credit or debit card for online purchases. ➤ Moneybookers claims to have more European consumers than any of its competitors, and it is adding 10,000 more every day. ➤ Growth from a 650,000 customers at the end of 2004 to 6.2 million customers at the end of 2008,, up 55 percent compared with a year earlier. The majority of customers are in the UK, Germany, France and Poland. Transaction volumes grew at an even faster pace than customer numbers in 2008, doubling to €3 billion (\$4 billion) on a run-rate basis. Profit run-rate based on earnings before interest, tax, depreciation and amortization doubled to €26 million in December 2008, justifying private equity firm Investcorp Technology Ventures' decision to acquire a controlling stake in Moneybookers for €105 million in March 2007. |
| <p>Success Factors</p> | <ul style="list-style-type: none"> ➤ First-mover advantage in the e-money market, (However, it could face increased competition if the EC goes ahead with plans to lower entry barriers). ➤ Addressing Consumer Demand for simplicity, cost competitiveness and security. |

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| Innovation # 27 | Pay With Your Mobile (Poland) |
| Category | Mobile Payments / Low Value Payments |
| Driver of Innovation | Consumer Demand for convenience in low value payments such as transit |
| Overview | <ul style="list-style-type: none"> ➤ A mobile phone-based payments service believed by its creators to have the potential to become the first common standard for mobile in Poland. ➤ The service, is a result of collaboration between Polish bank Citi Handlowy; Polkomtel, operator of the Polish Plus mobile network; and mPay, an acquirer and developer of the mobile payments solution being used in the service. |
| Application | <ul style="list-style-type: none"> ➤ Citi Handlowy, mPay and Polkomtel are partnering with Zarząd Transportu Miejskiego (ZTM), Warsaw's public transport authority, to launch a free service which will enable customers of Citi Handlowy to pay for ZTM time-limited tickets directly from their bank account via a mobile phone. ➤ To use the service consumers dial 145, followed by a code of a respective ticket type and then press hash. Ticket codes cover four the limited time periods ranging from 20 minutes to 90 minutes. Payments from accounts are limited to PLN300 (\$100) for a single payment while the total daily payments limit is- PLNSOO. ➤ The mPay service's primary access interfaces are unstructured supplementary service data text and interactive voice response which can be chosen based on user preferences. |
| Benefits | <ul style="list-style-type: none"> ➤ Consumer don't have to carry cash or look for a kiosk to buy tickets ➤ A notable advantage of mPay's mobile payment solution is that it is compatible with all mobile phones and does not require installing of additional application on the phone. ➤ The mPay system is also near field communication enabled was used in contactless payments trials involving parking meters in Warsaw in 2008. |
| Results | Too early for results as program launched 18 December 2008 |
| Success Factors | <ul style="list-style-type: none"> ➤ Collaboration between a bank, mobile phone operator and an acquirer and developer of mobile payments solutions ➤ "It is the first time a bank, a mobile network operator and an acquirer have agreed upon a common business model. The innovation in mobile payments offered by us can become mass-market service, and a standard that others will follow."⁶⁹ |

⁶⁹ Media Release from Citibank Poland on Wireless Federation 18 December, 2008.

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