EXPERT INDUSTRY OPINION

IN RELATION TO THE APPLICATION TO THE AUSTRALIAN COMPETITION AND CONSUMER COMMISSION FOR AUTHORISATION OF THE PROPOSED AMALGAMATION OF BPAY GROUP PTY LIMITED AND BPAY PTY LTD, EFTPOS PAYMENTS AUSTRALIA LIMITED AND NPP AUSTRALIA LIMITED

Submitted by:

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NON-CONFIDENTIAL VERSION

Contents

I. Summary

1. This document provides the independent expert industry opinion of Lance Sinclair Blockley, and responds to a brief provided by counsel for Industry Committee Administration Pty Ltd (ICA), in regard to an application to the Australian Competition and Consumer Commission (ACCC) for authorisation of a merger of 3 of Australia's domestic payments systems operated by NPP Australia Limited, eftpos Payments Australia Limited, BPAY Group Pty Ltd and BPAY Pty Ltd. The document includes a background to the Australian payments landscape, descriptions of what I believe are important current and future trends in payments, and my opinion of what is likely to occur both without and with the consolidation of the domestic payments industry.

2. A payment is an exchange of value, for example a monetary payment in return for the provision of a service, such as the supply of electricity. A payments system is a system that allows consumers, businesses and other organisations to transfer funds by facilitating the movement of cash, electronic payments and other payment instruments. It encompasses the technical infrastructure, standards and participants that ensure funds can move from the account of the payer to the account of the payee.

3. The electronic retail payments system, as used by most payers in Australia, is a form of two-sided market. Two-sided markets are different to traditional markets where buyers and sellers transact directly[1]. Rather the electronic retail payments system requires an intermediary or platform to coordinate the interface between the two-sides, such as the customer and merchant: in this case, the intermediaries are often the financial institutions that participate in and are members of the card schemes, such as the eftpos, Visa or MasterCard schemes.[2]

4. The two sides of the market are closely related as they create "network effects". That is, payers (e.g. consumers) prefer a payment method that is widely accepted by payees (e.g. merchants), and payees prefer a payment method that is widely used by payers. The wider the use and acceptance of a payment method, the more efficient the retail payments system

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[1] https://en.wikipedia.org/wiki/Two-sided_market "A two-sided market, also called a two-sided network, is an intermediary economic platform having two distinct user groups that provide each other with network benefits. The organization that creates value primarily by enabling direct interactions between two (or more) distinct types of affiliated customers is called a multi-sided platform. This concept of two-sided markets has been mainly theorised by the French economists Jean Tirole and Jean-Charles Rochet.
Two-sided networks can be found in many industries, sharing the space with traditional product and service offerings. Example markets include credit cards (composed of cardholders and merchants); health maintenance organizations (patients and doctors); operating systems (end-users and developers); yellow pages (advertisers and consumers); video-game consoles (gamers and game developers); recruitment sites (job seekers and recruiters); search engines (advertisers and users); and communication networks, such as the Internet."

[2] Taken from https://www.mbie.govt.nz/have-your-say/regulating-to-reduce-merchant-service-fees/

becomes. The achievement of "ubiquity" or network effect in payments is often assisted by providing a consistent experience to the payer, so that it operates in the same manner whenever and wherever they use a particular payment method.

5. Historically payment methods were tangible: coins, banknotes and cheques. The application of technology since the middle of the 20th Century has moved payments into the electronic arena, and the adoption and the array of electronic methods of payment has accelerated significantly around the world since the beginning of the 21st Century. Australia has been no exception, indeed the country has been in the leading cohort of nations seeing a displacement of cash and cheques, and the rapid adoption of a range of electronic payment methods - for example, Australia leads the world in the annual number of open-loop contactless card transactions per adult.

6. Because of the need for the network effect in payments, the core electronic payment systems in Australia (and in most countries) are not that numerous, the four types being: Payment Cards (operating in separate networks run primarily by American Express, eftpos, Mastercard and Visa, but accepted through a common terminal system), Direct Entry (DE), New Payments Platform (NPP) and Real-Time Gross Settlements (RTGS). The underlying payment systems are often "hidden" from users due to the plethora of ways in which they can be accessed to make or receive a payment.

7. In the Australian retail electronic payments market, card-based payments dominate by transaction number, whilst DE dominates by transaction value (with some recent movement of this value on to the NPP, which only launched in 2018). Within cards, credit cards now appear to be in decline (both in account numbers and spend) and debit cards are exhibiting very strong growth.

8. Payments innovation today is focused almost entirely at the user interface, as building new underlying ways to move money is extremely difficult and seldom occurs; for example, the NPP was the first new payment method, with its own specific infrastructure, deployed in Australia for over 20 years. I refer to these interface innovations as "veneers". An analogy would be renovating a bathroom: you can change the look and feel of the room by choosing different colours and sizes of tiles, different tapware and different fittings, and end up with hundreds of potential outcomes, but without ever changing the underlying plumbing; in fact, an innovative FinTech might make a tap that neatly connects to the hot water pipes, another might make one for the cold water pipes, and an even more innovative entrant might make a mixer tap that connects to both hot and cold pipes, allowing the user to select either of those underlying systems.

9. Consumers consider the interface as the way that they are paying, rather than the underlying method by which their funds are being moved to the payee's account. In Australia, people often talk about paying by PayPal (whereas the funds transfer is most likely to be via the

linked credit card or bank account), by Apple Pay (a linked credit or debit card), by BPAY (whereas the funds are transferred by Direct Entry), by Uber (a linked credit or debit card), by Afterpay (a linked credit or debit card), etc. Many of the interface or "veneer" providers have their own platforms, which are distinct from the funds transfer systems.

10. There is strong growth in the use of mobile apps and this is leading a move to "seamless payments" (Uber and Woolworths' Scan&Go being good examples), whereby in my opinion the consumer does not necessarily consciously recall the underlying payment method being used to move the funds.

11. As well as exploring the trend to seamless payments, in the trends section, this report also reviews the growth of mobile payments, ecommerce (online shopping), real-time payments, Buy Now Pay Later (BNPL), and digital channels and FinTech – all of which are pushing electronic payments to the fore. Also reviewed are the impacts being seen both on payment provider margins and due to the COVID-19 pandemic.

12. As noted above, the key competitive battles are being played out at the interface with which the user transacts to make a payment, in terms of convenience, look, feel and features. In the underlying payment systems, less obvious to the users of the payment systems, the main competitive tension is between the Australian domestic players on the one hand and the major (and far larger) international players on the other. The international competitors with the strongest position in the Australian market currently are Mastercard and Visa, which already handle over 50% of all electronic retail payment transaction volume in Australia - a share that has increased significantly over the last 15 years, particularly with the strong growth of debit card activity, most of which has been with Scheme debit cards, as the eftpos market share has declined[3].

13. There is currently little competition[4] between the NPP, BPAY and eftpos payment methods, as these systems are primarily used by payers and payees for different types of transactions. In the future, NPP and eftpos do have plans to gain market share at point of sale (POS), with eftpos usage expanding into online merchants and NPP participants potentially deploying solutions both online and at physical POS. But their main competition will not be each other, it will be Mastercard and Visa (as the current "incumbents") and potential new international entrants, such as Alipay, WeChat Pay and Google (which might deploy their own payments infrastructure).

14. There is a need for the presently fragmented domestic payments entities to combine, in order to provide a larger, stronger and more robust domestic player that would have the

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[3] Until the recent adoption by some merchants of "Merchant Choice Routing", also called "Least Cost Routing" (although few merchant acquiring institutions can deliver true dynamic least cost routing on every transaction).
[4] Some competition exists in P2P between NPP and eftpos' Beemit, but the volumes of Beemit transactions are extremely small compared to the eftpos main market of in-person payments in-store.

resources and coordinated approach necessary to keep pace with the innovations in products and services being deployed by the growing array of much larger international competitors. The lack of coordination between the domestic payment streams in the deployment of new technologies and services is slowing down the rate of innovation, primarily within the large number of financial institutions that need to change their internal systems to integrate these new developments within their own banking infrastructure - this significantly delays the point at which the network effect or ubiquity "kicks in" for each new function or feature. These internal changes at the financial institutions, who are delivering the domestic payment streams to their consumer and business customers, need to be sequenced within a coordinated roadmap, in order to ensure that the capability gap with the international competitors does not widen further and ubiquity on the changes occurs sooner.

15. In my opinion, without the proposed industry consolidation and in the absence of significant regulatory intervention, the eftpos domestic debit card payment scheme is likely to cease to exist within the next 10 years. Although Merchant Choice Routing has provided a temporary lift in transaction numbers (against their trend of longer term decline), it is easily within the power of the international card schemes to alter their pricing[5] to counter the current uptick in volume. In addition, the increasing use of tokenisation through the international card schemes, particularly in the mobile wallet and online environments, effectively prevents the use of Merchant Choice Routing. The lack of a domestic debit card scheme in Australia could be viewed as creating both a sovereign risk and a pricing risk, as without a local competitor pricing leverage for both financial institutions and merchants would be limited.

16. The sovereign risk comes from the fact that card-based payments now dominate retail payments in Australia, and, without the eftpos domestic debit card scheme, this activity would be in the control of foreign owned entities. If these foreign owned card systems were shut down, e.g. by disabling access to the network switching infrastructure, then retail payments and consumers' ability to pay would be severely impacted and Australian economic activity threatened. Other domestic payment systems would take time to fill the void in retail payments caused by such a disruption. The situation has previously occurred, with Visa and Mastercard acquiescing to American government pressure to stop supporting payments to Wikileaks[6] and some Russian banks[7]. The recent blocking of Australian news feeds by Facebook[8] also provides an analogous situation relating to offshore control of a widespread consumer service.

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[5] To the benefit of merchants, but the detriment of eftpos.

[6] https://www.forbes.com/sites/andygreenberg/2010/12/07/visa-mastercard-move-to-choke-wikileaks/?sh=792ced0b2cad

[7] https://www.reuters.com/article/us-russia-crisis-visa-crimea-idUSKBN0K40TN20141226

[8] https://www.bbc.com/news/world-australia-56099523

17. The ability of account-to-account payments via the NPP to displace eftpos at physical POS is unclear and unproven. In particular, it is not yet established whether NPP can deliver both an end-to-end transaction cost as low as the current eftpos level (NPP is currently significantly more expensive) and offer as rapid & seamless consumer experience as a contactless card transaction (particularly at major, high throughput merchants).

18. The consolidation of the domestic payment streams also provides the opportunity to develop hybrid payment products by combining their different capabilities to better deliver against consumer and business needs. In theory, such cross-pollination can occur today through contractual arrangements, but in practice the separate business "silos" and different viewpoints do not have such ideas on the agenda. In the major financial institutions, completely different divisions or management teams are normally focused on the products and services of each of the NPP, BPAY and eftpos; and the management team within each of the NPP, BPAY and eftpos entities is focused on their own business. This product specific focus can hinder the ability to develop hybrid payment products.

19. As described in the report, the potential benefits of bringing the three payments streams together into one entity would include:

    1. Improved ability to develop hybrid products to better serve payments users and differentiated from the international players;
    2. Improved speed of innovation in Australian payment products and services;
    3. Increased efficiency in the Australian payments system;
    4. Enhanced competitive positioning of Australian payment products and services against the international players;
    5. Broader stakeholder representation across the three payment streams.

20. There are international precedents for the proposed amalgamation. Both Singapore and the UK have moved to consolidate their own domestic payment systems, hoping to target many of the benefits noted above, and avoiding the sovereign risk associated with having the domestic payments market controlled by overseas companies.

II. Preface

21. I, Lance Sinclair Blockley of 52 Pymble Avenue, Pymble, NSW 2073, have been instructed by counsel for Industry Committee Administration Pty Ltd (ICA) to prepare an independent expert industry opinion on an application to the Australian Competition and Consumer Commission (ACCC) for authorisation of a merger of 3 of Australia's payments systems operated by NPP Australia Limited, eftpos Payments Australia Limited, BPAY Group Pty Ltd and BPAY Pty Ltd. My remuneration is not tied to the success of the application.
22. I was requested to provide a written expert opinion that outlines:

- the history of the development of Australia's payments industry;
- the current and forecast trends in Australia's payments industry, including the developing roles of Visa and Mastercard and Bigtech / Fintech in the Australian payments industry;
- what, in my expert opinion, would likely occur to NPPA, eftpos and BPAY in the foreseeable future in the absence of the Proposed Transaction (the counterfactual scenario); and
- compared to what would happen in the counterfactual scenario, whether and to what extent, the Proposed Transaction would:

    a) result in any detriments to competition or to the public of Australia;
    b) encourage and enable more payments innovation;
    c) improve efficiency and speed to market of new innovations;
    d) allow more efficient investment and allocation of resources in Australian payments platforms;
    e) improve efficiency, speed and resilience of the underlying Australian infrastructure;
    f) enhance competition with global players; and
    g) provide a broad and fair representation of stakeholders in the future of domestic payments.

23. I have read, understood and complied with the "Expert Evidence Practice Note (GPN-EXPT)" supplied to me by counsel for ICA, and in particular, section 3 of Annexure A "Harmonised Expert Witness Code of Conduct" to the Practice Note (the Code). I agree to be bound by the terms of the Practice Note.
24. My opinions are based wholly or substantially on the specialised knowledge arising from my training, study and experience as described in my curriculum vitae in Appendix III.
25. When referring to specific experiences or projects undertaken in the payments industry by myself and my consulting firm, the descriptor "firm" is inclusive of:

- The Initiatives Group Pty Ltd, ACN 003 523 420 (operations terminated in 2007)
- Edgar, Dunn & Company Pty Ltd, ABN 77 078 626 892 (EDC)

- The Initiatives Group Pty Ltd, ACN 158 636 652 (originally established as RFi Consulting Pty Ltd in 2012)

26. I have acted as a management consultant since October 1988. I conducted a number of payments related assignments during the 1990's and have focused wholly on payment projects since the Year 2000. During my time at Edgar, Dunn & Company, I was Global Managing Partner of the worldwide payments consultancy, operating out of 7 offices around the world with about 120 payments consultants employed.

27. I have conducted multiple payments projects for each of NPPA, eftpos and BPAY, and was involved in the consolidation of the domestic payments systems in Singapore under NETS that occurred in 2017.

28. Over the years, I have been engaged to conduct a number of industry-wide projects in the Australian payments market. Of note would be the "PIN@POS" assignment undertaken between 2012 and 2014 to remove signature from card payments in Australia, and move almost entirely to Chip&PIN - this occurred successfully on 1 August 2014. The project required my team and I to facilitate a Steering Committee of 14 entities: the 4 major banks[9], 6 second tier banks and 4 international card payment schemes[10]. At the request of the Steering Committee, the history of the project was written up in a case study: "PIN@POS - Australian Case Study".

29. I have conducted payments projects for 16 of the 22 organisations which are Shareholders and/or Members of eftpos, NPPA and BPAY, the exceptions being EFTEX, ING, RBA, Suncorp, Tyro and Windcave.

30. In addition to the PIN@POS assignment, I have conducted numerous payments projects for the international card payment schemes (American Express, China UnionPay, Diners Club International, Mastercard and Visa) in Australia, Asia-Pacific and worldwide. I have also undertaken payments assignments for domestic card payment schemes and switches (similar to eftpos) outside of Australia, including: BankServAfrica in South Africa; NETS in Singapore; MEPS in Malaysia; and Asian Payments Network (an association of 13 domestic systems[11] across Asia-Pacific).

31. The payments projects that I have undertaken have been primarily focused on the commercial and market aspects of new product development, profit improvement (including pricing and product economics), process improvement, risk management (both credit and fraud risk) and overall strategy (for either one or a portfolio of payment products). These engagements have also included market investigations, market assessments, market entry strategies and acquisitions & divestitures.

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[9] ANZ Bank, Commonwealth Bank of Australia, National Australia Bank and Westpac Banking Corporation.
[10] American Express, Diners Club International, Mastercard and Visa.
[11] Artajasa and Rintis in Indonesia; MegaLink in the Philippines; Banknetvn in Vietnam; MEPS and MyClear in Malaysia; NETS in Singapore; ITMX in Thailand; China UnionPay in China; Paymark in New Zealand; SPS (now part of Cuscal) in Australia; KFTC in South Korea.

32. I have written many future-looking reports and whitepapers, including: "Exploration of future electronic payments markets" for the Australian Federal Department of Communications and the Arts (DCITA); "The Future of Cheques - Investigative Study" and "The Evolution of Cash – An Investigative Study" for the Australian Payments Clearing Association (now AusPayNet); and "Key Trends in Digital Payments Markets and Strategic Infrastructure" for Equinix.

III. Introduction

33. A well-functioning economy depends on effective and efficient methods for businesses to pay employees, suppliers and investors, for households to purchase goods and services, and for governments to collect taxes and make payments. The increasing adoption of information technology and digital channels by businesses and households is broadening the choice of payments methods by creating the opportunity to make more and more payments electronically - such that the use of cash and cheques in payments is declining steeply.

34. Although on the surface the "ways to pay" appear to be multiplying rapidly, this is due to the deployment of an ever growing array of innovative and competitive "veneers" that are being laid on top of a small number of basic electronic payment methods, with these underlying systems used to authorise, clear and settle the payment transactions, thereby moving money between the accounts of the payer and payee. Indeed, the New Payments Platform (NPP) is the first truly new payment system to be launched in Australia for about two decades.

35. The veneers are being deployed over card systems (American Express, eftpos, Mastercard, Visa, etc.), over the Direct Entry system and over the NPP; but consumers talk about "paying by Uber", "paying by PayPal" or "paying seamlessly" (e.g. Woolworths' Scan&Go), in my opinion often not necessarily consciously recalling the underlying core payment systems being used to move the funds. The focus in recent years and in the foreseeable future seems to be wholly around the "customer interface" and the "consumer experience", with competitors fighting to deliver simplicity, convenience and speed (hopefully within a secure and robust payments environment). Much of this competition is coming from overseas and from companies with significant resources, with the deployment of payment innovations leveraging the technological advances in the digital and mobile environments.

36. The proposed merger of NPP Australia Limited, eftpos Payments Australia Limited, BPAY Group Pty Ltd and BPAY Pty Ltd to effectively create a single "*Payments Australia*" entity aims to ensure that the providers of the domestic payment systems can keep up with the pace of change and enhancements being implemented by the major international players, in both their core payment systems and the veneer layer, be they the international card schemes, the BigTech companies or others.

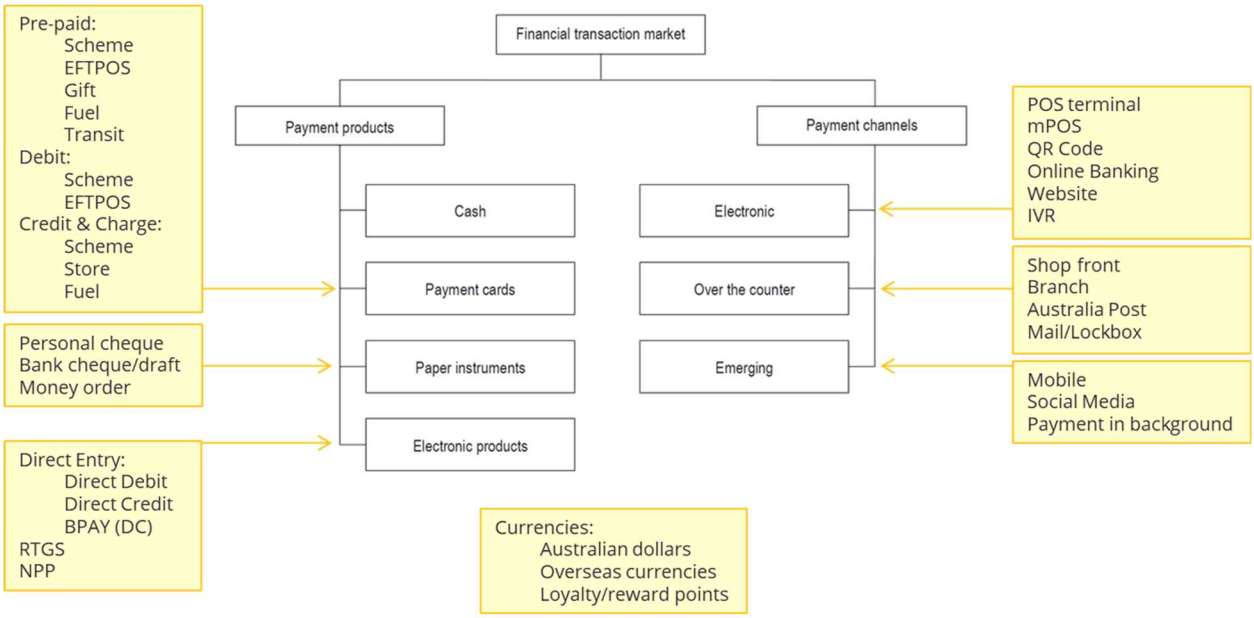
37. This opinion document responds to the brief provided by counsel for Industry Committee Administration Pty Ltd (ICA). It provides a background to the Australian payments landscape, descriptions of what I believe are the important current and future trends in payments, and my opinion of what is likely to occur both without and with the consolidation of the domestic payments industry. It is based on the knowledge and experience that I have gained in over 20 years of consulting in and to the payments industry, including assignments with just about all of the players both involved in and potentially impacted by the proposed consolidation.

IV. Background to the Australian Payments Landscape

A. PRODUCTS AND CHANNELS

38. A payment is an exchange of value, and payments in Australia can be made using cash or non-cash products. They can either be a physical item, such as a cheque, or electronic information. Although a cash transaction involves only two parties, non-cash payments usually involve at least three parties, and sometimes can involve five or more. These additional parties are known as payment intermediaries, and their role is primarily to undertake payment authorisation and payment clearing, and to provide settlement. These steps are often preceded by the verification of the identities of the parties involved and validation of the payment product.

39. Every payment requires a product to hold value and a channel through which to conduct the transfer, either cash or the information required to exchange balances. The chart below provides a high-level summary of the key products and channel types used in Australia.



NB. Payment is an exchange of value

1. PAYMENT PRODUCTS

40. Payment products (which can be comprised of a payment method or a payment interface/veneer or a combination of the two) can be divided into four groups — cash, payment cards, paper methods and electronic products. Within these groups there are various types of products that are currently used in Australia, as shown in the table below.

Major payment products used in Australia

Cash	Payment cards	Paper products	Electronic products
Banknotes	Credit cards	Personal cheques	Direct debit
Coins	Charge cards	Bank cheques	Direct credit
	Debit cards	Travellers cheques	BPAY (a form of direct credit)
	Store cards	Money orders	POSTbillpay
	Prepaid cards		New Payments Platform
			Real Time Gross Settlements

i. Cash

41. Superficially, cash is a simple payment product. Coins pre-date banknotes by many centuries. The use of cast-metal pieces as a medium of exchange is very ancient and probably developed out of the use in commerce of ordinary ingots of bronze and other metals that possessed an intrinsic value. Until the development of bills of exchange in medieval Europe and paper currency in medieval China, metal coins were the only such medium. Despite their diminished use in most commercial transactions, coins are still indispensable to many modern economies.

42. In contrast to the intrinsic value of the metals in coinage, the polymer on which modern Australian banknotes are printed has little or no intrinsic value, however the value denominated on the note is widely accepted. Possession is normally a strong indicator of ownership and there are very few issues regarding privacy or confidentiality.

43. The earliest notes in Australia date back to the early days of the colony in the 1700's, being store receipts and paymaster's bills issued by the military authorities for produce or labour. These receipts passed freely from hand to hand, but were supposed to be presented to the Commissary General every quarter for payment. Some of the first real banknotes issued were the Police Fund Notes, around 1816. Shortly after, the Bank of New South Wales was established and commenced to issue banknotes. Subsequently other banks were established, and they too issued notes.

44. Australian Commonwealth notes were printed and issued from 1913 onwards. In 1966 four "decimal denominations" were issued: 1, 2, 10 and 20 dollars. Subsequently 5, 50 and 100 dollar notes were issued, and the 1 and 2 dollar notes were later replaced by coinage.[12]

45. Looking deeper, it is clear that maintaining and managing cash involves significant effort and resources. Notes and coins have to be made and circulated, and systems have to be put in place to secure the cash. Protecting against counterfeit currency and other security issues also involves resources.

46. Currently, there are about $90 billion[13] of notes on issue and $4 billion of coins in circulation throughout the economy. Notes move through many hands before being withdrawn. The rate at which notes move from party to party is known as the velocity of money, which can and does change. The cost to the economy of using cash is therefore a function of the cost of producing notes and coins, the amount of cash in circulation, and how often it is used (that is, its velocity).

ii. Payment cards

47. Payment cards include credit cards, charge cards, debit cards, stored-value cards, and store cards; these may be "open-loop", being accepted at many merchants potentially both in Australia and overseas (e.g. an American Express card), or may be "closed-loop", being accepted at only one or a small number of merchants (e.g. the Transport for NSW 'Opal" card). These are described below.

Credit cards

48. Credit cards have a 'buy now, pay later'[14] feature, where the consumer does not have the funds debited from his or her bank account at the time of purchase, but is provided with credit for the value of the transaction. Credit cards also allow the cardholder to 'revolve' their balance (carry the balance on to the next month), while incurring an interest charge. Typically this happens at the end of an interest-free period, but there are a number of cards in the Australian market where the balance incurs interest from the time of the transaction.

49. Many of the credit cards in Australia are 'combo' cards, which incorporate the combined functionality of both a credit card and an eftpos debit card, where the type of transaction can be designated by the cardholder at the time of purchase if the card is inserted into the chip reader of the PIN-pad payment terminal[15].

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[12] For a more detailed history of cash, see "The Evolution of Cash: An Investigative Study" published by APCA in March 2014 and written by RFi Consulting.
[13] https://www.rba.gov.au/publications/annual-reports/psb/2020/
[14] Separate to the newer, digital 'Buy Now Pay Later' apps such as Afterpay and Zip
[15] When the chip card is inserted, the cardholder can select "Cheque" or "Savings" to use the eftpos application or "Credit" to use the credit application.

50. Bankcard was the first brand of credit card issued by financial institutions in Australia, and operated between 1974 and 2007. It was managed by the Bankcard Association of Australia, a joint venture of Australia's largest banks, and was the nation's first mass market credit card. By 1976, there were over 1 million Bankcard holders and almost 49,000 participating merchants. The first ATMs were deployed in Australia in 1977, and by 1978 Bankcards could be used across the nation.

51. The Visa and Mastercard payment card schemes developed in the USA during the mid-1960's. Visa grew out of Bank of America's 'BankAmericard' closed-loop system, when the bank started licensing their Californian credit card system to banks right across America; this led to the formation of a national bank card association for enabling nationwide use of the BankAmericard. In 1966, MasterCharge (renamed MasterCard in 1979) appeared on the scene as a cooperative of Northeastern banks wishing to honour cards issued by one another. These two card schemes have competed head-to-head ever since.

52. In the mid-1980's, both Visa and Mastercard were launched internationally, which began the rise of international branded credit cards in Australia, and the beginning of Bankcard's decline among a nation of increasingly global travellers. By 1994, Bankcards had shrunk in circulation to 3.9 million, a trend which would lead to its subsequent end in 2007.

53. American Express and Diners Club International (Diners), another two American payment card schemes which date back to the 1950's, originally focused on charge cards (see below). Both of these card schemes expanded into credit cards in around the turn of the century, aiming to tap into the revolving credit market opportunity.

54. As explained later in this report, the Visa and Mastercard (and eftpos) card schemes operate in a "four party" model, whereas American Express and Diners operate a "three party" model.

55. Credit cards in Australia today are dominated by the American Express, MasterCard and Visa brands. There are around 13.8 million credit and charge card accounts (both personal and commercial) in Australia, down from a peak of 16.8 million in May 2017 – since when the number of accounts has been in relatively constant decline. The RBA's statistics show the following usage[16]:

For YE Sept 2020	Per Account Per Year	
	Total Spend	Total Transactions
Personal cards	$18,391	202
Commercial cards	$74,770	195
All credit & charge cards	$21,686	201

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[16] https://www.rba.gov.au/payments-and-infrastructure/resources/payments-data.html

56. Credit cards are typically used for higher-value retail transactions, for example, fashion, electrical, travel and entertainment purposes, as well as for the payment of utility bills.

Charge cards

57. Charge cards have the same characteristic of 'buy now, pay later' as credit cards, but the cardholder cannot choose to revolve their outstanding balance. Instead, they must pay off the full balance within a specified period of the end of each statement period.

58. There are approximately 1 million charge card accounts in Australia, mostly held by businesses/corporations, with American Express and Diners dominating the market – although many Visa and Mastercard branded commercial card accounts are operated in the same charge card manner by their bank issuers. They are usually used for travel and entertainment purchases, although the use of card payments in a company's supply chain transactions is growing.

Debit cards

59. Debit cards are a 'buy now, pay now' product, where the funds are debited from the cardholder's transaction account at the time of usage. Similar to credit cards, debit cards can be used at Automatic Teller Machines (ATMs), at physical POS terminals, over the telephone and at online merchant websites - subject to merchant acceptance and technical capabilities.

60. In 1983, the eftpos debit card system was launched in Australia. Initially these were "proprietary" cards issued by individual banks and operated across a complex set of bilateral payment links between the Australian banks, as eftpos was not set up as a payment scheme and had no infrastructure of its own. It was launched as a magnetic stripe card, but required the entry of a Personal Identification Number (PIN) in order to authorize a transaction, both at ATM and POS. This made it different, and more secure, than the credit and charge card systems which operated on magnetic stripe and signature (with the merchant responsible for verifying the signature on the payment slip against that on the back of the card).

61. At launch, with PIN-based debit cards being a completely new way to pay, merchants were actually paid to accept eftpos transactions (via reverse interchange), in order to encourage them to install POS machines and to accept debit card payments. This situation was changed, other than for "cash out" transactions at POS, during the early 2000's, with interchange being "flipped" to the more normal direction of the merchant acquirer paying the card issuer.

62. Visa Debit and Mastercard Debit are other forms of debit card that are readily available in the Australian market. Visa Debit was the first international scheme debit card to be launched in the market, starting in the 1980's, with St George bank, Suncorp bank, credit unions and building societies issuing the majority of these cards in the early years. At launch, Visa Debit rather than requiring PIN verification allowed the use of signature verification to authorise the transaction – in addition, it was possible to use Visa Debit for purchases by

telephone or over the internet, whereas eftpos debit cards did not have this capability (requiring a PIN to be entered for all transactions).

63. The fact that Visa Debit and Mastercard Debit cards were able to be used both online and overseas increased their attractiveness to consumers, and the fact that they generated positive interchange revenue for issuers (at a time when eftpos caused a negative interchange outflow for issuers) made them attractive to the banks. Since the late 1990's, this has caused the greater part of the debit card "fleet" to switch to being Visa Debit and Mastercard Debit cards with multi-network capability, even though eftpos was majority owned by the banks.

64. However, nearly all of the Visa Debit and Mastercard Debit cards on issue in Australia today are dual network, that is: the card carries both the functionality of the international scheme and the functionality of eftpos, such that the card transaction has the ability to be routed via the infrastructure of either eftpos or the international scheme. Today there are over 56 million debit cards in the Australian market with eftpos capability[17].

65. Debit cards are typically used for smaller-value transactions compared with credit and charge cards, with RBA statistics[18] showing the average debit card transaction at $47.09 versus $106.17 for credit and charge cards. Debit cards are used more frequently however, at 242 transactions per year. This higher frequency of use, even at lower transaction values, meant that the total annual value of purchases made by debit cards surpassed that of credit and charge cards for the first time ever in 2019.

66. The number of debit card accounts in Australia (linked by definition to bank accounts) continues to grow, and now stands at over 40 million.

67. In 2009, eftpos became a payment scheme with the establishment of eftpos Payments Australia Limited (EPAL), allowing it to set centralized scheme rules and commercials. The new organisation then invested in the eftpos Hub (going live in 2014) which linked the Australian payments industry through a central point, replacing the network of complex bilateral links between financial institutions and merchants that had evolved since eftpos was first launched in 1983.

68. In August 2014, Visa and Mastercard moved to enforce the usage of PIN to authorize transactions on debit, credit and charge cards in Australia ("PIN@POS" or "Chip&PIN"), and accordingly eftpos lost its point of differentiation of needing a PIN to be entered into a secured keypad. But the eftpos 'cash out' at POS capability, where the cardholder can withdraw funds from their bank account at the time of making a purchase at a merchant,

1.

[17] eftpos Annual Report 2020
[18] September 2020

remains a point of difference - with the exception of the major supermarket chains where one can get 'cash out' with Visa and Mastercard debit cards.

Card Using Methods

69. Although consumers often see them as new ways to pay, there are many new electronic payments products that have entered the Australian market that rely on the use of traditional products such as credit and debit cards. Hence these products do not have autonomy from the current payments system, even if consumers perceive them to be separate or independent. Examples include –

- PayPal - in Australia (as opposed to the USA), very few PayPal users keep funds in their PayPal account, but rather fund purchases made using PayPal directly from a credit card, debit card or bank account[19];
- Uber - Uber is an example of an "in-app" payment, where the user has embedded their payment card credentials into their Uber account when it was first established; when they make a transaction, whether for transport or food or other, using the app on their mobile phone, Uber uses the card credentials kept on file to fund the payment;
- Mobile wallets - when using Apple Pay, Google Pay or Samsung Pay, the underlying transaction is a traditional card payment;
- Buy Now Pay Later - most of these services use the debit cards and credit cards of their "members" to gain repayment of the funds outlaid to the merchant;
- One-click checkout[20] - many online stores/merchants encourage users to provide their payment card credentials when establishing or using their account (e.g. Qantas, The Iconic, Expedia, Amazon), such that when the customers reaches the checkout

1.

[19] PayPal and a number of BNPL services have established themselves as intermediary merchants in the international card scheme systems, interposing themselves between the card schemes and the consumer-facing merchant and an acquirer. PayPal has a direct relationship with the merchant (e.g. setting pricing), even if they communicate with the merchant via an online gateway like Braintree or Adyen (although the gateway may sign up the merchant on behalf of PayPal, a bit like the banks sign up physical merchants for American Express). PayPal is not an acquirer itself in Australia, but rather acts a payment facilitator (https://www.mastercard.us/en-us/business/overview/start-accepting/payment-facilitators.html) on behalf of an official acquirer when handling a card payment entered at a merchant's website. When someone uses their PayPal account (rather than entering a card number at the merchant), and the funds are back-to-back pulled off the card linked to that PayPal account, then PayPal itself can be acting as the merchant - acting as an intermediary layer between the merchant and an acquirer. Similarly, when a consumer transacts at a merchant using Afterpay, it is Afterpay which pays the merchant overnight with the purchase price less their commission; Afterpay then acts as a card accepting merchant and has its own acquirer to transact the 4 card payments over 8 weeks on the consumer's card (held on file by Afterpay).

[20] There is also "few clicks" checkout: that is, Amazon provides checkout in a single "one click", whereas a merchant such as Qantas provides a "few clicks" experience by requesting that you enter your card's CVV.

payment can be accomplished in a single click of the payment button or all the payment details are automatically populated.

70. It is the significant and rapid growth in the many different and new consumer interfaces (what I call "veneers") that make people think that the payments industry is changing at lightning speed, supported by frequent reports in the media and people talking about paying by "Uber" and paying by "PayPal" - but in reality the New Payments Platform is the only new payment system that has been launched in Australia in the last 20 years or so (the previous being BPAY in 1997), and most of the "new ways to pay" use the existing payment methods.

71. Indeed this emphasis on competition at the user interface was noted in the DCITA report back in 2006, "*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*". This still holds true today.

Store cards

72. Store cards are closed loop payment cards issued and operated on behalf of merchants. In Australia, these include the David Jones card, Caltex fuel card and Shell fuel card. These products typically have features similar to credit cards, but are only accepted within a closed network of selected retailers.

Prepaid cards

73. Prepaid cards are a 'pay now, buy later' product, where the funds are pre-loaded onto the card prior to the time of transaction. Depending on the situation and the amount of money involved, prepaid cards may or may not require an account or personal information. Prepaid cards not requiring information about the cardholder are typically issued as single-purpose, cannot always be reloaded and hold values below $1,000; for example, gift cards and transit cards.

74. In some international markets, prepaid cards have become an open-system multi purpose payment product. Examples include the Octopus Card in Hong Kong, Moneo in France and the Suica Card in Japan. These have experienced high growth for low-value payments where cash is typically used. In almost all cases, these open-system prepaid cards were originally established as closed-system cards for use on public transport. Once their use was cemented in the initial purpose, they were opened up for small-value transactions at selected merchants, such as newsagents and food courts that are located in areas close to the transport systems.

75. In Australia, the Australian Prudential Regulation Authority (APRA) has prudential standards and authorisation guidelines for providers of purchased payment facilities (PPFs), a different class of authorised deposit-taking institution (ADI). PPFs are forms of payment methods such

as stored-value cards and internet-based payment systems or 'electronic purses'. The standards apply a simplified framework for capital adequacy, liquidity and operational risk to PPF providers that have stored-value at risk. PPF providers must also meet ADI prudential standards on governance, fitness and propriety, outsourcing, business continuity management and auditing requirements. ADIs authorised to conduct general banking business are not required to seek further authorisation to operate a PPF (APS 610, Prudential Requirements for Providers of Purchased Payment Facilities).

76. Compared to some overseas markets, in particular the USA[21], prepaid cards have not really "taken off" domestically in Australia, with the exception of the closed loop gift cards (Myer, David Jones, Coles, etc) and transit cards (Opal, Myki, eToll facilities, etc). Open loop prepaid cards (under the Visa and Mastercard brands) were quickly adopted when launched as multi-currency travel cards, all the more so when Qantas Frequent Flyer and Velocity Frequent Flyer provided them free of charge to several hundreds of thousands of their membership bases.

iii. Paper products

77. Paper methods of payment include the following:

- Cheques, which can be drawn directly by individuals and businesses against their own accounts (personal cheques) or can be drawn against the financial institution (bank cheques). They are typically used for high-value transactions, but usage is in significant decline and an end to the cheque system in Australia is likely to occur in the next few years[22].
- Traveller's cheques, which can be purchased by anyone (normally as a means of acquiring foreign exchange before travelling abroad). They offer a degree of security to the customer and involve a charge by the provider and the bank that converts them to cash. Like standard cheques, these have all but disappeared and have been replaced by multi-currency prepaid cards[23].

1.

[21] https://www.federalreserve.gov/paymentsystems/2019-December-The-Federal-Reserve-Payments-Study.htm "Prepaid debit card payments accounted for 10.5 percent of all card payments in 2018"

[22] https://www.rba.gov.au/publications/annual-reports/psb/2020/

[23] There are numerous issuers of prepaid travel cards in Australia, including the 4 major banks https://www.choice.com.au/travel/money/travel-money/articles/travel-money-cards ; in addition, both Qantas Frequent Flyer and Velocity Frequent Flyer have issued multi-currency prepaid travel cards to many of their loyalty program members, between them issuing over 1 million of these cards; usage during the COVID pandemic has been limited, and Velocity announced the termination of its prepaid card program in December 2020.

- Money orders, which are a cheque-like product that can be drawn against Australia Post. They provide a means of transferring currency through the mail system without the need for the payer or receiver to have a bank account.

iv. Electronic products

78. Electronic payment products and methods currently used in Australia include:

- The direct entry system - direct credit and direct debit;
- Bill payment methods such as BPAY and POSTbillpay;
- New Payments Platform; and
- RTGS

79. Direct entry transactions include direct credit, where the payer initiates the transaction directly from their bank account, usually through internet banking online - this is referred to as a "push" payment. The other method is direct debit, where the receiver (e.g. a utility company) initiates the transaction from the payer's bank account with the pre-arranged authority of the payer - this is referred to as a "pull" payment.

80. Direct entry transactions are not settled in real time (now 5 times per day on business days, but with no guarantee of intra-day posting by the receiving bank), nor is the receiver notified of the transaction's success or failure in real time. Therefore, the receiver of funds may not know until the next business day that the payer has initiated the transaction, and the payer may not know until the next day that the transaction was successful. This limits direct entry use to transactions where real-time settlement is not required.

81. BPAY and POSTbillpay use the direct credit system (part of direct entry) as the channel for transferring funds. They also transfer additional information to the receiver of funds for reconciliation purposes (such as a customer reference number or bill number). BPAY was established in 1997 and did not really see rapid growth until internet banking became more widely used in the early 2000's, then transactions grew strongly as both its base of billers/merchants and payers (both consumers and small businesses) expanded to reach "critical mass"[24]. BPAY has its own infrastructure, the Central Interchange Processor, which handles the transmission and "clearing" of transaction data between the Payer and Biller Institutions - communicating files containing Biller Codes, Customer Reference Numbers, payment value and other associated data. The BPAY payments are authorised by the Payer Institution (with the payer unable to make the transaction unless sufficient funds are in the relevant account[25]) and then settlement occurs between the Payer and Biller Institutions via the Direct Entry system.

1.

[24] Ubiquity, or the "network effect", is important in payments: having enough payers willing to use, or armed with, a payment method such that enough payees are prepared to accept it; and at the same time having enough payees willing to accept a payment method such that payers feel that it is worth arming themselves with it.

[25] The source of funds for a BPAY transaction can be a bank account or a credit card account, although the latter is used by consumers in only a small proportion of transactions.

82. The New Payments Platform[26] (NPP) grew out of the RBA's 2011-12 review of payments innovation[27] in Australia, against which the Payments System Board (PSB) outlined strategic objectives for the future of the payments system. These objectives, encapsulated by the NPP, included –

- The capacity for businesses and consumers to make payments in real time, with close to immediate funds availability to the recipient, by the end of 2016;
- Businesses and consumers should have the capacity to send more complete remittance information with payments by the end of 2016;
- A system for more easily addressing retail payments to any recipient should be available. If provided by a new real-time system, it should be available by the end of 2017;
- There should be the ability to make and receive low-value payments outside normal banking hours by the end of 2016.

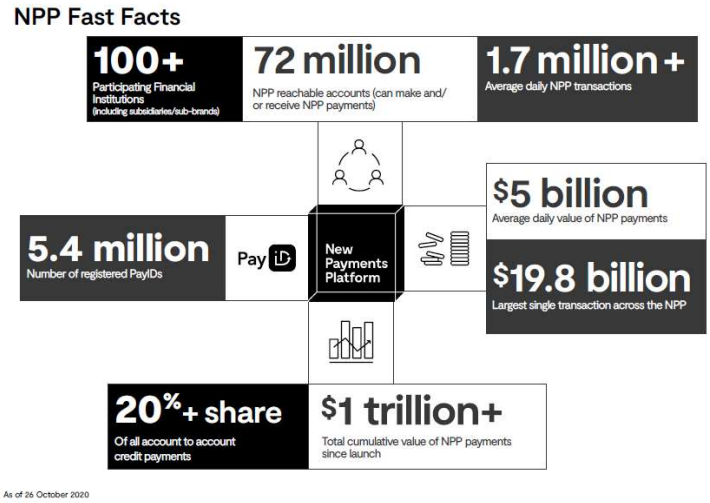
83. The original timeline was ambitious, but the NPP became accessible to the general public on 13 February 2018, providing real time payments between bank accounts with the ability to use PayID as a more convenient addressing system. From Day 1, it has supported Single Credit Transfer (SCT) and Osko (developed by BPAY) credit "push" payments. Volumes and values moving across the NPP have continued to grow (as noted in the schematic below and shown in Appendix V)[28], with the system gaining transactions primarily from direct credit (with many banks moving their direct credit payments onto NPP as an enhancement for their customers), cheques and cash, and to a lesser extent cards. Understanding that the total number of payments in the economy is driven by the level of economic activity (including population growth being a driver) and frequency of payment (e.g. insurance companies and others moving to monthly, rather than annual, billing), the arrival of a new payments system will not generate more payments by and of itself, but will initially take payments away from other methods.

1.

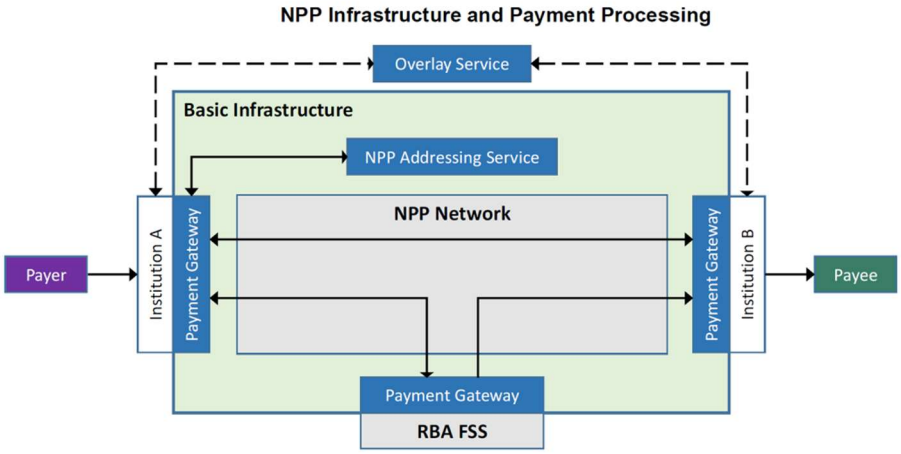
[26] The NPP is Australia's real-time payments system that launched in February 2018 in order to provide near instant movement of funds between Australian bank accounts on an "always on" 24 hour a day, 7 days per week, 365 days per year basis. It comprises a network of Payment Access Gateways operated by SWIFT on behalf of NPPA.

[27] RBA, Strategic review of innovation in the payments system (June 2011)

[28] "New Payments Platform Roadmap, October 2020" published by NPPA on 30 October 2020



84. The NPP infrastructure permits account to account payments as illustrated below[29]:



Source: RBA

85. The introduction of RTGS[30] (Real Time Gross Settlements) in Australia in 1998 was a major reform to reduce risk in the Australian payments system[31]. The infrastructure is critical in facilitating the orderly settlement of (mainly high value) payment obligations in Australia. Under RTGS, payments between banks are made individually in real time out of credit funds in the paying bank's Exchange Settlement Account (ESA) with the Reserve Bank. RTGS uses the RBA's Information and Transfer System (RITS). RITS settles payment obligations of banks

1.

[29] Diagram taken from "NPP Functionality and Access Consultation: Conclusions Paper" published by the RBA in June 2019.

[30] In Australia, the final settlement of Australian dollar interbank payment obligations occurs across Exchange Settlement (ES) accounts through the Reserve Bank Information and Transfer System (RITS). RITS facilitates settlement of payments on a real-time gross settlement (RTGS) basis. See https://www.rba.gov.au/publications/annual-reports/psb/2020/

[31] https://www.rba.gov.au/publications/bulletin/2010/sep/8.html#:~:text=The%20introduction%20of%20real-time%20gross%20settlement%20%28RTGS%29%20in,number%20of%20these%20payments%20has%20more%20than%20doubled

and other institutions (other types of authorised deposit-taking institutions, clearing houses and other special-purpose institutions) authorised by the RBA to operate an ESA.

86. Property Exchange Australia Limited (PEXA) was formed to fulfill a Council of Australian Governments agenda item to deliver a national electronic conveyancing solution to the Australian property industry, aiming to remove the manual processes and paperwork associated with the exchange of property by linking land registries, financial institutions, and practitioners. PEXA has managed to replace many of the bank cheques associated with property settlement with electronic RTGS transactions.

2. PAYMENT CHANNELS

87. Payment channels facilitate the use of a payment product by providing a mechanism to establish contact between the payer and payee. There are various types of channels, from the simplest, such as over-the-counter, to the more complicated electronic channels with high levels of encryption for security. In general, payment channels can be classified into three groups: electronic, over-the-counter, and emerging. The various types of channels that are being used in Australia are shown in the table below.

Channels being used in Australia

Electronic channels	Over-the-counter	Emerging channels
POS terminal – NFC & Contact	Bank branches	In-App
mPOS device	Australia Post	Payment in the background
Online Merchant	Retailers	Social media
Online Banking	Mail / Lockbox	QR Code
ATM		PayID
Card On File		
IVR/Telephone		

i. Electronic channels

88. Electronic channels facilitate the use of a number of payment products, such as credit cards, debit cards, NPP and direct entry products. The primary electronic payments channels currently being used in Australia are:

- POS terminals: terminals with PIN-pads are the main channel for accepting card-based payments in Australia. There are currently over 900,000 terminals in Australia[32], with the

1.

[32] https://www.auspaynet.com.au/resources/device-statistics#eftpos

big four banks accounting for a significant proportion of the merchant acquiring market. Most of the terminals support the card interfacing both by inserting the chip card into the machine or by NFC (Near Field Communication) through tapping a contactless card (magnetic stripe interface is often also supported primarily for cards from overseas). A mobile phone can be turned into a terminal using an mPOS device, such as those provided by Square.

- The number of terminals peaked at around 970,000 during 2018/19, but has since shown some decline. The growth of online shopping and the use of in-app payments, such as Woolworths' Scan&Go in-store, may be having some impact on the need for such a large terminal fleet.
- ATMs: There are over 27,000 ATMs in Australia[33], which performed over 423 million transactions in the year ending October 2020 for a value of $110.3 billion (RBA statistics[34]). Cash withdrawals from ATMs have been in decline since 2012 and a rationalization of the Australian fleet is expected to occur over the next few years.
- Internet: The main payments transacted through the internet are for online purchases from merchants (often card-based payments, which could involve "card-on-file" credentials) and for internet banking transactions (involving direct credit and/or NPP transactions, known as 'pay anyone' transactions, and BPAY). Card-based internet payments require the merchant to provision an internet payment gateway service to the customer.
- Telephone: Payments can be conducted through two methods over the telephone. The first way is to employ a telephone operator to take the details required to conduct the payment and then manually perform the transaction. The second is to use Interactive Voice Response (IVR) systems, where the payer responds to an automated set of instructions (delivered by a recorded voice) by speaking and/or entering details directly into the telephone keypad.

ii. Over-the-counter

89. The primary channel used to conduct payments for consumers is over-the-counter. This channel is highly flexible for the consumer as it takes many different types of payments products. However, it is not appropriate for businesses that do not have a shop front.

90. Branch and agency channels require physical contact between the payer and the recipient. In bank branches, customers can initiate cash withdrawals, perform balance enquiries, change details of their bank accounts, open and close accounts as well as a host of other

1.

[33] https://www.auspaynet.com.au/resources/device-statistics#atm
[34] https://www.rba.gov.au/payments-and-infrastructure/resources/payments-data.html

transactions. In addition, banks have established agency channels to allow access to banking services where branches are not available. Australia Post provides many points of presence for banking services in Australia.

91. Mail also remains a channel for cheque-based payments, and credit card and debit cards can also be used this way.

iii. Emerging channels

92. A number of channels are emerging in the Australian payments market. Amongst these, the fastest growth is probably being seen in in-app payments[35], whereby a purchase accompanied by the associated payment is made via a mobile phone, with the payment being funded via the credentials held on file (usually a payment card). This is also sometimes referred to as "payment in the background" or "seamless payments"; as well as using a mobile phone, these can also be accomplished at an online merchant's website via one-click checkout.

93. Payments via social media have also appeared as a new channel, for example Facebook Pay on Facebook or Messenger. These payments would again be funded by a payment credential held on file, but the channel of the payment is via social media.

94. Account to account payments[36] facilitated by QR Code or PayID are also relatively new in Australia, although QR Code facilitated transactions are clearly a significant factor in a number of Asian markets, most notably China[37].

1.

[35] See the whitepaper entitled "The Rise Of In-App Payments" by The Initiatives Group, June 2019 http://www.initiatives.com.au/whitepapers

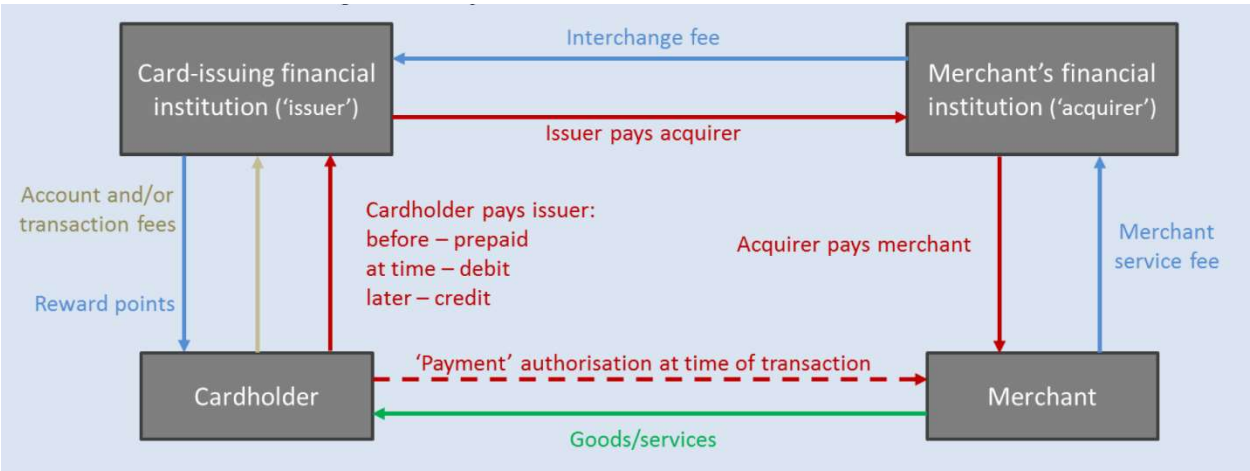
[36] See the whitepaper entitled "Account To Account Payments For Consumers" by The Initiatives Group, December 2019 http://www.initiatives.com.au/whitepapers

[37] https://lostplate.com/chinas-qr-code-craze/

B. CARD SCHEME MODELS

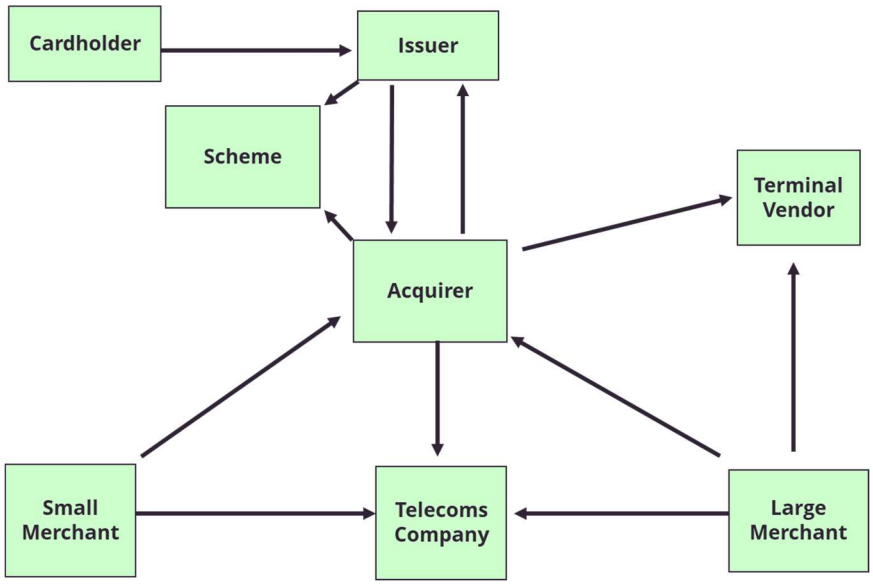
95. In general, there are two main models used for open-loop payment card transactions: the four-party model and the three-party model.

96. The standard four-party card model is utilised by many payment schemes including: eftpos, Mastercard, Visa and UnionPay International. The key differentiator being that the financial institution acting as the acquirer of the card transaction and the financial institution acting as the issuer of the card account can be, and usually are, different. This is the card model that covers most of the Australian transactions, and is illustrated in the transaction flow below:



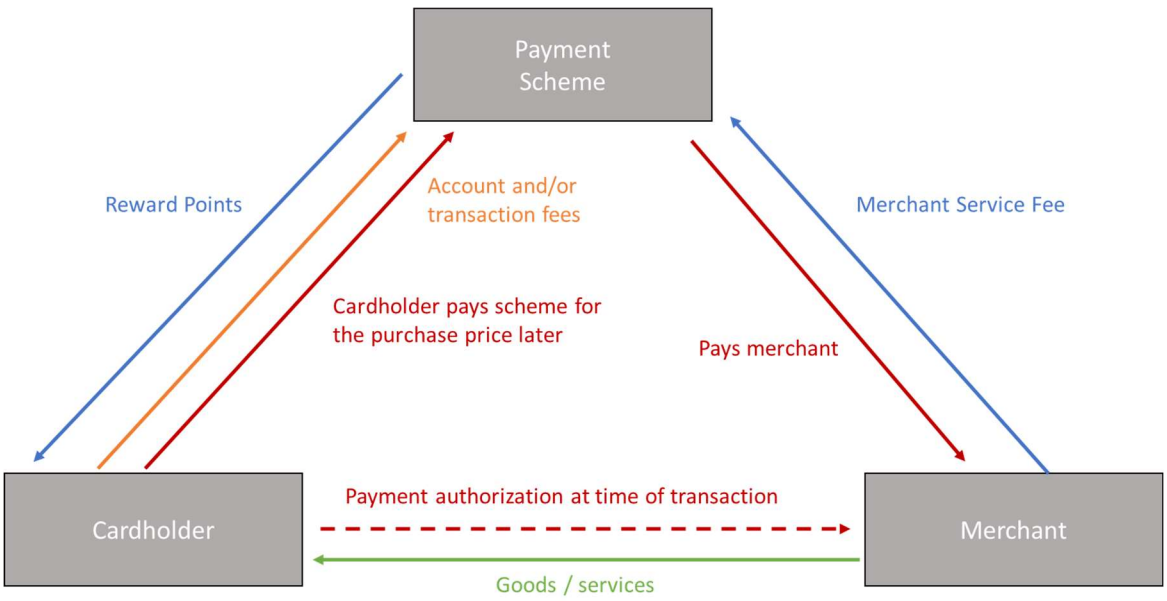
Settlement of funds between the financial institution issuing the card and the financial institution acquiring the merchant normally occurs overnight on a "net settlement" basis as calculated by the relevant card scheme.

97. There can be many different parties involved in facilitating the four-party model ecosystem, and hence many flows of funds in a four-party card-based transaction, as in the simplified illustration below:



98. The three-party card model is utilised by fewer payment schemes, these include: American Express and Diners Club International. The key differentiator in this model is that the scheme itself acts as the acquirer of the card transaction and the issuer of the card account; hence there is no interchange paid between the acquirer and the issuer, as they are one and the same. Interchange in Australia has been the subject of regulation by the RBA since 2003, but this has not applied to the three-party schemes.

99. Today this card model covers about 15% of total credit and charge card value in Australia, down from a high of about 19% when the four major banks were issuing American Express "companion cards". The three-party model is illustrated in the transaction flow below:



100. A benefit of the three-party model is that the Scheme operator has a direct relationship and contact with both the cardholder payer and the merchant payee. This allows the Scheme to gather demographic information on these participants in the ecosystem and permits analysis of their transaction behaviour, from which the Scheme can develop individual, bespoke marketing and promotional offers and deliver them directly to the target party - providing opportunities to reward, incentivise and even penalise at the level of an individual cardholder or merchant. The four-party Scheme operators are unable to achieve this in the same way, as the relationships with cardholders reside with the card issuing institution and relationships with merchants reside with the card acquiring institution.

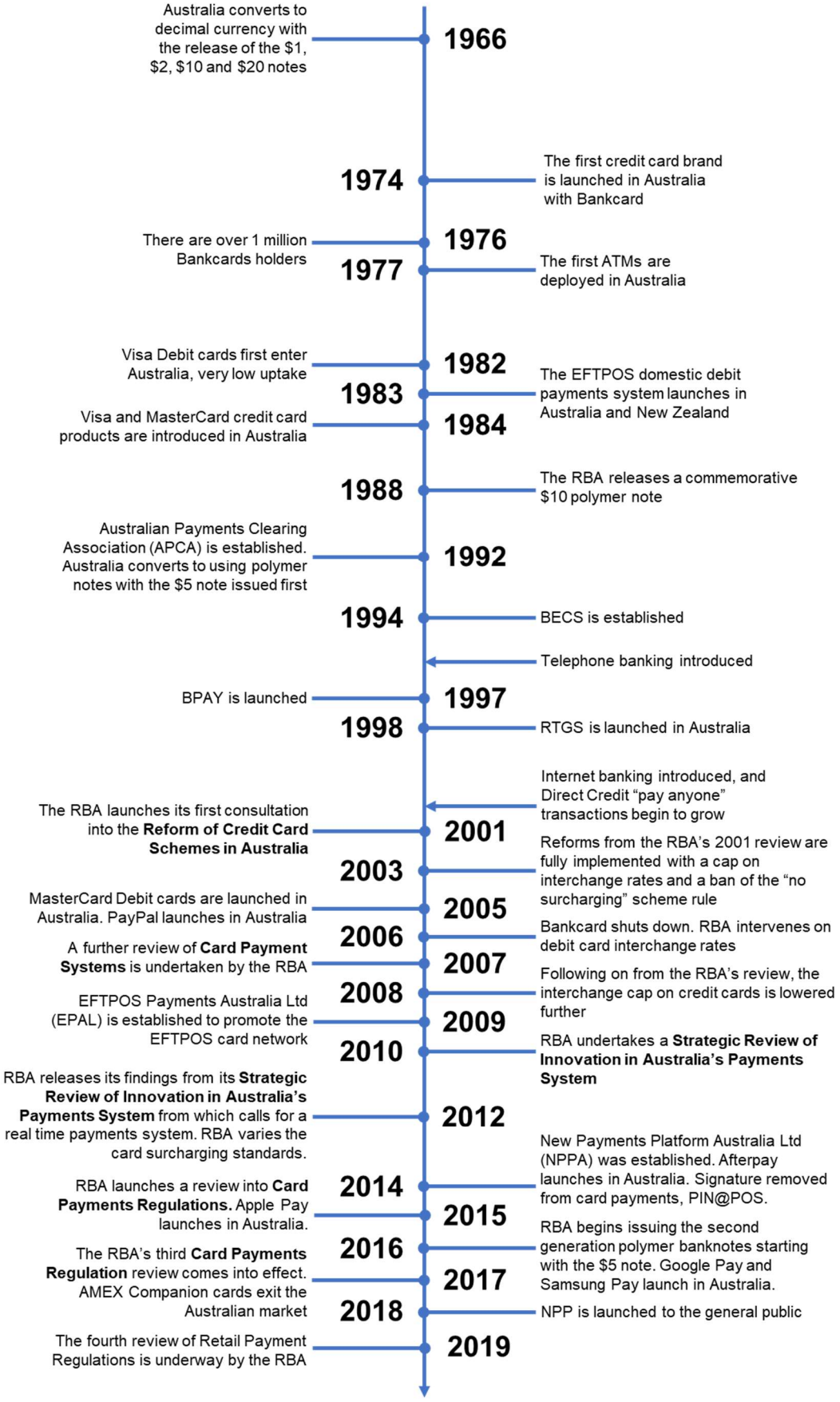
101. Because the Scheme operator in the three-party model can see "both sides" of the transaction, and the history of the cardholder and merchant, the fraud rates in these systems have tended to be lower than in the four-party models[38].

102. Although the merchants accepting American Express and Diners Club International cards have a direct contractual relationship with these organisations, in practice in Australia the merchant acquiring institution for Visa, Mastercard and eftpos transactions often handles the "sign up" paperwork and accepts all of the different Scheme cards through the same, single terminal.

1.

[38] https://analyticsindiamag.com/how-american-express-leverages-ml-to-achieve-lowest-card-fraud-rates-in-the-world/

C. TIMELINE


1966
Australia converts to decimal currency with the release of the $1, $2, $10 and $20 notes
1974
The first credit card brand is launched in Australia with Bankcard
1976
There are over 1 million Bankcards holders
1977
The first ATMs are deployed in Australia
1982
Visa Debit cards first enter Australia, very low uptake
1983
The EFTPOS domestic debit payments system launches in Australia and New Zealand
1984
Visa and MasterCard credit card products are introduced in Australia
1988
The RBA releases a commemorative $10 polymer note
1992
Australian Payments Clearing Association (APCA) is established. Australia converts to using polymer notes with the $5 note issued first
1994
BECS is established
Telephone banking introduced
1997
BPAY is launched
1998
RTGS is launched in Australia
Internet banking introduced, and Direct Credit "pay anyone" transactions begin to grow
2001
The RBA launches its first consultation into the **Reform of Credit Card Schemes in Australia**
2003
Reforms from the RBA's 2001 review are fully implemented with a cap on interchange rates and a ban of the "no surcharging" scheme rule
2005
MasterCard Debit cards are launched in Australia. PayPal launches in Australia
2006
Bankcard shuts down. RBA intervenes on debit card interchange rates
2007
A further review of **Card Payment Systems** is undertaken by the RBA
2008
Following on from the RBA's review, the interchange cap on credit cards is lowered further
2009
EFTPOS Payments Australia Ltd (EPAL) is established to promote the EFTPOS card network
2010
RBA undertakes a **Strategic Review of Innovation in Australia's Payments System**
2012
RBA releases its findings from its **Strategic Review of Innovation in Australia's Payments System** from which calls for a real time payments system. RBA varies the card surcharging standards.
2014
New Payments Platform Australia Ltd (NPPA) was established. Afterpay launches in Australia. Signature removed from card payments, PIN@POS.
2015
RBA launches a review into **Card Payments Regulations.** Apple Pay launches in Australia.
2016
RBA begins issuing the second generation polymer banknotes starting with the $5 note. Google Pay and Samsung Pay launch in Australia.
2017
The RBA's third **Card Payments Regulation** review comes into effect. AMEX Companion cards exit the Australian market
2018
NPP is launched to the general public
2019
The fourth review of Retail Payment Regulations is underway by the RBA

D. SUMMARY OF BACKGROUND

103. Making a payment requires a payment method being used through a payment channel, and in Australia the market is well served with both.

104. A key point about payment methods is the need for "ubiquity" across payers and payees: that is, merchants do not want to set themselves up to accept a particular payment method unless enough of their customers are going to use it; and consumers do not want to "arm themselves" with a particular payment method unless enough places where they purchase are going to accept it. Ubiquity by definition means "omnipresent" or "everywhere", this is effectively an aspiration for a payments system, as even Visa and Mastercard are not accepted at every single merchant and not every adult holds one of these cards. Ubiquity when used in payment discussions is not meant in its literal sense, but relates more to achieving "critical mass" or "the network effect".

105. This same need for ubiquity impacts the providers, for example financial institutions, as they do not wish to make the investment to support a particular form of payment unless they consider sufficient of their customer base (consumers and/or merchants) will use it. Indeed, in many roll outs of payments innovation, the financial institution has to be convinced that the majority of other financial institutions are also making the same investment, as many changes in payments require ubiquity across the financial institutions - this causes the need for coordination across the industry, often achieved through "mandates".

106. Getting paid and paying can be both a simple and a complex matter. 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, with few complaining that they do not know how to pay, but it has also created a very complex mesh of interconnected products and channels. However, payments are very "habit forming" and most people tend to make payments on a "set and forget" basis, with little time spent on deciding exactly what payment product to use through what payment channel - the norm being that whatever worked last time for that type of purchase is likely to be used the next time.

107. "Paper based" methods of payment (cash and cheques) are in steep decline, and electronic/digital payments are growing strongly. Today, there are already a large number of electronic payment products in use. Electronic banking and the use of POS terminals are now a part of ordinary life for most Australians. The growing adoption of online shopping, subscription-style services and the mobile phone channel have also caused a greater use and comfort with a range of electronic payments, and a significant drop in the use of cash and cheques (as explored later in this report).

108. Although there is significant innovation in the industry, it is mostly focused on improving the customer interface, generating a more convenient or seamless payment experience, but

primarily using the existing underlying infrastructure, albeit hidden from the payer's view. Indeed, consumers are often not consciously aware of the core payment system being used to transfer their money to the merchant/business/biller, but more focused on the ease of the transaction.

109. Progress is also being made in areas such as internet security (with card-not-present fraud rates now dropping) and biometrics (with thumbprint authorisation considered the norm on mobile phones for payments and banking apps). Indeed the use of the mobile phone as a payment product or channel has also captured the attention of businesses, and many have developed their own mobile applications where "in-app payment" is required. Other aspects of the use of mobile phones in payments are explored later in this report.

110. Payments are often segmented into C2B (Consumer to Business), B2B (Business to Business), B2C (Business to Consumer), G2C (Government to Consumer) and P2P (Person to Person) payments. There are undoubtedly differences in the primary payment methods and payment channels used between these segments, although a number of the core payment methods (but not necessarily the user interfaces) play across all of them: for example, Direct Credit. C2B payments dominate by number and B2B payments dominate by value[39].

111. International players have been attracted to the Australian market by its well developed infrastructure (e.g. card terminal network) and "technology savvy" user base, with the international card schemes entering the market early and using it as a "test market" for new developments (e.g. contactless cards). The cross-border capabilities of the international players has appealed to Australian's both as they physically travelled the globe (pre-COVID) and also shopped overseas online.

1.

[39] B2B payments include bill and invoice payments, commercial card payments (a market segment not directly addressed by the amalgamating entities, with commercial card payments predominantly made using international card Scheme services), and superannuation payments. See Appendix V for estimated payment method shares in the Bill Payment and B2B market segments.

V. Current & Future Trends

113. Although the way that people pay may seem to be changing rapidly, the pace of change is significantly moderated by the habit forming nature of payments. Most people become "locked in" to their payments behaviour by around the age of 30, such that they might use -

- Cash for the coffee on the way to work;
- Credit card for the school fees;
- Debit card for groceries; and
- BPAY for the electricity bill

and, the next time that they come to that purchase situation, they are likely to use the same payment method as last time - they don't have to think about it, it worked perfectly well last time and it is just a subconscious habit[40]. Research has shown that consumer propensity to adopt and use innovative payment instruments/methods is considered as one of the main barriers to retail payment innovation diffusion.[41]

114. Therefore to "change the way we pay" takes -

- A much stronger value proposition in order to break "the habit";
- A long time, with limited changes year on year.

115. Changes have sometimes occurred quickly when the value proposition has clearly been stronger, in terms of convenience, cost, security, safety or another factor. Examples of more rapid change include the adoption of "Tap'n'Go" contactless card transactions and the reaction to COVID-19, with both of these leading to a reduction in the use of cash. An example of payment behavioural changes taking a much longer time is the adoption of contactless card transactions via mobile phone, with the additional value of the phone format over the plastic card seemingly not being sufficient to gain rapid uptake - although again the arrival of COVID-19 has helped increase this value proposition. These examples will be revisited later in this report.

116. Hence until perhaps the last 5-10 years, the focus had tended to be on innovation that provides continuous incremental improvement, given that consumers can more easily understand, accept and adopt innovations that require little change in their behaviour. For the providers of the incremental innovations -

1.

[40] https://www.pymnts.com/news/payments-innovation/2018/changing-consumer-payments-behavior-visual-voice-biometric-authentication/

[41] https://www.researchgate.net/publication/331868582_Payment_Habits_as_a_Determinant_of_Retail_Payment_Innovations_Diffusion_the_Case_of_Poland

- Investment in incremental improvement is lower, and can more easily be unwound back to the prior state - whereas step-change investments require significant effort and funding, and "unwinding" means a cessation and write-off;
- Easier to test market - users of the base product can be provided with the incrementally improved version and asked for their reactions, and they are likely to understand the improvement versus a step-change product or concept that they have never seen before;
- Easier to build business case with more certainty - sales volumes and price points of the base product are known, the costs of delivering the incremental improvement can be estimated with reasonable accuracy, and assessments made as to what proportion of users would need to adopt at what price in order to get a return on investment;
- Leverages existing systems - the incremental improvement is likely to run on the same systems as the current base product, as fundamental changes are not being made; and
- Can be substantiated on the adoption by smaller market segments/niches - as the investment in the incremental improvement is far less than a step-change "revolution", a return on investment can be achieved with a lower level of adoption in the marketplace.

117. For example:

The method with which a payment card interfaces with a POS terminal has changed over the years, but, until the arrival of the smart phone, each change has retained the same familiar plastic card and just altered (incrementally) the way the cardholder used it at the terminal.

- Initially the payment cards used a magnetic tape stripe on the rear of the card, and this was swiped through the reader on the POS terminal in order to transfer the card data held on the magnetic tape (just like an audio cassette tape being read by the "pick-up" head in a tape player). Today, most cards still have a magnetic stripe in case the cardholder is presented with a terminal that only has swipe capability.
- The payment card was then provided with an embedded microchip. The computing power of the chip means that "smart cards" can offer new payment options and

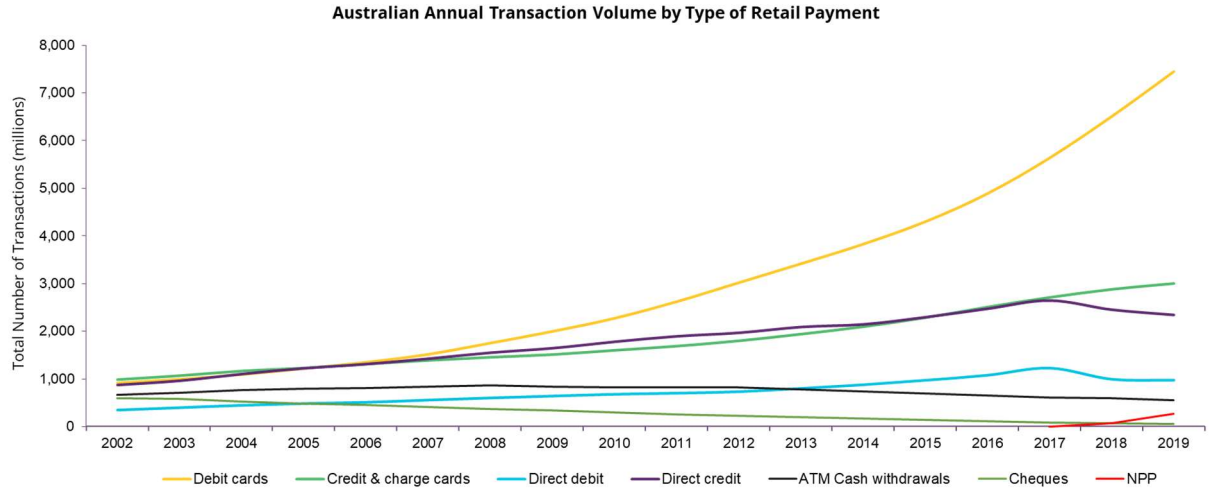
services, additional levels of security, and more convenience and choice. The cardholder was instructed/educated to insert the chip card into the POS terminal instead of swiping the magnetic stripe, with the terminal now reading the card data off the chip - a fairly simple and incremental change for the cardholder to adopt. In a number of jurisdictions, but not Australia, at the same time as chip cards were issued the cardholder authentication method was changed from signature to PIN, with Chip&PIN being promoted as being more secure than magnetic stripe and signature.

- The payment card was then provided with an embedded Near Field Communications (NFC) antenna connected to the microchip. The cardholder was instructed/educated to "tap" the chip card on top of the POS terminal instead of inserting the chip, with the terminal now reading the card data remotely via a "radio" transmission - again a fairly simple and incremental change for the cardholder to adopt, and one which made interfacing with the POS terminal far easier and quicker as no PIN entry was needed under a specified transaction value.

More recently the cardholder has been provided with the ability to upload/store their payment card credentials into their smart phone (in the form of Apple Pay, Google Pay and Samsung Pay). The adoption of this change by Australians has been far slower than the prior incremental changes to the plastic card interface. This is more of a step-change, as the cardholder is being asked to use a different device to make the payment, phone rather than card, even though the tap'n'go action with the terminal is the same.

118. It was the industry's focus on incremental innovation in payments that was subjected to the RBA's scrutiny in its review commenced in 2010 and reported in 2012, which led to the development of the NPP – being a significant step-change innovation.

119. The relatively slow pace of change in the use of the underlying payment methods is shown in the chart below, which covers a period of 18 years of RBA data. The significant and accelerating use of debit card transactions is evident, as well as the long term decline of ATM cash withdrawals and use of cheques.



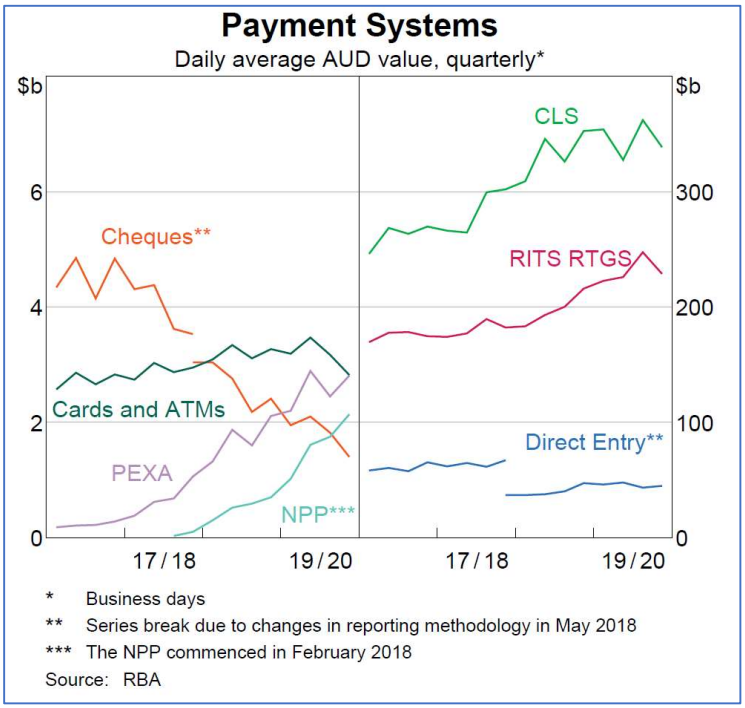
Source: RBA Data

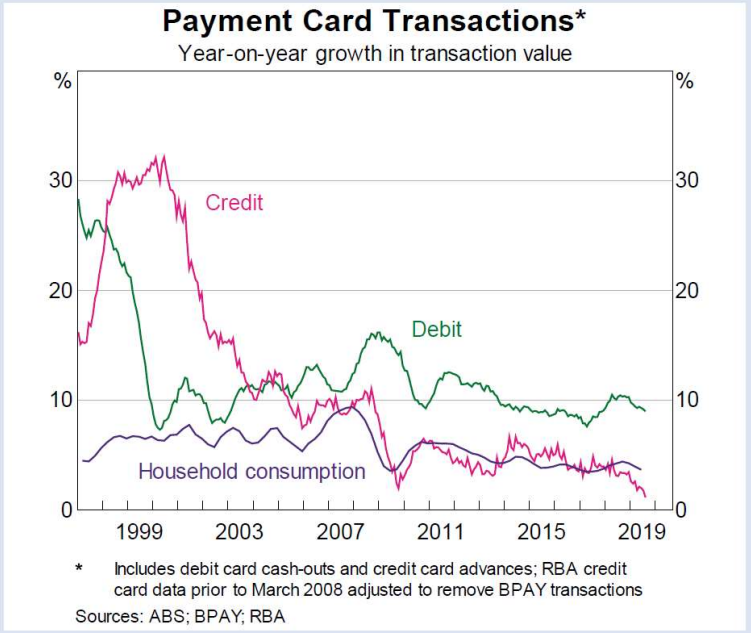
120. This is further reinforced by reference to the table below from PSB's 2020 Annual Report, with 10 year average annual growth rates for debit card transaction volume and value being in double digits.

Non-cash Payments

	2019/20					Average annual growth 2009/10 to 2019/20	
	Per cent of total		Average value	Growth, per cent		Per cent	
	Number	Value	$	Number	Value	Number	Value
Card purchases[(a)]	74.8	5.0	63	7.6	3.3	11.4	6.8
Debit cards	54.3	2.6	46	10.4	9.8	13.9	10.8
Credit cards	20.5	2.3	109	0.7	–3.1	6.7	3.7
Direct Entry[(b)]	19.2	80.3	3,984	–2.2	5.9	5.8	3.8
Direct credits	12.8	55.3	4,101	–3.5	5.5	4.6	4.4
Direct debits	6.3	25.0	3,748	0.4	6.9	9.0	2.6
BPAY	2.9	3.4	1,139	0.4	2.8	3.9	9.2
Cheques	0.3	3.4	9,816	–21.0	–28.6	–17.1	–11.0
PEXA	0.0	4.8	358,178	29.7	54.0	–	–
New Payments Platform[(c)]	2.9	3.0	1,005	167.3	214.9	–	–
Total	**100.0**	**100.0**	**951**	**7.0**	**7.7**	**9.5**	**3.6**

(a) Card purchases using Australian-issued cards; debit card series includes prepaid cards
(b) Data prior to a reporting change in May 2018 have been adjusted downwards to be more consistent with the current definitions of the direct debit and credit series
(c) The NPP was launched to the public in February 2018
Sources: BPAY; RBA





121. If payments are habit forming, then how do consumers choose what payment method they are initially going to use. This was investigated in the 2006 DCITA study[42], and it was proposed that choice revolved around the 6 C's:

1.

[42] https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwjl5_nEwIbuAhXNxjgGHSZjDGgQFjAAegQIBRAC&url=http%3A%2F%2Fbluetongue1.files.wordpress.com%2F2008%2F04%2F2006-future-electronic-payment-markets-edgar-dunn-dcita.pdf&usg=AOvVaw1exXXZMF_Y14zrh4nKGBsh
The study was commissioned by the Australian Federal Department of Communications, Information Technology and the Arts, and was undertaken by Edgar Dunn & Company and the Centre for International

Capability	the functional ability to actually undertake a payment
Convenience	the ease of use of a payment method
Coverage	how widely a payment method or system is accepted by merchants and other recipients of payments
Confidence	the users' belief that a payment will be successfully executed and completed
Confidentiality	concerns about the creation and release of information about the payer
Cost	the cost to the payer and recipient of using the product

122. The current trends in the Australian (and, in many cases, the global) market include:

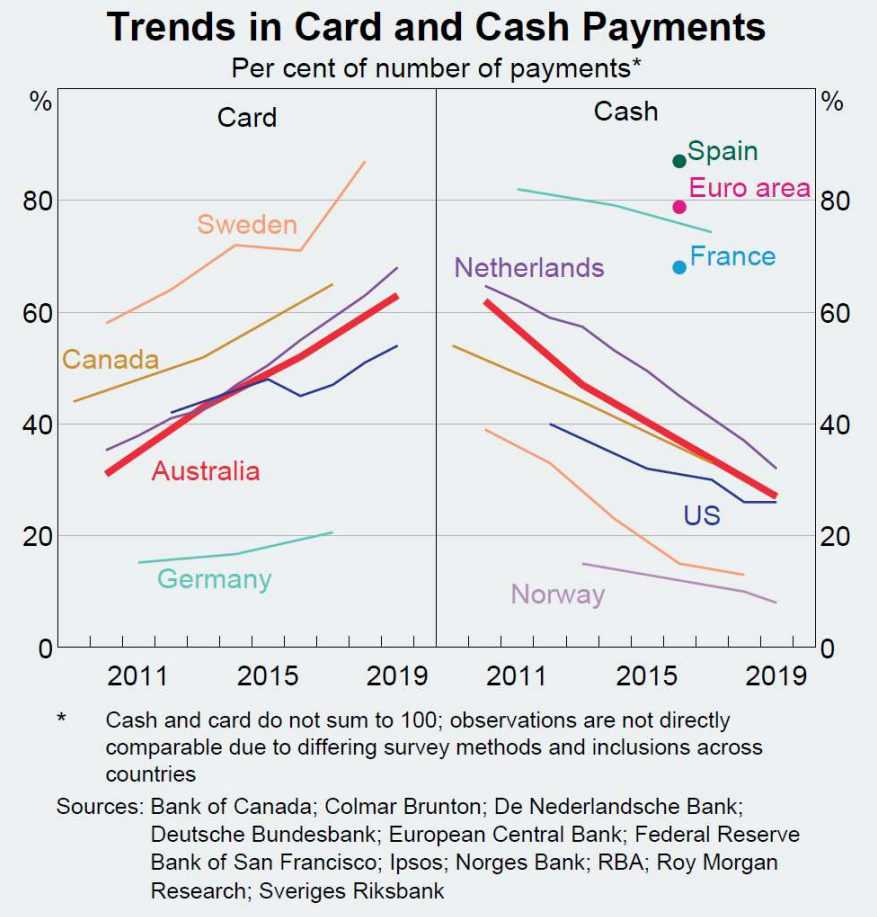
- The displacement of cash
- The growth of debit card payments (and the demise of consumer credit cards)
- The adoption of seamless payments
- Growth (and barriers) of mobile payments
- Growth of eCommerce
- The rise of fraud and cybercrime
- Real Time & Account-to-Account Payments
- Growth of Buy Now Pay Later
- Digital channels and FinTech
- Margin compression in payments

123. Each of these trends will be explored in the sections below, together with the impact of the COVID-19 pandemic.

1. Economics; the methodology included quantitative research with both consumers and businesses, executive interviews with participants in the payments ecosystem and a series of interactive workshops with a broad array of stakeholders.

A. THE DISPLACEMENT OF CASH

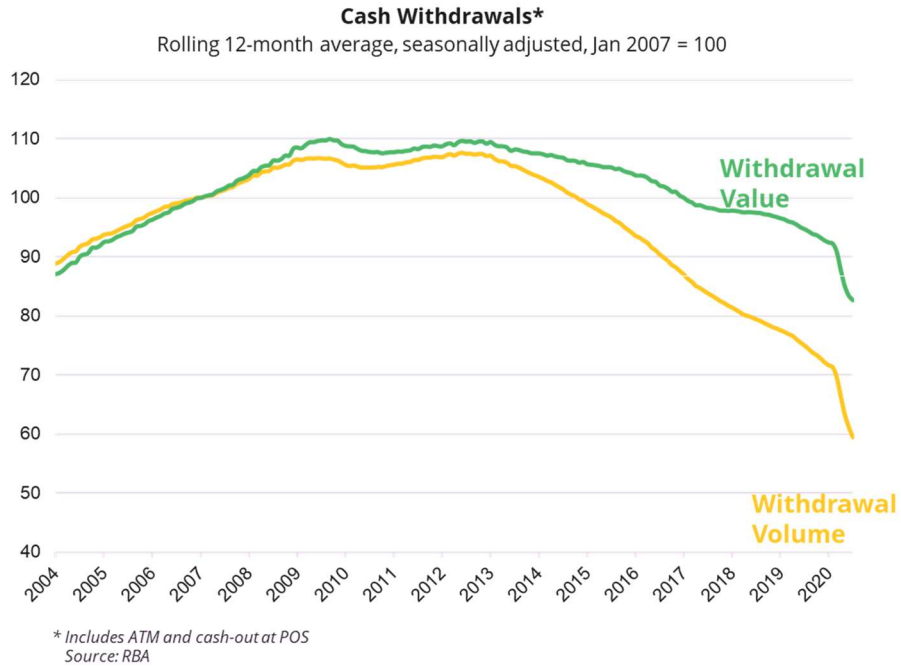
124. The displacement of cash as a method of payment has been occurring ever since the first payment was made by a payment card at a POS terminal, given that historically nearly all over the counter payments were originally cash. The growth of card transactions and their displacement of cash is occurring globally, as shown below[43]:



125. The lower use of cash in Australia is also seen by the drop in cash withdrawals at ATM and POS, a trend that has accelerated with COVID-19.

1.

[43] https://www.rba.gov.au/publications/annual-reports/psb/2020/



126. For the year ending June 2020, the number of Australian cash (combined ATM and cash-out at POS) withdrawals[44] had dropped by 19% to 625.6 million compared to the prior year. This followed declines that had been occurring since 2013, with ATM withdrawals dropping by 30+% over the last five years. The value of cash withdrawals is declining more slowly, dropping by 12.2% in the year ending June 2020.

127. Much of the recent fall has been due to the impact of COVID-19, with the number of cash withdrawals between April to June 2020 falling 46.7% to 98.3m from 184.6m over the same months in 2019.

128. During the period of decline, there has been significant consolidation amongst ATM deployers, and the major bank ATM operators have cut direct access fees for ATM users, with the possibility of entering into a utility structure in the future.

129. The tri-annual RBA payments diary study confirms long term trends, as shown in the table and chart below[45].

1.

[44] https://www.rba.gov.au/payments-and-infrastructure/resources/payments-data.html and https://www.rba.gov.au/publications/annual-reports/psb/2020/

[45] Further quantitative data on cash transactions is provided in Appendix V.

Table 1: Consumer Payment Methods[(a)]

Share of number of payments, per cent

	2007	2010	2013	2016	2019
Cash	69	62	47	37	27
Cards	26	31	43	52	63
– Debit	*15*	*22*	*24*	*30*	*44*
– Credit and charge cards	*11*	*9*	*19*	*22*	*19*
BPAY	2	3	3	2	2
Internet/phone banking	n/a	2	2	1	3
PayPal	n/a	1	3	3	2
Cheque	1	1	0.4	0.2	0.2
Other[(b)]	1	1	2	4	2

(a) Excluding payments over $9,999

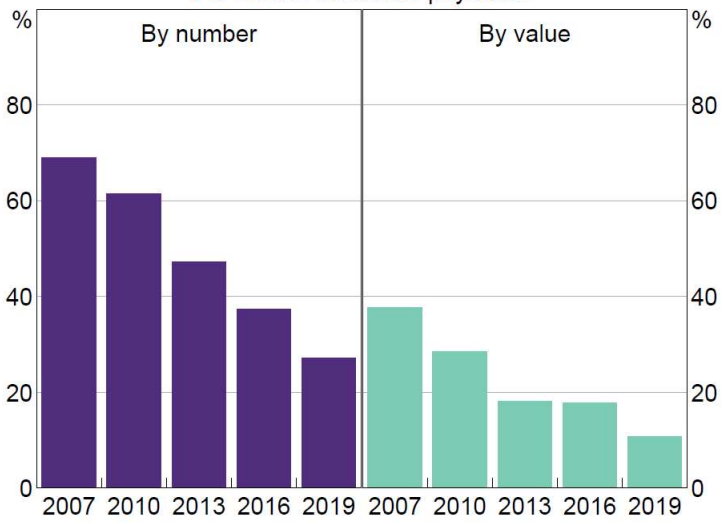
(b) 'Other' methods include prepaid, gift and welfare cards, bank cheques, money orders, 'buy now, pay later' and Cabcharge

Sources: RBA calculations, based on data from Colmar Brunton, Ipsos and Roy Morgan Research

Graph 2

Cash Payments

Per cent of consumer payments



Source: RBA calculations, based on data from Colmar Brunton, Ipsos and Roy Morgan Research

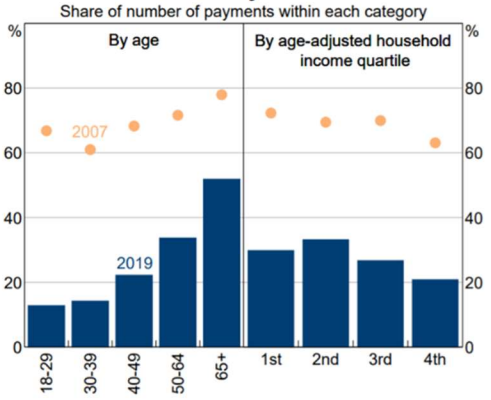
130. The RBA conducted its fifth Consumer Payments Survey in November 2019, with the findings showing that over the last 10 years the percentage of payment transactions made and payment value transferred in cash have more than halved; whilst cards have almost tripled their percentage of transaction volume.

131. Indeed, cash usage is down in all age, household income and transaction size categories, as below:

Graph 2

Cash Payments

Share of number of payments within each category

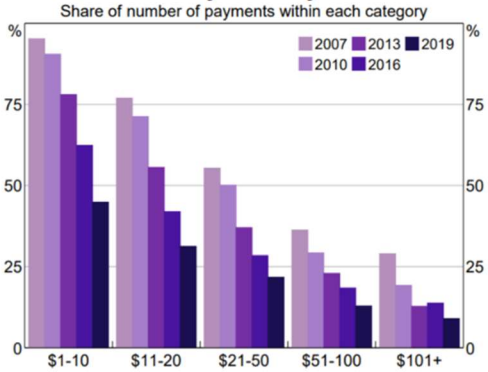


Source: RBA calculations, based on data from Roy Morgan Research

Graph 4

Cash Payments by Size

Share of number of payments within each category



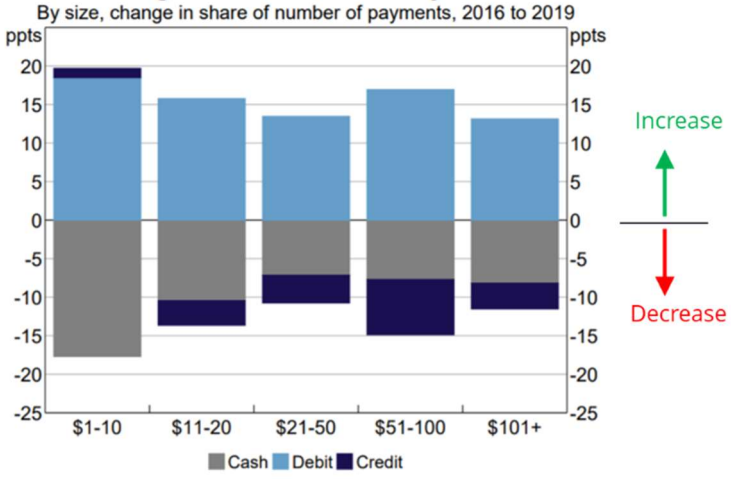
Source: RBA calculations, based on data from Colmar Brunton, Ipsos and Roy Morgan Research

132. Contactless card usage has impacted cash transactions across the size of retail transaction, with Tap & PIN growing significantly at values over the $100 threshold.

Graph 7

Change in Point-of-sale Payments

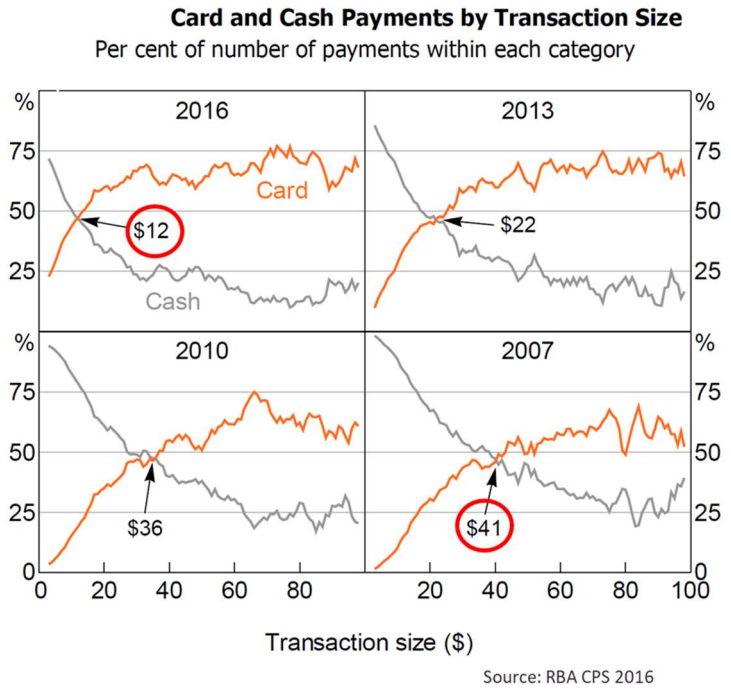
By size, change in share of number of payments, 2016 to 2019



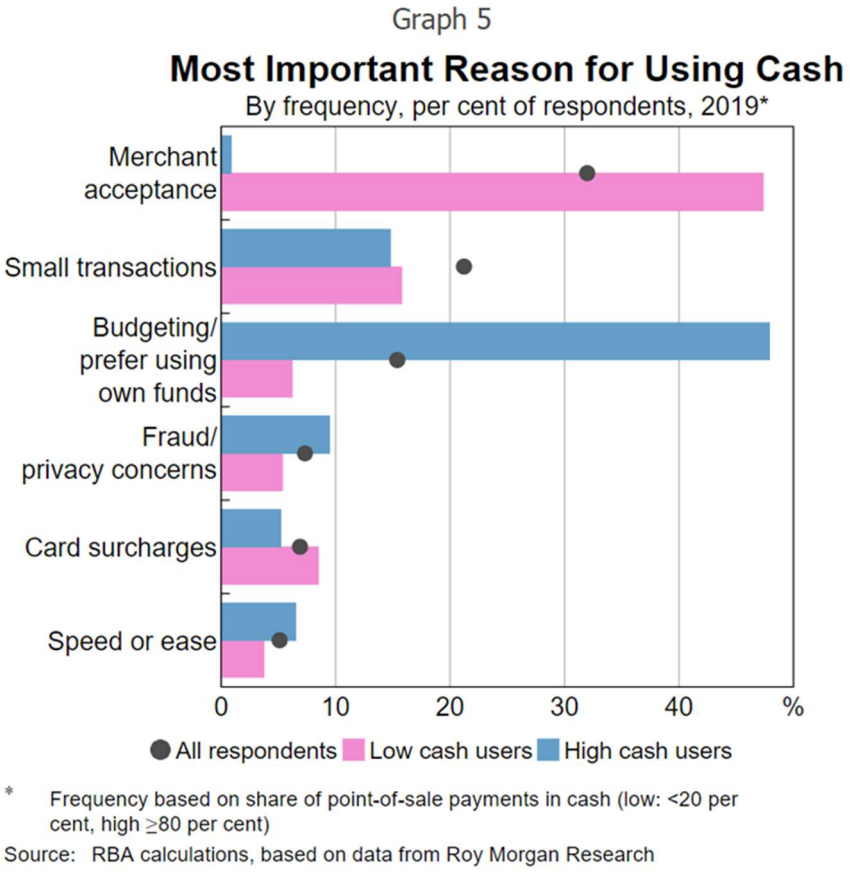
Source: RBA calculations, based on data from Ipsos and Roy Morgan Research

Source: RBA CPS 2016

133. The Australian "card to cash cross-over" is rapidly dropping in value. The transaction value at which the percentage of card activity exceeds cash activity has fallen from $41 in 2007 to $12 in 2016, and every card transaction effectively removes the coins and notes from change that might have been given at the retail POS.



134. Australian consumer reasons for using cash differ significantly between low and high users. For low cash users, merchants' lack of card acceptance drives them to use cash; whereas for heavy cash users, they find it helps to budget - as you can only use what you have.



135. Lack of electronic payment acceptance by merchants has been under review by the Federal Government's Black Economy Taskforce[46], as it can be due to –

- Avoidance of GST;
- Avoidance of income tax; and
- Avoidance of employee on-costs[47].

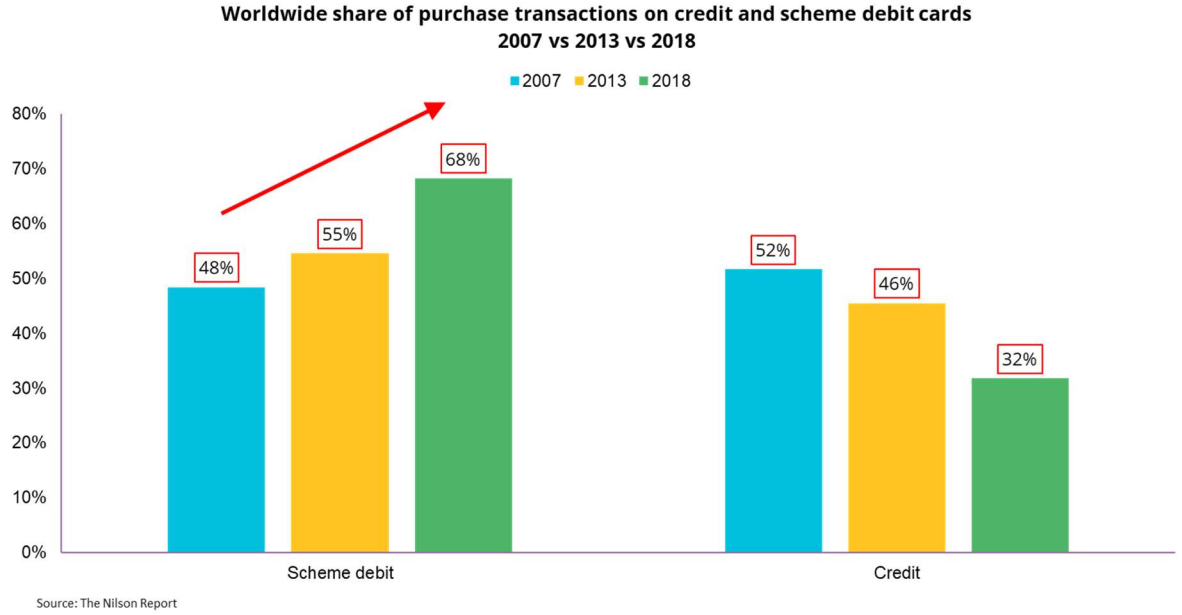
1.

[46] https://treasury.gov.au/review/black-economy-taskforce

[47] Paying employees in cash can avoid the appropriate payment of superannuation contributions, payroll tax, workers compensation insurance premiums, etc.

B. THE GROWTH OF DEBIT CARD PAYMENTS (AND THE DEMISE OF CONSUMER CREDIT CARDS)

136. The growth of debit card transactions over credit card transactions is a global phenomenon. This is driven by many different factors, one being in Australia the transition of moving from using a debit card at ATM to using it at a POS terminal, as a result of which one ATM transaction (to withdraw cash for several transactions) changes into about 12 individual POS transactions (and more recently with Buy Now Pay Later providers changing one transaction into 4). Another is consumer concerns about getting "trapped" into debt, with the Global Financial Crisis (GFC) and the potential impacts of it (e.g. unemployment) accelerating adoption of debit card usage (your own money) instead of credit card usage (borrowing the bank's money)[48]. This global trend can be seen below.



137. In Australia, debit card transaction growth has also been driven by the rapid adoption of contactless payments, with consumers choosing to Tap'n'Go at lower and lower purchase values, which used to be the domain of cash (as discussed above in cash displacement). Cash (accessed via an ATM) and debit card transactions effectively come out of the same bank account, so the substitution of one for another is financially seamless for the user. Clearly Australian consumers have taken to the value proposition that carrying a plastic card, which comes with certain "money back guarantees" if lost or stolen, and tapping it at the POS

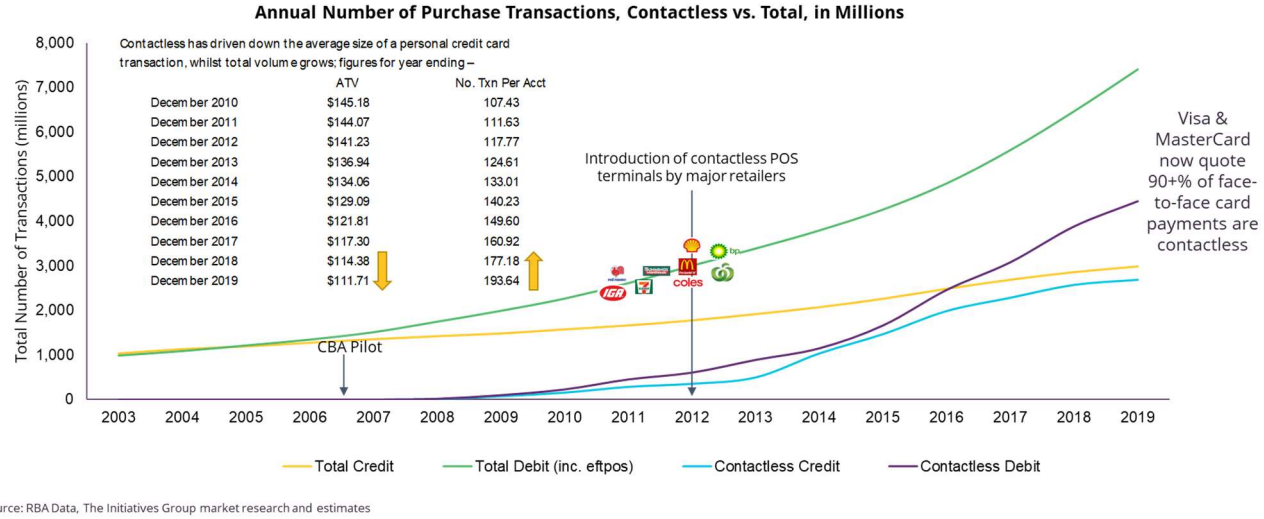
1.

[48] https://www.mckinsey.com/industries/financial-services/our-insights/a-decade-after-the-global-financial-crisis-what-has-and-hasnt-changed#part2 "Unsustainable household debt in advanced economies was at the core of the 2008 financial crisis. It also made the subsequent recession deeper, since households were forced to reduce consumption to pay down debt." https://fortune.com/2018/02/27/why-millennials-are-ditching-credit-cards/ "The 2008 global financial crisis and ballooning college tuition may have also scared some millennials away."

terminal, is quicker, easier and more convenient than carrying and handling a pocketful of banknotes and loose change, which if lost or stolen are lost for good.

138. Open-loop contactless cards were commercially developed by Visa and Mastercard in the USA during the late 1990s. EDC[49] conducted consumer research in Australia on the concept of contactless cards on behalf of Mastercard in 2005, and this was followed by an in-market pilot of the product in locations around Sydney by the Commonwealth Bank of Australia (CBA) in 2006. Following the pilot programme, the contactless cards were issued in volume by CBA and other banks, although it took some years for the roll-out of POS acceptance devices (called "touch pads" at the time) to catch up.

139. Adoption and usage of contactless transactions were growing, but really accelerated when the two major supermarket chains[50] (Coles and Woolworths) began accepting Tap'n'Go card payments in 2012. The rapid adoption thereafter made Australia the country with the highest use of open loop contactless cards per capita in the world, where it remains today. At the time, David Lindberg, then the Chief Product Officer at Westpac, was quoted in the press on contactless as saying *"We've probably never seen a shift in customer preference or customer behaviour like that before, and Australia is leading the world in this trend".*[51]



Source: RBA Data, The Initiatives Group market research and estimates

140. The displacement of cash by contactless cards has seen the average transaction value on a card drop and the number of transactions per card per year rise. As noted in the chart above,

1.

[49] Edgar, Dunn & Company

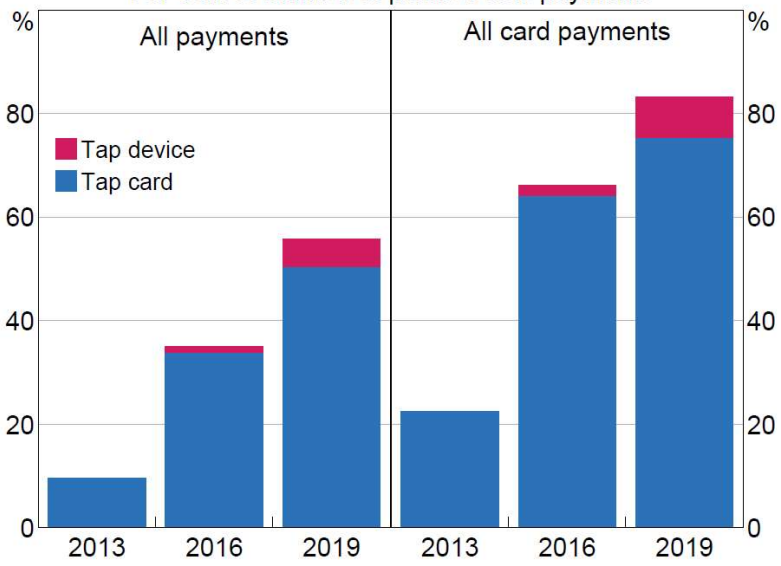
[50] Given their market "footprint" and use by most Australians, historically the two major supermarket chains have played a very influential role in the launch and/or change of consumer behaviour in payments at physical point of sale; other examples would include the original roll out of POS card terminals and the more recent removal of signature from card payments.

[51] https://www.westpac.com.au/about-westpac/media/media-releases/2014/7-april/

Visa and Mastercard now quote that over 90% of their face-to-face card transactions in Australia are contactless.

141. Expanding the view to all forms of payment at point of sale, contactless payments still dominate:

Graph 9
Contactless Card Payments
Per cent of number of point-of-sale payments



Source: RBA calculations, based on data from Colmar Brunton, Ipsos and Roy Morgan Research

142. What caused Australia to have the highest open-loop contactless transactions per capita of any country? In my opinion this is likely the result of a combination of factors, including:

- Australians have historically been fairly rapid adopters of technology - for example, there was rapid consumer uptake of VCRs, mobile phones and smart phones when they were first launched, and Australia has been ranked in the top 10 countries in the world for "digital readiness" in a study across 118 countries[52]
- Many had already experienced contactless transit cards overseas - before COVID, Australians were well known for their proclivity to travel overseas, and in many foreign cities contactless transit cards have been available for many years e.g. Octopus in Hong Kong, EZ-Link in Singapore and Oyster in London[53]
- Significant financial investment by MasterCard & Visa[54], including

1.

[52] https://www.afr.com/technology/australia-ranked-in-global-top-10-for-digital-readiness-but-some-states-lag-cisco-20180911-h157v4

[53] Octopus was launched in September 1997 to collect fares for Hong Kong's mass transit system; the Octopus card system was the second contactless smart card system in the world, after the Korean Upass

[54] As well as financial investments by their banking clients.

- Subsidies to issuers and acquirers - to assist in the re-issuance of cards with the new NFC antenna
- Significant expenditure on advertising - there were several long running TV advertising campaigns[55]
- Promotional offers via issuers - for example, there were "cash back" offers for using the contactless card more than a required number of times in a month[56]

- Lifting the "no authorisation" contactless limit to $100 (since moved to $200 with COVID-19) - at the launch of contactless many countries had a low limit on contactless, for example £30 in the UK[57], because of concerns that fraud may become prevalent; my firm, EDC, undertook market research on contactless for Mastercard in 2005 and the strongest interest came from young men wanting to use it to pay at petrol stations - a full tank of fuel needed a $100 limit
- Allowing contactless with a PIN[58] when a transaction is above the $100 limit - in many jurisdictions, such as the UK, the contactless interface can only be used below the limit; whereas in Australia, the POS terminals and merchant acquiring network permits the contactless interface to be used at any value, but with a PIN required if over the limit
- Incremental improvement of cards rather than a systemic change - see prior section of this report on incremental change versus step-change
- Adoption by the two major supermarket chains (in a highly concentrated grocery retail market) - due to the high frequency at which nearly all Australians visit a Coles and/or Woolworths store, most significant changes with payment at physical POS have required the adoption and promotion of the change by these two organisations
- Major support and leadership by the largest issuer and acquirer: CBA - CBA was the first Australian bank to test contactless card payments, with Mastercard, in a pilot market in areas around Sydney in 2006; the success of the pilot lead to a nationwide roll-out thereafter

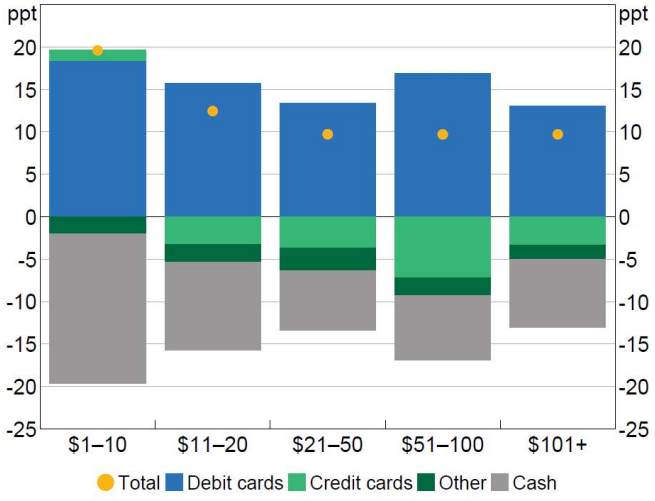
143. The rapid rise in debit card activity is driven both by less cash and less credit. Growth in credit and debit card transactions remained in step until 2007, after which Australia saw a

1.

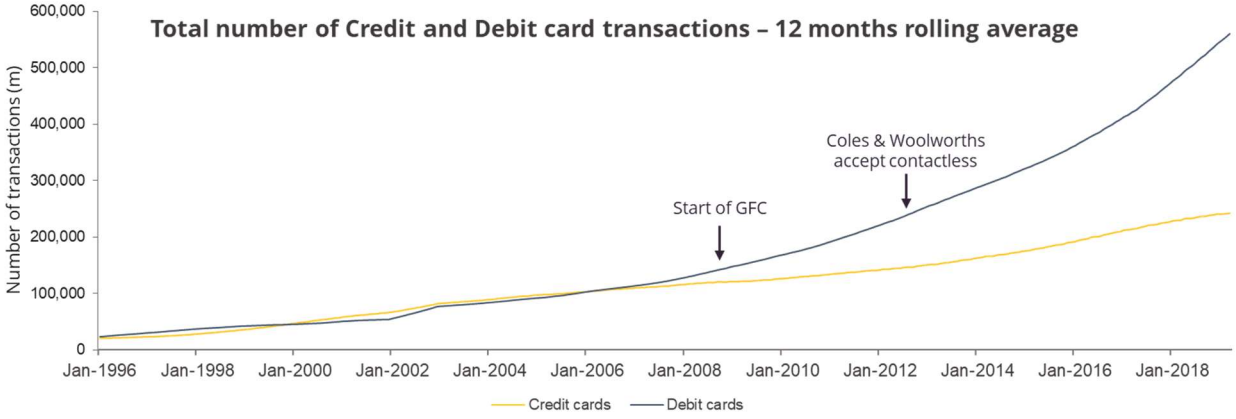
[55] https://www.youtube.com/watch?v=OolP9gNLP6c
[56] https://www.ozbargain.com.au/node/81169
[57] https://www.theguardian.com/money/2020/mar/24/limit-for-contactless-spending-to-rise-to-45-at-beginning-of-april
[58] In the UK, for example, the contactless interface only works below the limit, for transactions above the limit the cardholder must actually insert the card into the terminal and enter their PIN.

significant increase in the number of debit over credit card transactions. Post-GFC saw significant efforts by consumers (globally) to deleverage and shift away from credit cards and at the same time debit card activity was driven by contactless displacing cash (as noted above, for every ATM withdrawal not used, about 12 debit card transactions at POS are generated).

Graph 6
In-person Payments by Value
Change in per cent of number of transactions, 2016 to 2019



Source: RBA calculations, based on data from Ipsos and Roy Morgan Research



144. As debit cards have taken over the card landscape (eclipsing credit cards in both number of transactions and total value transacted), credit cards are becoming the preserve of older consumers, with a fall of credit card ownership occurring in Australia and younger people

shunning[59] them. Indeed, the Australian credit card market is battling strong headwinds from many directions, with four of these illustrated below:

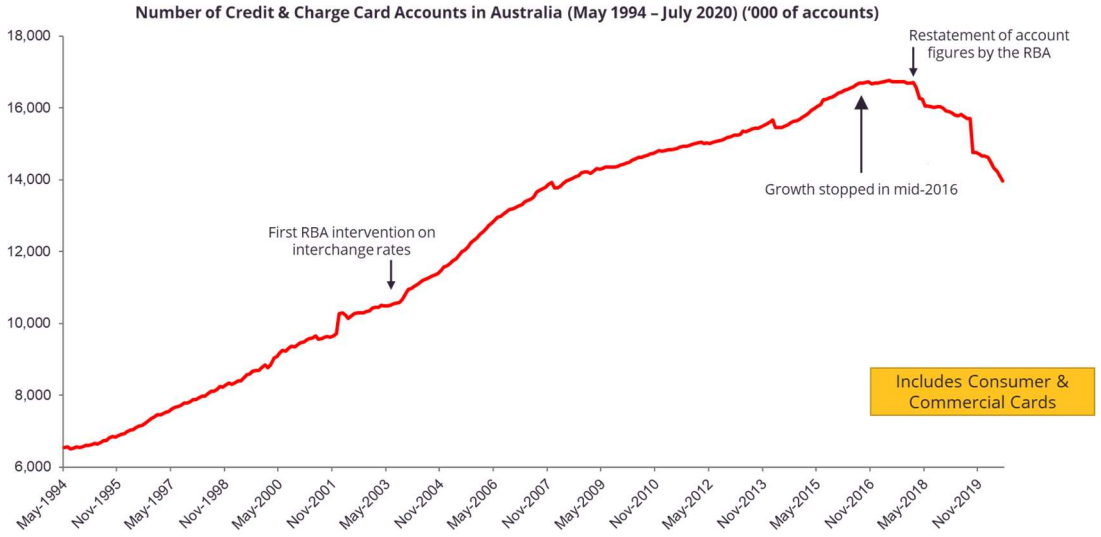
145. The future for credit cards looks weak with negative forces in both supply and demand:

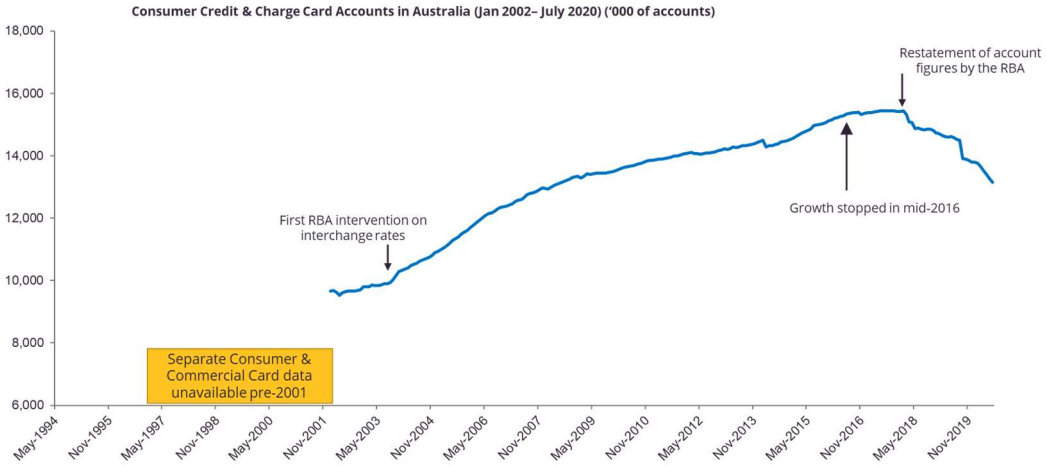
Demand	Supply
Behavioural shifts Younger consumers look less favourably at credit cards compared to alternative instalment loan financing and avoiding credit all-together	**Stricter lending standards** With regulatory actions undertaken by ASIC, issuers have been forced to apply stricter lending standards when assessing applications for new credit products
Less attractive 'perks and benefits' Lower interchange revenue has led to the devaluation of credit card reward programs; as well as increases in costs (such as annual fees and surcharging)	**Comprehensive credit reporting** Comprehensive credit reporting may make applying for credit more difficult for some borrowers by allowing lenders a better view of their overall credit situation

146. With these pressures in play, the number of credit card accounts (particularly consumer accounts) stopped growing in Australia around the middle of 2016. Some reduction may have been caused by people with multiple cards choosing to cancel some, potentially due to annual fees or lower reward points.

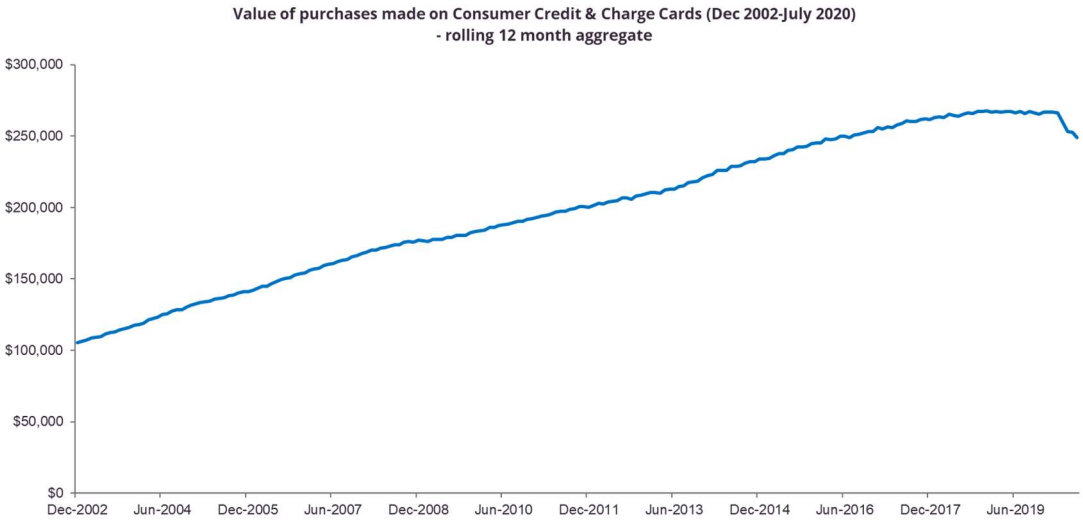
1.

[59] For example, see Page 28 of https://www.rba.gov.au/publications/annual-reports/psb/2020/ , showing the high use of debit cards by consumers under 30 years old.





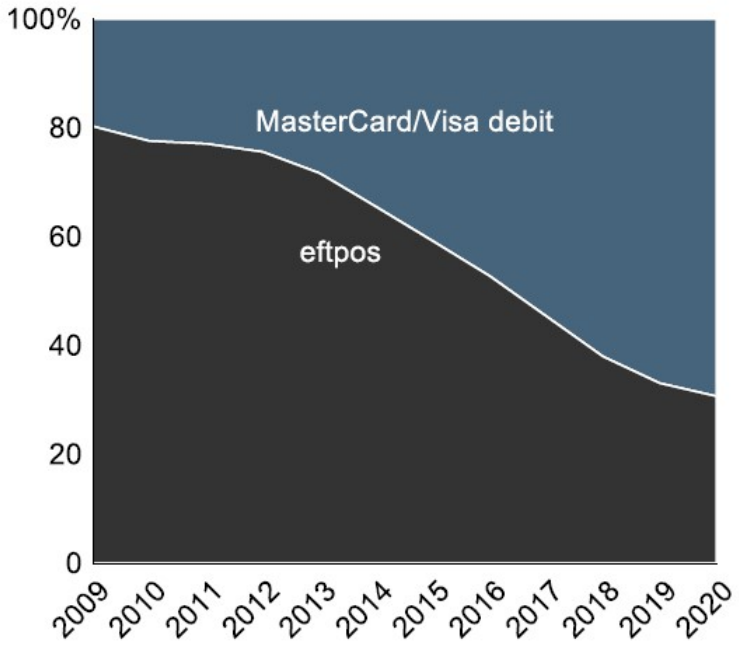
147. Even as the number of credit card accounts started to fall, the total spend on credit cards continued to grow. That was, until the second half of 2019 (pre-COVID), when spending on consumer credit and charge cards also went into decline.



148. As noted in the section above on the background to the Australian payments landscape, the debit card market was originally the sole domain of eftpos (from its launch in 1983), until Visa Debit was launched in the market in the 1990's. Scheme Debit[60] (the term covering Visa Debit and Mastercard Debit) was initially focused on the smaller financial institutions, but eventually became adopted by the four major banks as, unlike eftpos, they were able to be used both online and overseas (making them attractive to consumers); in addition, they generated positive interchange revenue for issuers (at a time when eftpos caused a negative interchange outflow for issuers), making them attractive to the banks.

149. As Scheme Debit became more issued and used in the market, and consequently eftpos's share of the total debit card transaction volume fell, the number of eftpos transactions still grew in total due to the strong increases in total debit card volumes. The state of declining share but increasing absolute volume slowed severely for eftpos, however, when contactless debit card transactions became widely adopted, as shown in the charts below.

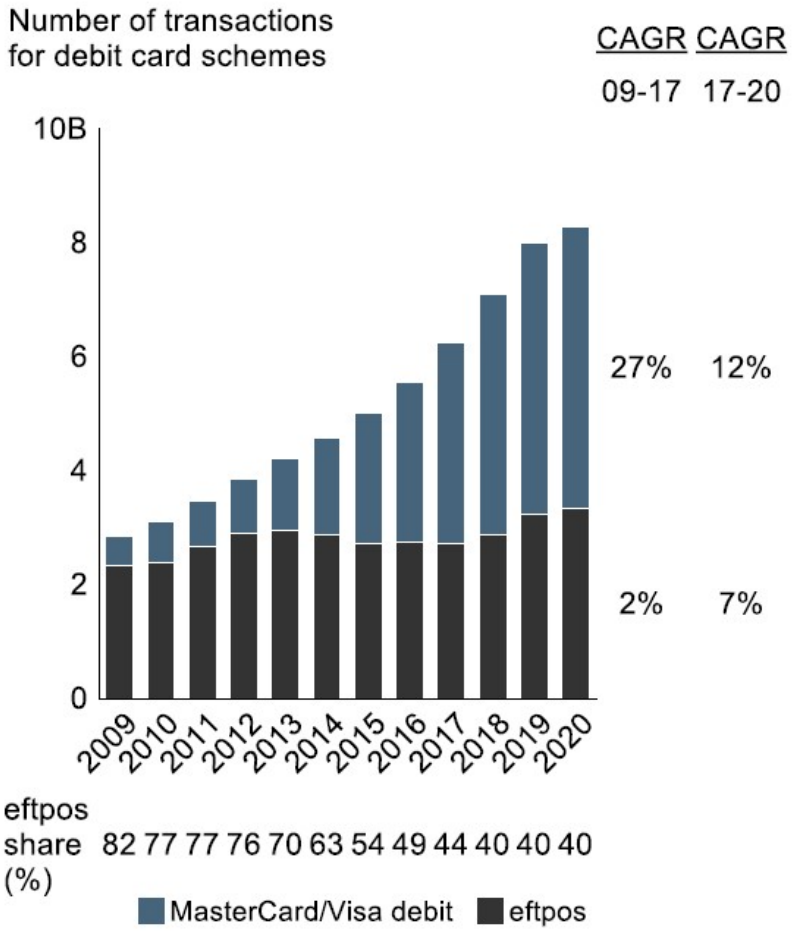
Market share of debit card schemes
by value of payments



Source: IC Compendium

1.

[60] It should be noted that Scheme cards (both debit and credit) can use a "dual message" system, whereby the merchant terminal sends an authorisation request with the first message and requests settlement with the second message; this differs from eftpos which uses a "single message" system, whereby the merchant terminal sends both the authorisation and settlement requests at the same time within a single message; the dual message approach is what causes "Pending" payments to appear in the cardholder's account, as the pending payment is awaiting the second message; when the payment card systems were developed in the USA, they initially focused heavily on the Travel & Entertainment sector and the dual message system was used to add tips to the bill (e.g. in restaurants), with the tip amount written by the cardholder on the paper receipt slip printed after the initial authorisation has been approved.



Source: IC Compendium

150. As noted previously, nearly all of the Scheme Debit cards on issue in Australia today are dual network, that is: the card carries both the functionality of the international scheme and the functionality of eftpos, such that the card transaction has the ability to be routed via the infrastructure of either eftpos or the international scheme. With the NFC contactless functionality on open-loop debit (and credit) cards having been commercially developed by the international schemes, and these schemes having funded the launch and promotion of contactless in Australia, the contactless interface on the cards routed the transaction to Visa / Mastercard and not to eftpos (which initially did not have the technology to support the contactless interface). The contactless interface effectively bypassed the choice of the CHQ / SAV / CR buttons on the PIN pad terminal, which the consumer previously selected (albeit somewhat unknowingly) for routing via eftpos versus Visa / Mastercard, and instead took the transaction straight to the international scheme network.

151. This caused eftpos transaction volumes to start declining, whilst volumes through Scheme Debit kept increasing. There are naturally differences in the fees that eftpos, Visa and Mastercard charge to the card transaction acquirers and issuers involved in their debit card transactions, and also differences in the interchange rates that acquirers have to pay issuers

for purchase transactions on the three debit schemes. These differences in scheme fees and interchange rates appear as differences in the Merchant Service Fees (MSF) that the acquirer charges the merchant for handling a debit transaction of eftpos, Visa and Mastercard. Historically this has meant that the MSF for Scheme Debit has been higher than that for eftpos, and merchants and their Associations (such as the Australian Retailers Association) began to complain about the increasing cost of accepting debit card transactions as eftpos became a smaller and smaller share of their payments and contactless debit grew rapidly.

152. The PSB has for many years been concerned about the nature of competition between eftpos and Scheme Debit. As far back as April 2006, when the Board finalised its reforms to the eftpos and Scheme debit card systems, it noted that the interchange differentials existing at that time were putting eftpos at a competitive disadvantage to Scheme Debit. More recently with the contactless routing issue, the PSB and RBA Payments Policy Department have promoted Merchant Choice Routing (also called Least Cost Routing, although few acquirers have the capability of providing dynamic routing to the lowest cost scheme for an individual transaction), and have pressed the card acquirers to give the merchant the choice of setting rules when a contactless debit transaction goes to eftpos or the international card scheme.

153. The adoption of Merchant Choice Routing by a number of large merchants (without the knowledge of the cardholders themselves) has led to a reversal of the decline in the total transactions going through the eftpos system, with eftpos transaction volumes rising by 13.3% in the 2019/20 financial year[61]. Visa and Mastercard have responded by altering their fees and interchange rates for low value debit transactions, in order to compete with eftpos on the acceptance cost to the merchant.

154. In Australia, consumers use the term eftpos to mean both –

- generically paying by card at a PIN-pad terminal, i.e. an electronic funds transfer at point of sale, regardless of what card they have used (credit or debit, Scheme Debit or eftpos); and
- the domestic debit card scheme.

155. This is different to overseas, where the brand names of the domestic debit card schemes are unique to their system and not confused with the generic “electronic funds transfer at point of sale” (eftpos), e.g. NETS in Singapore, MyDebit in Malayasia, and Interac in Canada.

156. Regardless of the changing mix between debit card & credit card payments and between plastic cards & other formats occurring in Australia, in-store retail payments are likely to remain dominated by card-based payment services for the foreseeable future, with eftpos

1.

[61] eftpos Annual Report 2020

continuing to face strong competition from the international card schemes. See Appendix V which provides my views on market sizing and market shares, both historic and forecast.

C. THE ADOPTION OF SEAMLESS PAYMENTS

157. The ability to browse, select and then purchase products or services without having to go through a checkout or Point of Sale (POS) system is appealing both from a customer and merchant perspective. Customers experience a seamless transaction process and merchants can achieve greater insight into customer analytics. If payments are easier to make, it is more likely that consumers will make them.

158. The need to accept new forms of payments has become more pronounced for merchants, especially given the massive increase in online and mobile payment transactions. Globally mobile commerce is growing at a rapid pace due to rising smartphone adoption, customer preference for online shopping and improvements in network bandwidth. Mobile commerce accounted for almost half of all digital retail sales globally in 2017 and is forecast to reach 70% (USD4.6 trillion) by 2022[62]. In the USA, mobile commerce accounted for 66% of sales during Black Friday and Cyber Monday in 2018[63].

159. In-app payments are essentially purchases made for goods or services within a smartphone or tablet app, which has usually been downloaded onto the device sometime previously. In-app payments use payment credentials already held on file (also known as "card on file"), where the user has explicitly authorised the business to store the payment details (e.g. card number, expiry and CVV) and permits the business to charge the credentials for future purchases, as and when they are made. In-app payments are used for purchasing digital content such as entertainment (e.g. films, TV shows and games), as well as for mobile shopping, ridesharing and food delivery services - and an ever growing range of activities. For example, video game revenue, which includes in-game purchases and subscriptions, reached USD35.8 billion in 2018[64].

160. There are several successful in-app payment integrations across a variety of merchants and service providers. Many implementations have solved traditional pain points in the transaction process and have added features that enhance the customer experience by making the payment process simpler (and push it into the background).

i. Global Examples

Uber – invisible payments

161. When Uber was established it addressed two key areas with taxi-style transportation: access to cheap on-demand transportation and creating frictionless payments. Uber's use of in-app payment is a key point of difference to more traditional taxi competitors, where the payment is processed manually by cash or card after the ride is completed. Beyond the payment itself,

1.

[62] https://www.mckinsey.com/~/media/McKinsey/Industries/Financial%20Services/Our%20Insights/Global%20payments%20Expansive%20growth%20targeted%20opportunities/Global-payments-map-2018.ashx

[63] https://www.pixelunion.net/blog/mobile-ecommerce-stats/

[64] https://techcrunch.com/2019/01/22/video-game-revenue-tops-43-billion-in-2018-an-18-jump-from-2017/

Uber has resolved other tasks and traditional "pain points" by integrating them into the Uber app, such as the hailing of a car, destination input, tracking time to pick-up and fare estimation.

162. From a user perspective, Uber works quite seamlessly. When registering to use the service, riders must provide a payment credential of either a credit or debit card or PayPal. After a rider has completed their journey, the driver marks the ride complete using their driver app. The fare is then automatically charged to the stored payment credential. Shortly after finishing their trip, riders are prompted to rate the driver and the ride itself, which includes the option of giving the driver a tip.

163. In 2018, Uber's gross bookings (total dollar value for ridesharing, Uber Eats meal deliveries, other services) were almost USD50 billion, 87% of which was paid by either credit or debit card [65]

164. Uber is reportedly making moves into financial services, which would follow a similar path of several Asian ridesharing companies. Ola (India) developed the standalone Ola Money service in 2015, Go-Jek (Indonesia) established Go-Pay in 2016, and Grab (Singapore) made a move into financial services in 2017 (in 2018, Uber ceased direct operations in Southeast Asia and merged with Grab).

165. Grab's initial business, like Uber, was providing users with on-demand taxi, car and motorbike ridesharing, using in-app payments to pay drivers electronically rather than with cash. In 2017, Grab developed its standalone payment app, GrabPay, expanding the company's payment system to smaller businesses such as retail and food merchants and enabling them to accept mobile payments. Uber would be well positioned to enter the financial services market with its estimated 93 million users worldwide and may hope to achieve what companies such as Grab have done in Southeast Asia.

Starbucks – order ahead

166. Starbucks has historically been a strong participant on the digital front. In 2002, the company launched in-store Wi-Fi; in 2007, it provided free access to Apple iTunes Music; and in 2008, it launched a program to let customers download free music tracks using cards available in-store. Starbucks launched its mobile payment app to US customers in 2011, following a two-year pilot. At the time, the app allowed users to pay for goods in-store by scanning an on-screen barcode at the physical POS, drawing the payment from the Starbucks Card account that had been preloaded with funds from the user's credit or debit card. By using the app to pay for their purchase, customers could also earn or redeem loyalty points in one step.

1.

[65] https://www.sec.gov/Archives/edgar/data/1543151/000119312519103850/d647752ds1.htm

167. Starbucks introduced the ability to order and pay using the app in 2015, allowing US-based customers to order ahead and to pay in advance of visiting an outlet. The "order ahead" feature has since rolled out globally, most recently in May 2019, when Starbucks enabled the feature in 300 stores across Beijing and Shanghai in China.

168. Starbucks has over 16.8 million active mobile app users and in 2017 mobile payments accounted for 30% of all transactions in US stores. [66]

169. The Starbucks app is a good example of marrying a frictionless payment method with a merchant loyalty program. In order to pay and order ahead by app, users must be members of the Starbucks Rewards program. Members earn stars for every dollar spent (which expire) and, when stars are about to expire, the app prompts users to make new purchases to retain their loyalty status. The app also develops personalised suggestions based on previous orders and is used to promote new items when customers go to make an order.

170. Starbucks Rewards saw a 14% growth in member accounts in the second quarter of 2018 and loyalty members represent up to 40% of gross purchases in the US[67]. The combination of an app, which allows users to order and pay how they want, with a developed loyalty program that encourages repeat purchases, is a good case study of how to effectively integrate in-app payments to benefit both the user and the merchant.

Amazon Go – cashless to cashier-less

171. Amazon Go, Amazon's entry into the physical supermarket/convenience store market, first opened in 2018. As they enter the shop, customers "scan on" through turnstile gates using the dedicated Amazon Go app on their smartphone. Computer vision from an array of cameras attached to the ceiling and shelves tracks the customer through the store, detecting what products they pick up and place in their basket or trolley. Once a customer is ready to leave, they "scan off" their phone on the turnstiles to exit and the purchases are charged to the customer's saved/embedded credit or debit card or bank account.

172. Each store has over 300 ceiling and shelf mounted cameras, in addition to shelf weight sensors and Bluetooth beacons that track each mobile device; all work in concert together to do what is traditionally done by the cashier: identifying the purchased products, historically by scanning each item's barcode. While this may seem an excessive use of technology, it provides Amazon with a wealth of information on consumer behaviour and creates an invisible checkout process to the user.

173. While the Amazon Go stores are designed to be completely cash free, Amazon has been forced to develop a method to accept cash (banknotes and coins) payments. This move was to address complaints that cash-free businesses discriminate against unbanked,

1.

[66] https://www.pymnts.com/earnings/2019/starbucks-mobile-app-users/
[67] https://www.essentialretail.com/news/starbucks-sales-and-loyalty/

lower-income shoppers (of which there is a significant population in the USA), who do not have bank accounts, credit or debit cards. While cash-free stores have become more common (see Pablo and Rusty below), some regulatory bodies have responded by legislating bans on the practice - Sweden is a key example of somewhere going "cashless", as it is legal for a Swedish merchant to not accept cash (the legal tender) as long as the buyer is informed prior to the purchase.

Walmart – instore QR codes

174. Walmart, the largest retailer in the USA, does not accept any of the NFC wallet platforms such as Google Pay, Apple Pay or Samsung Pay, and has instead opted to establish its own proprietary payment service called "Walmart Pay" (as well as still accepting traditional card payments). Customers download and sign into the app, then add/link a credit or debit card funding source to their account. At the checkout, after the cashier has tallied all the goods, customers pay by scanning a QR code dynamically generated by the POS terminal to complete the transaction, receiving an electronic receipt once the payment is finalised.

175. A survey of Walmart Pay users in December 2018 indicated that 52.5% of respondents used the app "every chance [they] get" [68]

176. Walmart has incentivised use of its Pay app by running sign up offers (e.g. free eGift card on sign up) and providing richer app functionality, such as being able to scan product barcodes to access reviews and extra details. Part of the retailer's effort to promote its mobile app includes requiring customers to use the Pay app in order to access the Savings Catcher feature, which compares prices at rival stores and offers cash back for any difference.[69]

177. In May 2019, Walmart Canada began a "Fast Lane" checkout pilot. After customers have scanned all the goods that they wish to purchase using the My Walmart App and they are ready to check out, they enter the fast lane checkouts where they scan a dynamically generated QR code from their phone. This final step triggers the order to be charged to their credit or debit card, and generates a receipt for the user to show a store attendant on departure.

Netflix – the cost of in-app payments

178. Netflix is a subscription based streaming service that offers online streaming of film and television programs. As of April 2019, Netflix had 148.9 million paid subscriptions worldwide and generated USD4.9 billion of revenue in the first the first quarter of 2019[70]. Netflix is available on a range of devices and platforms including smart TVs, game consoles, PC and

1.

[68] https://www.business2community.com/mobile-apps/can-qr-codes-make-a-comeback-as-a-payments-technology-02211075

[69] https://www.pymnts.com/walmart-pay-adoption/

[70] https://www.netflixinvestor.com/financials/quarterly-earnings/default.aspx

laptops, and mobile platforms, including Android and iOS. Billing for the service is monthly and can be paid by card, PayPal, and up until recently, through iTunes.

179. When Apple first launched the iOS App Store, it announced that it would take a 30% commission from all apps sold. Developers responded largely by switching to free apps, which then charged in-app purchases or subscriptions to unlock certain features. This prompted Apple in 2011 to implement a 30% commission on all in-app transactions for the first year, dropping to 15% in subsequent years. The App Store maintains strict terms of service that are designed to keep subscription and in-app payments within its ecosystem, noting "[developers] must not directly or indirectly target iOS users to use a purchasing method other than in-app purchase, and your general communications about other purchasing methods must not discourage use of in-app purchase".

180. Shortly after dropping in-app payments via Google Play, Netflix disabled in-app subscription sign up on iOS devices, effectively disabling all in-app payments for the service. New customers must subscribe via a desktop browser, which allows Netflix to avoid paying any commission to Apple or Google. It was estimated in 2018 that Netflix grossed USD853 million via the iOS App Store, meaning Apple's commission could have been up to USD256 million[71].

181. Netflix joins several other companies in bypassing app store billing systems in order to avoid paying commissions. Amazon restricts TV and movie rentals to its desktop website, and Spotify discontinued in-app payment options for its Premium streaming service, instead directing users to a browser to sign up. It is worth noting that the commission on in-app payment only applies to content and features that are delivered as an in-app purchase. Businesses such as Uber and Airbnb, which provide physical services external to the app, and retail ecommerce merchants are exempt from the commission. The decision by Netflix to disable in-app payments highlights the risks developers and services face in being captive to the terms and conditions of app store ecosystems.

182. In late 2020, after pressure from a lawsuit with "Fortnite" developer Epic Games, Apple introduced a new App Store program that cuts its in-app purchase commission rates to 15% for developers paid less than $1 million by Apple in 2019 - that cut-off is post-commission, meaning it is after Apple takes its cut.

ii. The Australian context

183. Large Australian retailers have seen considerable growth in online shopping, much of which is via dedicated apps. Coles Online, which includes online ordering for delivery and in-store pick up (click-to-collect), grew by 30% in 2018[72]. Online shoppers also appear to spend more, particularly in grocery: market research suggests shoppers who bought groceries from

1.

[71] https://sensortower.com/ios/au/netflix-inc/app/netflix/363590051/overview

[72] https://www.wesfarmers.com.au/docs/default-source/asx-announcements/2019-first-quarter-retail-sales-results.pdf

Woolworths online spent an average of AUD186 a week, compared to AUD103 for those buying from instore[73]. While growth in revenue is significant for the major supermarkets, profit margins have remained thin due to the additional costs associated with picking products and delivering them.

184. The COVID-19 pandemic, with the need (in lockdown) and desire (to social distance) to shop remotely, has seen a surge in online shopping across most categories, with the exception of travel.

185. Both Coles and Woolworths have pilots of in-app shopping systems and alternative delivery methods. In 2018, Woolworths began a "Scan&Go" pilot, developing an app that allows customers to scan items off the shelf using their phone, pay in-app (with an embedded payment credential), and walk out of the store. The Woolworths app, like Walmart's Fast Lane offering, still requires customers to "check out" by scanning off their phones when they depart the store, in most part to allay customer fears that they are walking out without paying.

186. Woolworths continued the roll out of "Scan&Go" to more stores during the COVID-19 pandemic, wanting to provide consumers with more contactless ways to pay.

187. While Coles has not made public any checkout-free services, they are exploring alternate methods of picking and delivery. In 2019, Coles made available a limited range of products to the Uber Eats delivery platform at select Sydney stores. Customers can buy, albeit at a premium, a range of products including essentials like milk, fruit and vegetables. Goods are picked by store staff and collected by an Uber delivery driver or rider to deliver to the customer. Payment is charged to the customer's card details already stored on the Uber Eats platform and the transaction incurs Uber's $5 delivery fee (it is not known what commission, if any, Uber takes out of the total transaction). Coles has also partnered with Sydney-based Airtasker to effectively outsource both picking the goods and delivery. In the pilot, customers can upload a shopping list onto the Airtasker platform with a delivery time and address, a "Tasker" then bids on the job to pick and deliver the order. Payment is charged to the card on file within the Airtasker app.

188. The actions that Coles and Woolworths are taking to explore new payment methods are worth monitoring, as the two major supermarkets have significant influence in encouraging (or discouraging) certain ways to pay. For example, the adoption of contactless payments in Australia was greatly boosted by Coles and Woolworths when they enabled the payment method in 2012 (after which the number of contactless payments per capita accelerated significantly).

1.

[73] http://www.roymorgan.com/findings/7945-australian-online-grocery-shopping-december-2018-201904120647

189. Order-ahead apps have also gained traction in Australia, providing users with a clear value proposition of "skipping the queue". Sales on order-ahead apps are expected to reach USD38 billion globally by 2020, representing a five-year CAGR of 57%[74]. Large quick service restaurant chains, such as McDonald's, use promotions to encourage customers to download their apps; for example, the MyMaccas app can access discount or free meals (e.g. $1 Big Mac, only available through the app), prompting users to place their card on file. By registering users via the app, McDonald's creates an additional avenue to deliver advertising directly onto customers' mobile phones - having previously had no direct method of identifying, or communicating with, individual customers. Smaller restaurants, for whom the prospect of developing, marketing and supporting a proprietary app is not feasible, may elect to sign up to a range of order-ahead marketplace apps, such as Ritual, Hey You (originally known as 'Beat the Q'), Skip and MealPal. Apps that have previously focused on food delivery now offer order-ahead options, such as UberEats and MenuLog, where the user picks up the meal themselves.

190. Anecdotal evidence suggests some order ahead apps take up to 4% of the transaction value as a commission, a relatively high merchant service fee (MSF). However, this higher cost of payment acceptance may be palatable if order ahead apps generate sufficient additional revenue.

191. While Australia has one of the highest penetrations of cashless payment systems in the world, it does not as yet have the dominant mobile payment providers that exist in China. Chinese users have been fast to adopt mobile payments (QR code based and in app), with the value of mobile payment transactions estimated to be USD41.5 trillion in 2018 (this figure includes all mobile payments, including in-app payments)[75]. Chinese mobile payments are dominated by two providers: Alipay by Alibaba and WeChat Pay by Tencent Holdings, which together account for over 90% of China's mobile payment segment[76]. This popularity has enabled the two platforms to become de facto banking systems, enabling users and merchants to transact and to completely bypass traditional banks. Chinese user preference for digital channels is clear: more than 87% of banking transactions were completed online or by mobile in 2018, compared to 45% in 2010[77].

192. Given the popularity of card-based payments, and the existence of a reliable and low-cost direct entry system that many Australians are content to use for transferring money (such as BPAY), plus the arrival of the New Payments Platform, it is unlikely that Australia will see a

1.

[74] https://www.businessinsider.com/mobile-order-ahead-market-forecasts-adopters-trends-quick-service-restaurants-2016-9/
[75] https://www.caixinglobal.com/2019-03-22/chart-of-the-day-chinas-mobile-payment-transaction-volume-hits-4151-trillion-in-2018-101395789.html
[76] https://www.scmp.com/business/companies/article/2130400/china-moves-further-towards-cashless-society-payment-giants
[77] https://www.bloomberg.com/news/articles/2018-10-09/china-s-banking-showdown-wechat-vs-3-million-bank-tellers

similar ubiquity of mobile app payment providers. Apps available to Australian consumers, such as Beem It (recently acquired by eftpos), which allow P2P payments, have so far seen fairly limited uptake, in part because it does not solve a significant problem that Australian consumers have.

In-app payments assisting the transition to cashless

193. Pablo and Rusty, a small Australian-based coffee roaster, opened Australia's first cashless café in Brisbane in 2016, later including a Sydney café in mid-2019. Owner Saxon Wright noted that the benefits of going cashless included reducing cash handling errors, reduced insurance premiums and risk of theft, and reduced cash administration (e.g. depositing cash at the bank). While most transactions in the café are paid for by card, the restaurant also allows customers to pay in-app by using a branded loyalty app. Users order at the counter as normal, then tell staff that they want to pay with the app. The app generates a unique number, which matches the order to the payment and charges the user's debit or credit card saved inside the app.

194. Pablo and Rusty's latest partnership with Sydney-based me&u[78] is testing a completely in-app experience for in-store dining. Customers download the dedicated app, tap a 'beacon' located on the table (which essentially registers the table number), and then order and pay via the app. Sending the order direct to the kitchen and paying in-app on demand eliminates friction at the checkout and minimises wait time. The app can also be used to upsell by promoting suggested dishes and personalised menus based on customers dietary requirements.

195. The on-table beacons came into their own for Pablo and Rusty's during the COVID-19 pandemic, avoiding queues at the counter and ensuring social distancing by keeping customers seated at their tables.

iii. What's next for in-app payments?

Social Media

196. Businesses have long used social media to advertise and promote services and products, and now approach social media as a key channel to reach their intended audiences. Social media is often integrated into business marketing strategies, to create a seamless shopping experience for consumers. Social media companies have made inroads into ecommerce, including adding the ability to make in-app purchases with varying degrees of success. Social media is becoming the primary tool customers use to find products and brands, with market research suggesting 38% of people typically now discover brands via social media[79].

1.

[78] https://www.meandu.com.au/

[79] https://wearesocial.com/blog/2019/06/can-social-commerce-be-the-next-wave-of-retail

197. In 2015, Snapchat added functionality for users to purchase additional features to use in the app, such as lens filters and the ability to reply to messages, only to remove the feature seven months later. Snapchat re-introduced in-app payments in 2018, by launching the "Snap Store" filled with branded apparel and toys. This was followed by integrating new services that allowed advertisers to promote products, but with the ability to purchase without leaving the Snapchat app. In 2018, Snapchat also partnered with Amazon to offer users image-based shopping features, which allowed users to take a photo of an item and bring up options to buy the same product directly from the Amazon US store.

198. Instagram is also entering the ecommerce space. After launching enhanced shopping solutions that enabled brands to directly link to products in their online stores, the company rolled out Instagram Checkout, a service that allows companies to sell products directly within the Instagram app. As at the end of 2019, the service was in closed beta, available to 20 large brands (such as Uniqlo and Nike), and eliminates the need for customers to navigate to an external browser if they wish to buy products. Contact details, shipping and payment information are entered via the app and saved by Instagram. Instagram is promoting the service to merchants heavily, claiming that the platform's 200 million+ users visit at least one business profile daily[80].

In-app to on the road

199. Apps, and in turn in-app payments, are no longer restricted to the domain of smartphones and tablets. Car manufacturers such as GM, Ford, Jaguar and Honda have all announced in-car payment services using the existing infotainment system. GM developed a marketplace ecommerce platform that was available in some 2017 model cars, for services including parking, fuel, and car care and accessories. Ford bought start up Autonomic in 2018 to help build car applications that can use real-time data and connectivity in cars and to make/accept payments for car services. Honda has demonstrated their "Dream Drive" prototype, a new passenger information and entertainment system designed to integrate ecommerce and services into the Honda car infotainment systems. Among other features, the Dream Drive system adds the ability to make restaurant reservations, order food for pickup or delivery, and share the driver's location.

200. 75 percent of commuters surveyed indicated they would shop more if the ability was integrated into their car [81]

201. By 2020, the number of vehicles with some form of internet connectivity is estimated to be more than 250 million worldwide[82].

1.

[80] https://business.instagram.com/getting-started
[81] https://www.tsys.com/news-innovation/whats-new/Articles-and-Blogs/nGenuity-Journal/driving-commerce-inside-the-connected-car-yes-you-can-pay-from-the-dashboard.html
[82] https://www.tsys.com/news-innovation/whats-new/Articles-and-Blogs/nGenuity-Journal/driving-commerce-inside-the-connected-car-yes-you-can-pay-from-the-dashboard.html

202. Paying for fuel at the pump is a natural fit for in-car payments and is already in market for smartphone users. In Australia, fuel retailers have developed branded apps that allow customers to pay at the pump without having to enter the outlet or use a fuel pump card terminal, such as FuelPay by Caltex and BPme by BP. Initial issues with the BPme app have provided an example for why businesses need to ensure the payment experience is seamless and functional: early adopters experienced repeated errors when using the app, and in 2018 a user was followed up by police after the BPme app took 48 hours to process a payment[83].

203. Adoption of in-app payment for fuel without going into the service station store was accelerated by COVID-19, as consumers wished to stay out in the open and near their vehicle rather than enter the confines of the store with its social distancing restrictions and concerns.

Deciding to implement in-app payments

204. In-app payments can help customers shop, reduce payment frictions and can be integrated with loyalty programmes. However, it is not necessarily the case that every merchant should enable in-app payments. While it is desirable to have as many payment options available to the customer as possible, the extent of take up of these apps by merchants is likely to vary on several factors, namely:

205. Size and type of business

- Larger merchants who want to drive omnichannel sales may be inclined to enable in-app payments, but customer behaviour may not lend itself to in-app payments.
  - For example, retailers that rely on a high level of interpersonal contact with shoppers may not be suitable for in-app payments.
- Small merchants, such as cafes and restaurants, may be better served by using aggregator-style apps that manage the ordering and payment aspects.
- Developing and maintaining mobile applications requires an initial investment and ongoing costs. Further, as in-app payments are effectively Card Not Present (CNP) transactions, they can have higher fees compared to Card Present transactions.

206. Product type: physical or digital

- If a product or service is digital or a subscription, purchases may be subject to the various App Store commission structures (for both Google and Apple App Stores, this could be up to 15% in the first year).

1.

[83] https://which-50.com/bps-petrol-app-sends-police-after-adma-chief-he-did-nothing-wrong/

- Customers may be less inclined to make large purchases through an app and prefer the feeling of using a full browser or making purchases in-store. However, this may be changing, for example, services like Fair enable users to browse and buy cars, organise financing and complete transactions within the app.

207. Security and liability

- Enabling in-app payments will mean the app will need to be PCI DSS[84] compliant.
- Failing to comply with relevant security and privacy standards, and / or suffering data breaches would decrease confidence with customers.
- Penalties for PCI-noncompliance can be significant, and the fines and outcomes of data breaches devastating to businesses, especially smaller merchants.
- A major appeal of in-app payments is the ability to hold payment credentials on file to make recurring purchases even easier, but (without the use of tokenisation) it increases risk associated with data security
  - For the above reasons, smaller merchants who want to enable in-app payments may be inclined to go with a larger service provider, who can manage all of the security requirements.

208. Integrating with existing platforms

- Merchants with existing ecommerce platforms or in-store payment acceptance may choose to go with existing providers, which can ensure consistency between channels (e.g. Merchants using Square to accept payments in-store may choose to use Square's in-app payment service for consistency).

209. Measuring key analytics

- Understanding customer behaviour such as shopping cart abandonments and transaction time are important in discovering pain points in the transaction process, various service providers may have different options for customer analytics.

Service providers

210. For most merchants who would not have in-house capability, there are a variety of major payment gateway providers that offer in-app payment services, including the ability to store card on file. These payment gateways can offer merchants greater security, by handling

1.

[84] PCI DSS is the Payment Card Industry Data Security Standard, being a set of security standards designed to ensure that all companies that accept, process, store or transmit credit card information maintain a secure environment; https://en.wikipedia.org/wiki/Payment_Card_Industry_Data_Security_Standard

aspects such as PCI compliance, and seamless integration into existing apps using APIs. These include Adyen, Braintree, Stripe, Bambora and Square.

Conclusion

211. The growth of in-app payments in recent years has been significant across digital purchases, content and services subscriptions, and retail ecommerce. Indications are that this growth is likely to continue and more probably accelerate. Smartphone ownership continues to grow, while new computer sales, including desktop and laptops, is slowly shrinking. Further, smartphone users are increasingly accustomed, if not expecting, to making purchases using their devices.

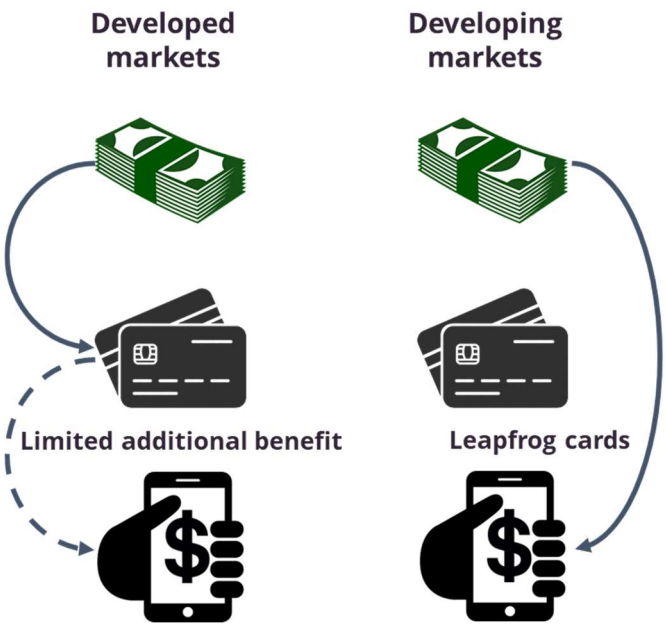
212. While users may already be able to browse and shop from their mobiles, the integration of in-app payments can make the checkout process fast and friction-free, by reducing the time users need to fill out forms and payment details. Reducing friction at the checkout can encourage repeat purchases and reduce shopping cart abandonment.

213. If implemented well, in-app payment offers users better convenience and an enhanced customer experience. Combining in-app payments with customer loyalty programs, as done by companies such as Starbucks, allows businesses to learn more about their customers (through richer data collection) and opens a new marketing channel that can promote new products and services directly to users. While there are benefits and advantages of implementing in-app payments, it may not be the path for every business; hence businesses should consider the nature of their business and customers, and be aware of the additional requirements, such security and compliance, before deciding to implement in-app payments. Nonetheless the current strong growth of in-app payments is likely to continue.

D. GROWTH (AND BARRIERS) OF MOBILE PAYMENTS

214. The rapid adoption of paying at physical POS using a mobile phone that has been seen in developing markets, has not yet occurred in developed economies - although the COVID-19 pandemic has seen an acceleration.

215. In developed markets, such as Australia, the mobile handset has provided limited benefits over and above those provided by a plastic card with contactless tap'n'go capability. Whereas in many developing markets, the use of mobile payments has allowed either the merchant and/or the consumer to leapfrog the acceptance/use of cards.



216. In Australia, the roll out of the major tap'n'go mobile ewallets occurred many years after the launch and mass adoption of contactless cards: Apple Pay launched in Australia in November 2015[85], with Samsung Pay[86] and Google Pay[87] both launching in mid-2016. By the time Apple Pay launched in Australia, the Commonwealth Bank of Australia (followed by others) had been issuing contactless cards for 9 years, and the boost to contactless usage delivered by its acceptance at Coles and Woolworths supermarkets had occurred 3 years previously - such that about 50% of debit card transactions and about 70% of credit card transactions at POS were already via the contactless interface[88].

217. With Australian consumers already used to tap'n'go payments via plastic card, inserting the capability into a smartphone did not appear to provide sufficient additional benefit to gain rapid adoption. ANZ Bank, the first major bank to adopt Apple Pay, provided usage figures for its own cardholders: ANZ customers made 3.9 million card transactions on a mobile wallet in December 2017[89], representing only 4.5% of all ANZ card transactions; this had more than

1.

[85] https://www.smh.com.au/technology/apple-pay-launches-in-australia-without-national-banks-20151118-gl267c.html

[86] https://www.samsung.com/au/news/local/samsung-pay-nab/

[87] https://www.smh.com.au/technology/google-announces-android-pay-australian-launch-details-20160713-gq4iqd.html ; Google Pay launched in the USA in 2015, and today has over 150 million users in 30 countries through 3,000 banks.

[88] See earlier section on "The growth of debit card payments (and the demise of consumer credit cards)"

[89] https://www.smarthouse.com.au/anz-mobile-wallet-payments-soar-140-2017/

doubled from 1.6 million in December 2016, however represents less than 0.5% of the total number of Australian card transactions in December 2017; ANZ claimed further rapid growth during 2018, with 57 million transactions with ATV of $32 in the 11 months to August 2018. Roy Morgan[90] reported in March 2020 that Apple Pay and Google Pay are now used by 9.8% of Australians (up from 6.8% the prior year) – so still a small minority of transactions.

218. So, despite high usage of contactless cards and high smartphone ownership, Australians had previously been slow to adopt Apple Pay and Google Pay for use at physical POS - until COVID. TIG estimates that use of mobile tap'n'go transactions have doubled from under 5% to over 10% of contactless POS transactions between December 2019 and August 2020. The fear of COVID was enough to make some people's preference shift from using a plastic card (which someone else may have handled) to using their mobile phone (which likely only they have handled), with their mobile phone already likely to be at hand for the QR code sign-in process required at many venues.

219. At the launch of the mobile tap'n'go wallets, TIG had anticipated that the ability to use the wallets on mass transit[91] (e.g. using a Visa/Mastercard instead of an Opal card in Sydney, which commenced in July 2017[92]) and for a "one tap" payment and loyalty card transaction would be enough "value added" to gain adoption. However, uptake of mobile use in Australian mass transit has not been as strong as anticipated, and the Apple quarantine on the NFC interface on the iPhone (and the need to pay Apple for access to Apple Pay) has held back any significant move to "one tap" payment and loyalty.

220. The story overseas in developing markets has been different, with the Asia-Pacific region divided between the usage of Quick Response (QR) Code and Near Field Communication (NFC) in mobile phone payments at physical POS. For example China and India both extensively use QR codes in mobile payments, while Singapore and Australia predominately use NFC (although more recently, due primarily to regulatory intervention, Singapore has seen growth in QR code acceptance and usage).

1.

[90] https://store.roymorgan.com/product/Digital-Payment-Solutions-Currency-Report-13395

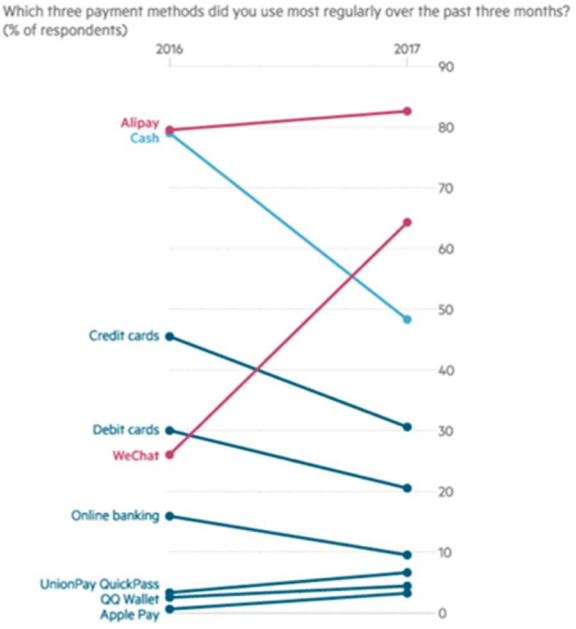
[91] In 2017, mobile payments (including wearables) accounted of approximately 5% of all open-loop (Visa/Mastercard/American Express) contactless payments on Transport For London, which began accepting open-loop cards in 2014 (as well as its proprietary Oyster card).

[92] https://www.transport.nsw.gov.au/data-and-research/nsw-future-mobility-prospectus/nsw-future-mobility-case-studies/innovative-2

221. In relation to the market in China –

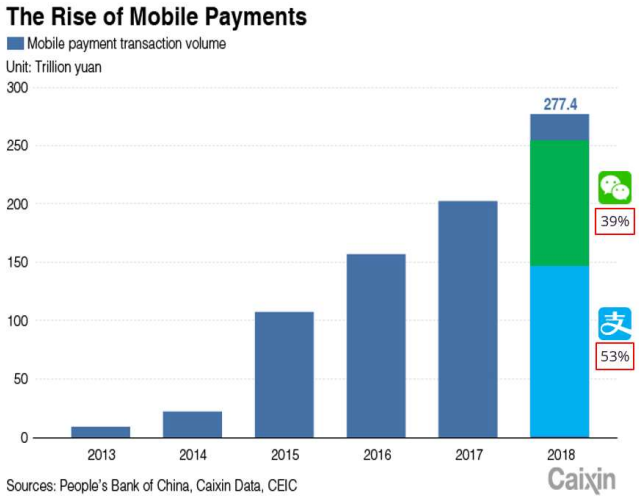
- Research from 2017 Q1 points out that 67 percent of customers use WeChat Pay or Alipay to shop in a convenience store, while NFC-based payments remain in the zero-percent range; 47 percent of convenience store staff have no understanding of Apple Pay;
- The NFC payment sector only holds less than 10% of the entire Chinese mobile transaction market.

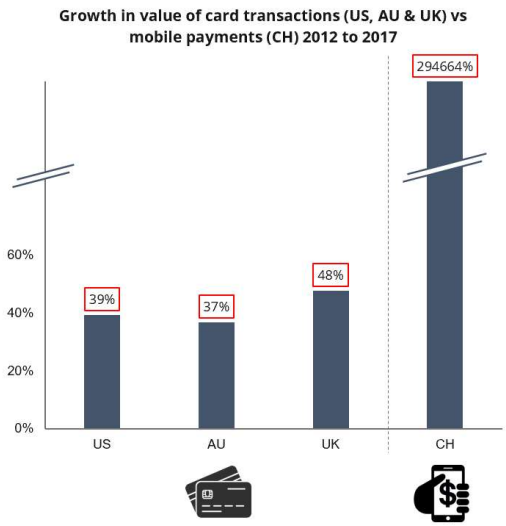
Figure 3. Consumer payments methods in China, 2016-2017



Source: FT Confidential Consumer Payments Survey data in Nikkei Asian Review (2017)

222. Indeed, the growth of non-card based mobile payments in China eclipses that seen in card payment growth in the West:

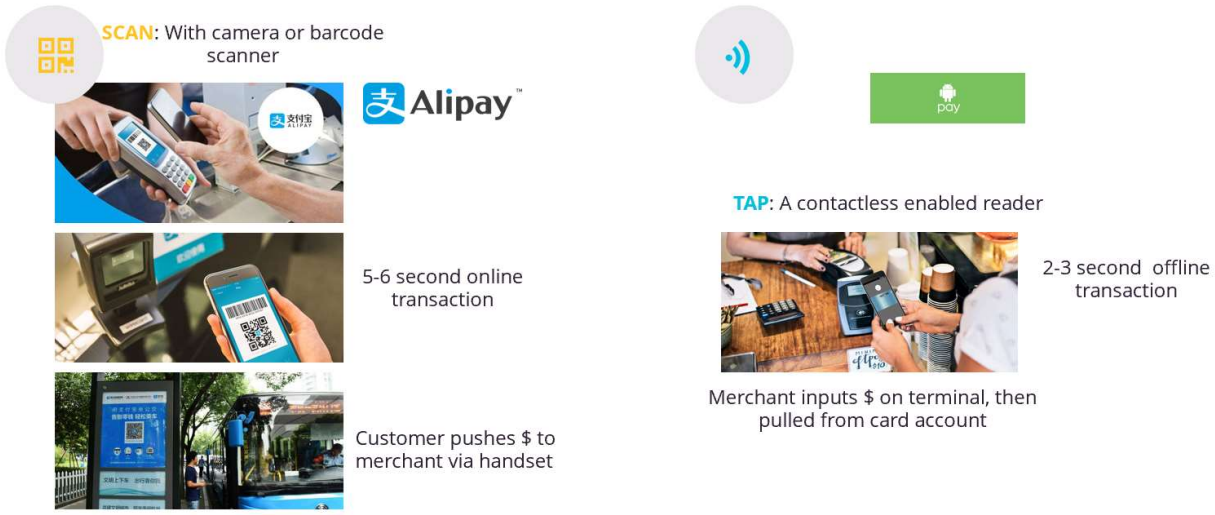




223. QR code transactions tend to use pre-funded wallets as their source of funds (e.g. money that the consumer has already transferred into their Alipay wallet from their bank account), whereas NFC transactions leverage the standard debit and credit card infrastructure.

	QR Codes	NFC
3rd Party Access	Universal Access	Apple doesn't allow 3rd party access
What they can do	One-way data transfer up to 3kb	Two-way data transfer up to 1mb
Transaction Type	Card-Not-Present / Cloud Based "Push payment"	Card-Present / Card Emulation "Pull payment"
Security	Security an issue on static; can be improved by use of dynamic	Encryption Standard
Standardisation	No, proprietary closed-loop. Development is frequently required.	Yes, uses existing contactless (ISO 14443) messaging standards

224. The customer experience is also different:



225. QR codes for payment in Australia remain relatively uncommon, but are growing - especially among retailers looking to target the Chinese tourist market. Traditionally, Australians have been resistant to the use of QR codes outside of specific applications, such as on airline boarding passes - although their more recent (and pervasive) use for COVID track and trace is exposing most consumers to the concept.[93]

226. Specialised payment service providers such as RoyalPay and Paylinx are enabling in store acceptance of payment services like Alipay and WeChat Pay for Australian businesses catering for mainland Chinese customers. Cabcharge is also now accepting AliPay, joining about 20,000 other Australian merchants accepting Alipay currently; plus Commonwealth Bank's merchant acquiring business has announced that it will be supporting acceptance of QR code payments in due course.

227. Historically, however, mainstream Australian consumer adoption of new retail payment methods has required acceptance and promotion by the major retailers. Currently there does not appear to be any business or financial reason to move in this direction.

228. In the meantime, Google is making moves to expand its footprint in financial services. A new Google Pay app for both Android and iOS was unveiled for the USA in November 2020, with the aim of "making money Simple, Secure and Helpful"; this not only expands Google's capabilities in payments, but also provides banking functions. The article in Forbes[94] notes

1.

[93] The Juniper research report on QR codes https://www.juniperresearch.com/researchstore/fintech-payments/qr-code-payments-research-report?utm_source=junipereshot&utm_campaign=pr1_qrcodepayments_financial_fintech_jan21&utm_medium=email covers 26 countries but excludes Australia; it raises the key, unanswered question *"Will QR code payments succeed in developed markets?"*

[94] https://www.forbes.com/sites/danieldoderlein/2020/11/24/the-payments-king-is-dead-long-live-the-new-king/?sh=157dc0ea46fb

"*The new Google Pay is a bank killer and it also brings a huge stab to the card networks on its path*" ; this may be an overstatement, but the new capabilities have been applauded in the press[95] and are sufficient to gain a partnership with Citibank on the associated "Plex" bank accounts (as promoted by Jane Fraser, the President of Citi, in the launch video[96]).

229. This new version of Google Pay has yet to be launched in Australia, but perhaps, by adding more functionality and "value" into the app, it will help raise mobile payment adoption rates.

1.

[95] https://www.theverge.com/2020/11/18/21571806/google-pay-relaunch-money-payments-finances-deals-offers-banking-plex

[96] https://www.youtube.com/watch?v=A2hL32k7Y0I

E. GROWTH OF ECOMMERCE

230. The growth in e-commerce activity is accelerating, with more and more consumers (assisted by the COVID-19 pandemic) moving to shop online, and marketplaces are beginning to dominate this environment.

231. One estimate is that the global value of retail e-commerce in 2018 reached over US$2.84 trillion[97] and this has continued to grow rapidly, including recent acceleration due to COVID-19. The share of e-commerce in retail globally has been growing steadily. Last year it was 11.9%, reaching 13.7% in 2019 and 17.5% in 2021[98] . Regardless of the source of the data the trends are the same, with fashion products (clothes, footwear, accessories), electronics and media (personal electronics, music, games) being the retail products purchased most often online.

232. Retail ecommerce is also increasing in Australia – in a 2019 regional study of e-commerce, TIG estimated that the value of retail ecommerce grew by almost 30%pa in 2018[99]. PYMNTS' research[100] notes however that "*The nation's move to digital has been more modest in some respects compared to the U.S., where PYMNTS' research shows a strong preference for digital-native shopping experiences — those that eliminate the need to go into stores altogether. Australians are comparatively more inclined to continue going to brick-and-mortar stores, but they are as interested as U.S. consumers — sometimes more so — in digital features that make shopping experiences more efficient, convenient and economical. Australian consumers have also moved their overall shopping journeys and the channels in which they begin and complete purchases in a decidedly digital direction*."

233. Using Card Not Present (CNP) transaction data published by the RBA[101] as a proxy for online and in app eCommerce purchases, the strong growth rates can be seen below (covering both debit and credit cards):

1.

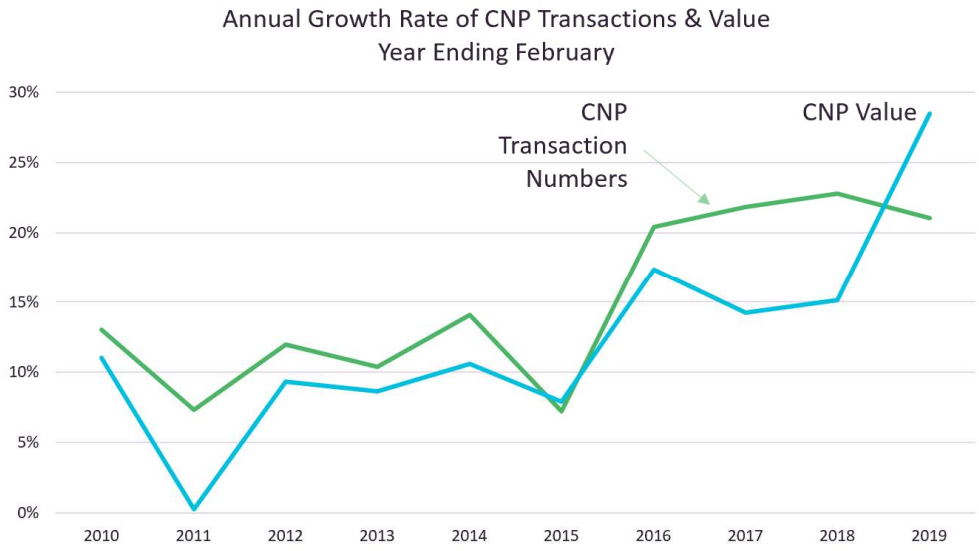
[97] Marketplace as a key actor in e-commerce value networks (Kawa & Walesiak, Scientific Journal of Logistics, 2019)

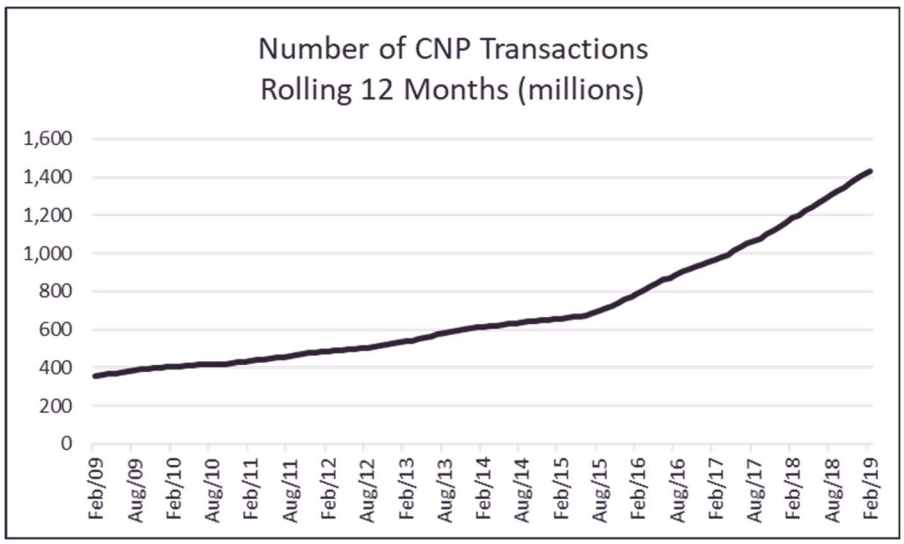
[98] Statista 2019

[99] The data provided in Appendix V estimates total Remote Retail grew by 22% in value in the year ending June 2018.

[100] https://www.pymnts.com/wp-content/uploads/2020/12/Global-Digital-Shopping-Index-December-2020.pdf

[101] Based on RBA statistics for "device not present" credit, charge and debit card transactions acquired by a financial institution in Australia


Annual Growth Rate of CNP Transactions & Value
Year Ending February
30%
25%
20%
15%
10%
5%
0%
CNP Transaction Numbers
CNP Value
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019


Number of CNP Transactions
Rolling 12 Months (millions)
1,600
1,400
1,200
1,000
800
600
400
200
0
Feb/09
Aug/09
Feb/10
Aug/10
Feb/11
Aug/11
Feb/12
Aug/12
Feb/13
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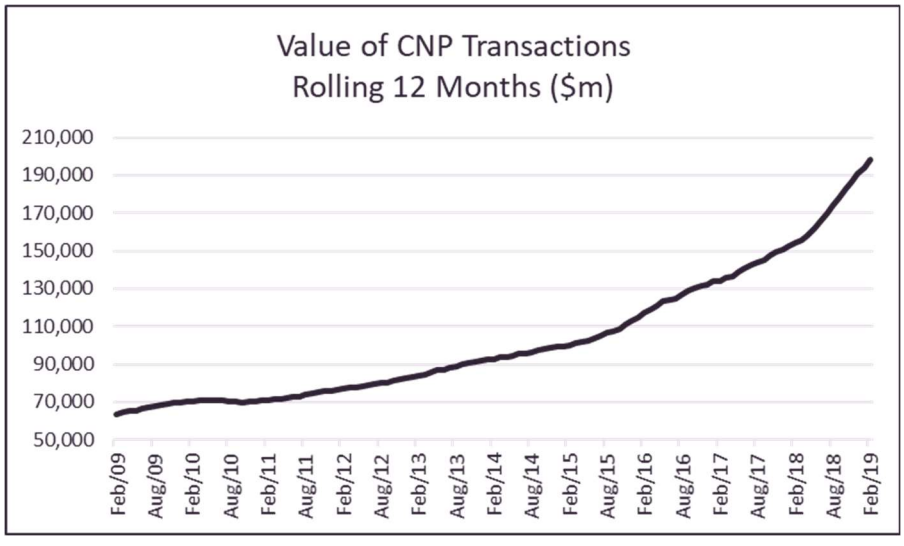
Value of CNP Transactions
Rolling 12 Months ($m)
210,000
190,000
170,000
150,000
130,000
110,000
90,000
70,000
50,000
Feb/09
Aug/09
Feb/10
Aug/10
Feb/11
Aug/11
Feb/12
Aug/12
Feb/13
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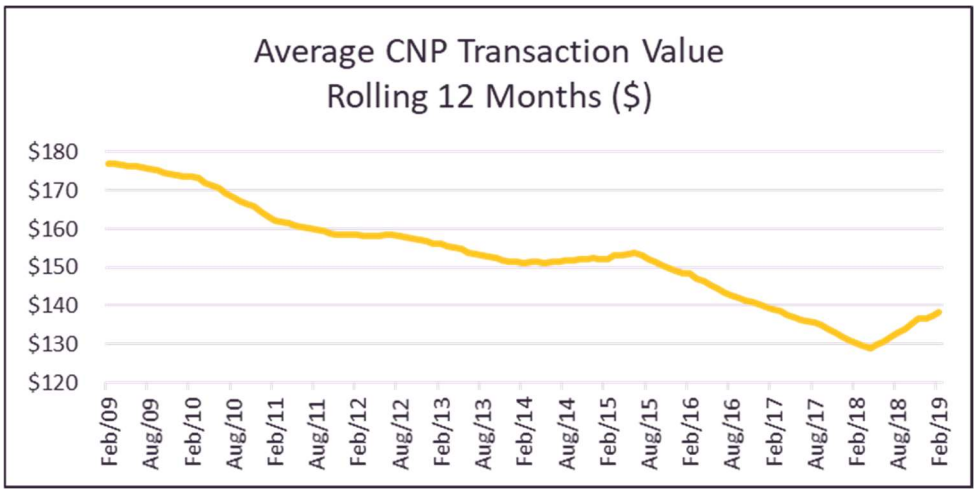
Feb/19



234. The recent upward trend in Average Transaction Value (ATV) in CNP transactions seems somewhat counter intuitive, as early online activity was dominated by high value air and travel transactions, plus many CNP payments have now moved to higher frequency at lower value (e.g. monthly insurance vs annual).

235. Until the recent entry of a number of global merchant acquirers into the local Australian market (e.g. Adyen, Braintree, Worldpay), the smaller acquirers have generally focused on the Card Present environment. Hence 2018 estimates (based on RBA statistics) developed by TIG, shown in the table below, indicate that the four major banks have a higher share of CNP activity than Card Present.

MARKET SIZING (2018)

BY VALUE

Acquirers	Total Market Share (CP + CNP)	Card Value Handled ($m)	CP Share	CP Value Handled incl o/seas cards($m)	CNP Share	CNP Value Handled incl o/seas cards($m)
4 Major Banks	83%	$ 520,448	77%	$ 331,370	95%	$ 189,078
Other	17%	$ 106,598	23%	$ 96,646	5%	$ 9,951
	100%	$ 627,046	100%	$ 428,017	100%	$ 199,029
		100%		68%		32%

eCommerce Marketplaces

236. Globally, ecommerce marketplaces are significant. In 2018, the top 100 marketplaces generated turnover of USD1.86 trillion. This accounted around 65% of the world's e-commerce combined. The massive share of these platforms and their dynamic growth (23% in relation to 2017) shows how important they are in shaping e-commerce domestically and internationally. Of the largest 100 platforms, 61 are in the USA, 17 in Asia, 14 in Europe, 5 in South America and 3 in Africa.

237. In terms of turnover, in 2018, the two largest marketplaces were the Chinese Taobao (USD515 bn) and Tmall (USD432 bn), both owned by the Alibaba Group. These were followed by Amazon (USD344 bn), JD.com (USD259 bn) and eBay (USD96 bn). Alibaba's turnover stems both from the purchasing power of China and other Asian countries where the marketplace is active, and from the amazing popularity of the group's platforms. 80% of products purchased in China are sold on these portals.

238. Marketplaces are an important form of selling, particularly for Small-Medium Enterprises (SMEs), as they can eliminate entry barriers to new businesses and facilitate the expansion of existing ones. They also create new solutions and show new directions in the digital economy. Amazon, Alibaba and JD.com invest billions of dollars in logistics infrastructure, thus helping the regions where they operate to grow. They are also important for providing access to large volumes of domestic and international customers, highly recognisable branding, first contact value (customers may start their search in a marketplace), ready technical solutions, payment systems including currency conversion and logistics. Most of the products come from external companies, although some platforms also offer their own products (e.g. Amazon).

239. The trend is for marketplaces to continue to grow and further dominate the retail ecommerce landscape. Economy of scale appears to be important and is likely to act as a barrier to entry for new marketplaces. Dispersed models exist, like the Global Fashion Group (a public company on the Frankfurt stock exchange) which operates marketplaces under different brands in Eastern Europe, South America, South East Asia and Australia/New Zealand ("THE ICONIC"), but gains economies of scale in platform development, marketing techniques, etc;

240. As they grow, marketplaces extend their in-country presence based on the size of the local opportunity, which will be, in part, based on existing purchases from that market. For example, it was many years before Australia presented Amazon with the opportunity to establish an in-market, physical presence. Local presence then aids logistics, reduces currency issues, and offers greater opportunity for local sellers to join the marketplace.

241. For SMEs, participation in an ecommerce marketplace can be the first step in selling online. For SMEs that are already selling online, affiliate programs (for example Rakuten Marketing) and marketplaces provide the opportunity to extend their reach to a larger number of prospective customers. SMEs are specialists in their own business operations; but often they are not experts in digital technology – they know it is a trend, they may know whether or not they want it, but they may not know where to start. Website design and maintenance, payment gateways, fraud detection and management, ecommerce marketplaces, omnichannel interfaces, PCI-DSS Compliance, tokenisation, and digital advertising &

marketing are unlikely to be their strengths. Often they will not be selling and fulfilling direct to end users, but may be interested in doing so.

242. The tokenisation services offered by Visa and Mastercard[102] to protect from losses due to data breaches, also have the advantage of providing account updater services: that is, if a card number or expiry date changes, the payment should not fail with a token issued by the Schemes, as the token will automatically "point to" the new card details. This saves the consumer from having to update their card-on-file details and ensures that the merchant holds a valid payment credential with which to fund the consumer's purchase.

243. Where going online means selling to customers overseas, SMEs will not be experts in Foreign Exchange (FX) and they may be suspicious of paying too much to move money from an overseas currency to Australian dollars. Typically they will not have funding to employ a team of experts, nor the bandwidth to manage many different outsource providers and the complexity of new sales channels. Some will be more sophisticated than others, some will be already online, but this does not mean they have all the answers - hence an existing marketplace may be attractive.

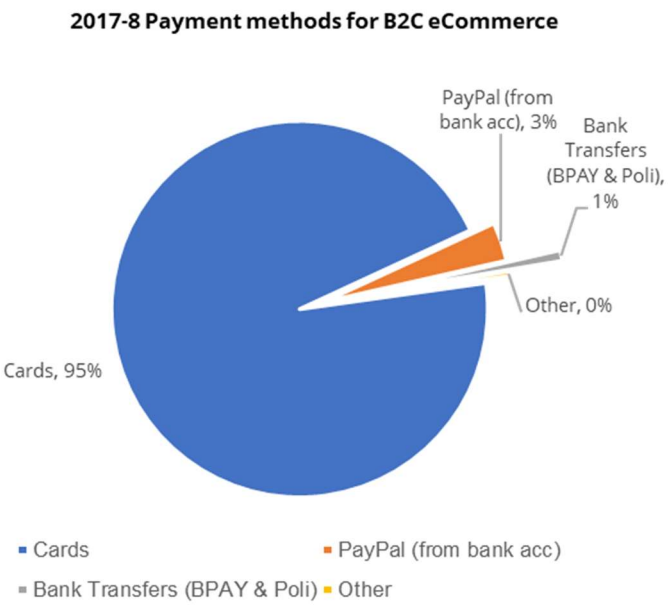
Card Payments Dominate Australian Online Payments

244. Previous market analysis undertaken by TIG (covering 2017-8) indicated that consumer payments for online purchases were dominated by payment cards. With eftpos only recently gaining online payment capability, these transactions are dominated by the international card schemes of American Express, Mastercard and Visa. Online payments generally have a higher cost of acceptance for the merchant, due to being higher risk (CNP and hence higher susceptibility to fraud), the need for an eCommerce gateway and use of a fraud mitigation engine.

1.

[102] And more recently also eftpos in Australia.

245. Since TIG's earlier analysis was conducted, Buy Now Pay Later (BNPL) operators have become a significant force in the online payment space, and account for over 30% of payments value in some sectors (such as female fashion online). But it should be noted that the vast majority of BNPL (and PayPal) transactions are backed up by a card of one of the international schemes, further reinforcing the dominance of card payments in the online market.



246. The TIG study also noted that the two major online segments were Online Retail (19% of total value) and Travel (18%).

Australian Online Shoppers

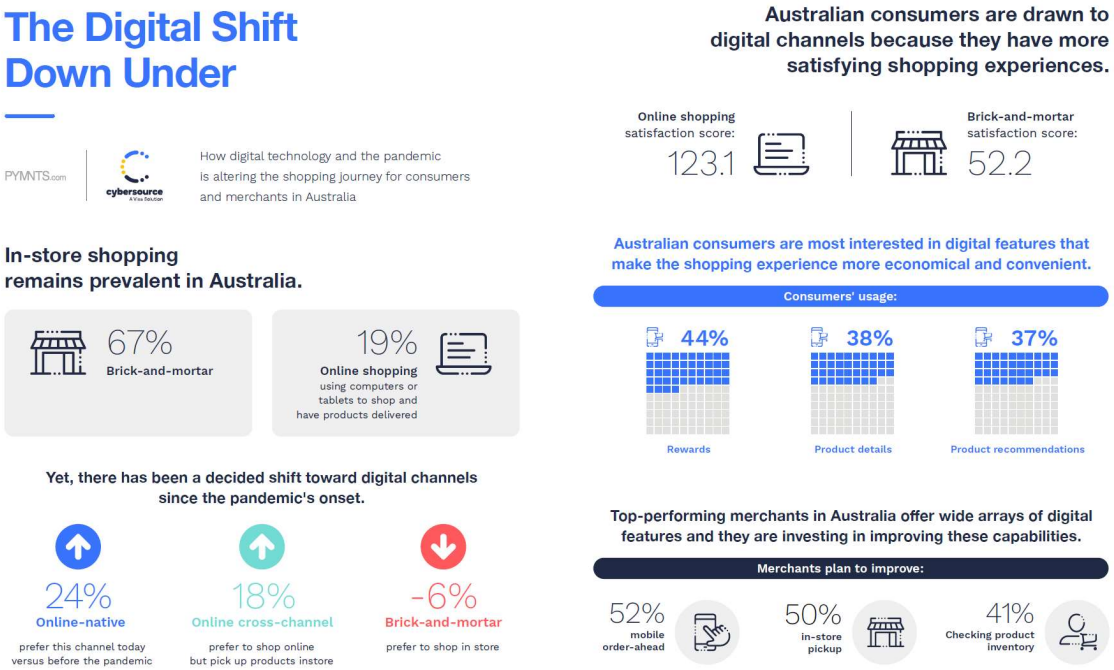
247. The growth of eCommerce and online shopping has made it an area of interest for research by payments companies, as below:

- Recent research results from Adyen provide 4 trends:
  1. Australians love to shop in store (72% preference in Australia, much higher than some other countries), but there is a shift to online shopping happening – accelerated by COVID-19;
  2. Experience is everything: 73% say the ease of the shopping experience is as important as the product;
  3. Cross channel experience: 60% want the ability to be able to buy "out of stock" items whilst in store and have them home delivered; and
  4. No going back from 2020, need to remain agile: 74% expect businesses to maintain the flexibility that they have shown during COVID and their use of multiple channels.
- Key findings from the PYMTS and Cybersource research[103] in the Australian version of their Global Digital Shopping Index included:
  - 67 percent: Share of Australian consumers who prefer to shop in store over online;

1.

[103] https://www.pymnts.com/wp-content/uploads/2020/12/Global-Digital-Shopping-Index-December-2020.pdf

- 24 percent: Increase in share of consumers who prefer wholly online shopping experience since the pandemic's onset;
- 68 percent: Portion of consumers who either use rewards or would be interested in doing so; and
- the following infographic:

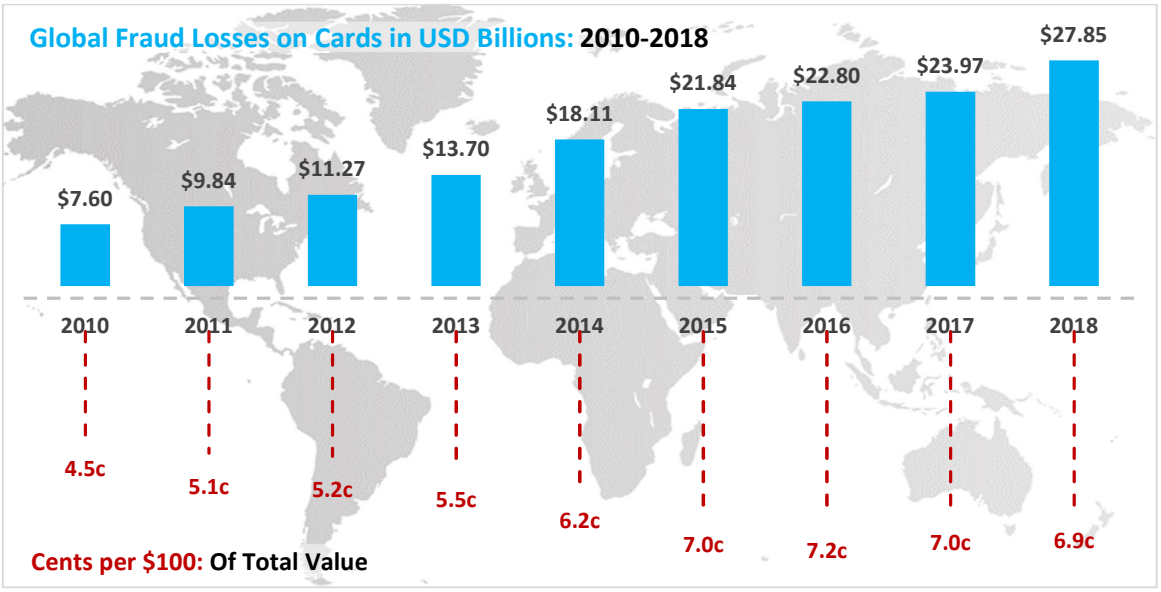


F. THE RISE OF FRAUD AND CYBERCRIME

248. Payment providers have always had to balance the trade-off between "convenience" and "security", even in the days when payments relied only on coins and banknotes. There has always been pressure from Financial Institutions and Regulators to keep security paramount, and pressure from consumers/users for more convenience. In the last 5-10 years, increased consumer pressure seems to be tilting the scales, and payment providers have accepted convenience as a way to compete. Not surprisingly then, the criminals have tried to use the reduced focus on security to perpetrate more thievery.

249. Payment fraud is now also intertwined with cybercrime. As noted in Company Director magazine[104], "*The frequency and cost of cyber attacks has increased exponentially during the past 10 years. It is predicted that cybercrime will cost the world USD6 trillion annually by 2021, up from USD3 trillion in 2015. It will be more profitable than the global trade of all major illegal drugs combined, with more than 800 websites sharing stolen information on the dark web. The World Economic Forum 'Global Risks Report' of 2019 identified data fraud/theft and cyber attacks as two of the top five global risks. The COVID-19 pandemic has further heightened these risks, with most employees and third-party suppliers working from home on systems with variable security arrangements*."

250. Fraud losses in payments (primarily concentrated in payment cards) remain large, but the fraud rate (in terms of bps or cents per dollar spent) is no longer on an unending climb, and globally has declined for the last 2 years. But with card transactions continuing to replace cash and cheques, the actual dollar losses (USD28 billion in 2018) continue to grow.



Source: The Nilson Report November 2019

1.

[104] Company Director, September 2020, "Cybercrime Watch" by Alice Williams (page 70); www.aicd.com.au

251. The success in reducing the fraud rate on card payments has come through coordinated industry action, including:

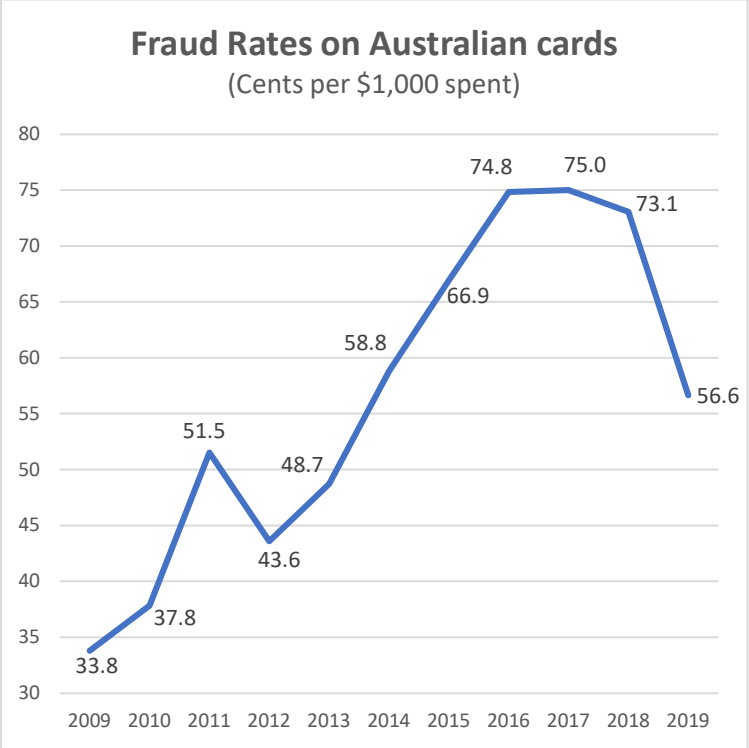
- Widespread roll out of Chip&PIN (or Chip and signature in the USA) for transactions at physical point-of-sale;
- Use of Strong / 2-Factor Authentication for Card Not Present payments, which is mandated in a number of jurisdictions;
- Improvements in fraud mitigation software, including the application of machine learning and artificial intelligence; and
- Roll out of tokenisation[105], in order to protect card information held on file in databases and in mobile handsets.

252. According to AusPayNet[106], the total fraud value on Australian cards fell in 2019 by almost 20% to $464 million, with this occurring despite a 3.9% increase in spending on cards to $819 billion. This caused the fraud rate on card payments to drop significantly from the 2018 level of 73.1¢ per $1,000 spent down to 56.6¢; the second annual reduction in the fraud rate on cards, down by 25% from the peak in 2017 and back to levels last seen in 2014.

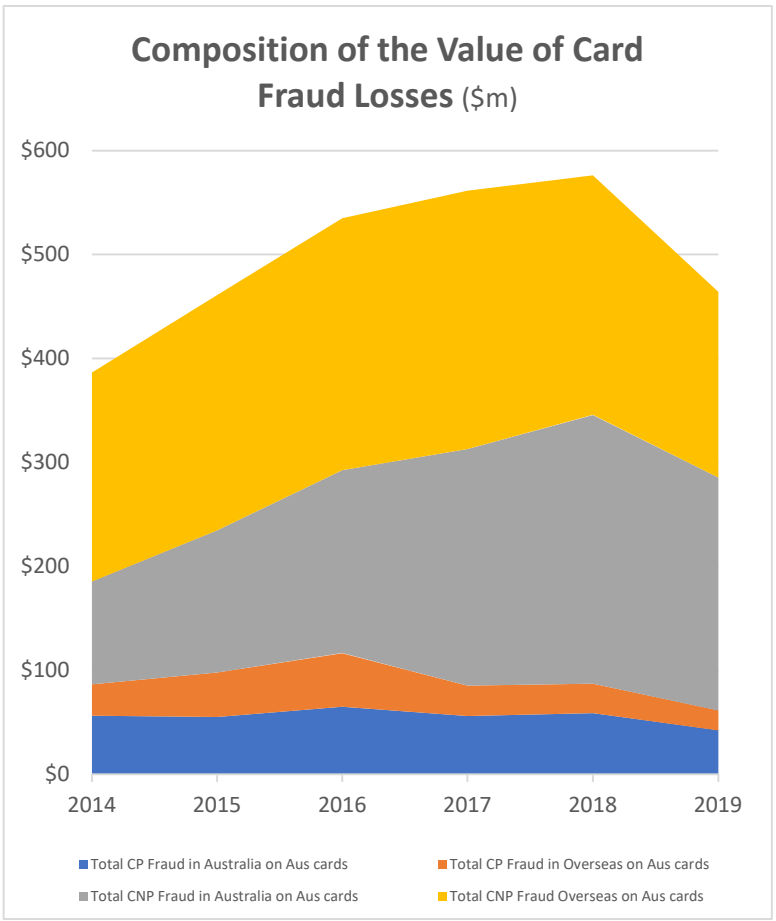
1.

[105] Tokenisation is the process whereby the 16 or 15 digit card number is replaced by an alias set of digits, a token, that is linked back to the real, actual card number inside a secure token vault; the token is then used by the merchant and/or eWallet to transact future purchases, with the token translated within the token vault to the true card number when a transaction occurs; if a hacker/fraudster gains access to the token, it is normally of no use to them as it is merchant-specific. Visa, Mastercard and eftpos all operate token vaults.

[106] See Australian Payments Network (2020), 'Australian Payment Fraud 2020', Final Report, August - https://www.auspaynet.com.au/resources/fraud-statistics/2019-Calendar-year



253. All fraud types on Australian cards showed a $ decline in 2019, including Card-Not-Present when used both at home and overseas.



254. Card-Not-Present transactions continue, however, to dominate the overall fraud value on cards, at 87% of total; in recognition of this, the CNP Fraud Mitigation Framework was launched by AusPayNet during 2019 in order to assist the industry in addressing and controlling this form of fraudulent activity.

255. Card-Not-Present fraud continues to be driven by data breaches at third parties, primarily at merchants both at home and abroad, where cardholder credentials are stolen from data systems. Whether the card data is accessed through the IT systems of an online retailer, a utility company, an airline or elsewhere, the loss of payment credentials can directly lead to fraud and can also be used by the perpetrators as part of their scams. The data can be stored by the criminals, often organised gangs rather than individuals, and used a long time after the breach takes place. These data losses occur outside of the cardholder and card issuers' control; it is therefore vital that any business that controls payment data does everything in its power to keep it secure.

256. The 2013 hack of US retailer Target is but one example: "*An international criminal organisation accessed the company's payments system via an air-conditioning subcontractor's systems access. Around 110 million customers' credit card details were compromised through a memory-scraping malware attack. Target incurred more than USD150 million in remediation costs as a result. The industries most at risk of cyber attack tend to be those with valuable, internationally tradeable data, critical infrastructure, and vulnerable open systems architecture*."[107]

257. The increased use by consumers and businesses of online services for purchases and many different aspects of day to day life, and the convenience of storing a Card-On-File at a regularly visited merchant, is leading criminals to increasingly focus their efforts on cybercrime to capture payment credentials. In this regard, the industry's roll out of card tokenisation aims to nullify the value of Card-On-File details held by merchants.

258. Fortunately card fraud rates inside Australia are all trending down, and remain especially low for Australian cards physically used within Australia.

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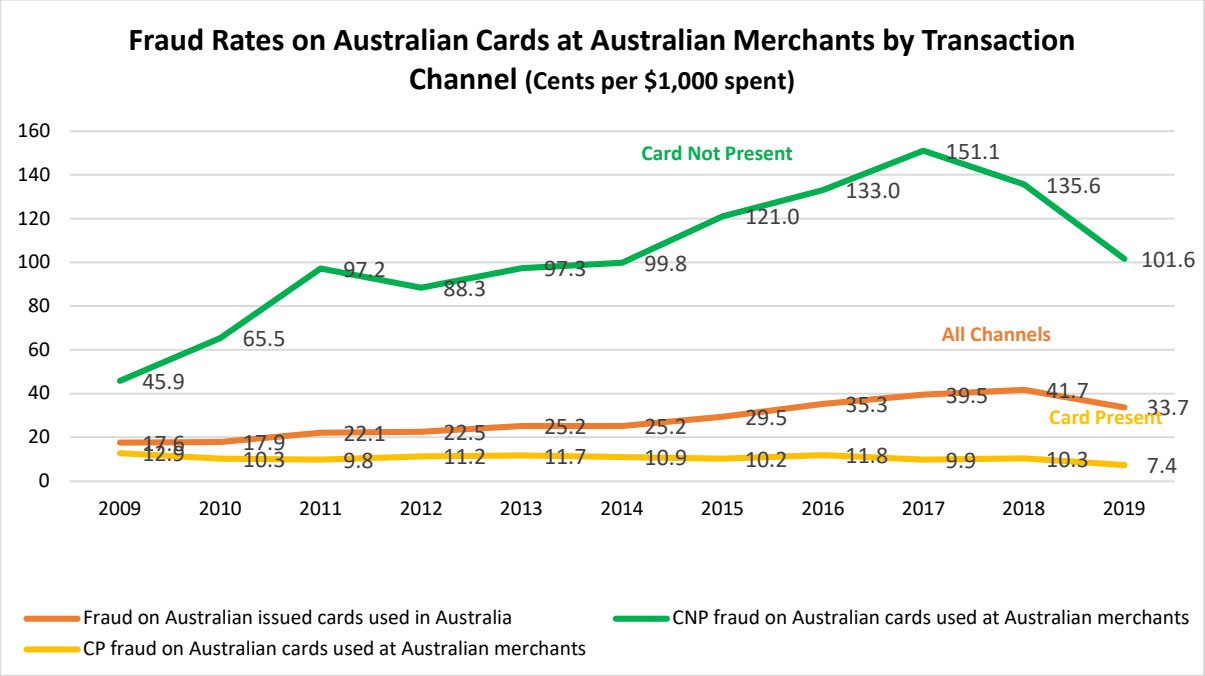
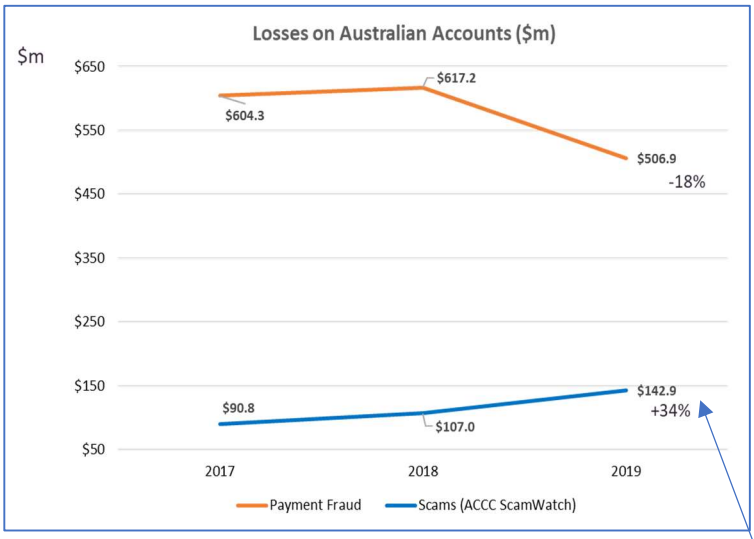
[107] Company Director magazine, September 2020, "Cybercrime Watch" by Alice Williams (page 71); www.aicd.com.au



259. This is no time for complacency, however, as actions to reduce fraud and financial crime tend to be like "squeezing a balloon": that is, as pressure is applied to one area of the system, problems shift and balloon out somewhere else. So, despite the good progress made on payments fraud, which will remain a battle front, in recent years new fronts have opened up in the war against financial criminals, in particular the huge growth in scams, driven in part by online advertising and social media content. These include romance scams perpetrated by fraudsters on online dating sites; investment fraud – where criminals often advertise seemingly authentic investment opportunities online, but in fact the whole project is a scam; and purchase fraud where goods are advertised online and on auction sites at 'too good to be true' rates, in order to entice people to buy, but again, in most cases it is likely to be a scam.

260. Just as the losses suffered through payments fraud appear to be coming under control, losses suffered through scams are rising sharply, and that is only counting the cost of those scams that are reported, which many (possibly the majority) are not. Non-reporting can be due to many reasons, for example: loss too small to bother; embarrassment at having been scammed; and lack of recognising/identifying the loss. Reported or not, scams are on the rise.



Total scam losses are estimated to be significantly higher due to consumers' under-reporting to the ACCC's ScamWatch system. But the strong upward trend is certainly correct.

Scams and Payments Fraud – recognising the difference

261. Historically, Payments Fraud has been defined as an *unauthorised* payment on an account made by a third party, the fraudster; that is, the account holder did not authorise for that payment to be made. Whereas a Payments Scam has been defined as an *authorised* payment on an account made by the account holder themselves (and not by anyone else). Whilst the difference may seem "black and white", this is not necessarily the case.

262. Consider the difference between a scam where a customer is convinced that they are paying a legitimate person or company (but in reality it is an imposter/fraudster/criminal) and authorises the payment themselves, versus a scam where a customer unwittingly/unknowingly provides information that enables a scammer to set up and then authorise a payment from the customer's account. Both are induced by scams, however the first is legitimately authorised by the customer, whilst the second is authorised by the scammer (posing as the customer).

Definitions – an inexact science

263. Looking at Australia, the Australian Competition & Consumer Commission (ACCC) has been tracking the rise of scams for some time. Table 1 below from ACCC Scamwatch[108] shows the top 10 types of scam reported by scam victims during the first half of 2020. Phishing and Identity Theft are in the top 3, and, as noted above, these could result in payments being authorised by the criminal "impersonating" the account holder. More important perhaps are

1.

[108] https://www.scamwatch.gov.au/scam-statistics?scamid=all&date=2019

the top 10 scams by the amount of loss, shown in the second table. In fact, during the first 6 months of 2020, only 13.5% of reported scams resulted in an actual financial loss.

264. Whilst the categories in Table 2 appear straightforward, it should be noted that 4 of these did not appear in the same table published in 2017. The arrival of "new" categories illustrates both how the scam environment is evolving and the difficulties in specifying appropriate definitions that clearly characterise the various forms of criminal activity.

Table 1

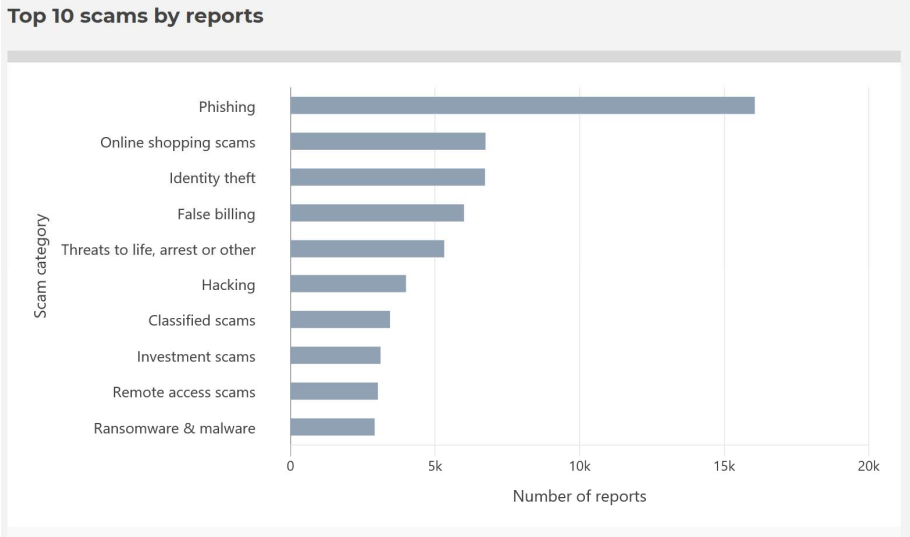
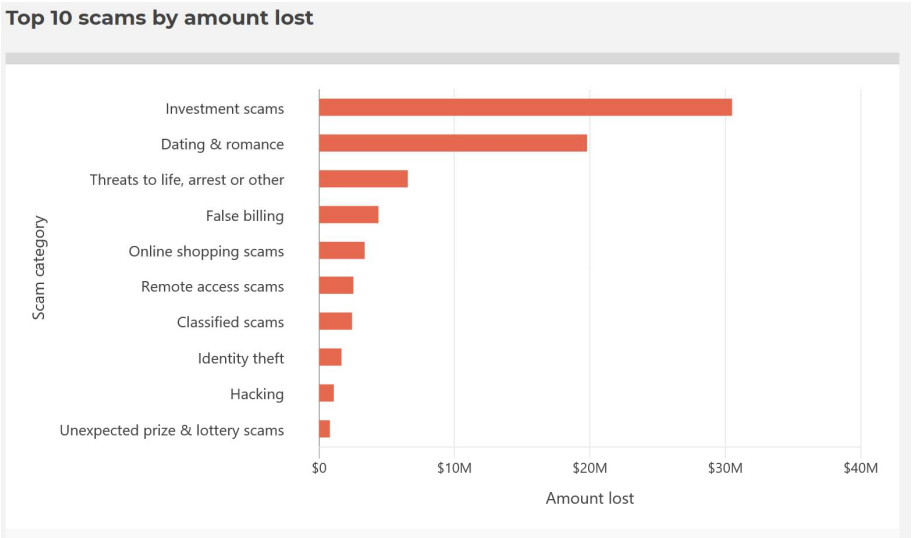


Table 2



265. Indeed, different countries use different terms; for example, FinanceUK brackets scams within two categories[109] -

1.

[109] https://www.ukfinance.org.uk/system/files/Fraud-The-Facts-2020-FINAL-ONLINE-14-May.pdf

1. Malicious Payee: within which Purchase scam, Investment scam, Romance scam and Advance fee scam are included; and
2. Malicious Redirection: covering Invoice & Mandate scam, CEO Fraud, Impersonation (most frequently police and bank staff), and Other.

Scams – by the numbers

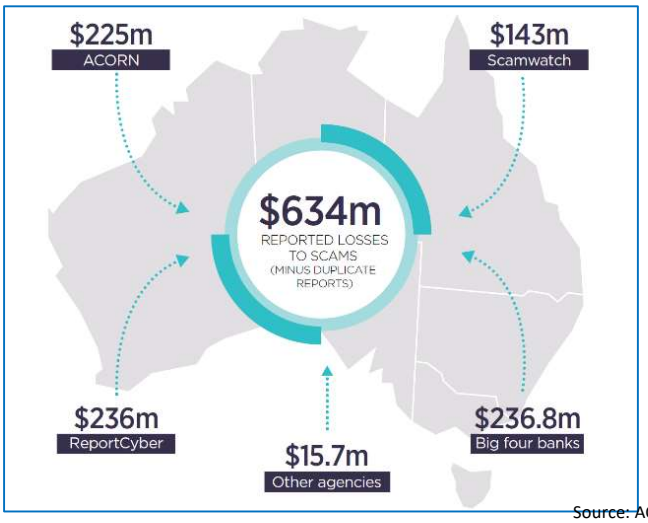
266. The ACCC Scamwatch service publishes financial loss data for what is reported/known, and these losses have been growing at an accelerating rate: total losses in 2019 were AUD143 million, a 34% increase on the 2018 figure of AUD107 million, itself an 18% increase on 2017. The "run rate" for the first half of 2020 suggests that losses will grow again this year, perhaps beyond AUD160 million.

267. While Scamwatch.gov.au is the primary Government website used by Australians to report scams, the ACCC estimates that only around 13 per cent of victims make a report.

268. At a more granular level, whilst the total number of cases reported to the ACCC has not changed significantly since 2017, over the last 3 years:

- The proportion of scams which have involved financial loss has increased by 51%;
- The average loss in each incident has increased by 15%, from $6,462 to $7,449; and
- The total reported loss has increased by ~60% from $90.8m in 2017 to $143 million in 2019.

269. However, the ACCC Scamwatch is only one of the services to whom Australian consumers and businesses can report scams, and the ACCC has led an effort to bring all of the information into one place. For 2019, this shows that total reported scam losses in Australia amounted to AUD634 million (a 30 per cent increase on 2018, when AUD489 million was reported lost), eclipsing the total amount of payments fraud occurring on Australian accounts - with these figures heading in different directions.



Source: ACCC 2019

270. Based on the combined data, the greatest losses in Australia in 2019 by type of scam were:

- AUD132 million lost to business email compromise scams;
- AUD126 million lost to investment scams; and
- AUD$83 million lost to dating and romance scams.

271. Scammers continued to target businesses in 2019, with business email compromise scams causing the largest losses of any scam type. These scams affect businesses, suppliers and individuals by tricking people into paying invoices to scammers' bank accounts instead of the legitimate account.

272. Scammers have moved to unexpected platforms to target victims. For example, in 2019 ACCC saw dating and romance scammers targeting unsuspecting victims through gaming apps, such as Words With Friends, and investment scammers targeting Facebook and Instagram users with 'get rich quick' cryptocurrency investment scams.

Is Australia unique?

273. No. Whilst scammers may or may not be global operators (which is certainly the case with payment fraudsters), scamming is a growing global "industry" with many common contact methods and scam methodologies used across multiple jurisdictions. Scam related financial loss is increasing just about everywhere. In the UK, the value of scam losses rose by 29% in 2019 compared to the prior year, with reported cases up 45% over the same period.[110]

274. The table to the right shows the scam activity experienced in the USA in 2019, where the number of scam incidents increased by 21% and the value of losses rose by 28% as compared with 2018 data.[111] The top method for scammers contacting consumers was via phone[112]; it is the same in Australia, where the most common contact method for all scams is email, but phone has been the most common contact method associated with scams that result in financial loss.

275. However, it is not bad news everywhere. In New Zealand, the value of scam related losses in the 12 months to June 2019 was reported to be the same as in the prior year. Of concern, however, is that the number of scams resulting in financial loss almost doubled.[113]

What the future may hold

1. _____

[110] https://www.ukfinance.org.uk/system/files/Fraud-The-Facts-2020-FINAL-ONLINE-14-May.pdf

[111] https://www.consumer.ftc.gov/blog/2019/02/top-frauds-2018

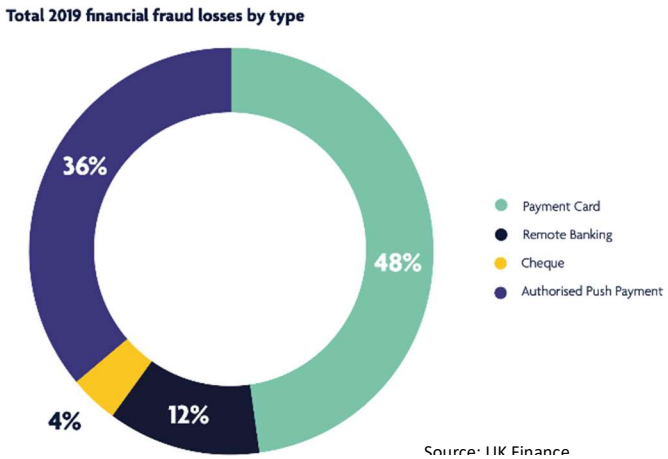
[112] https://www.usa.gov/common-scams-frauds

[113] https://www.netsafe.org.nz annual reports 2017-2018 and 2018-2019

Expert Industry Opinion

276. Predictions on fraud and scams are almost impossible to make, as criminals are always changing their methods and targets, partly to circumvent mitigations that have been enacted. They are opportunists. Globally, the COVID-19 pandemic has seen a spike in scams seeking to exploit fears about the virus, which included targeting government grants/payments and superannuation withdrawals. Indeed, in Australia there was also a spike in scam activity early in 2020 related to bushfire donations.

277. The graphic to the right shows that in the UK, where requirements for strong authentication are in force (placing controls on Card-Not-Present fraud), scams (also know as "Authorised Push Payments") comprise 36% of total financial "fraud" losses. As the financial services industry continues to rein in payments fraud, the importance of scam losses will almost certainly increase in the future around the globe.



278. Also in the UK it will be no surprise that 95% of scam transactions were via the Faster Payments platform, which has been operating for much longer than Australia's NPP, where transfer to the scammer's account is immediate and there is no, or little, recourse.

279. Unfortunately scammers will continue to invent new scams to which consumers, businesses, financial institutions and government will need to be alert.

The action plan: Education, Awareness, Tracking

280. Governments and financial institutions are taking responsibility to educate themselves, consumers and businesses regarding the types of scams and the circumstances scammers are exploiting to deceive account holders. Banks are doing more to identify account takeovers and shut down "fake named" and "mule" accounts that scammers use to receive payments, but that may not stop payments being received in the first place and then immediately funnelled out to out-of-reach locations.

G. REAL TIME & ACCOUNT-TO-ACCOUNT PAYMENTS

281. Historically account-to-account (A2A) payments occurred via batch files overnight. Today, the application of technology has moved consumer expectations for everything to be "immediate", "instant" and "now", and that mindset also applies to payments. Hence the move to real-time payments (RTP). As discussed above, around the world, banks and other third-party providers have invested in real-time payments systems. In Australia, the main investment in such a system has been the NPP.

282. To date, discussions in most markets about real-time payments have been dominated by the core functionality — speed, availability and the rails[114] on which money is moved, together with the challenges associated with their implementation. However, market participant conversations are now shifting towards value-added products and services that an enhanced infrastructure will allow financial institutions (and others) to bring to market.

283. This is in the hope that these new consumer and commercial payments functionalities can create additional revenue streams, and help banks and third-party providers realise a return on their investment in the real-time payments system. As noted in a recent FIS[115] survey for its "Flavours of Fast" white paper[116], it found that in projects across the world, two key questions remain: "What is the business case?" and "What are customers willing to pay for?"

284. Initially, RTP developments were focused on consumer payments (especially P2P); however, the business case remains elusive as consumers are reluctant to pay to make a payment.

285. This has shifted the focus to businesses and merchants, where there is now a proliferation of solutions to enable seamless and contextual payments — including the advent of "request to pay" functionality, with the associated document attached.

286. However, these contextual payments require additional data to be passed and analysed by the systems, placing higher demands on the underlying technology infrastructure than

1.

[114] Most countries that have deployed real-time payments have built a completely new piece of infrastructure to handle the authorisation, clearing and settlement of transfers of money (payments) from bank account to bank account. In the case of NPP's launch in Australia, this infrastructure comprised a distributed network of Payment Gateways (developed and operated by SWIFT) and the central PayID database; with banks connecting to the Payment Gateway array and then internally linking this to all of their transaction accounts. Different countries have used different infrastructure providers (e.g. VocaLink, now a Mastercard company, providing Faster Payments in the UK), who have deployed different architectures to achieve the real-time payment functionality.

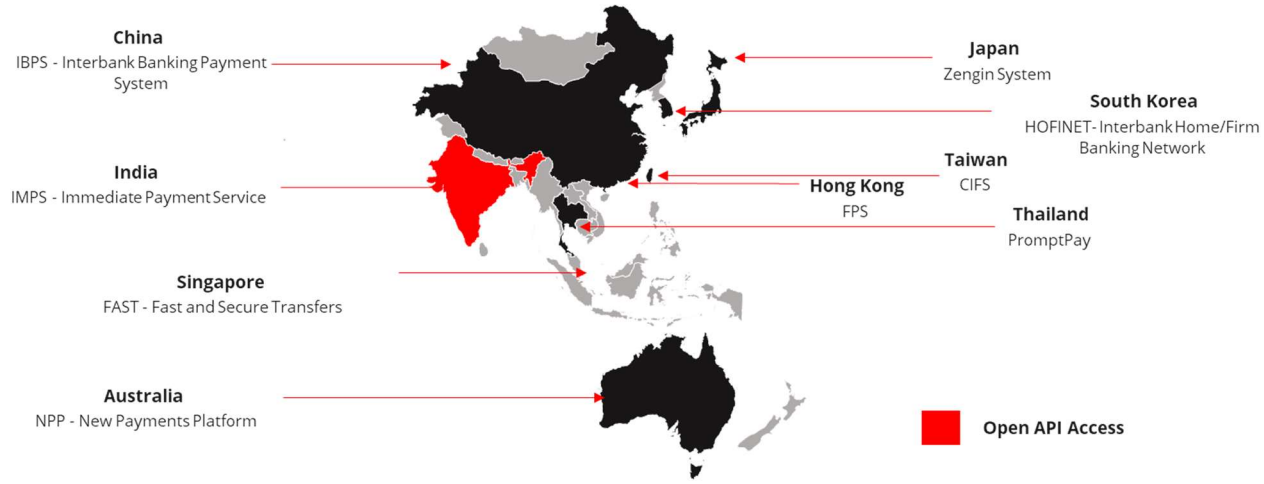
[115] Fidelity National Information Services, Inc. (FIS) is an American company on the Fortune 500 list which offers a wide range of financial products and services. Headquartered in Jacksonville, Florida, FIS employs approximately 55,000 people worldwide. After finalizing FIS' most recent acquisition (of Worldpay for $35 billion in Q3 of 2019), FIS became the largest processing and payments company in the world; https://en.wikipedia.org/wiki/FIS_(company)

[116] https://www.fisglobal.com/en/flavors-of-fast

previously required. Co-located, interconnected systems with low end-to-end latency are critical in completing the secure transfer of funds within a matter of seconds.

287. Despite these developments, the adoption of real-time payments by consumers in many markets suggests that only through open access and application programming interfaces (APIs) will real-time payments become widely adopted.

Real-time payment developments in Asia-Pacific



288. A notable example of the importance of this is the rollout of India's Universal Payments Interface (UPI), which provides real-time access by allowing direct payments integration with external business applications, for both "push and pull" payments across a wide range of channels.

289. However, the true test of these solutions will be twofold: Will they become the preferred method of payment for consumers and merchants over traditional card-based payments? And can they compete on a cost-basis with alternative payment schemes that seek to disintermediate the banks?

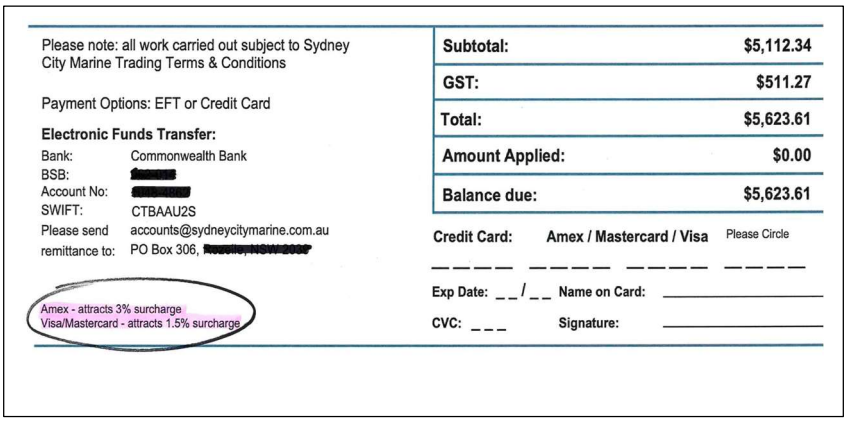
Account to Account Payments

290. For many years, transfers between domestic bank accounts via direct entry, ACH or the equivalent have been the cheapest form of electronic payment, at a significantly lower price point for example than card-based payments.

291. These systems operated on a batch system and the batches were exchanged and settled infrequently – often once a day overnight, sometimes at several times during the working day (as is the case in Australia), and seldom (if ever) on weekends and public holidays. Even if there are intra-day settlements on these payments, there is no guarantee that the recipient's bank will post the funds to their account in real time or even on the same day.

Hence these payments have been suitable for non-urgent payments, such as utility bills, school fees, programmed loan repayments, etc, but not for consumers buying something at the local store.

292. Nonetheless, the low price point of these payments has seen more businesses adopting them as a way to get paid by consumers. With the growth of consumers using online and mobile banking, now somewhat ubiquitous in Australia, more and more small businesses have been adding their BSB and Account Number to their invoices (and often surcharging card payments to promote the use of the account-to-account bank transfer).



Please note: all work carried out subject to Sydney City Marine Trading Terms & Conditions

Payment Options: EFT or Credit Card

Electronic Funds Transfer:

Bank: Commonwealth Bank
BSB: [redacted]
Account No: [redacted]
SWIFT: CTBAAU2S
Please send remittance to: accounts@sydneycitymarine.com.au
PO Box 306, [redacted]

Amex - attracts 3% surcharge
Visa/Mastercard - attracts 1.5% surcharge

Subtotal:	**$5,112.34**
GST:	**$511.27**
Total:	**$5,623.61**
Amount Applied:	**$0.00**
Balance due:	**$5,623.61**

Credit Card: **Amex / Mastercard / Visa** Please Circle

____ ____ ____ ____

Exp Date: __/__ **Name on Card:** _____

CVC: ___ **Signature:** _____

293. But this really only works for smaller businesses, due to the need to manually reconcile payments received into their bank account with the receivables sitting in their accounting systems (although some semi-automatic "work-arounds" have been developed), and the information coming along with the payment is limited, usually relying on the consumer having entered the correct invoice number. Plus, the payment is still not immediate.

294. Similarly, branded payment systems relying on direct entry, such as BPAY in Australia and Ideal in the Netherlands, continue to grow – very rapidly in the case of Ideal where the introduction of P2P payment functionality is credited as one of the major reasons that the number of Ideal transactions grew by 38% last year.

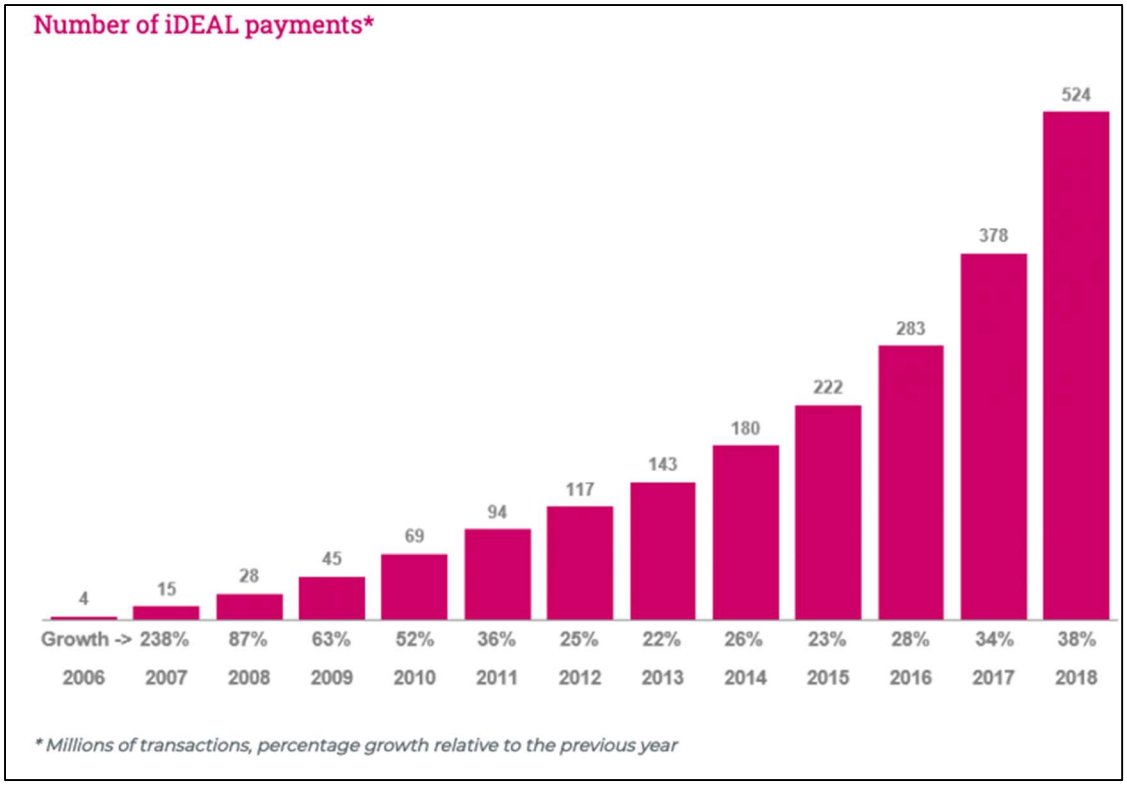
BPAY – Australia

295. Introduced over 20 years ago, BPAY continues to grow every year as a way for consumers (and businesses) to pay bills to merchants, billers and government agencies. BPAY is highly popular and well used, however this was not always the case – it took over 5 years from launch for BPAY to really gain critical mass. Whilst it is now accepted by over 45,000 merchants/billers, as discussed earlier in this report regarding ubiquity and the network effect, like other payment systems BPAY required a "critical mass" of both payers (consumers willing to pay via online banking) and payees (billers choosing to accept and promote BPAY as a way to pay) in order to "take off". It is free to consumers, whilst merchants pay a fee in return for a confirmed, guaranteed payment that is easily reconciled within their accounting system (through the Customer Reference Number). Being a flat rate fee per transaction makes BPAY cost effective versus other payment methods, such as credit cards, for larger value transactions.

iDeal – The Netherlands

296. Launched in 2005, iDeal has grown from 4 million transactions in its first year to 655 million transactions in 2019 (Netherlands population 17 million). With payments completed within the consumer's banking mobile app or online, it now is reported to account for 22% of P2P transactions (enabled via QR code) and 59% of ecommerce transactions. Merchants can take payments via iDeal within their online shopping cart and in-store – QR codes can be presented on a computer screen, tablet or shop display, printed on a paper invoice, on an email sent instore to the customer (a request for payment message), a restaurant bill or on a shop counter or window[117].

297. When the consumer uses Ideal, funds are debited from their bank account in real-time, and so too is the message sent to the merchant confirming that the (irrefutable) payment is on its way. iDeal is free for consumers. Merchants can choose to pay a fee per transaction or via a monthly subscription.



Venmo and Zelle – USA

298. Digital P2P payments appear to have been successful in the US, particularly amongst younger consumers, by addressing the issues associated with the US legacy account to account payment systems that are expensive and slow, and by displacing cash and cheques. However,

1.

[117] https://www.ideal.nl/en/consumers/ideal-payment-request/

even amongst the highest user group by age (23 or younger), Venmo and Zelle are still only used by 10.3% of this group versus debit cards 27.9%[118]

299. Venmo, owned by PayPal, is a proprietary P2P platform that provides consumers with an independent app. It has been successful in the US, and it is estimated that nearly 30% of Americans used Venmo at least once between May 2019 and May 2020[119]. It processed USD102 billion during 2019, an increase of 65% on the prior year. In Q2 2020, Venmo's volume was USD37 billion, representing 52% year-on-year growth[120].

300. Venmo can be provisioned by depositing funds into a Venmo wallet account, or by a card. Transactions from wallet deposits are free, whilst transactions using cards may attract a fee. Instant transfers into a Venmo account can take up to 30 minutes and attract a fee.

301. By contrast, Zelle is a P2P payments service that is accessed via banking apps. Q3 2020 volume was USD84bn (USD4.5bn was sent to small businesses), an 18% increase over the previous quarter, from 323m transactions[121]. There are no fees for consumers to send or receive money. There is no fee for businesses to send money, however there can be fees to receive money. Zelle is provisioned through the consumer's bank account.

Enter the era of real-time payments

302. Although some countries, such as Japan, have had real-time payments for many years, the deployment of real-time payment systems across multiple geographies is a relatively new phenomenon: Australia's own New Payments Platform (NPP) only went live in February 2018, the European Central Bank (ECB) launched its Target Instant Payments Settlement (TIPS) in November 2018 (facilitating instant cross-border payments in the EU), and Malaysia's RPP in January 2019. Others have been around longer, such as the UK's Faster Payments since May 2008 and Singapore's FAST system launched in March 2014.

303. More real-time payment systems are being planned. In Northern Europe, the P27 Nordic Payments Platform (owned by a consortium of large Nordic banks) have announced the development of the first multi-currency real-time payments system across the Nordic region. In the United States, the Federal Reserve Board announced that the Federal Reserve Banks will develop the FedNow Service, a new national real-time gross settlement system (RTGS) to support faster retail payments 24 hours a day, 7 days a week, which is expected to be available in 2023 or 2024. The Clearing House, another US platform for ACH payments, had planned to have rolled out its domestic real time payments platform by 2020.

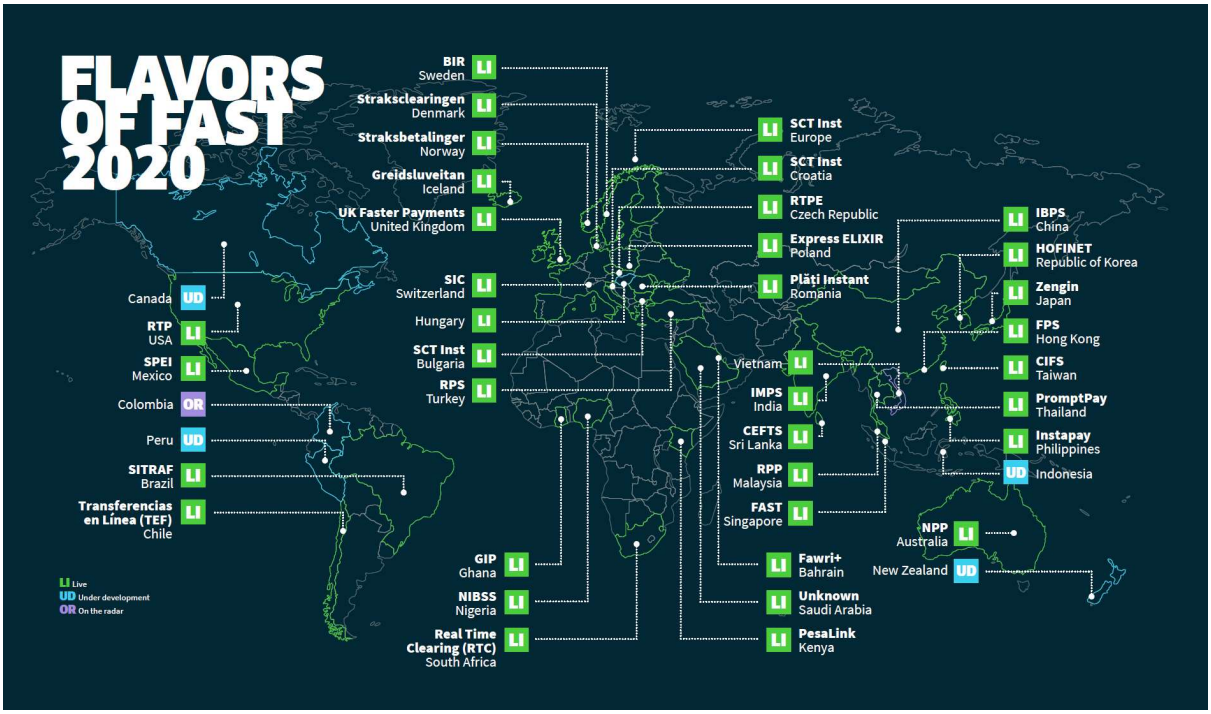
1.

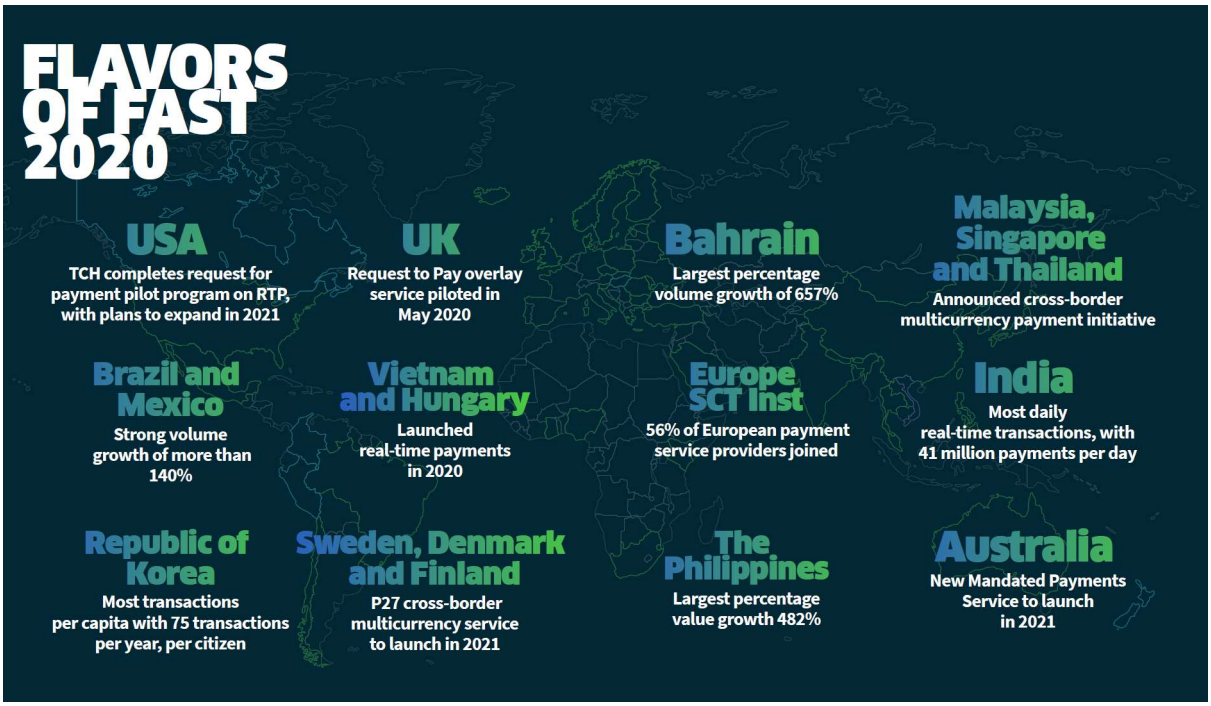
[118] https://www.pymnts.com/wp-content/uploads/2020/11/Accelerating-Real-Time-Payments-Demand-Curve-Alacriti.pdf

[119] Statista Global Consumer Index

[120] PayPal operating results 2019.

[121] www.zellepay.com



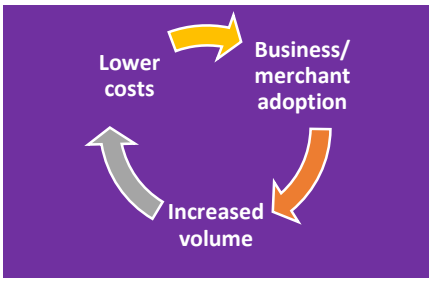


304. As noted above, and in a recent FIS survey for its “Flavours of Fast” whitepaper, it was found that in RTP projects across the world, two key questions remain: “What is the business case?” and “What are customers willing to pay for?”

Widespread adoption needed to drive down cost

305. Given the size of the investment and recency of launch into market, many of the real-time payment systems are currently suffering from a relatively high cost per payment (particularly versus the cost of long-established direct entry/ACH payments), with significant costs being spread over a limited volume of transactions (in comparison to the high volumes handled by other traditional payment methods).

306. Although consumer adoption takes time, given the need to break old payment habits and develop new ones, the adoption by businesses and merchants is likely to be more influenced by economics (and risk). Here we have a "virtuous circle" - the widespread adoption by businesses should drive up the volume across the system which, in turn, would drive down the cost per transaction, leading to more businesses using it (and so on). Large merchants, however, often have significant IT systems involved with payments acceptance, and may need to undertake reasonably complex technology changes (and incur associated costs) to accept new payment methods. Whereas smaller merchants may see "risk" in changing payments acceptance, with cost savings on their small volumes being limited, and prefer to stick with the "tried and true" (as they do not want anything to go wrong and stop a sale).



307. The adoption of real-time payments by consumers in a number of markets suggests that only through open access and Application Programming Interfaces (APIs) will real-time payments become widely adopted. A notable example of the importance of this is the rollout of India's Universal Payments Interface (UPI), which provides real-time access by allowing direct payments integration with external business applications, for both "push and pull" payments across a wide range of channels.

A sample of what real-time payments look like in the (mostly) western world

Paym (Pingit, Pay a Contact) & Pay by Bank – The UK

308. In the UK, Faster Payments[122] is operated by Vocalink (a Mastercard company). Paym, which runs on Faster Payments, is also known as "Pay A Contact" and "Pingit". It is used for P2P real-time payments and, with 4.5 million people registered, is integrated into all banking apps, using the phone numbers in your contact list as payment IDs. Business customers can

1. [122] Now part of the consolidated Pay.UK entity, which brought together the domestic payment platforms.

receive Paym payments, but not send them. More recently, Vocalink has launched a pilot of "Pay by Bank App" with Barclays Pingit, which enables payments from your bank account to a selected group of ecommerce merchants. When customers make a purchase, the payment fields are pre-populated using a Request to Pay functionality. For account to account payments over the real time network, 2019 saw 2.4 billion payments (GBP1.9 trillion) processed by Faster Payments, a 19% increase on the amount processed in 2018[123] - although this growth was not driven by any material adoption of the "Pay by Bank App".

Swish – Sweden

309. The leading cashless society, Sweden, has a highly used real time payments app called Swish, which started as a P2P payment service in 2012. Today, with 6.7 million users[124] (Sweden only has a population of 10 million), Swish is a mobile wallet app owned by a consortium of banks that is separate to the consumer's mobile banking app[125]. Since launch, it has moved into both online and in-store merchant payments, enabled using QR codes at a cost to merchants of approximately $0.30 per transaction[126].

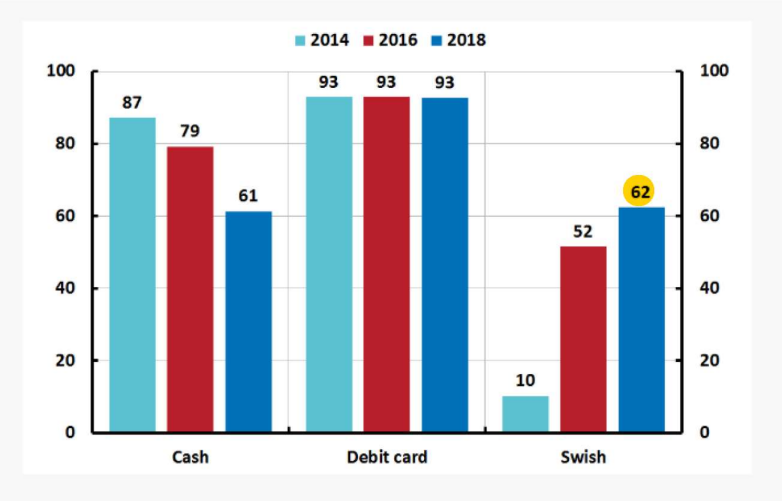
1. 123 https://www.bacs.co.uk/NewsCentre/PressReleases/Pages/PayUKProcessesRecordPaymentVolumesValuesIn2019.aspx

[124] https://www2.deloitte.com/content/dam/Deloitte/dk/Documents/financial-services/Downloads/Chasing_Cashless-The_rise_of_Mobile_Wallets_in_the_Nordics.pdf

[125] You download the standalone Swish app on to your mobile phone and then link it to your bank account, and can then use it to make payments without the need of entering your separate banking app.

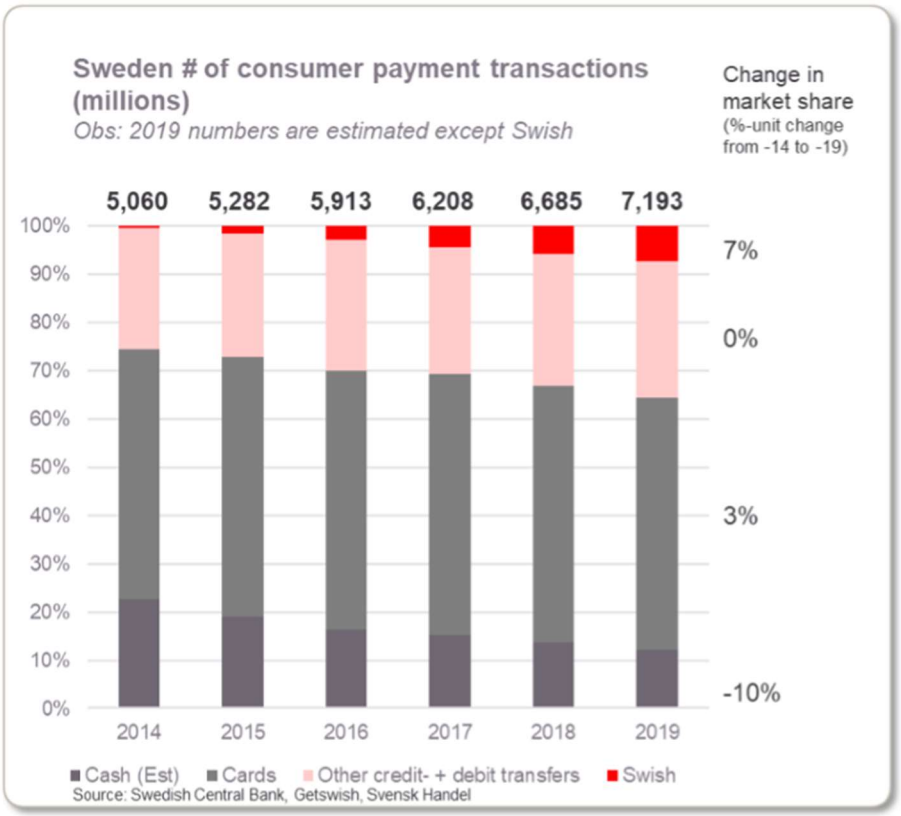
[126] www.swish.nu

Which means of payment have you used in the past month?



Source: Riksbanken 2018, The payment behavior of the Swedish population

Despite its growing usage, Swish still handles less than 10% of Sweden's payments activity, with the volume of card-based payments still dominating the market.



Paynow on FAST – Singapore

310. FAST (Fast And Secure Transactions) is Singapore's real-time payments platform. FAST was launched in 2014 for bank-to-bank account transfers. In 2017, PAYNOW was launched for P2P payments, whereby consumers can send and receive funds using their mobile phone number or Singapore ID number; it has more recently been extended to B2B payments. QR codes are now operational for FAST, such that retail payments can be made across multiple wallet apps using the PAYNOW functionality within banking apps, as well as GoPay, NetsPay, Alipay and WeChat Pay. In November 2019, OCBC Bank announced that it was introducing account-to-account transfers using integration of PAYNOW with Google Pay – effectively allowing users to use their bank account, rather than credit and debit cards, in Google Pay transactions, bringing real-time payments to point of sale. By September 2019 more than 65% of Singaporeans aged between 20 and 75 had registered for PayNow – a 75% increase in the past 12 months[127].

Osko and others – Australia

311. Osko, provided by BPAY, was the first overlay service on Australia's NPP. It could be argued that by doing this BPAY, in some instances, might be competing with its core business. Launched in 2018, in conjunction with PayID (allowing a mobile phone number, email address or ABN as identifiers for the payee's bank account – over 5 million PayIDs are registered[128]), Osko enables real time account to account transfers, but currently only as "push" payments.

312. The planned Osko request to pay service, if deployed, would effectively enable "pull" payments, where a payee can request payment from a payer's account. This is likely to increase interest and use for B2C and B2B payments, where the biller or merchant would more likely be prepared to pay a service fee for the transaction. NPP platform functionality to support this service is expected to be available in 2021, however delivery to the market via the banks might not be before 2022.

313. A number of newer overlay services/veneers are now available, such as Azupay[129] and the real time payments product from Assembly Payments.

314. Azupay, launched in 2019, is providing a "different" version of a request to pay transaction. In an Azupay transaction a one-time-use PayID is assigned to the payment generated by the biller/merchant. Customers then use this

1.

[127] The Straits Times, Singapore, September 2019
[128] NPP Australia: "New Payments Platform Roadmap, October 2020"
[129] https://www.azupay.com.au/

PayID within their banking mobile app or internet banking to identify and then approve the real-time payment.

315. Assembly Payments claims to have been the first non-bank payments platform to pioneer instant money transfers over the NPP in Australia, and allows a business to send and receive electronic payments which could include single B2B payments as well as multiple account payments, such as payroll.

DuitNow – Malaysia

316. DuitNow was launched in January 2019 for P2P payments and runs on Malaysia's real-time payments platform, known as RPP and had 10 million registered users within 10 months of launch[130] (total population 32 million). The app is similar in concept to Osko, in that it uses and requires the support of an account holder's existing internet banking platform/app to send money to another account using mobile phone numbers, identity card or passport numbers, and business registration numbers.

317. DuitNow is planned to extend beyond the current P2P sending of funds with new features like QR codes, Request to Pay, eMandates and Real Time Debit. However, like most new payment methods (including Osko), DuitNow has experienced slow uptake since its initial launch in 2019 – it takes time and distribution. The adoption of the DuitNow QR code standard by GrabPay in November 2019 is the type of partnership that may lead to eventual rapid growth[131].

A2A without real-time payments platforms

318. Given the sophisticated payments infrastructure that already exists around the world, the real-time electronic movement of money does not necessarily require a new dedicated real-time payments platform.

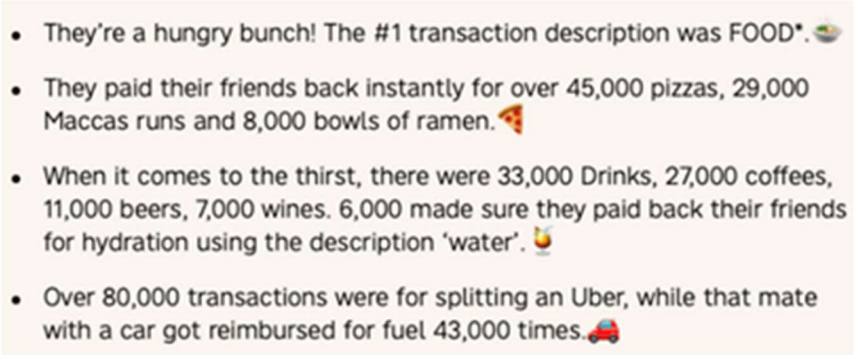
319. Australia's beemit focusses on P2P payments and combines existing card platforms to deliver a real-time payment experience. Both payer and payee need to have enrolled in the beemit app, and linked it to a Visa or Mastercard multi-network debit card. At launch, authorisation of a payment was enabled via the Visa or Mastercard debit card platforms, and the real-time transfer of funds completed

1.

[130] https://www.nst.com.my/business/2019/10/527110/more-75-million-duitnow-users-date

[131] www.thestar.com.my , November 2019

via the eftpos hub[132]; the use of the eftpos system ensures immediate posting of the funds into the payee's account. Beemit includes QR code functionality, which, whilst used as an identifier for the user, could conceivably be used for POS and ecommerce payments (if Australians become convinced to use QR codes in payments). During 2019 beemit reached 1 million app downloads[133]. Usage data released by beemit appears in the illustration below, however, in my opinion, it appears that beemit has struggled to reach its projected targets[134].



As shown in Appendix V, the P2P market in Australia is estimated at AUD25 billion and 584 million transactions (at an average transaction value of AUD43), making it the smallest segment of the overall AUD14,517 billion payments market - comprising about 0.2% of total value and 3.3% of total volume. With Australian consumers already having utilised a range of ways to pay within the larger segments of the payments market with which they interface, in my opinion it appears that specialised P2P payment systems have had difficulty in gaining "cut through" to their target audience.

320. Mastercard Send and Visa Direct can also be used to deliver real-time "card to card" payments across their networks[135]. Where the cards being used are debit cards (linked to transaction accounts), these effectively become account-to-account real-time payments. Mastercard Send and Visa Direct started as P2P payment services, but have now been extended to B2C and G2C transactions – again, segments where businesses are more likely to pay for a payment service that better meets their needs. As of July 2018, more than USD5 billion in instant payouts have been made by Uber to its drivers[136] using these systems. Visa reported 60 million users of Visa Direct for 2019 and for Q4 2019 reported USD68 billion in volume, up

1.

[132] More recently, Beem It and its supporting institutions can now use eftpos withdrawal for the withdrawal leg and eftpos deposit for the deposit leg, changing the funds transfer process.

[133] www.beemit.com

[134] Beem It launched a few months after the NPP in 2018, but, although not necessarily a direct comparison, in download numbers Beem It has achieved only about one fifth of the number of PayIDs that have been registered with the NPP.

[135] Since February 2021 (last month), eftpos deposit and withdrawal transactions can be used to deliver similar real time card to card payments across its own network.

[136] https://www.mastercard.us/content/dam/mccom/enus/documents/mastercard-send-debit-lift.pdf

from USD11 billion in Q4 2016[137]. Further, the services are designed to be Scheme agnostic, permitting card to card payments between and across other card Schemes. Gaining the functionality of these "card to card" systems does, however, require that the participating banks integrate the required technology into their systems[138].

Developing themes and issues

- QR codes

321. QR code scanning and recognition technology is, in most cases, being used to deliver POS payment functionality for real-time account-to-account payments; thereby overcoming, amongst other things, the Apple quarantine of NFC access on the iPhone. QR codes also offer the ability to carry richer data within the transaction, which might be loyalty and special offers (such as discounts and cashback). However, for Australia this may not be enough to wean consumers off tap-and-go NFC payments, which account for 95+% of international scheme card payments at physical POS. The more widespread use of QR codes for COVID-19 track and trace activities has certainly introduced a broader cross-section of the Australian population to QR codes, but also to its more cumbersome interface when compared to NFC.

- Cross border real-time account-to-account payments

322. As cross border payments have been typically slow and expensive, consumers and businesses would be expected to welcome a better cross border payment / money transfer experience. Subject to the costs involved, this could offer a good revenue opportunity for real-time payment systems, even if they need to undercut the price of traditional methods. Indeed, real-time payment platforms that can support the domestic legs of a cross border payment are -

    - entering into agreements (e.g. Malaysia RPP with MayBank2U, for transfers between Malaysia and Cambodia);
    - testing cross border transactions (e.g. Australia NPP to Singapore FAST); and
    - are well on the way to launch (e.g. P27 will enable real-time cross border payments between the Nordic countries from 2021).

- In-banking app versus independent app

323. There are examples of both successful standalone app products (e.g. Swish) and successful in-bank app products (e.g. iDeal) already operating in the real-time payments market. In Australia, beemit is standalone, whereas Osko relies on the individual bank's mobile app and internet banking website for access. I would argue that success will be more about ubiquity

1.

[137] Visa International Investor Day Presentation 2020

[138] In the local Australian market, there has been very limited adoption of Mastercard Send or Visa Direct so far.

and utility, rather than standalone versus in-bank; however, there may be conflicting drivers: for example, the marketing campaign needed to gain ubiquity may be easier (and more economic) to execute for a standalone app that is common across the whole market, but individual banks may have an incentive to keep customers in their own eco-systems and in their own apps rather than third party apps (in order to strengthen engagement with the bank).

- Fraud

324. By definition, real-time payments occur immediately in real time. When the payment is completed (in seconds), the money is gone from the sending account. However, the general position is that real-time payment platforms are inherently no more risky, in terms of security, than existing systems, because:

    - they are being delivered in environments that are optimised in fraud mitigation for direct entry "pay anyone" transactions;
    - many transactions are enabled on mobile phones where biometrics (and other mobile fraud detection techniques) are available; and
    - where bank login is required (e.g. for in-bank app use), the login protocols, 3D Secure, and other fraud mitigation services provide protection.

Conclusion

325. Whilst account-to-account real-time payments are typically launched at first for P2P consumer payments, it is immediately apparent that there is no business case for delivering these services when the user will not pay (or pay very little) to make a payment. Often utility and usage is more buzz than reality.

326. However, given the real-time nature and immediacy of everything else in the modern consumer's life today, it is guaranteed that account-to-account real-time payments in many scenarios will be the payment of our future. Governments will support it, as it should increase efficiency in the payments system, and, as such, deliver benefits to the economy.

327. Future investment and innovation will focus on payments where businesses and governments participate (B2C, B2B, G2C, G2B), and where the willingness to pay for specific functionalities is much higher than amongst consumers. Expansion into these new areas should deliver much larger volumes of transactions. As volumes increase, the price point per transaction should decline, to a point where real-time payments become cost competitive to the major card schemes at point of sale.

328. So, similar to the launch of Buy Now Pay Later services in Australia, it is likely that online and ecommerce merchants will be the first places where account-to-account real-time payments

will be “coming to a merchant near you” (e.g. AzuPay). A later move to in-store and physical POS is likely as the transaction costs decline, but may be a number of years away.

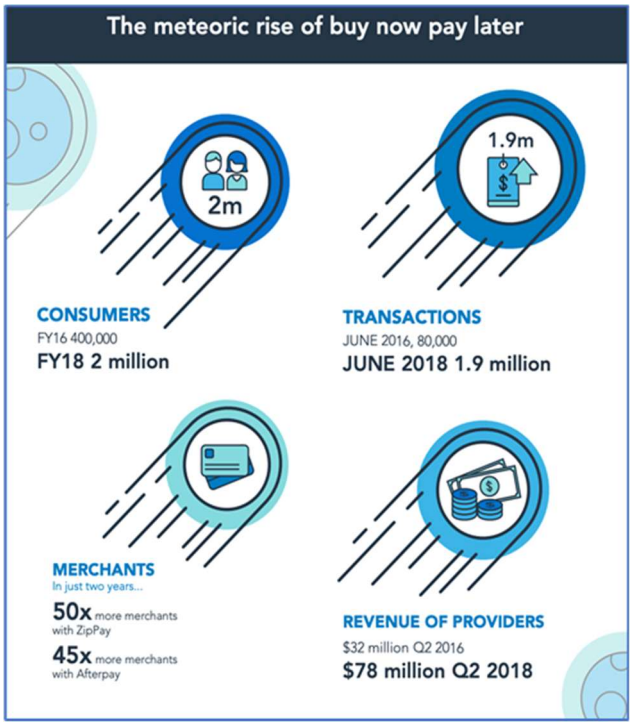
H. GROWTH OF BUY NOW PAY LATER

329. Buy Now Pay Later ("BNPL") is not new, the ability has been with us in Australia for decades. Latitude (formerly GE Money), Flexigroup (formerly Flexirent, and now Humm) and HSBC have been supporting retailers such as Harvey Norman, Bing Lee and JB HiFi for many years with "up to 60 months interest free", "nothing to pay for 6 months" and other similar offers on large purchases.

330. At the smaller end, many consumers would have experienced the David Jones and MYER card "Christmas Option" where you walk out of the store with your purchase, but repayment is delayed for 3 months.

331. The "sweet spot" that the newer BNPL providers, such as Afterpay and Zip, have found is the ability to deliver digital, mobile phone optimised transactions, with fast approval, for small value purchases and easy to use (both online and at physical POS) finance - that can be quickly repaid - targeted to a (generally) younger market.

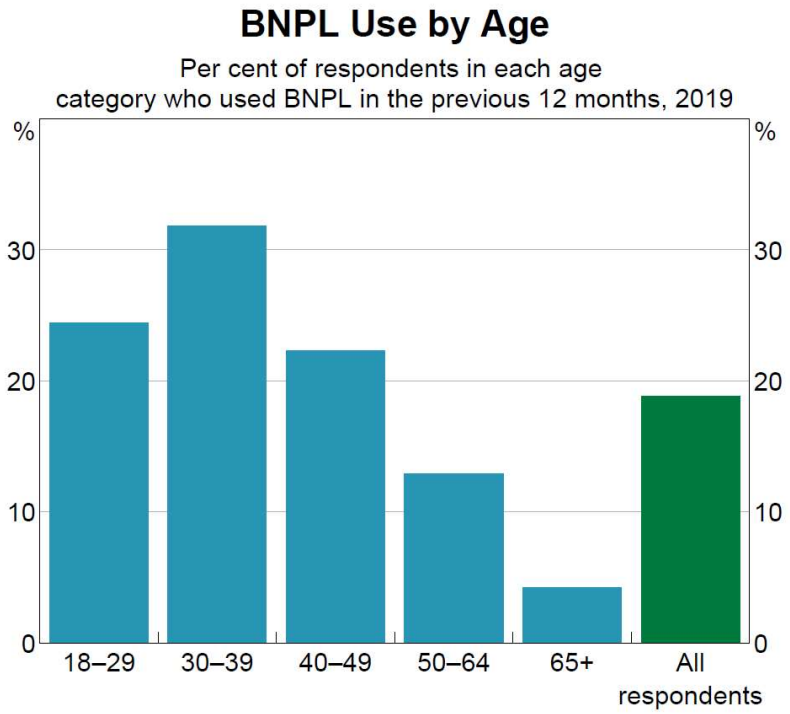
332. Combine these features with an Australian youth market having little credit history, who are eschewing credit cards (as they prefer to use their own funds via a debit card), low interest rates and a benign credit market, and there seems to be a perfect match. Industry sources suggested that the BNPL market grew 250% in 2018[139] and ASIC indicated that the number of users has grown by more than 5 times in the two years to 2018[140].



1.

[139] Flexigroup in the Sydney Morning Herald, August 27, 2019
[140] ASIC review of buy now pay later arrangements (2019)

333. The skew to the younger demographic was show in the RBA's 2019 Consumer Payments Survey, in which 60% of BNPL users in the respondent group were aged under 40[141], as shown in the chart below:



Source: RBA calculations, based on data from Roy Morgan Research

334. Stockmarket valuations would indicate that investors see significant future profitability from the new digital players: Flexirent was established in Australia in 1988, generates taxable profits and, as of January 2021, has a market capitalisation of $0.61 billion; whereas Afterpay commenced in 2014, has yet to make its inaugural profit and has a market capitalisation of over $34.1 billion[142] (which has been known to move by over 10% either way in one day).

Providers of "new" BNPL in Australia

335. The best known new providers of BNPL in Australia are Afterpay, with 3.4 million active customers in Australia/New Zealand (11.2 million globally), and Zip, with 2.1 million[143]. OpenPay is a smaller provider and has put effort into specific categories such as healthcare, dental and automotive.

336. Flexigroup relaunched its BNPL service in 2019 as "Humm" and is growing quickly. Splitit entered the Australian market in 2019 and has focussed on online sales, and Latitude

1.

[141] https://www.rba.gov.au/publications/annual-reports/psb/2020/
[142] As at 14 January 2021
[143] Zip and Afterpay November 2020 results announcements.

launched "LatitudePay" (a product to compete directly with the new BNPL providers) during 2019.

337. Cards, such as the Harvey Norman "Go Mastercard" from Latitude, give users the option to choose a number of payment plans such as Interest Free, BNPL and Interest Free with a lump sum payment over different terms at a limited number of retailers. The Gem Visa card, also from Latitude, offers similar plans for purchases over $250 at thousands of retailers. But, they are not free - the Go Mastercard has an establishment fee of $25 and a monthly account keeping fee of $5.95 (on balances more than $10). On a purchase of $500 paid off over 12 months, the user will pay fees of $96.40, which is equivalent to an interest rate of 19.3% - similar to a standard credit card.

338. By comparison the propositions of new entrants can be free or lower cost to consumers. For example, Flexigroup's Mastercard based "Bundll" provides the first two weeks for free, customers are then charged a flat fee of $5 to extend payments for another two weeks. A Superbundll option is then available to extend payments to six fortnightly payments, with customers charged 5 percent of the total balance.

339. American Express offers PlanIt to its cardholders allowing cardholders to pay their card account in interest free instalments, with a monthly fee being charged for the service. Citibank cardholders can choose payment terms of up to 60 months interest free.

340. There are less well-known providers who specialise in specific categories, such as Denticare offering interest free instalment payment plans for dental and orthodontal patients, Vetpay for Pet Owners, Brighte for home solar systems, and Art Money for purchasing art.

341. The "new style" BNPL providers initially launched with online retailers, where the technical integrations were relatively straightforward, but are now aggressively increasing physical point of sale purchases. However, most revenue is still online[144] : accounting for 68% of Zip's revenue across its 16,000 merchants, and 79% of Afterpay's revenue.

<u>BNPL is not all the same</u>

342. Whilst all providers tend to be treated as being the same in the media, there are many different models based on:

- Who pays for the service and how;
- How a BNPL purchase can be initiated;
- How much can be spent;
- The method of repayment;
- The term and frequency of instalments;

1. [144] Zip and Afterpay August 2019 results announcements.

- The target market.

343. Who pays for the service and how?

344. Merchant funding predominates. Afterpay, Zip, Humm, OpenPay and Splitit all charge merchants a percentage of the transaction value. For example, Afterpay charges the merchant a per transaction fee plus up to 6% of the purchase value, although rates can be as low as 2%. Zip's average charge to merchants is 4% of the purchase value, and TIG has been told that there are rates as low as 1% in the market[145], which may be for specific merchants and purchases sizes.

345. Why are retailers happy to pay such high fees (particularly compared with the costs of accepting credit cards, which the same merchants usually complain are too high)? The pitch focuses on incremental sales, larger purchase size, access to new customers and increased incidence of repeat purchases. These predictions have, to an extent, been proven particularly by Afterpay and Zip for online shopping. However, competition amongst the BNPL providers is now leading to retailers being more prepared to negotiate a reduction in the fees being charged.

346. The high fees originally made BNPL more acceptable for higher margin retailers and/or products, where the merchant can afford to absorb the additional cost. Female fashion, jewellery and similar categories were early targets.

347. The Buyer pays. Credit card BNPL from American Express and Citibank are not dependent on merchant fees, which means that cardholders can apply for BNPL on any transaction at any merchant above the prescribed transaction size threshold. However, this does mean that the cardholder pays for the service. Whilst they are "interest free", an account fee is charged either up front or with each repayment. For American Express this is an "establishment fee", which ranges between 2% and 4% of the value of the purchase.

348. Both. BNPL can be free to users, however if you miss a payment most will pay a penalty fee. For example, if you carry a Zip balance over the end of the month (after the initial 60 days), then there is a $6 monthly account fee. There is a monthly fee for some Humm options, as well as an establishment fee for some types of OpenPay purchases.

349. It may not be as complicated as comparing mobile phone plans, but it remains worthwhile for users to look into the detail.

350. How a BNPL payment can be initiated

351. Merchants need to integrate their online shopping cart and/or their in-store POS to be able to offer Afterpay, Zip, Humm, OpenPay and/or Splitit. The user can initiate a

1.

[145] Based on a Request For Proposal process that TIG ran for an online merchant during 2020.

purchase using an app and can only make the purchase with merchants who have signed up directly with the BNPL provider. Online the BNPL brand often appears as a payment "button".

352. At the other end of the spectrum are the credit card offers from Amex and Citibank, where the cardholder can select BNPL options for any transactions over a prescribed threshold at their account online, after the purchase is made at any merchant.

353. How much can be spent?

354. There are significant variations which can change based upon the merchant, the products being purchased, the user's tenure and/or their repayment performance. For example, a new Afterpay user is limited to $300. The maximum for Afterpay is $1,500 (average purchase is reported as $150); for Zip Pay $1,000 (average purchase $217); for Zip Money $50,000; for Humm "little things" $2,000 (average purchase $382) and for Humm "big things" $30,000 (average purchase $3,740). Credit card based offers are generally limited to the users available credit limit.

355. Method of repayment

356. On credit card based BNPL, repayment is via normal credit card statement methods.

357. With other BNPL providers, users can choose to have their repayments linked within the app to a debit or credit card, with debit cards proving to be the most popular: 85% of Afterpay repayment transactions are via debit cards[146], and ASIC reports about 80% debit card and 20% credit card split for the credentials held on file across the industry (these cards would all be from the international card schemes).

358. Term and frequency of instalments

359. Afterpay is the only provider that offers no repayment period flexibility – new users will pay their first instalment at the time when they make their first purchase and thereafter 3 fortnightly instalments. On subsequent purchases, the first of these payments is then 2 weeks after the date of the purchase and then 3 more fortnightly payments to complete.

360. Zip is fee free for 60 days, so if repayments are made on time within 8 weeks the outcome is the same as Afterpay.

361. All other providers offer variations in repayment terms, and, other than for Splitit, these can result in establishment fees, account keeping fees and combinations of the two.

362. Where it is offered?

1.

[146] Afterpay August 2019 results announcement.

363. "New" BNPL started with online retailers (in higher margin product categories), then expanded to in-store at "bricks and mortar" retailers, and most are now undertaking strategies to enter other verticals where there are payments that users would like to split and defer – such as travel, healthcare, dental and orthodontal.

364. The target market

365. Most of the activity has focussed on consumers in discretionary retail.

366. However, the quest for continuing rapid growth means that BNPL is now entering the SME segment. Prospa has launched "Prospa Pay", offering 13 weeks interest free for business purchases, and Zip has announced "Zip Biz".

Regulation

367. As noted in the earlier section on fraud, the trend in payments over recent years has been to increase convenience potentially at the expense of payments security, with payment providers moving to deliver "frictionless" or "seamless" payments (where friction has often been previously inserted for increased security). BNPL is no stranger to this trade-off, as a key factor in its exponential growth has been the removal of friction – making it easier and faster to apply and be approved, and to start making purchases. Limited information might be collected, credit and identity checking might be limited, and minimal (if any) licencing is sought (sometimes on the basis that no consumer "credit facility" is being provided).

368. From the BNPL provider's point of view, this approach works in a safe credit environment (e.g. Australia in the last few years, pre-COVID), but can potentially open the service up to higher levels of fraudulent use. From the user's point of view, particularly those who may have a lower threshold for credit stress, it can make it easier to get into debt: it has been easier to get access to money from a BNPL provider than, for example, a credit card issuer (due to responsible lending regulation), and it is possible for the user to contemporaneously access funding from multiple BNPL providers (who are not set up to check up on the existence of other competitor BNPL accounts).

369. This has been of concern to the regulators, to the extent that there was a Federal Senate enquiry in 2018, which published the following (non-binding) recommendations[147]:

    1. All BNPL credit providers should verify the income of their consumers and ensure their minimum repayment commitments with that BNPL provider do not account for more than 10% of their post-tax monthly income at time of application.

1. 147

https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Economics/Creditfinancialservices/Report/b02

2. All BNPL providers should ensure that customers entering into a BNPL arrangement read the full contract and provide affirmative consent that they have read the agreement and understand the terms of the contract.
3. All BNPL credit providers should perform credit checks on new applicants.
4. All scheduled BNPL contract repayments should be made from a bank account (e.g. direct debit, debit card or direct transfer) and not from a credit card.
5. All BNPL credit providers should have hardship policies in place that are readily available and be members of an approved external dispute resolution scheme.
6. All BNPL product late fees should be capped at the lesser of $10 per month or 10% of the aggregate monthly repayment due (not the account balance).
7. All BNPL products should have a standardised key fact sheet detailing the core product features readily available at the time of sign-up.
8. All BNPL product providers should hold an ASIC credit licence.
9. All BNPL products that offer purchasing capacity of over $2,000 should be fully regulated under the NCCP.

370. From April 2019, ASIC was granted product intervention powers by Federal Parliament which apply to the BNPL sector. This might be interpreted as guidance for the industry to self-regulate or face the possibility of regulation and/or new legislation; indeed the industry does now have a self-regulatory code of practice.

371. In addition, in June 2019 AUSTRAC ordered the appointment of an external auditor to Afterpay, in order to examine its compliance with the Anti-Money-Laundering and Counter-Terrorism Financing Act 2006. Following the review of the audit report, although it was noted that Afterpay had not initially conducted KYC (Know Your Customer) checks on its users, AUSTRAC determined no further action was required.

372. Another change to the industry has been the Banking Royal Commission's recommendation to abolish the "Point of Sale Exemption" that allows retailers to introduce borrowers to lenders for regulated credit without needing to hold an Australian Credit Licence (ACL), or be authorised as a Credit Representative. The removal of the exemption would mean that vendors must hold an ACL, or be appointed as a Credit Representative, and must carry out a responsible lending assessment prior to assisting consumers to apply for a loan. This may not mean that retail staff members are all required to hold an ACL - a more likely outcome is that there needs to be an accredited "Responsible Manager" appointed at the retail outlet and/or the relevant BNPL solutions become even more digitised if and where they do not comply with new requirements. It may also not apply to interest free products.

373. Regardless of what transpires, the industry is being put on notice that the regulators and legislators are watching.

The overseas landscape

374. There is plenty of activity outside Australia that is not limited to the well-publicised global expansion of the local companies Afterpay and Zip.

375. Swedish Fintech "Klarna", established in 2005, has 90 million customers and 200,000+ merchants across 17 countries. Klarna claims to be involved in 40% of all e-commerce transactions in Sweden and a 10% market share across northern Europe. It offers a range of BNPL options:

- no fee, interest free "Pay later" (pay either 14 or 30 days after the purchase);
- no fee, interest free "Pay in 3" (pay 3 or 4 equal instalments);
- "Slice it" where the user can make equal monthly payments for terms from 3 to 36 months at a maximum APR of 18.9%.

376. Klarna is of particular interest in Australia given that the largest merchant acquirer, Commonwealth Bank of Australia (CBA), has announced a $300 million investment in Klarna, with its intent to make Klarna services available to CBA merchants and also provide a seamless integration for its consumer customers. Another notable investor in Klarna is Visa. CBA-Klarna could be a significant disruptor in the sector, given Klarna's lower merchant fee (2.3%) and CBA's merchant reach.

377. The theme of acquirers offering BNPL services on their own platform is taken up again with BNPL options being offered to merchants who use Square, Stripe and PayPal.

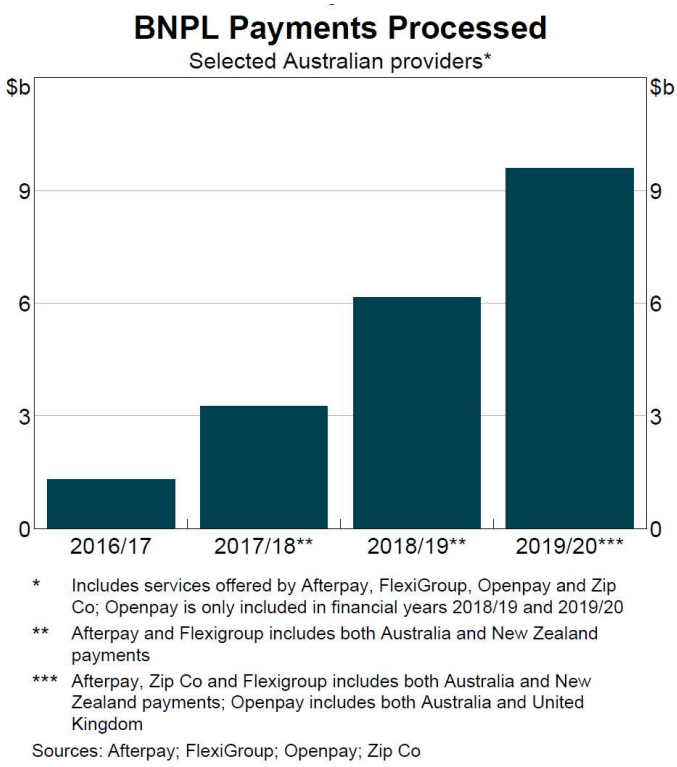
378. Adding support to the growth and sustainability claims by the BNPL industry, Visa and Mastercard have indicated that they will not be left behind, with Visa announcing in July 2019 that it is trialling instalment payment capabilities that could be used by Visa card issuers, and in April 2019 Mastercard announced the acquisition of BNPL platform Vyze.

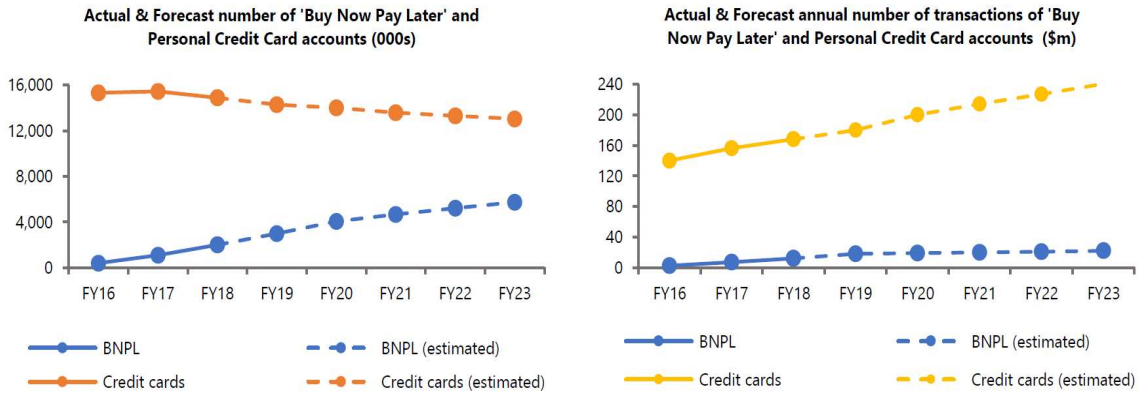
The impact on payment cards and banks

379. The number of credit card accounts in Australia and their overall spend are falling. At the same time debit card activity is growing strongly, both in accounts and transactions - younger shoppers are preferring the use of debit cards and are less likely to migrate to credit cards as their lives and careers progress than their predecessors.

380. The net result is that the overall use of payment cards is increasing. In fact, BNPL can multiply the number of card transactions in the economy. For example, an Afterpay purchase (recall that 85% of Afterpay repayments are on debit cards) replaces a single POS or online shopping cart payment with four debit or credit card transactions on international scheme cards, albeit at a quarter of the value for each transaction.

381. Whilst the growth of BNPL has been significant, BNPL still represents a very small percentage of the total value of retail spend, "*equivalent to less than 1.5% of total card purchases over the year*" of 2019/20 according to the RBA, and therefore has had limited impact on the overall economy and payments, as demonstrated in the following diagrams[148] [149]:





Source: TIG whitepaper [150]

1.

[148] RBA Data and TIG Estimates

[149] https://www.rba.gov.au/publications/annual-reports/psb/2020/

[150] https://static1.squarespace.com/static/5851f092cd0f68eedd39ce13/t/5d9e6a287e5716464088919a/1570662957310/Buy+Now+Pay+Later+201910.pdf

382. Some newer developments include:

- The possibility that BNPL providers may move away from card use. Zip has publicly stated its objective of replacing card payments with Zip transactions drawing from a Zip line of credit, initiated using QR codes. Indeed in October 2020, Zip announced a new partnership with Visa to set up a virtual card for a Zip account, allowing the card to tap and pay (or Tap & Zip as the feature is called) instead of using an actual Visa credit card or debit card. The virtual Zip card can also be loaded into Apple Pay or Google Pay account and then choose to use Zip for any mobile wallet payments.
- Afterpay has also announced a new partnership with Westpac: using Westpac's white label "Banking As A Service" platform to offer a wider range of financial services to its user base. The FinTech plans to offer a savings account and other cashflow tools to its customers in 2021.
- Card schemes such as Visa and Mastercard are entering the market by buying BNPL providers, as well as delivering functionality that assists their card issuers, such as the banks, to offer BNPL on their existing card products.

Conclusion

383. Whilst not new to Australia, the digitally driven "new" form of BNPL is growing quickly and is becoming an embedded consumer-merchant interface for the longer term. It is meeting a consumer need and is delivered via the ubiquitous mobile phone – the medium with which younger generations are most comfortable.

384. However, the possibility of a more regulated future, the potential of a tougher credit market with higher levels of bad debts (potentially in the aftermath of COVID-19), and increased competition are all likely to force changes to:

- The format of BNPL and the way it is delivered;
- The price that merchants and users have to pay for the service; and
- The number and type of providers in the market.

I. DIGITAL CHANNELS AND FINTECH

385. A digital channel is a communication and/or sales channel that is electronic in nature, as opposed to physical channels such as in-person/over-the-counter retail. For the consumer, access to these channels is usually by desktop or laptop computer, tablet or mobile phone. Digital channels include:

- Websites
- Social media
- Search engine results
- Email
- SMS
- Apps - usually on the mobile phone or tablet
- Online events
- Digital media – e.g. video streaming
- Electronic games

386. Financial technology[151] (usually abbreviated to FinTech) is the technology and innovation that aims to compete with traditional methods in the delivery of financial services. It is an emerging and growing industry that uses technology to improve activities in finance. The use of smartphones for mobile banking, investing, borrowing services and cryptocurrency are examples of technologies aiming to make financial services more accessible to the general public. Financial technology companies consist of both startups and established financial institutions and technology companies trying to replace or enhance the usage of financial services provided by existing financial companies.

387. FinTech companies often use application programming interfaces[152] (API) as their linkage to digital channels and existing/legacy systems. An API is a computing interface that defines interactions between multiple software intermediaries. It defines the kinds of calls or requests that can be made, how to make them, the data formats that should be used, the conventions to follow, etc. It can also provide extension mechanisms, so that users can extend existing functionality in various ways and to varying degrees. An API can be entirely custom, specific to a component, or designed based on an industry-standard to ensure interoperability. Through information hiding, APIs enable modular programming, allowing users to use the interface independently of the implementation.

1.

[151] https://en.wikipedia.org/wiki/Financial_technology
[152] https://en.wikipedia.org/wiki/API

388. Globally, payments are going digital — whether they are cash moving to cards, physical cards to mobile phones and virtual cards, QR codes at point of sale, purchases moving from physical to online stores with electronic forms of payment[153], or payments becoming seamless with in-app experiences. This phenomenon is not new, but does appear to be accelerating. This increased speed of adoption is driven by multiple factors, including an abundance of new electronic payment methods — many of which are layered on top of existing payment methods — focused on convenience, speed and the overall consumer experience.

389. As discussed elsewhere in this report, the digital payments ecosystem involves an array of different players, including the merchant accepting the payment, payment service providers, payment acquirers, payment schemes/networks (e.g. Visa, MasterCard), payment issuers and loyalty programs.

Role of infrastructure

390. The handling of the payment, the ability to recognise returning customers and cross-linking potential offers need to happen fast, securely, and efficiently be delivered locally to users. Delivering these services to local populations of customers, users and partners requires a distributed presence that can challenge traditional architectures — this is where the interconnection of the players and their co-location in data centres play a role. Having the data, applications, networking controls, and associated technologies of all the components of the transaction interconnected at secure points of presence — close to end-users — helps deliver an enhanced digital experience.

391. To ensure market coverage, global players need to replicate their interconnected value chain in strategic locations within their target markets, enabling them to effectively serve end users. This means identifying co-location providers with data centers that not only have all the players in the value chain, but are also in the geographies being served. Hence data center providers furnishing high-speed, low-latency interconnection at strategic points around the world play a critical role in optimising the performance of the payments network, with lower costs, higher security and greater agility.

392. Indeed, Gartner Research Vice President Bob Gill describes the relationship between digital business and co-location-based interconnection as follows: “Digital business is enabled and enhanced through high-speed, secure, low-latency communication among enterprise assets, cloud resources, and an ecosystem of service providers and peers. Architects and IT leaders must consider carrier-neutral data center interconnection as a digital business enabler[154].”

1.

[153] Which could be a 100% online experience or an “omnichannel” experience with an online payment and an in-store collection – commonly known as “Click & Collect”

[154] https://www.gartner.com/en/documents/3393417/colocation-based-interconnection-will-serve-as-the-glue-

393. While those making and receiving payments generally have little understanding of how their digital payments happen, they do expect a convenient, reliable, fast and secure payments experience. It is the architecture underpinning the digital payments value chain that ultimately determines the level and scope of this performance.

394. The constantly evolving payments ecosystem is a complex network of different, often unconnected systems. From cash to cards to mobile in real-time, the payments ecosystem continues to expand. History has led to many country-specific electronic payment methods, which are not interoperable.

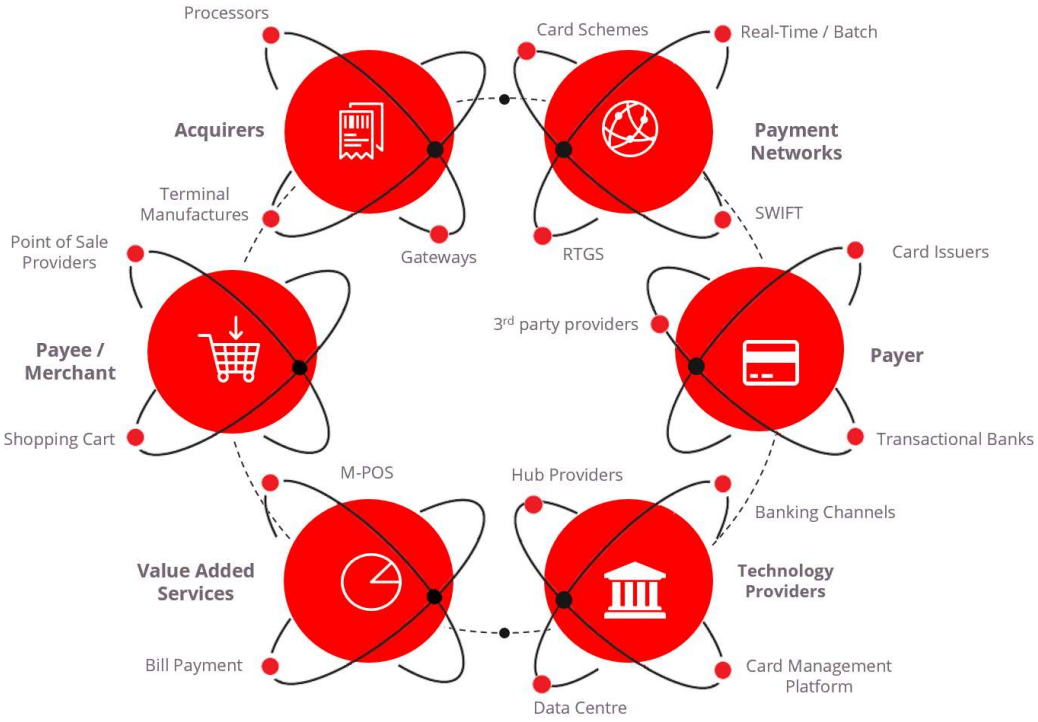
395. The continued expansion of payment methods, along with these country-by-country legacy systems, causes difficulties for global merchants, such as airlines, who need to offer the right payment method in each locality they service. As the globalisation of commerce and consumer spending continues, the capability to "plug and play" in a world payments hub gets stronger, but not necessarily easier to deliver.

396. The need to deliver global interoperability is driving more interconnection among participants in the payments market. Just like people gather together in cities to gain the synergies of a social network[155], for business and leisure, there is a parallel in the "urbanization of IT," with payments players creating infrastructure with direct access to data sources, service providers, networks and clouds to gain the performance and cost benefits of interconnection.

397. The graphic below is a general representation of the thousands of different payments players actively participating in the market, some locally and some globally[156]:

1.

[155] https://www.ted.com/talks/geoffrey_west_the_surprising_math_of_cities_and_corporations
[156] https://www.equinix.com.au/resources/whitepapers/key-trends-digital-payments/



398. Global electronic payment volumes have been increasing at approximately 11% annually, and this double-digit growth is likely to continue through 2020[157] (despite, or even helped by, the COVID-19 pandemic). This growth in electronic payments is in part driven by the continued growth of the world economy generating more payments transactions, but also by the displacement of cash and cheques as payment methods. Indeed, some central banks and governments are strongly supporting the replacement of cash, both to gain the efficiencies provided by electronic payments and to address the tax avoidance issues associated with the "Black Economy."

Increasing competition

399. As electronic payments have moved to the forefront, the traditional market participants, banks, have also been facing increased competition from innovative financial technology firms (FinTechs) focusing on niches within the payments value chain. Such firms have been enabled by advances in technology, including the ability to develop their systems in the cloud and with a green field that is not tied to a mainframe and old code.

400. In many countries, FinTechs have also benefitted from a favorable regulatory stance taken towards them as "up and coming" competitors — the same factors that are now facilitating market entry by neobanks, who are looking to compete directly with the incumbents.

1.

[157] Capgemini, 2017 – World Payments Report

401. To contend with these start-ups, traditional banks may need to transform their IT architecture, moving some applications to the cloud, offering competitive "micro-services" abstracted away from the old code/mainframe, and reconfiguring to enable faster partnering. Indeed, many banks have chosen to partner with FinTech companies in order to improve their customer offering and to reduce their time to market. An example would be the CBA partnership (including investment in) with the Swedish BNPL payments FinTech Klarna, which has provided CBA with (a) a value added service that they can integrate for the merchant base for whom CBA is the merchant acquirer, and (b) a quasi "in-house" BNPL solution for CBA transaction banking and/or card customers, who gain a seamless integration and enhanced experience.

402. Another partnership model is where the FinTech accesses a bank to fast track the delivery of white label products to the FinTech's own customer base. An example would be Westpac's use of Future Technologies' "10X" digital banking platform, a system that is operated separately from the main Westpac banking system. The move is part of Westpac's new digital strategy to engage and work with FinTech partners through the 10X platform, with Afterpay being one of the first users: in October 2020, Westpac announced a partnership with Afterpay, one of the world's leading Buy Now Pay Later brands, to provide deposit accounts as part of its new Banking as a Service strategy, commencing in Q1 2021[158]. From the perspective of payments, this may also potentially enable less expensive direct debit instalment payments within a closed Afterpay "eco-system".

403. The recent arrival of open banking carries an inherent threat of commoditisation for incumbent banks. This is because it can enable third parties to own the primary customer relationship, by allowing access to accounts from different providers via one single interface that is not necessarily owned by an incumbent bank. It also potentially heightens competition by enabling more personalised comparisons between accounts held at different providers.

404. As a result, banks may move to more of a platform configuration[159], as in the Westpac example above. Banks could deliver a range of third-party services on their platforms (including feeds from Facebook, Twitter and others), but will need the appropriate infrastructure to provide seamless and instant delivery to the customer.

405. All of the major Australian banks are expanding their investment in digital services in order to keep up with what appears to be an insatiable appetite amongst consumers for these forms of interface. For example, in July 2020 Commonwealth Bank of Australia (CBA) further increased its investment in digital service development, appointing venture capital firms

1. _____

[158] https://www.westpac.com.au/about-westpac/media/media-releases/2020/20-october/
[159] https://thefinancialbrand.com/60019/the-platformification-of-banking/

Square Peg Capital and Zetta Venture Partners as strategic partners[160]: "*CBA is investing $10 million into each of Square Peg's and Zetta's latest funds, with the investment to go to financing local FinTechs and artificial intelligence companies. CBA's own venture fund X15 Ventures announced the launch of its fourth investment, Backr, a platform that provides entrepreneurs with a single source for setting up and managing their businesses. X15, which was launched in February this year, also has investments in the credit score provider Credit Savvy, home buying app Home-in and business insight app Vonto*". CBA made a further move in this area during January 2021[161], with X15 Ventures' acquisition of Doshii, a cloud-based software that centralises apps and point-of-sale technology for hospitality businesses.

FinTechs and Payments

406. As noted above, the user or consumer experience has become a key battle ground between providers of banking and payment services, and, with the rapid adoption of digital channels by consumers, this has been an area of focus for FinTechs. The "experience" tends to occur at the customer interface for payments and has led to a plethora of veneers (as discussed earlier in the report) being placed on top of the basic payments systems, which continue to be used to move money from one account to another and into which the FinTechs must integrate.

407. The Buy Now Pay Later sector (covered elsewhere in the report) is a good example of FinTech providing a seamless digital interface to deliver a new customer experience, whilst all the time using the traditional payment systems to move funds. Despite a high level of competition between all of the different and numerous BNPL players in gaining the attention of and usage by consumers and merchants, they all tend to handle the underlying payments in a similar, if not the same, way. As noted by Adyen in a November 2020 web-based conference[162], "*Australian BNPL providers have put Australian FinTech on the global map*".

408. At the same Adyen event, the rapid adoption of digital channels by Australian consumers was also noted, including comments such as "*The physical store becomes a showroom, with purchase and payment online*" and (in regard to a mobile app provided by 7-Eleven) "*The customer can skip the queue by using their mobile to checkout whilst in store*".

409. FinTech companies have also been quick to use biometrics to provide more convenience (and speed) for consumers. Many Australian's already use fingerprint recognition on their mobile phones for functions such as paying with Google Pay or Apple Pay and accessing their mobile banking app. Some companies are taking this further, as in the case of the European FinTech

1.

[160] https://www.bankingday.com/cba-boosts-venture-investment

[161] https://www.theaustralian.com.au/news/latest-news/cba-claims-personalised-digital-banking-will-be-its-competitive-edge/news-story/304d23b9566e0cd13a56de6d44f8301a

[162] "Ours @ Adyen" held on 19 November 2020

"paybyface"[163] which uses facial recognition software at the point of sale, allowing the consumer to dispense with the need to carry cash, cards or their mobile phone. However, the funds transfer on paybyface still relies on the consumer's debit or credit card, which needs to be loaded into the app upon registration.

410. The first commercial launch of facial recognition in making a payment was by Alipay in September 2017[164], and is now seeing a reasonable level of uptake[165], with over 1,000 convenience stores in China having already installed a facial payment system and more than 100 million Chinese registered to use the technology. In the Australian environment, the use of facial recognition (outside of passport control) has raised privacy and "Big Brother" concerns, so the adoption of this technology in the local market may not be so assured. But just recently facial recognition has been adopted in South Australia in regard to access to and payment at poker machines.[166]

Australian use of digital channels

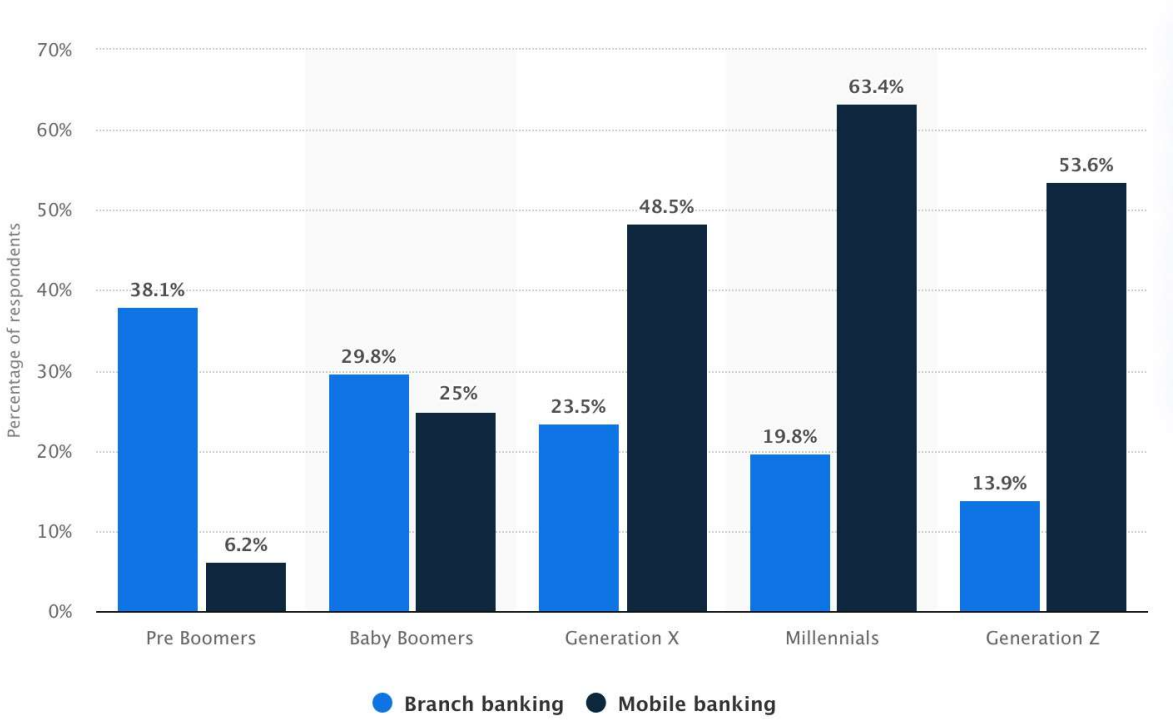
411. The growth of eCommerce and in-app payments in Australia (both reviewed elsewhere in this report) clearly demonstrate the strong adoption of digital channels by local consumers. Indeed, Australian use of, and satisfaction with, digital channels has been tracked by Roy Morgan research[167] for a number of years, with a 2019 study showing: "*Mobile banking is the fastest growing banking channel and the one with the highest customer satisfaction. In September 2019, satisfaction levels for mobile banking users was 90.3%, ahead of interactions via internet banking (89.0%), branches (86.4%), personal banker/advisor (78.9%) and phone banking (80.4%). Mobile banking is now used by 45.9% of Australians in an average four-week period, compared to only 20.6% who use branches*."

412. Although adoption of these new channels has been most rapid amongst the younger demographic, usage spreads across all age groups:

1.

[163] https://paybyface.io/
[164] https://www.youtube.com/watch?v=W4P0zt4cnmU
[165] https://www.theguardian.com/world/2019/sep/04/smile-to-pay-chinese-shoppers-turn-to-facial-payment-technology and https://asia.nikkei.com/Business/China-tech/Pay-with-your-face-100m-Chinese-switch-from-smartphones
[166] Adelaide Advertiser, 16 January 2021
[167] http://www.roymorgan.com/findings/8170-banking-channel-satisfaction-september-2019-201910180551

Generational comparison of mobile banking and branch banking usage in Australia as of October 2018[168]



413. CBA's 2020 Annual Report[169] notes that "*The current environment has accelerated the shift to digital banking and electronic payments*", "*We have prioritised the customer experience to deliver intuitive and user-friendly digital banking services*" and "*More customers than ever chose to use our digital channels and phone banking services. During the second half of the financial year, we saw a peak of 10.2 million daily logins to our CommBank app and NetBank due to COVID-19, and an 800% increase in calls to our financial assistance line*." Furthermore, 66% of CommBank transactions by value are made digitally[170]. More recently CBA has quoted that –

- its digital wallet transactions have increased by 106% between December 2019 and December 2020; and
- the number of customers using the CBA mobile app has increased by 5.5% over the last year, from 5.9 million to 6.3 million.

1.

[168] https://www.statista.com/statistics/948129/mobile-and-branch-banking-users-by-generation-australia/ , Survey time period: April 1, 2018 to October 31, 2018; Number of respondents: 25,304; Age group: 14 years and older

[169] https://www.commbank.com.au/about-us/investors/annual-reports/annual-report-2020.html?ei=tl_2020-annual-report

[170] The total value ($) of transfers and BPAY payments made in digital (NetBank, the CommBank mobile app, CommBank tablet app and old mobile app) as a proportion of the total value ($) of transfers in over-the-counter, ATM, eftpos and digital transactions over the period of July 2019 – June 2020.

Expert Industry Opinion

414. April 2020 research undertaken by the RFi Group's Global Digital Banking Council[171], investigating how consumers are reacting and adapting to a rapidly changing and unprecedented environment, shows the need for traditional banks to continue their investment in digital capabilities, as the FinTech new entrants and the global technology companies (Bigtech) improve their competitive position:

1.

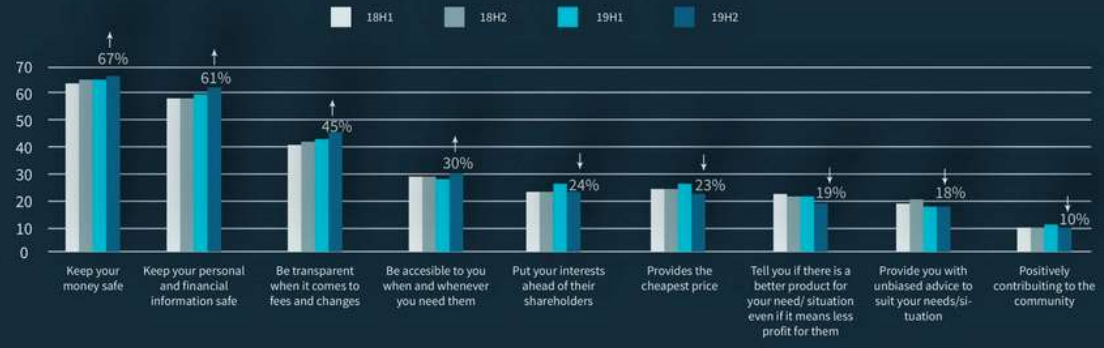
[171] https://www.rfigroup.com/rfi-group/news/global-report-global-digital-banking-council

Banks are winning the digital war, but for how long?

RFi Group
Intelligence to bank on

HOW DO CONSUMERS DEFINE TRUST?

Thinking about the different providers, what do you consider most important for them to do to maintain your trust?
Ranked 1-3: Global average



CURRENTLY CONSUMERS TRUST BANKS MORE THAN DIGITAL ONLY PROVIDERS

Please indicate the extent to which you trust the following to keep your money safe
Average score out of 10 – Global Average

HOWEVER, CONSUMER COMFORT WITH DIGITAL-ONLY PROVIDERS CONTINUES TO INCREASE

% Consumers comfortable (6+/10) using a digital-only provider

AND WHILE THEIR SALARIES LIKELY GO TO AN ESTABLISHED BANK, CONSUMERS ARE STARTING TO USE DIGITAL ONLY PROVIDERS FOR EVERYDAY SPEND

What do you mainly use each of these accounts for?
By type of account provider – Global average

J. MARGIN COMPRESSION IN PAYMENTS

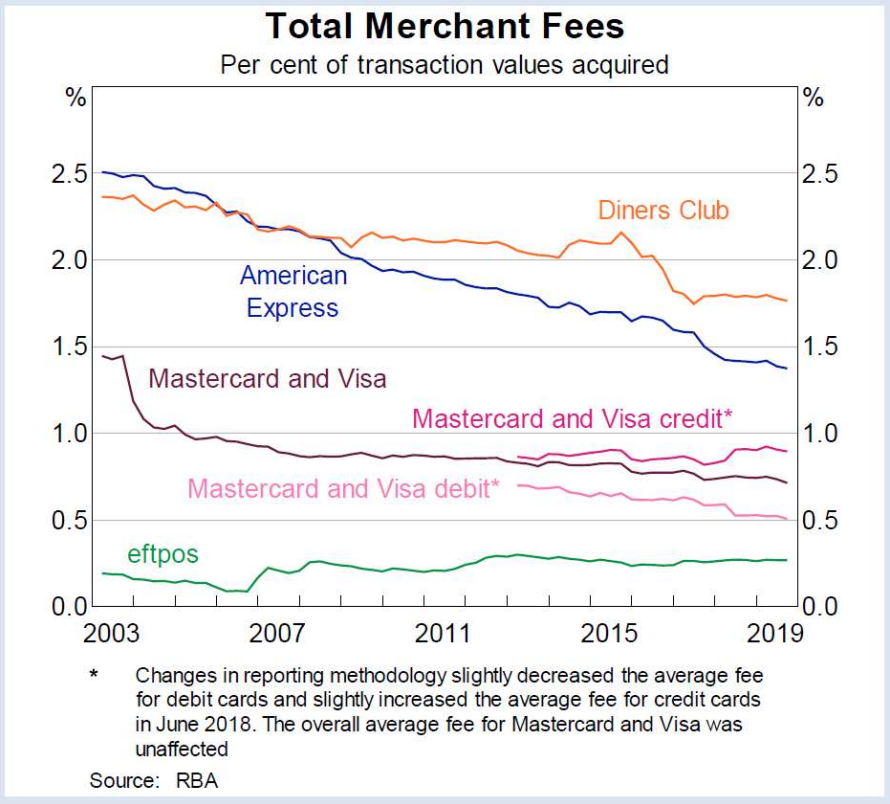
415. Margins in payments are being compressed from all sides, with revenue streams under pressure and costs increasing.

- Lower interchange and other interbank fees
- Lower usage fees for consumer products (e.g. removal of direct ATM charges)
- Lower pricing due to transparency and availability of information (e.g. shopping around for Fx rates on the internet)

- Increasing supplier and Scheme costs
- Increased capital requirements
- Increased competition from both traditional competitors and third party "disruptors"
- Increased awareness of payments costs and a focus on cost control by corporates and merchants

416. This is clearly shown in the area of merchant acquiring, where the average merchant service fee for accepting a card payment has declined since the first RBA intervention on credit card interchange rates in 2003. With the average merchant service fee on a Visa / Mastercard credit card now at around 0.9% of the transaction value, and the average Visa / Mastercard credit card interchange rate regulated to no more than 0.5%, the merchant acquiring organisation has 0.4% of the transaction value to cover –

- Scheme fees, which might be 0.1-0.2% of the transaction value;
- The cost of processing, running the business and covering merchant risk; and
- A profit margin.



417. There has been a heavy emphasis by regulators and politicians on lowering the cost of payment acceptance for merchants. It is worth remembering, however, that merchants have always had to "pay" (in time and/or effort and/or money) to accept payments from their customers. Historically, say in the 1950's, when a merchant had a closer personal relationship with the customer, many merchants allowed customers to "pay on account", keeping track (mainly by "pen & paper") of the customer's purchases during the month and then sending them an account for payment at the end of each month (e.g. my father used to have an account at the local petrol station). Closed loop store cards then achieved the same outcome for merchant and customer, and were adopted by larger enterprises (e.g. Myer, David Jones). Eventually open loop credit cards achieved the same end for the consumer, a single delayed month-end payment, with the merchant getting funds immediately, albeit for a fee. But even today, many local suburban shops still provide their local, loyal customers with a "pay on account" facility (e.g. for me at Prices Pharmacy in West Pymble).

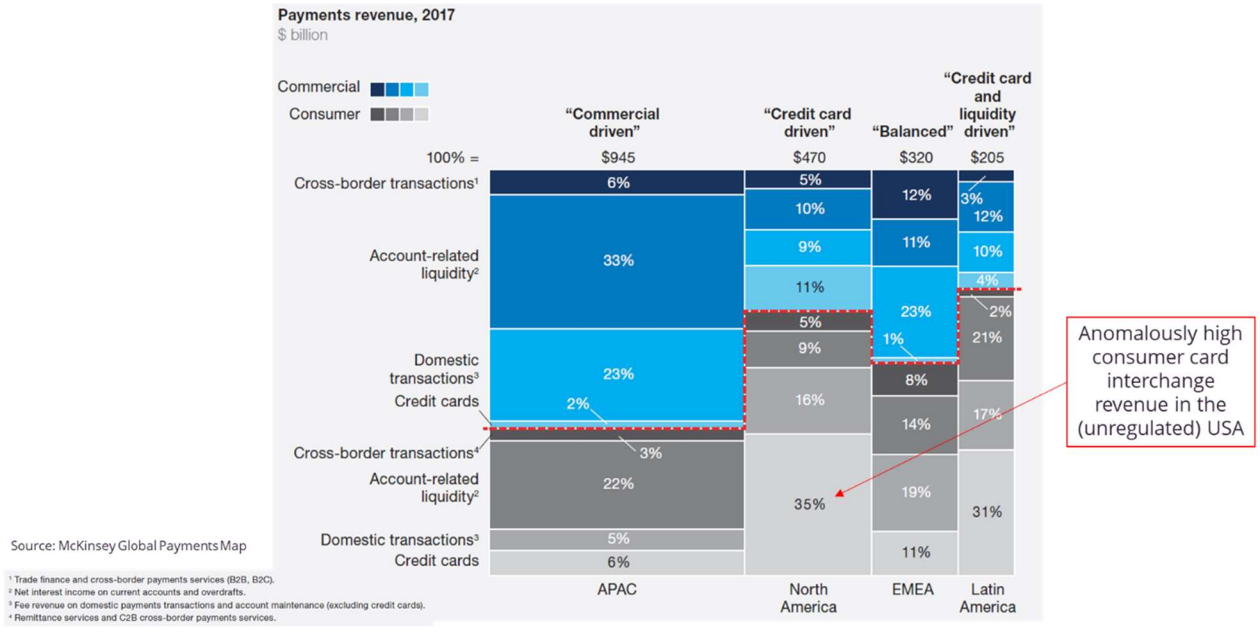
418. Fortunately for the merchant acquiring organisations, the volume and value of card transactions has increased several fold since 2003, with the effect of holding up absolute revenue levels even in the face of the reducing percentage margins - but with the acquirer having to process a lot more transactions for the same financial outcome. This margin squeeze has led to consolidation in the global acquiring and payment processing landscape, with a number of mergers / acquisitions having occurred:

- March 2017: Wirecard[172] purchases Citi's merchant acquiring portfolio in 11 Asia-Pacific markets (Singapore, Hong Kong, Macau, Malaysia, Taiwan, Indonesia, Philippines, Thailand, India, Australia and New Zealand)
- June 2017: Ingenico acquires Bambora globally
- August 2017: Vantiv purchases Worldpay for USD10.4 billion
- January 2019: Fiserv buys First Data for USD22 billion
- May 2019: Global Payment merges with TSYS in USD21.5 billion deal
- February 2020: Worldline acquires Ingenico for €7.8 billion
- December 2020: Worldline buys 51% of the merchant acquiring business of ANZ Bank for AUD485 million

419. The aim of these buyers appears to be to gain economies of scale in a low (and reducing) margin environment.

420. ANZ Bank is the first of the Australian major banks to begin an exit from merchant acquiring, but industry sources note that at least two other major banks have also considered such an exit, in order to release the capital employed in the acquiring business so that it can be put into financial services activities with higher economic returns.

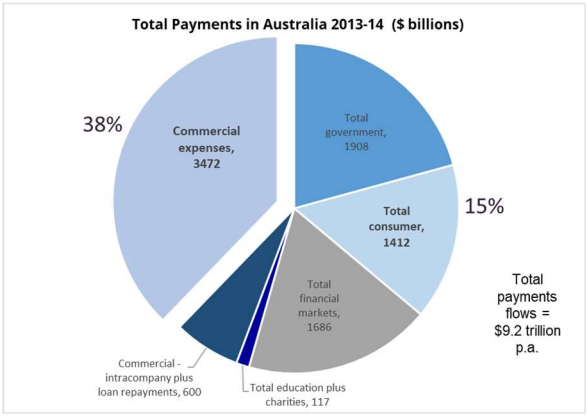
421. With consumers expecting payments to be free and regulatory pressures applied to the cost of payments for merchants, it is hard to make money out of consumer payments in Australia. In fact, in the Asia-Pacific region a study by McKinsey & Co. showed that most of the payment revenue pool for providers comes from Commercial Accounts:



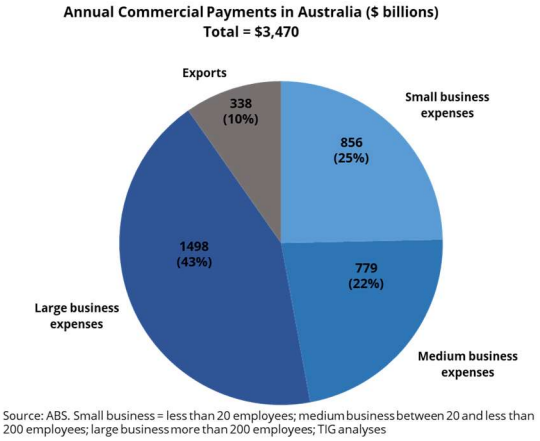
1.

[172] Now in financial difficulty and under investigation by regulators.

422. In Australia, a study by TIG some years ago indicated that commercial payments comprise 38% of all payment value versus 15% for consumer.



Source: ABS, ATO, other; TIG analyses



Source: ABS. Small business = less than 20 employees; medium business between 20 and less than 200 employees; large business more than 200 employees; TIG analyses

423. Drawing on 2015 banking data, TIG estimated that, for payment service providers, the commercial payments revenue pool before costs in Australia is in the order of $12 billion[173]. Commercial operations are prepared to pay for electronic payments, both inbound and outbound, as they can often take cost out of the business via "straight through" processing into their back office systems.

424. But where banks usually gain their best return is in lending, and a significant proportion of this is to consumers, who expect up-to-date payments functionality to be provided with their accounts (but have no desire to pay for it). Simplistically, this poses a conundrum on decisions for investment by the banks in as much as, all else equal, one would put development funds into lending first, commercial payments second and consumer payments last - with regulatory compliance and security trumping all of these. To gain and maintain consumer lending business, however, the banks need to keep providing (mainly for free) the modern payments capabilities and features that consumers require.

425. The margin compression being felt by traditional payments providers is further compounded by the ability of new market entrants and/or those with new technology platforms to provide enhanced and/or different services without the difficulties and complexities involved in upgrading legacy IT systems. Taking merchant acquiring as an example again, a number of the newer entrants to the Australian market (such as Adyen or Worldpay) have the ability to provide services that are dynamic in real-time, for example: "least cost routing" on multi-

1.

[173] TIG whitepaper series on Commercial Payments, January 2017, paper 1 of 7 "Introduction"

network debit cards; and "interchange ++" merchant pricing. These are described in more detail below.

a) Dynamic least cost routing on multi-network debit cards

In a study on merchant acquiring undertaken by TIG in late 2019, we identified three different forms of least cost routing on multi-network debit cards being deployed by the physical POS acquirers; these were:

i. All contactless debit transactions routed to eftpos, with no "intelligent routing";

ii. Rules based routing, with the rules being set by the merchant and not the acquirer (e.g. transactions below $15 value go to Visa/Mastercard, and transactions over $15 value go to eftpos);

iii. Intelligent dynamic routing, based on the actual lowest cost for the merchant for that transaction with that specific card at that particular time.

Only the newer market entrants had the ability to offer option (iii), with the traditional merchant acquirers limited to the merchant setting their own rules in (ii) or [especially the smaller operators] the "all or nothing" approach of (i). If changes were made to interchange rates and/or scheme fees, such that the lowest cost option changed, then this was immediately captured by those merchants using option (iii), but not the other two options.

b) "Interchange ++" merchant pricing

The pricing of card transaction to merchants on an "interchange ++" regime comprises of three line items:

- The actual interchange incurred on the transaction;
- The actual scheme fees incurred on the transaction; and
- A margin covering processing costs and the acquirer profit margin.

"Interchange +"[174] and "Interchange ++" pricing options, which were historically only offered to very large merchants, are now being offered to merchants with lower turnovers - primarily driven by new market entrants who have been offering these pricing options. However, the smaller traditional acquirers do not have IT systems that will support a move away from blended pricing, and the low profitability of their businesses does not readily support the investment needed to upgrade - hence this prevents them from competing for the business of larger merchants. The new

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[174] "Interchange +" pricing to merchants is comprised of two line items: the actual interchange incurred on the transaction, which varies by card type, channel and merchant category; and a margin covering the Scheme fees, processing costs and acquirer profit margin.

entrant acquirers, which tend to have new technology platforms, claim to deliver true interchange ++ pricing and quickly (and automatically) deliver any changes to scheme fees directly to their client merchants[175]; whereas the IT systems used by the major traditional acquirers are not as flexible, and, although some of them offer interchange ++ pricing, a lot of work-arounds, manual intervention, estimations, etc are required to provide an outcome (with accuracy and speed of changes likely to suffer).

1.

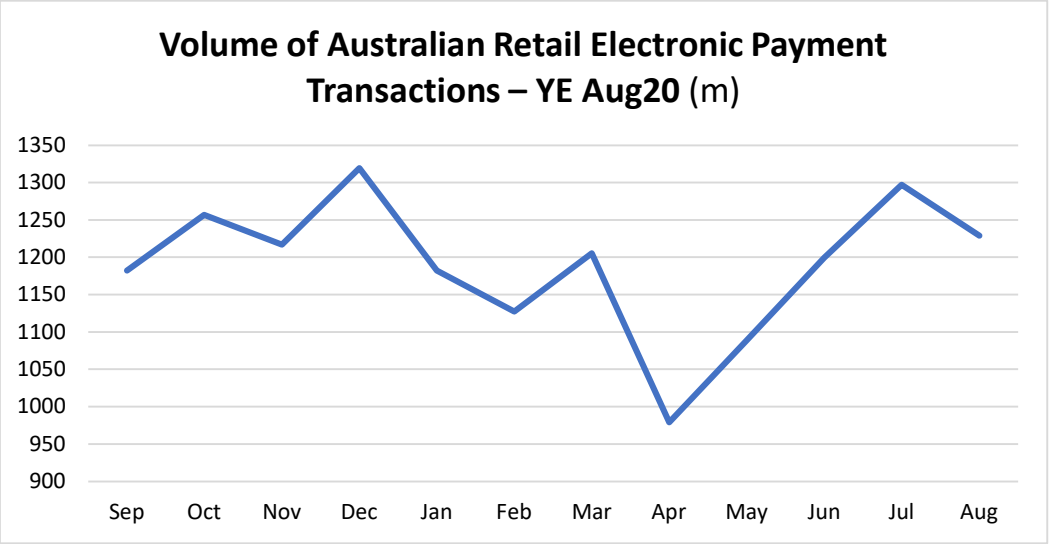
[175] The new entrants also often provide their merchants with an online portal, with which the merchant can see the transaction by transaction costs incurred in real-time: the actual interchange experienced; the actual scheme fees experienced; and the profit margin added.

K. IMPACT OF COVID-19

426. The 2020-21 COVID-19 Pandemic has had and is having an unprecedented impact on how people live and work. This period will not be forgotten quickly, and it will undoubtedly be a period of change, some of which will alter the way we do things forever.

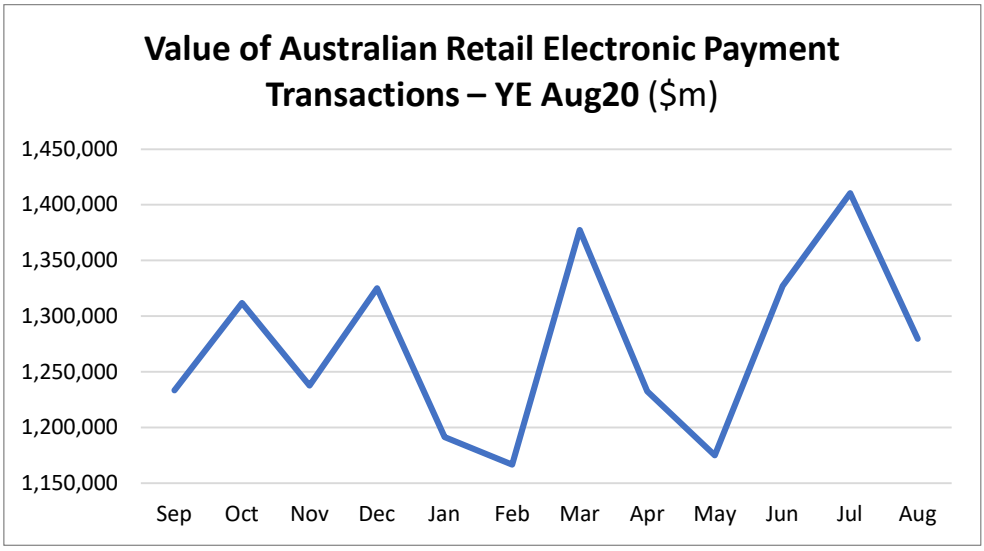
427. Although the total number of payments in the Australian market suffered an immediate, severe decline as economic activity was initially curtailed, what might happen to the ways consumers pay? Not necessarily in the short term – although many merchants now refuse to take cash, travel card issuance and usage has crashed[176], and cross-border payments (a key revenue source for the international schemes) dried up. Rather, what might be the potential longer term residual impacts.

428. Earlier in this report, it was noted that the way people pay is habit forming, with a stronger value proposition needed to break the habit - COVID-19 has a value proposition all of its own, driving people away from cash due to fear of infection and towards electronic payments in various formats, which permitted clean and/or remote (safely distanced) transactions. Indeed electronic payment transactions remained resilient despite the crisis:



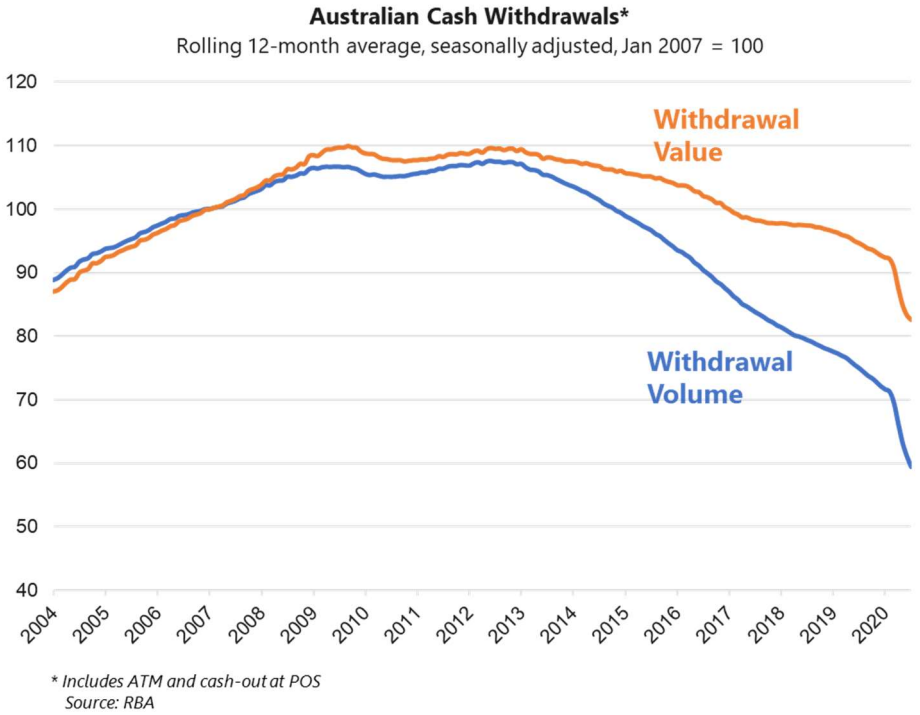
1.

[176] For example, Velocity Frequent Flyer announced in December 2020 the termination of its multi-currency pre-paid travel card, Global Wallet.



429. Across the combined debit and credit card, direct entry and Real Time payment systems, COVID only appears to have significantly impacted volumes and values in April and May 2020. Although economic activity had slowed and many retail businesses were temporarily shut, the majority of payment flows continued.

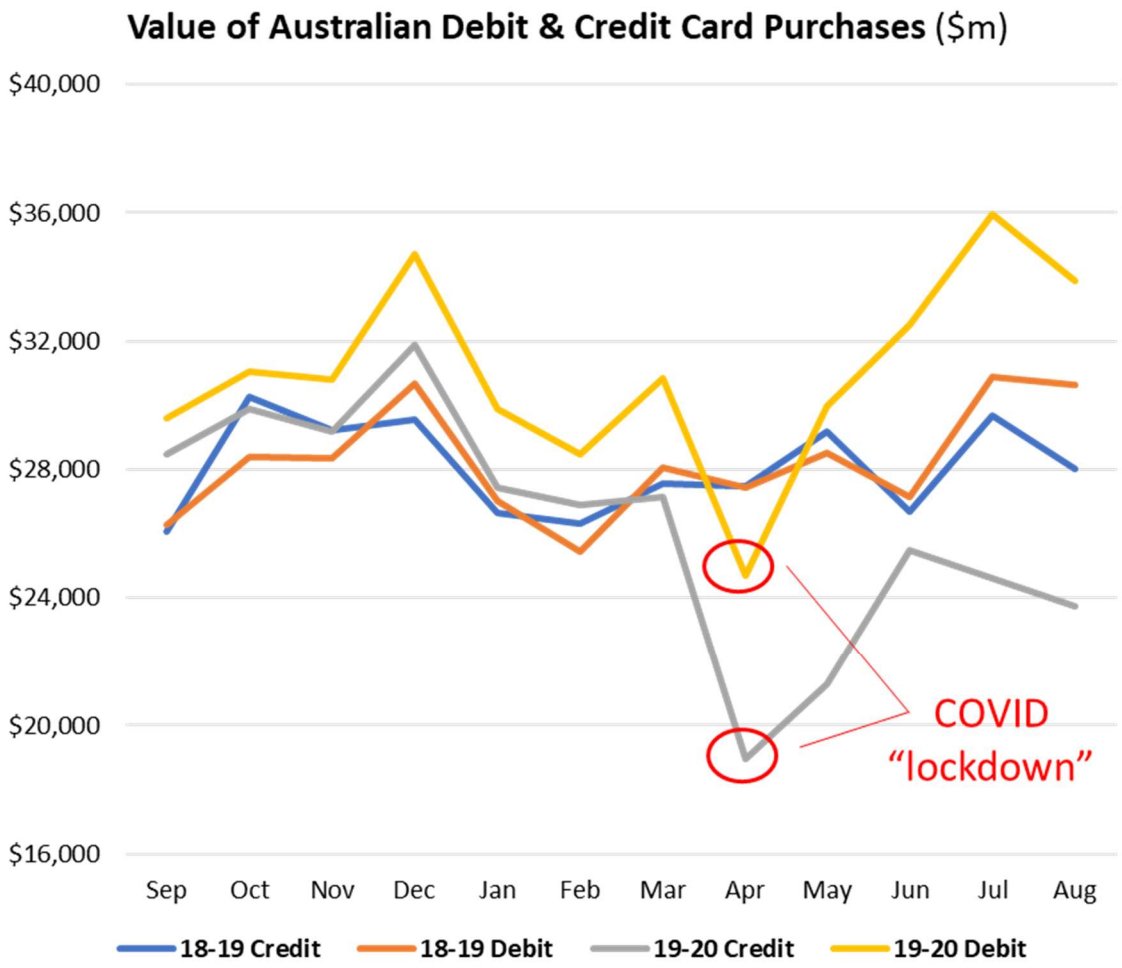
430. But COVID immediately accelerated the existing decline of cash. In August 2020, ATM cash withdrawals were down 19% in value and 31% in volume versus prior year. The fear of cash carrying the virus hit early, with very many merchants starting to refuse cash in March. April 2020 showed the lowest value of ATM withdrawals since March 1999. The "no PIN" limit on contactless cards was lifted to $200, further helping card payments.



Expert Industry Opinion

431. It was well known that cash carries bacteria[177] (no prior studies seemed to have focussed on viruses), and both cash and bacteria travel fast. Even though it has been found that polymer notes, like those used in Australia, carry less bacteria than (absorptive) paper notes such as those in the USA and China, consumers and merchants were immediately less keen on handling cash, and more keen on using electronic payments.

432. Debit card was already overtaking credit card, but COVID helped accelerate it into the lead. Total value of debit card purchases are now higher than they have ever been, and for every "lost" ATM withdrawal, about 12 debit card transactions arise. Credit cards were already in decline (the new "Seniors Card"), and fear of unemployment has made consumers even more credit averse. Buy Now Pay Later, mainly linked to debit cards, has also grown share during the pandemic.



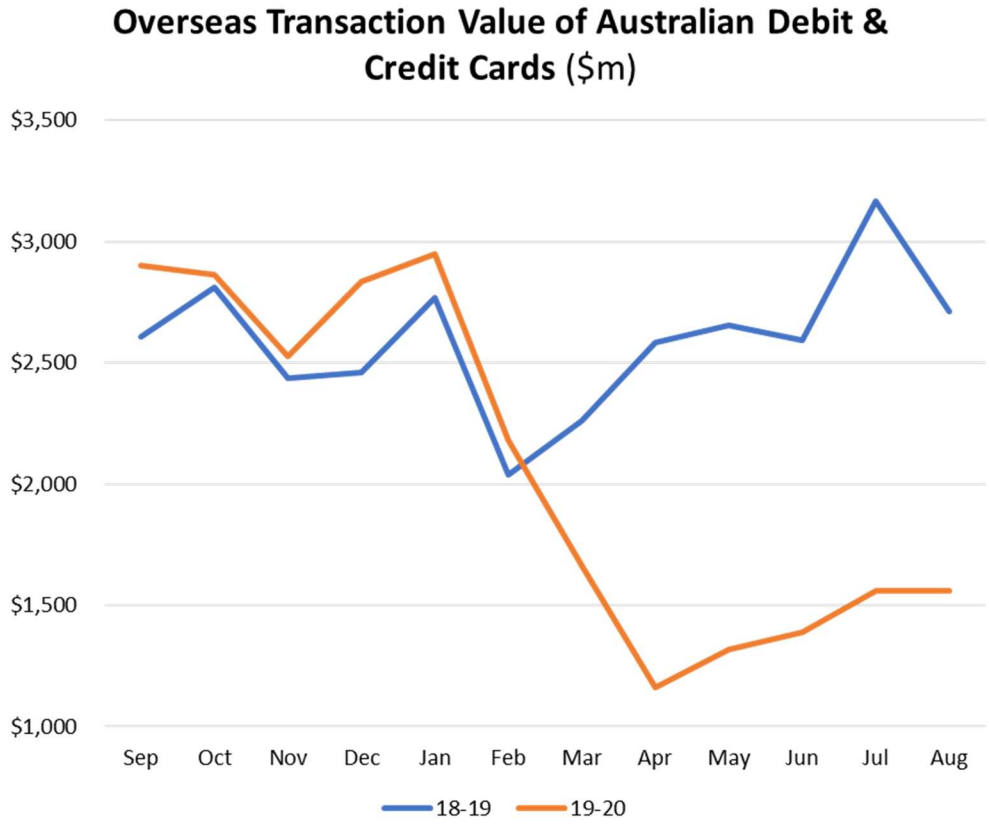
1.

[177] A Oxford University study in 2014 found that the average European banknote contained 26,000 bacteria which could be potentially harmful to a person's health; and market research has found the majority of European consumers rank physical money as being more unhygienic than the hand rails on public transport

433. Mobile payments have seen strong adoption, both in-app and NFC tap'n'go. Despite high usage of contactless cards and high smartphone ownership, Australians had previously been slow to adopt Apple Pay and Google Pay for use at physical POS - until COVID. TIG estimates that use of mobile tap'n'go transactions have doubled from under 5% to over 10% of contactless POS transactions in the 6 months to August 2020. Working from and/or locked at home, use of in-app payments have boomed from heavy use of UberEats, Menulog, supermarket home delivery and petrol stations (to avoid entering the store).

434. Home shopping and the avoidance of shopping centres have boosted eCommerce activity. As the crisis hit, eCommerce spend on travel and discretionary items fell sharply, but online ordering of grocery goods and fresh foods rose. Indeed, discretionary spend, such as fashion, recovered within about 2 months, both as Government support payments appeared and consumers began to appreciate that things might not be as bad as they first feared. Card Not Present transaction value in the 3 months June-August 2020 was 2.5 times the prior year, growing from 14% to 37% of total transaction value. The move to online shopping has been significantly accelerated and likely to be a new habit – although it may not maintain at full COVID-19 levels.

435. Australian's wanderlust has been curtailed by the severe travel restrictions and fear of infection overseas, impacting cross-border payments activity. The cessation of international travel has significantly impacted cross-border spending on cards: card spend overseas had been growing at about 7% pa, but dropped to 45% of prior year in April 2020 - since recovering slightly to ~50% of 2019 levels. Cross-border online purchasing has helped maintain activity, especially on debit cards.



436. Monthly payments are more in vogue, with the subscription economy benefitting. The economic impact of potential (or actual) unemployment, of recession and of media noise about depression, all make consumers (a) more wary of the sustainability of companies that they deal with and (b) their own ability to pay in annual large lump sums. Hence there has been a move for annual payments to be made monthly (already a trend before the crisis), and not necessarily by auto direct debit (as consumers may wish to retain control). This has further helped to push the "subscription economy" to the fore. Just as the decline in ATM use accelerates the volume of electronic payments, so too does monthly payment (12 vs 1).

437. COVID "track and trace" requirements have provided QR code training to consumers, with this interface likely for account-to-account payments at POS. Traditionally, Australians have been resistant to the use of QR codes outside of specific applications, such as airline boarding passes, and only about 20,000 Chinese tourist-focused Australian merchants were accepting Alipay and WeChat Pay QR codes. COVID has meant that visiting a venue (café, restaurant, winery, etc) now requires a QR code "check-in" process, nicely educating and training the Australian consumer in their use (and ease) - although the interface is clearly slower than a standard NFC tap'n'go payment.

438. Unfortunately, COVID has also brought about negative activity in higher card chargebacks, fraud and scams. High levels of chargeback have hit parts of the travel industry due to flight,

tour and holiday cancellations, regretfully with some consumers "double dipping" on flight vouchers plus a chargeback to the travel agent. The higher level of online activity and consumer isolation has given rise to a jump in scams and payment fraud; Australia's Scamwatch has received over 4,560 scam reports mentioning the coronavirus, with over $5m in reported losses since the outbreak of COVID-19. Cybersecurity issues have caused the Government to fund more work on a Digital ID system for Australia.

439. COVID is likely to change the way we pay, even if just accelerating existing trends:

- Acceleration in the reduction of cash and ATM usage
- Growth in contactless card and mobile payments
- Rise in remote payments – in app, eCommerce and card-on-file
- Move to monthly payments & subscription services
- QR code training for future account-to-account use at physical and online POS

440. Depending upon the length of the crisis, many of these changes will become habitual and are likely to outlast the short term impact of the virus - such that the retail payments mix in the Australian economy will be permanently altered.

VI. Scenario Without Domestic Industry Consolidation

A. THE COMPETITION

441. The actions that eftpos, BPAY and the NPP have taken over recent years tend to define whom they view as their competitors in the Australian payments market:

- eftpos debit card developments have focused on the competition with Visa Debit and Mastercard Debit at retail point of sale, both in physical stores and online, and within mobile wallets;
- BPAY has focused on its competition with Direct Debit (in the direct entry system) for utility and higher value bills, and with Visa Debit and Mastercard Debit for lower value bills (such as prepaid mobile phone top-ups);
- NPP has focused (for the short time since going live in February 2018) on its competition with Direct Credit (in the direct entry system) and cash in P2P payments (using PayID).

442. In addition, the table below on non-cash payments from the 2020 Annual Report of the Payments System Board[178] clearly shows that the average transaction value (ATV) on a debit card (including eftpos) at $46 differs significantly from the ATV on BPAY and NPP which are both in excess of $1,000 - hence eftpos is servicing a completely different payment need.

1.

[178] https://www.rba.gov.au/publications/annual-reports/psb/2020/

	2019/20					Average annual growth 2009/10 to 2019/20	
	Per cent of total		Average value	Growth, per cent		Per cent	
	Number	Value	$	Number	Value	Number	Value
Card purchases[(a)]	74.8	5.0	63	7.6	3.3	11.4	6.8
Debit cards	54.3	2.6	46	10.4	9.8	13.9	10.8
Credit cards	20.5	2.3	109	0.7	–3.1	6.7	3.7
Direct Entry[(b)]	19.2	80.3	3,984	–2.2	5.9	5.8	3.8
Direct credits	12.8	55.3	4,101	–3.5	5.5	4.6	4.4
Direct debits	6.3	25.0	3,748	0.4	6.9	9.0	2.6
BPAY	2.9	3.4	1,139	0.4	2.8	3.9	9.2
Cheques	0.3	3.4	9,816	–21.0	–28.6	–17.1	–11.0
PEXA	0.0	4.8	358,178	29.7	54.0	–	–
New Payments Platform[(c)]	2.9	3.0	1,005	167.3	214.9	–	–
Total	**100.0**	**100.0**	**951**	**7.0**	**7.7**	**9.5**	**3.6**

(a) Card purchases using Australian-issued cards; debit card series includes prepaid cards
(b) Data prior to a reporting change in May 2018 have been adjusted downwards to be more consistent with the current definitions of the direct debit and credit series
(c) The NPP was launched to the public in February 2018
Sources: BPAY; RBA

443. The scenario for the future of these payment systems without industry consolidation into a "*Payments Australia*" entity is explored below in the context of their designated competitors above, as well as other players in, or potentially coming into, the market. In addition, the difficulties for the domestic payments system of competing investment priorities are explored. My views and opinion on the future payments mix in Australia is provided in the forecasts included in Appendix V, which also presents historic payments data published by the RBA.

B. DOMESTIC DEBIT CARDS

444. Domestic debit card schemes around the world are feeling increasingly strong competitive pressure from Visa and Mastercard, who continue to encourage issuing banks to move to Scheme Debit cards in order both to provide increased functionality to their customers (e.g. contactless cards, cross-border and online payments, fraud management, and consumer marketing promotions) and to gain the benefits of the international schemes' (e.g. higher revenues [on both domestic and cross-border transactions], marketing and product development support, and access to tokenization and fraud services). With their global scale able to fund significant research and development efforts (which, for example, gave rise to open-loop contactless card payments at the end of the 1990s) versus the more limited

budgets of domestic debit card schemes, Visa and Mastercard have a strong pipeline of innovations, which are forever improving the capabilities and functionalities of their products - thereby eroding the market share of the localised domestic debit card schemes in their specific geography (unless local regulatory support intervenes).

445. The ability of the international card schemes to develop new products and features globally, and then deploy locally is a powerful driver of expanding market share. An example would be the development of the open-loop NFC contactless card technology in the USA (separately by both Mastercard and Visa) and its deployment (with strong marketing support) locally in Australia[179], such that Australia now leads the world in the number of open-loop contactless transactions per capita. Indeed the international card schemes have historically developed a continual succession of new technologies to enhance the security, ease, convenience and functionality of payments for consumers and merchants. In addition to contactless card technology, innovations in retail payments from the international card schemes have included:

- Prominent branding and promotion, in contrast to domestic debit scheme logos which may be absent or printed on the rear of debit cards;
- A centralised hub / payments switch has been core to their architecture, versus, for example, the original eftpos bilateral links;
- Cross-border functionality with built-in Foreign Exchange capability;
- Integrated Circuit (Chip) technology for security, replacing magnetic stripe;
- Network fraud monitoring;
- Online payments capability;
- 3D Secure for 2-factor authentication in online payments;
- Online card tokenisation for increased security in recurring payments;
- Mobile card tokenisation for eWallets;
- Tokenisation linkage to overcome card Expiry Date or re-issuance (Lost & Stolen) card problems;
- Personalised Card-Linked Offers, providing discounts to cardholders at enrolled merchants;
- Mastercard's Token Connect & Control (TCC), enabling cardholders to push their payment credentials directly into a merchant's or BNPL's card-on-file repository; and

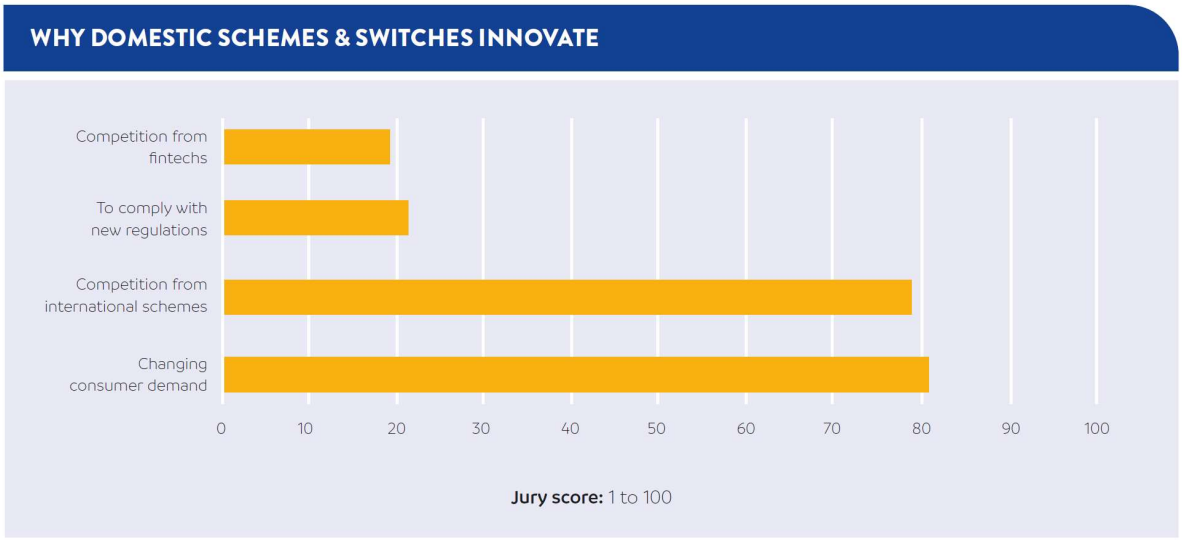
1.

[179] Led by the Mastercard in-market pilot with Commonwealth Bank of Australia in 2006.

- "Click to Pay" button (e.g. the multi-Scheme successor to Visa Checkout and MasterPass), enabling consumers to sign up and check out with their payment credentials with a user name and password (similar to PayPal).

446. For example, Visa can do things at a scale that local debit card schemes (with the exception of China UnionPay) cannot: in 2015, Visa established a new technology research and development centre in Bengaluru, India that immediately employed 1,000 software-developers[180]; the team was tasked with "*building technology solutions that make it easier for application developers to access the company's 400+ payment products and services in order to build their own payment experiences that can work across a broad range of connected devices*". This R&D centre is just one of the several facilities operated by Visa around the world[181].

447. This need, and pressure, for domestic debit schemes to keep up with the international players is shown in responses to a survey by The Payments Innovation Jury (comprising a membership of domestic schemes and payment switches) conducted in 2019[182], as shown in the chart below.



448. Most domestic debit card schemes have therefore been in decline and losing market share to the international players, unless protected by the active intervention of their local regulator(s) or Government authorities – examples being Interac in Canada and NETS in Singapore[183]. However, the strongest example of this is probably in China, where China

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[180] https://economictimes.indiatimes.com/tech/ites/visa-inc-opens-new-technology-development-centre-in-bengaluru-unveils-mvisa/articleshow/48360325.cms

[181] By comparison, eftpos spent AUD6 million in the year to June 2020 on software development, see https://www.eftposaustralia.com.au/annual-reports/

[182] "Domestic Payment Schemes Innovation" by the Domestic Payment Schemes Jury 2019, surveyed executives of 38 domestic schemes & switches https://innovationjury.com/app/uploads/2019/10/report-2019.pdf

[183] See Appendix I.

UnionPay (CUP) was established in 2003, in part to prevent the local payment card market being "Americanised"; with banks permitted to issue dual brand cards of Visa or Mastercard together with CUP, but with the international schemes only being involved in transactions occurring outside of China. Of course, since that time CUP itself has become a major international card scheme (although not seen much in Australia) and is second only to Visa in the annual value of card transactions that it handles[184].

449. Few domestic debit card schemes saw the competitive threat from Visa and Mastercard coming towards them in sufficient time to build their defenses. An exception would NETS in Singapore, who initiated its "Project Evolution" in 2006[185] in order to blunt the rise of Scheme Debit by –

- Building more functionality for its consumer user base; for example, providing online payment capability, contactless cards and selected cross-border functionality (into Malaysia and Indonesia, both common "overseas" markets for Singaporeans; and into China through a deal with CUP) - more closely mirroring the payment capabilities of Scheme Debit;
- Making issuance more attractive to the local Singaporean banks by providing a revenue stream to them on the NETS' card activities, funded through an increase in Merchant Service Fees (albeit still well below those of Visa and Mastercard) for its NETS accepting merchants - reducing the potential "revenue lift" that might occur for the banks through switching from issuing NETS debit cards to those of Visa / Mastercard.

450. More details on NETS is provided within a Case Study in Appendix I, which illustrates the support that the Monetary Authority of Singapore had in the creation of a larger, more robust "*Payments Singapore*" entity in order to provide stronger competition in the market to the international payment providers.

451. Of note here, is that whilst NETS was starting to build defensive capabilities in 2006, eftpos was still at that time only a complex set of bilateral links and did not itself become a payment scheme until the establishment of eftpos Payments Australia Limited (EPAL) in 2009 - by which time eftpos had lost considerable debit card market share and was in significant "catch-up mode" versus Scheme Debit (which already had online, cross-border and contactless capabilities).

452. As of 2020, eftpos's historical, core retail payment card business still remains in "catch-up mode", and, without pressure (but not regulation) being applied by the RBA to merchant acquiring institutions to adopt Merchant Choice Routing, transaction volumes would likely

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[184] Nilson Report: Issue 1060, March 2015
https://nilsonreport.com/publication_newsletter_archive_issue.php?issue=1060

[185] This project was facilitated by the consulting team at Edgar Dunn & Company.

still be in absolute decline. Indeed, the impact of Merchant Choice Routing has been significant, with eftpos reporting[186] "*core volumes up 10%+ YoY despite COVID impact, and Merchant Routing up ~40% YoY (now ~25% total volume) increasing market support*".

453. The international card schemes will continue to set the "catch up" agenda for eftpos, as they effectively set the global standards in the capabilities that are required for card payments. For example, a new issue on the horizon is the move by Visa and Mastercard to shift to 19 digit card numbers[187] from the traditional 16 digits (15 for American Express), as they are running out of card numbers; in due course, eftpos, as well as the issuers and acquirers of its cards, will need to upgrade their systems to handle the new number format in order to keep pace.

454. The eftpos "catch-up" activities in the 11 years since the scheme was established demonstrates whom they view as their competition: Visa and Mastercard. During this period, eftpos has invested in many capabilities already deployed by the international schemes, including –

- a centralised hub / payments switch (analogous to the Visa and Mastercard switch / network capabilities) to replace the bilateral links, and to help it accelerate the speed of rolling-out new capabilities;
- contactless card capability[188], launched in 2013, allowing eftpos transactions to occur through the NFC interface on the plastic cards;
- tokenisation, so that its card numbers can be replaced by an "alias" 16 digit card number when stored electronically;
- branding, with the eftpos logo now prominently printed on the rear of dual network debit and credit cards;
- mobile wallet capability, so that eftpos cards can be loaded into Apple Pay, Google Pay and Samsung Pay wallets, and mandated that banks issuing dual network debit cards enable "images" of both the eftpos Debit and Scheme Debit card to be loaded onto the mobile phone by the cardholder (not all issuers have this capability today);
- online payment capability, so that an eftpos card can be used for online purchases (currently being rolled out by some online merchants in approved merchant categories)[189].

1.

[186] eftpos presentation to Industry Committee, 11 August 2020

[187] https://adagetechnologies.com/19-digit-credit-cards-prepare-commerce-site/

[188] https://www.nfcw.com/2017/07/11/353897/eftpos-australia-contactless-mobile-payments-upgrade/

[189] eftpos online is currently only available for a limited set of Merchant Category Codes (MCC) in the card-on-file environment, and this set does not include online retail - indications are that this category will be available in the second half of 2021; Card Issuers also need to enable EFTPOS capable cards to work online.

455. Unfortunately for the financial institutions issuing debit cards, installing these "catch-up" capabilities for eftpos has required a significant investment within their own banking / card platform systems, with further investment required to meet the eftpos roadmap mandates. Indeed the additional cost of supporting two debit systems, eftpos and Scheme Debit, on the same card has seen most of the new digital banking entrants to Australia (the "neo banks"[190]) decide to issue single scheme debit, with all of these choosing to issue either Visa Debit or Mastercard Debit in order to provide a full range of functionality (including cross-border payments) to their (mainly younger) customers.

456. The additional cost of supporting Multi Network Debit Cards (MNDC) is not just a cost issue for the neo bank entrants, but also for existing issuers, especially those with smaller portfolios of debit cards (e.g. second tier banks, credit unions and building societies). The eftpos mandates[191] and roadmap for investment in new capabilities are making these smaller issuers question the need for issuing MNDC, and have made at least one (Macquarie Bank) move to single scheme debit[192]. To date the RBA has made statements dissuading banks from moving to single scheme debit, but the additional costs involved in maintaining MNDC may lead to an exception for issuers with smaller portfolios (e.g. less than 500,000 debit cards on issue), similar to the exception for small issuers in the USA under the Durbin Amendment. However this situation may develop in the future, in my opinion there is likely to be a growth in the proportion of single scheme debit cards on issue, all of which will be Scheme Debit (Visa or Mastercard), and hence a reduction in the proportion of debit cards that have eftpos functionality.

457. This cost differential between MNDC and single Scheme Debit cards also reinforces the ambivalence of the card issuing businesses in major banks regarding eftpos, that is: on the one hand, they want eftpos to continue as a point of competitive leverage in their negotiations and business relationships with the international card schemes; but, on the other hand, they appreciate that profitability would be improved (at least in the short term) by eftpos disappearing and moving their portfolios to pure Scheme Debit, as this would provide more revenue, lower costs and stronger marketing support. Highlighting the need to have eftpos held in a structure where the influence of the major banks is moderated.

458. Judging by the past actions of Visa and Mastercard when presented with competitive pressure, the current growth in eftpos transaction volume occurring due to Merchant Choice Routing is likely to be short lived, as the international schemes will react to maintain (and eventually grow) their share in debit transactions. By changing scheme fees (the key income

1.

[190] Neo banks would include Volt, 86 400, UP, Hay Bank, In 1 Bank, and others.

[191] Including the support of eftpos debit cards in mobile eWallets by card issuers, and the acceptance of eftpos online by merchant acquirers and card issuers.

[192] Towards the end of 2020, Macquarie Bank re-issued single scheme Mastercard Debit cards to all of their transaction accountholders, and stopped supporting eftpos debit transactions.

stream for eftpos) and interchange rates (including the targeted use of Strategic Merchant Rates), Visa and Mastercard will endeavour to lower their costs on the relevant debit transactions for merchants, in order to ensure that *their* schemes are least cost[193] and not eftpos. This can already be seen at some merchants, for example: **[Redacted – Confidential]**

459. Indeed, Visa notes the need for it to price competitively in many of its documents: "*As a company operating in an expanding and increasingly competitive industry, Visa aims to accelerate the development of new products and services and to invest in an infrastructure that allows system participants to grow their businesses safely, securely and reliably, as well as capture new business or segment opportunities as the payment industry evolves. Visa periodically reviews its pricing to ensure that these objectives are supported and that the value proposition of Visa products and services is reflected*.[194]" Merchant Choice Routing is also "neutralized" by the use of mobile wallets (e.g. Apple Pay will use the default card when presented at a tap'n'go terminal, and, if the default is an international scheme debit card, then the transaction will go via the international scheme regardless of the acquirer set up for MCR) and the use of tokenisation (e.g. for recurring payments).

460. The topic of tokenisation for recurring payments, particularly in online transactions where eftpos is only just entering the market, may be a problem for eftpos given that tokenisation of stored card details is well underway by the international schemes. Tokenisation allows merchant systems (which then do not need to be PCI-DSS compliant) to hold payment details as a random 16 digit number rather than the real card number (PAN). When card numbers are tokenised with a merchant, it helps reduce fraud by devaluing any card details obtained by a hacking or cyber security event; this is because a token can only be decrypted to the real PAN by the token vault provider that created the token, so if the token is created by Visa, for example, only Visa can use it to make a payment. With scheme tokenization, if a card is lost or expired, the token can remain valid, whereas the old PAN will not work. This is attractive for merchants and consumers because tokenisation reduces instances of failed payments due to lost, stolen and expired cards, and saves the consumer and merchant from re-entering new card details.

461. As coverage of scheme tokenisation increases, the scope for eftpos card on file to compete for recurring payments will be reduced due to the developing inventory of tokens held by merchants. eftpos would need to persuade merchants to go to the trouble of asking either the gateway to re-tokenise the PAN into eftpos, or the cardholder to re-enter the card details and then choose eftpos tokenisation rather than scheme tokenisation - potentially introducing friction to the merchant/consumer relationship.

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[193] It should be noted that few merchant acquiring institutions can actually deliver true dynamic least cost routing to their merchants, but rather the transaction routing is "rules based" with the merchant themselves having to change the rules if the costs between the different debit schemes change.

[194] Excerpt from Visa Business News "Pricing for Sales Transactions Will Be Revised and Acquirer Access Fee introduced in Australia", 21 November 2019.

462. The ongoing competitive pressure on domestic debit is also seen nearby in New Zealand, with the Ministry of Business, Innovation and Employment (MBIE) currently undertaking a consultation on Merchant Service Fees[195]. The MBIE issues paper notes "*the market share of domestic eftpos is declining*" and raises concerns should its share decrease beyond a certain point "*There is a risk that this downward pressure on contactless debit interchange fees will weaken if eftpos continues to lose market share. This means it is quite possible that acquirers could start charging merchants more for accepting the scheme debit cards. We expect the market will reach a tipping point where merchants that wish to receive electronic transactions (and not discourage customers) will have limited choice but to accept scheme debit products at the going price*." **[Redacted – Confidential]**

463. So, without some change of structure or highly proactive intervention by the RBA, in my opinion it is likely that within the next 10 years the core eftpos debit card business at EPAL will disappear, and that Visa and Mastercard (or new entrants, as discussed below) will dominate point of sale card-based transactions in Australia, even more than they do today - probably by ensuring that they are the low cost option. Although EPAL could morph into a new business providing different customer interfaces for payments (the veneers discussed earlier in the report) and products / services in areas adjacent to payments, the core eftpos debit card business will need more defenses in order to survive. This is likely to occur even if the enhancements mandated by eftpos are implemented by the financial institution members.

464. It should be noted that mandates by payment schemes do not necessarily ensure implementation by scheme members, either in a coordinated or sporadic approach as the schemes are loathed to enforce financial penalties upon their own members for failing to meet deadlines (as these are the same members upon whom they rely for their revenue and throughput). There are several examples in the past of Visa and Mastercard having to withdraw or change their mandates to their financial institution members, as it became clear that the mandate "would not stick" - various mandates around the implementation of 3D Secure would be an example.

465. The eventual termination of eftpos debit card operations within the next 10 years would be similar to the final demise of the Bankcard credit card operation, Australia's domestic credit card scheme that was managed by the Bankcard Association of Australia (a joint venture of Australia's major banks) from its launch in 1974 to its termination in 2006. Just like eftpos pre-dated the arrival of Visa and Mastercard debit cards into Australia, Bankcard pre-dated the arrival of Visa and Mastercard credit cards. But, regardless of being first in market and the incumbent scheme for all Australian credit cardholders at the time, Bankcard's market position was overwhelmed within less than two decades by the better functionality of the

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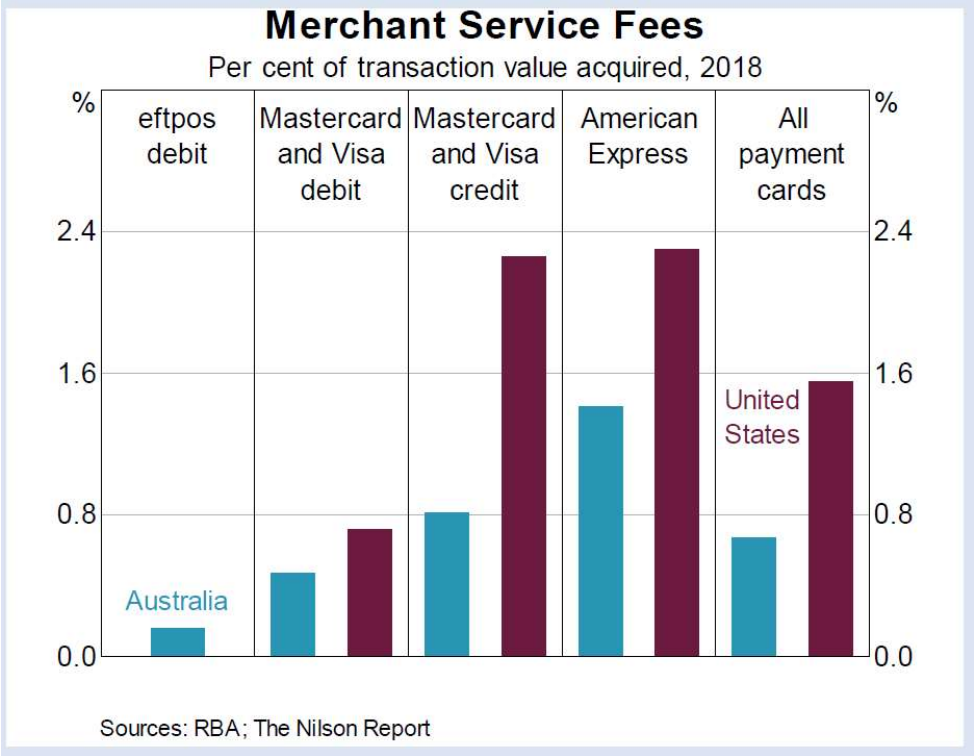
[195] https://www.mbie.govt.nz/have-your-say/regulating-to-reduce-merchant-service-fees/

international scheme credit cards (e.g. cross-border capability), the strength of their promotion and marketing programmes, and the superior economics[196] for the card issuing institutions.

466. It is true that the international card schemes do already dominate point of sale payments in a number of markets in which no domestic debit scheme exists, such as the UK[197] (albeit that the UK has been under the more stringent EU interchange regulations). The impact of such dominance somewhat depends on the regulatory environment, as their pricing power on fees and interchange rates could see costs for merchants and/or consumers and/or financial institutions rise in the absence of any competitive pricing pressure from a domestic card scheme. This is illustrated by the high Merchant Service Fees on Mastercard and Visa credit cards in the USA (as shown below), where these systems are not subject to regulatory intervention and where they dominate point of sale retail transactions.



467. This pricing power of major global players is similar to concerns that have been raised about Apple Pay, and Apple's ability to raise the share of interchange that it garners from the card

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[196] The initial interventions in credit card interchange rates were not enacted by the RBA in the market until October 2003, by which time the competitive position and market share of Bankcard had deteriorated too far.
[197] Where consumers voted Visa into third place on YouGov's "Best Brand Rankings" for 2020, https://yougov.co.uk/topics/consumer/articles-reports/2020/11/17/yougov-best-brand-rankings-2020?linkId=104909186

issuer on each transaction once that issuer's cardholders are "hooked" on Tap'n'Go using their iOS device.

468. The strength and dominance of the international card schemes is clearly gaining the attention of competition authorities in multiple jurisdictions, with the U.S. Department recently filing an antitrust lawsuit to stop Visa from acquiring Plaid[198] and the European Commission monitoring Visa and Mastercard on various fronts[199].

469. In addition, the Chinese concerns of a foreign Government wielding sway over Visa and Mastercard **[Redacted – Confidential]**, which was vehemently denied would ever happen when CUP was established back in 2003, has in fact come to pass; examples being:

- when Wikileaks released military documents that were embarrassing to the USA, and subsequently led to Julian Assange's current situation regarding extradition from the UK, the American Government requested Visa and Mastercard to cease allowing their card systems to be used for making donations to Wikileaks - and they did;
- when Russia invaded the Ukraine, the American Government enacted sanctions and, in 2014, MasterCard and Visa stopped providing services for payment transactions for clients at Russia's Bank Rossiya, SMP bank and InvestCapitalbank; this led to Russia reviving plans to develop its own domestic card payment system in order to cut its dependence on Visa and Mastercard, and the eventual launch of the Mir domestic card scheme.

470. There is also the potential for new competitors entering the market (or growing their existing activity) for point of sale payments, which would further endanger the eftpos position; all of these potential competitors have "deeper pockets" than eftpos and could plausibly deploy greater functionality; these could include:

- banks in Australia starting to issue UnionPay International (UPI is part of CUP) debit cards; these cards are currently only issued in Australia by the Chinese banks, but UPI have discussed card issuance with a number of Australian banks and have significant financial resources to support such an initiative;
- use of PayPal at point of sale; PayPal, which is strong in the online payments arena, has attempted to enter the Australian physical point of sale market previously, but without much success; a new attempt could be made via a mobile app;
- the continued growth of in-app payments (e.g. Woolworths' Scan&Go) that utilise embedded payment credentials, which are normally the card credentials of the international card schemes, but could also be bank account details;

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[198] https://www.practicalecommerce.com/visa-wants-to-buy-plaid-u-s-sues
[199] https://ec.europa.eu/commission/presscorner/detail/en/IP_19_2311

- expansion of the use of AliPay and WeChat Pay QR code payments to Australian residents[200]; so far the use of these forms of payment have been limited to overseas visitors (mainly Chinese) to Australia, with about 25-30,000 merchants accepting such transactions (including Cabcharge);
- entry / expansion by the Big Tech players such as Apple, Facebook and Google; in November 2020, Google re-vamped its Google Pay offering in the USA[201] indicating an interest in expanding its footprint in payments and financial services.

471. Therefore my opinion is that without some change of structure to make it more defensible or some highly proactive intervention by the RBA, it is likely that within the next 10 years the core eftpos debit card business will disappear. Indeed, the Domestic Payment Schemes Jury 2018 report[202] , compiled from the input of 36 domestic payment schemes and switches, stated: "*Almost 50% of the [domestic] card schemes also have wider payments responsibilities, especially ACH[203], mobile payments and P2P transfers. There is a widely held view that to remain card-only in future is strategically very dangerous*".

C. BILL PAYMENT

472. The BPAY payment system was developed for, and remains primarily used for, bill payment. Most billers offer payment by Direct Debit, BPAY, and Scheme Debit and Scheme Credit cards (including the 3-party schemes), with a smaller proportion also offering PayPal (itself primarily funded by card or direct entry) and PostBillPay. A number of billers still offer over-the-counter payment by cash or cheque, usually at Australia Post locations, or payment by a Scheme card over the telephone using IVR. Billers often surcharge card payments in order to recoup their cost of acceptance, which can incent their customers into using Direct Debit or BPAY, being lower cost options for the biller depending on the value of the payment.

473. Billers like the automated payment reconciliation provided by BPAY's Customer Reference Number (CRN), which allows "straight through processing" of payments into their accounting systems, and highly rate the payment system[204]. In addition, a customer cannot make a BPAY payment unless there are funds in their bank account, so the biller knows that they will receive the funds, and there are very few refuted or fraudulent transactions on BPAY.

474. Direct Debit from a bank account has a cheaper unit cost than BPAY for the biller, but –

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[200] Currently Australians cannot link an Australian issued card or an Australian bank account to Alipay or WeChat Pay.
[201] https://www.youtube.com/watch?feature=share&v=A2hL32k7Y0I&app=desktop
[202] https://innovationjury.com/app/uploads/2019/10/6806_Missive_DomesticSchemes_Report2018_A4.pdf
[203] ACH (Automated Clearing House) is a term analogous to Australia's direct entry payment system
[204] TIG has undertaken biller research assignments on behalf of BPAY on a regular basis since about Year 2000, and the opinion provided is based upon the findings of these market investigations.

- historically Australians have been low adopters of Direct Debit (especially in comparison to the UK and Europe), as they appear to dislike someone else coming into their bank account and taking out money (potentially of varying amounts) without their knowledge; for this reason, many billers have now taken to pre-warning customers of their impending Direct Debit via email or SMS; however, the growth in the "subscription economy" appears to be making direct debit more acceptable to consumers;
- a rejection of a Direct Debit transaction by a bank, usually due to lack of funds being available, can be costly for the biller: the biller's bank charges the biller for handling the decline, and the biller then has to chase the customer for payment; however, many billers seem to ignore the cost of declines (an exception would be DEFT ,who dissuade people from Direct Debit, wanting to avoid dishonours on their higher value real estate related transactions), despite the end-to-end cost of handling a decline being up to $50 for some billers.

475. The cost of a BPAY transaction to billers has continued to reduce over the years, as the interbank Capture Reimbursement Fee (CRF) paid by the Biller Institution to the Payer Institution has declined as BPAY volumes have grown. The CRF is built into the BPAY transaction fee charged by the Biller Institution/bank to their biller client, and reductions in CRF have for the most part been reflected in lower BPAY transaction fees for billers. The rate of growth in BPAY payments has slowed in recent years, 0.4% volume increase in 2019/20 versus 3.9% average annual growth rate during the 2009/10 to 2019/20 period[205], as its penetration of its natural biller market has reached maturity.

476. For most billers, the settlement of funds overnight (i.e. not in real-time, and not at weekends) and the bulk file format (for which their internal systems have been configured) are not seen as drawbacks - in comparison the NPP is real-time and transaction-by-transaction. Indeed, in research undertaken by TIG with a number of major utility billers, there was resistance to accepting NPP payments (rather than Direct Debit on Direct Entry and BPAY) due to the significant IT costs that they would incur in the modification of their internal systems, which was quoted as over $15 million by one utility company. In addition, many "essential" utilities are highly regulated, usually on a State by State basis, and such regulation often covers the manner in which users may pay and the design/layout/content of the actual bill - with regulatory permission having to be sought for any changes or additions to these features. Surcharging on BPAY by billers does occur, but is rare (e.g. some credit card issuers charge for paying the monthly statement by BPAY).

477. As a number of billers have moved to a more frequent billing cycle (e.g. monthly telephone bills versus quarterly; monthly home insurance payments versus annual), BPAY's effective

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[205] Page 22 https://www.rba.gov.au/publications/annual-reports/psb/2020/

cost to the biller has increased, as its "per transaction" fee becomes multiplied by the increased number of payments. This has changed the pricing dynamic for BPAY against Scheme Debit and Scheme Credit cards, as these the biller's fees for accepting these cards are primarily based on a percentage of the value being paid and not on the number of transactions; hence the move to a more frequent billing cycle does not change the fees payable on Scheme Debit and Scheme Credit cards (assuming the total billed value remains constant), but does increase the fees payable for using BPAY. So, whereas historically the Scheme Debit and Scheme Credit cards competed against BPAY on low value bills (e.g. ~$50 or less), the overall billed value at which cards are now price competitive has gone up.

478. Like EPAL management, the BPAY team are looking to enhance its core offering (e.g. through the deployment of APIs) and gain further growth for the organisation by moving into adjacent areas; potentially a BPAY variant using the NPP to transfer funds rather than the Direct Entry system may develop.

479. In the absence of the consolidation of the domestic payment systems, BPAY payments are likely to remain a significant part of the bill payment market in Australia, although competition from existing players and new "veneers" is likely to increase.

480. One new area of competition for bill payments will be from "Request To Pay" systems, likely to be built either within or on top of (as overlay services) the NPP. The speed of adoption of Request To Pay amongst major billing organisations is likely to depend upon the cost to integrate this form of payment into their internal systems, the cost per transaction (in comparison to the current payment methods being used) and the benefits that such an approach may bring. In research undertaken by TIG, organisations requiring immediate guarantee of payment and currently achieving this through Scheme debit or credit cards have shown interest in Request To Pay, for example airlines. Most major biller organisations (within which airlines would not be classified) were keen to investigate the use of Request To Pay, but saw early adoption being likely confined to "overdue bills" rather than the mainstream.

D. REAL-TIME PAYMENTS

481. Australia's NPP payment system as it is configured today is competing primarily against Direct Credit on Direct Entry (in which it has been relatively successful in capturing the "pay anyone" traffic of internet banking) and traditional forms of P2P payments, such as cash and cheques.

482. The proposed 'Mandated Payments Service' (MPS) on the NPP, which is currently under development, will allow the NPP to support debit or "debit-like" payments (both recurring and one-off). Such MPS payments will have the capacity to compete with Direct Debit on

Direct Entry and recurring card payments (e.g. a number of card-on-file situations), albeit that the transfer of funds will still be a "push payment" on the NPP (although not appearing like this to the payer). The MPS should provide:

- Ability to create and store a customer authorised payment arrangement - a 'mandate';
- Payment initiation messaging which references that mandate;
- A centralised database for storing the mandates;
- Associated business rules;
- APIs for creating, amending and accessing mandate records; and
- Core capability that can be used for a range of use cases.

In time, the MPS should attract some Direct Debit volumes, winning these from the Direct Entry system, which is NPP's most direct competitor (rather than from the BPAY service, in which the payer chooses to actively "push" payments to the payee). The speed and extent to which Direct Debits will migrate to the MPS are likely to depend on pricing (with Direct Debits relatively low cost for large billers), the payee's cost of changing from Direct Debit (which could be substantial for some large integrated billers), the payee's need for real-time and the additional services/functions offered by the MPS, and payers' willingness to use the service. Hence migration of Direct Debit to the NPP is unlikely to be rapid, and the Direct Entry system is likely to retain a significant presence in Direct Debits for some time.

483. Currently[206] the Consumer Data Right associated with Open Banking in Australia only provides for "read" capability and not "write" capability. This makes Australia's Open Banking regime different to that in the UK and the EU, where third party initiated payments can be made with the account holder's consent using "write" capability. However, the MPS will be able to support such third party initiated payment services on the NPP, by the account holder having created the relevant mandate for that party to make payments out of their account.

484. The NPP currently has a minimal presence in physical point of sale payments (e.g. some small merchants, with a low volume of payments, are permitting and/or encouraging their shoppers to use PayID as a way to pay, as it avoids all card fees) and at online checkout (e.g. via the AzuPay overlay service, currently available on a small number of websites, including Service NSW for some licensing fees). Subject to how the NPP payments are priced to merchants in comparison to other forms of payment and the development of a "clean"

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[206] The recent Treasury inquiry into the Consumer Data Right may lead to changes in legislation that would permit "write" capability https://treasury.gov.au/review/future-directions-consumer-data-right/final-report

consumer interface, the NPP's share of payments at both physical point of sale and at online checkout should grow.

485. As noted above, some physical merchants with a low volume of payments are already happy to accept PayID-based NPP payments and have these appear line-by-line on their bank statement - with the service costing them nothing. Major merchants will (a) be charged for the service directly and/or by their banking providers, (b) want a cleaner/quicker payment interface and (c) an appropriate reporting system for high volumes of payments. The interface already in place at these major merchants is the NFC tap'n'go interface used by card payments, but the Apple quarantine on the NFC interface on the iPhone for the exclusive use of Apple Pay is likely to influence these merchants to adopt QR codes; to this end a standard has already been defined for the use of QR codes on the NPP. Cost of accepting payments is also a key consideration for major merchants, and the pricing of NPP payments will need to drop significantly before it is competitive to the cost that major merchants incur for accepting debit cards at physical POS, given the Strategic Merchant Rates that they are provided by the various card Schemes. Indeed, just as Visa and Mastercard have the ability to lower merchant acceptance costs on debit cards in order to compete against eftpos, the same ability could be applied if NPP pricing at physical POS began to be a competitive threat.

486. Similarly, and as noted above, some online merchants are already accepting NPP payments at online checkout (e.g. via AzuPay). The footprint at online merchants should further grow with the deployment of the MPS, and Osko's and/or the NPP's "Request To Pay" services. The online interface is far easier to achieve, as has been demonstrated by Afterpay and other BNPL providers in recent years, given that it only requires the addition to the website of another "payment button". Pricing will again be important to major online merchants, but the fixed fee per transaction of an NPP transaction versus the percentage "ad valorem" pricing of the Scheme debit and credit card programmes will make a move to NPP attractive for online merchants with a high average transaction value. Airline ticket purchases would be a good example, although the majority of such purchases tend to occur on credit cards, which give the purchasers time to pay, rather than being funded instantly out of the buyer's transaction account, as will be the case with the NPP.

Adoption of the MPS in mainstream retail online payments, however, may take some time to achieve and the international card schemes, which currently dominate this market segment, will undoubtedly compete hard to retain their online volumes. Putting oneself in the position of an online merchant, you would be interested in adopting new / more ways to pay, amongst other things, because -

(a) my customers are asking for it [e.g. China UnionPay for Chinese ethnic customers]; and/or

(b) it will generate more sales [e.g. Buy Now Pay Later schemes]; and / or

(c) it is a lower cost payment acceptance method [e.g. AzuPay versus credit card at higher transaction values]; and / or

(d) it makes my online store look "up-to-the-minute" [e.g. accepting ApplePay and GooglePay online]; and / or

(e) there are problems with the ways that I am being paid today [e.g. fraud on online card payments; T+2 settlement of funds on cross border payments]; and / or

(f) it makes it easier for my customers to transact [e.g. card on file].

So the online merchant will be evaluating the MPS value proposition against these needs and assessing if it is easy to make the change. Plus many would want to see the MPS operating at other merchants before considering its adoption.

487. The expansion of eftpos card payments into the online environment, with a "fixed fee per transaction" pricing structure along the lines of the NPP and with funds sourced from the same account, will provide competition. It will then be up to the merchants and consumers to determine which payment construct best meets their needs; my understanding is that making both methods available to the market is planned under both the scenario without industry consolidation and the scenario with industry consolidation.

488. It should be noted that both Mastercard and Visa are heavily investing in real-time payments around the world. Mastercard has moved into the deployment of A2A infrastructure through its VocaLink acquisition in the UK, which in addition to the UK's Faster Payments system is also involved in the P27 Nordic Payments Platform, FAST in Singapore, PromptPay in Thailand and Real-Time Rail in Canada (amongst others). Visa is similarly pushing card to card transactions as a real-time solution (Mastercard also has this capability). So, in addition to defending/growing their debit and credit card market share in physical POS and at online checkout, these organisations, subject to the support of their banking clients, could deploy "new ways to pay" to counter NPP's potential growth in these areas.

E. INVESTMENT DECISIONS

489. The majority of the investment funds for developing new functionality and innovations needed to keep Australia's domestic payment systems up to date and competitive against the services offered by international players come from the Australian banking system, and primarily from Australia's four major banks - mainly funded by themselves and their merchant/business/corporate customers, given that consumers believe they should not pay for payments made with their own money. An example being eftpos gaining its revenue from levying scheme fees on its card acquirers and its card issuers, and then redeploying some of this as rebates to issuers.

490. With consumers expecting payments to be free and regulatory pressures being applied to the cost of payments for merchants, it is hard to make money out of consumer payments in Australia. In fact, as noted earlier in this report, in the Asia-Pacific region a study by McKinsey & Co. showed that most of the payment revenue pool for providers comes from Commercial Accounts.

491. But where banks usually gain their best return is in lending, and a significant proportion of this lending is to consumers (e.g. residential mortgages), who expect up-to-date payments functionality to be provided with their transaction accounts (but have little or no desire to pay for it[207]). Simplistically, this poses a conundrum on decisions for investment by the banks in as much as, all else equal, one would put development funds into lending first, commercial payments second and consumer payments last[208] - with regulatory compliance and security trumping all of these. The various pressures on investment choices in the bank, therefore lead to a finite pool of funds being available for consumer / retail payments.

492. Currently the aggregate pool of funds available for consumer / retail payments across Australian banks is being spread across all of the different domestic payment systems and all of the different international payment systems with limited industry-wide coordination. At worst the current lack of coordination on investments is leading to –

- competing mandatory requirements being placed on the individual banks by the various payment systems, with potential for duplication of investment to gain similar or the same functionality within multiple domestic networks (which may be beneficial, but would benefit from a coordinated approach);
- an investment funding request that cannot be met (as funding is finite);
- a technology build requirement that cannot be met (as the appropriate technology resources within each institution are limited) and/or cannot be met safely (given that changes to payment systems impact many core banking systems, and nobody wants "upgrades" to lead to outages - particularly with a renewed focus by the RBA on the resilience of payment systems[209]); and
- banks deciding to defer investment until the overall roadmap becomes more clear (noting that new investments do not just occur within the central/network system,

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[207] As an example, the consumer backlash on excess debit card transaction fees caused by Merchant Choice Routing when adopted by Coles supermarkets in late 2019 https://7news.com.au/lifestyle/shopping/coles-secret-card-fee-stinging-shoppers-that-you-probably-dont-know-about-c-652392

[208] Albeit that retail payments generate the least direct profits, retail payments is the highest engagement product in a retail bank. Without a compelling payments proposition banks would not acquire new to bank customers to whom to cross-sell lending products. Payments solutions therefore carry an overweight investment priority within retail banks compared to their direct earnings capability from a whole of customer value perspective.

[209] Pages 37 & 56 https://www.rba.gov.au/publications/annual-reports/psb/2020/

but generally require each linked organisation to undertake their own internal integrations and upgrades).

493. In the meantime, the research and development budgets of the major international payments players continue unabated, and they attempt to provide new products / services / features as "plug & play" for their bank participants / users, as they are trying to deploy these across thousands of financial institutions around the world in a relatively short time - as ubiquity is key for a payments network.

494. Without consolidation of the domestic payment systems in Australia, the issues around investment in innovation and the development of more efficient and resilient systems will persist, and some or all of them will be left behind by their international counterparts.

F. OVERALL

495. In my opinion, without consolidation of the domestic payment systems in Australia the future for the three separate entities over the next 10 years would see –

- The eftpos debit card system continue to lose market share to Mastercard and Visa Scheme debit cards over time (despite the short term "band-aid" of Merchant Choice Routing and the expansion into online transactions), which will eventually lead to the termination of the system - just as happened to the domestic Bankcard credit card system in 2006; the EPAL organisation itself may continue longer, given that the management team have plans to develop products and services in a number of different adjacencies; however, card-based payments will remain the dominant form of payment by transaction volume, but the market will almost exclusively be dominated by Visa and Mastercard;
- BPAY bill payments remain an important way for consumers and small businesses to pay their bills, but volume is likely to grow much slower than in the past and may stagnate, as the frequency of bill payments increases and makes card-based payments more attractive for some billers;
- NPP volumes grow with the erosion of volumes on the Direct Entry system, both Direct Credit (as is occurring today) and Direct Debit (through deployment of the MPS), and the termination of the cheque system; the speed with which Direct Debit will be replaced may be slowed by resistance from some of the major billers; the speed with which NPP payments grow at physical POS and online checkout may be slowed by competitive pricing reactions and the ability to provide an appropriate consumer interface;
- Significant growth in the presence and activities of international payments players due to the lack of coordination across the different domestic payments systems, with the international players able to "divide and conquer" as each domestic payment system will

remain small and siloed/isolated; the international players can utilise targeted pricing in order to defend or grow share in the market segments on which they wish to focus, harnessing their overseas resources as and when necessary;

- A slower pace of development and innovation in the domestic payment systems due to the lack of a coordinated roadmap, such that each individual bank will pick and choose the internal integrations and upgrades against which it wants to provide funding and technical resources. Therefore the ubiquity, that is so key to the viability and use of a payments network, on any one initiative on any one domestic payment system will be delayed in comparison to having a coordinated approach.

496. Sovereign risk may not seem to be important today, but it will be increased without consolidation of the Australian domestic payment systems. **[Redacted – Confidential]**

VII. Scenario With Domestic Industry Consolidation

A. BENEFITS

497. The potential benefits of bringing the three payments streams together into one entity would include:

1. Improved ability to develop hybrid products to better serve payments users and differentiated from the international players;
2. Improved speed of innovation in Australian payment products and services;
3. Increased efficiency in the Australian payments system;
4. Enhanced competitive positioning of Australian payment products and services against the international players;
5. Broader stakeholder representation across the three payment streams.

498. Each of these is explored in more detail below.

i. Hybrid Products

499. The consolidation of the Australian payment industry offers the opportunity of developing new, hybrid payment products across the different domestic payment streams, with the aim of creating payments products / services that –

- would better serve the consumers, merchants and businesses in Australia, ideally removing pain-points and/or delivering more convenience and efficiency for the users;

and at the same time

- would be more difficult for international competitors to quickly duplicate, and would therefore be differentiated in the market.

500. Ideas for hybrid products would ideally be developed through a series of workshops with the management teams of the three consolidating organisations. In the absence of such workshops, but based on my industry experience, I would suggest that the following hybrid products might be applicable for the Australian market:

- Linking the eftpos consumer card payment at point of sale to an NPP real time payment transaction moving the funds immediately into the merchant's bank account; depending upon the acquirer, today some merchants still get paid overnight, some only get paid during business days and some get paid intra-day

(usually only if they have their bank account at the acquirer's bank), but none are getting paid in real-time[210];

- Ensuring QR code interoperability between the three different payment streams, perhaps providing the consumer (after reading the QR code on their mobile phone) to have the choice of the payment method to be used and the source of funding;
- Linking PayID and/or the NPP's Mandated Payment System (MPS) to eftpos card transactions; with eftpos moving into Card Not Present transactions, it is likely that it will support recurring payments, in the same way that Mastercard and Visa do today; perhaps there would be a way for eftpos to use the MPS to support its recurring payment capability, instead of having to provide its own bespoke system;
- Leveraging the eftpos tokenisation capability on the NPP, e.g. if the MPS supports 16 digit card numbers, then perhaps these should be held as tokens; rather than using the tokenization capabilities of the international card schemes (or developing their own system), the NPP could choose to use the eftpos token vault to provide this level of security;
- Having a payment stream agnostic Digital ID system that can be used on all three; eftpos already has its "connectID" hub operating in market pilot mode, and there are other streams of Digital ID activity being developed by various parties; the consolidated entity might be an appropriate location where these services could come together, be securely "housed" and deployed for the benefit of Australia;
- Providing BPAY with real time NPP payment functionality; although some major billers may prefer to stay with Direct Entry overnight batch payments via BPAY, as their IT and back office systems are all set up to handle these, smaller billers and/or those needing immediate funds might be interested in a version of BPAY that provided real-time, transaction-by-transaction payments via the NPP.

501. The development and deployment of hybrid products by a consolidated Australian payments entity is likely to accelerate the chase up "the innovation ladder" between domestic payment systems and those deployed in Australia by international players. The stronger the domestic products in terms of ease of use, security and cost, the greater the need for new innovations to be brought to the market by the international players.

502. One might argue that such hybrid products could be developed between the independent domestic payment organisations today, but by consolidating them into a single organisation

1.

[210] This was one of the concepts developed in a 2-day workshop that I ran with NETS in Singapore when it was combining with BCS and BCSIS in 2017, as described in Appendix I; although not of interest to major merchants with robust financial capabilities, this instant cashflow input is/was considered very important to small merchants, sole traders and tradesmen, who are often "cash poor" and need the immediate availability of funds in order to pay for their inputs.

(hence removing the current "silo mentality" of the management teams within the individual entities) the likelihood of such concepts being designed, funded, developed and launched (hopefully in a shorter time) is greatly increased. In addition, as discussed in more detail below, developing and deploying such products within a consolidated entity should bring them to a point of "ubiquity" (used by many payers and many payees) across the payments system more quickly than if done in separate entities and in an ad hoc manner.

ii. Speed of Innovation

503. As noted in the scenario of the three domestic payment streams remaining independent, investment decisions on developing new payment capabilities are being slowed down or sidelined by the competing requests for a finite pool of both IT resources and funding, and the potential uncoordinated duplication of functionality. In addition, the decisions on each of the three payments streams within the financial institutions can occur in different business units / "silos", which can unwittingly hinder the speed of new developments as it is difficult for the institution to have an holistic view. Hence the development of a coherent and coordinated development roadmap across the three payment streams should accelerate the investment cycle, with the financial institutions no longer faced with competing mandatory requirements (with potential for duplication) and technology builds beyond their capacity - and more certainty that the new functions/features will be available across the industry.

504. As such, a greater number of advanced functions and features should be capable of being deployed more quickly for Australian payments users, be they consumers, merchants or businesses, and for payers and payees alike. A coordinated investment program should improve efficiency (both in the allocation of IT resources and funding, and in the operations of the payment system) and speed to market for new innovations.

505. As noted earlier in the report, just because a payment scheme mandates a particular requirement does not mean that all of the affected players will implement the mandated service/function/feature. A benefit of the domestic industry consolidation being approved by the ACCC will be that a number of the mandates issued by the NPP, BPAY and eftpos will have a regulatory (rather than just payment scheme) requirement sitting behind them, providing significantly more force and ensuring that the agreed roadmap of enhancements will be implemented.

506. My experience in leading Australia's PIN@POS programme[211] (2012-2014) is that, even with the best will in the world (which we had across the industry stakeholders for the removal of signature on card payments), it is impossible to get the whole of the Australian payments

1. [211] Involving 4 international card payment schemes, the 4 major Australian banks and 6 second tier financial institutions.

industry to move in lock-step and gain "ubiquity" (which is extremely important in payments) at exactly the same instant in time. The best that one can hope for is to gain ubiquity in the shortest possible time, which itself requires strong coordination, so that as many payers can reach as many payees as feasible. In PIN@POS, we informed the Australian public[212] that signatures would be rejected on card payments and a PIN would be essential from 1 August 2014; but in actual fact not a single terminal would have rejected a signature authentication on that day and about 20% of the Australian POS terminal fleet was still not technically/electronically enforcing PIN even by 31 December 2014; but we had sufficient strength of coordination to move the vast majority of the terminal fleet to PIN in a matter of 4-5 months.

iii. Efficiency

507. Consolidation of the three domestic payment streams should deliver a lower overall cost to administer and to operate these systems, which in turn could provide benefits in lower costs to users. Indeed, in the Singapore experience (see Appendix I), the NETS management used the first couple of years of the consolidation to rationalise and streamline the various back office and data systems of their three different payment companies, in order to provide cost savings across the network.

508. Cost savings would also arise within the stakeholder organisations, many of which currently incur cost, time and resources in managing and overseeing their relationships with the three separate domestic payment entities.

509. The three payment streams currently rely on three different pieces of Australian infrastructure: the eftpos hub and network; the BPAY "hub" and its linkage to the direct entry system; and the distributed Payment Gateway network of the NPP. In the longer term, some rationalisation of these underlying systems is likely, with the RBA and industry already actively considering the move of direct entry transactions on to the NPP. The longer term use of "common infrastructure" would also deliver cost savings and operational efficiencies.

510. But resilience and redundancy are also important issues, as the more that Australians rely on electronic payments, the more impact that outages have on people and commerce. So having at least two strong retail payment infrastructures, like eftpos and NPP, ensures that the country does have its own internal redundancy and a potential "fallback" system should one hit technical issues.

511. The issue of "systemic risk" in the domestic payments market was one of the drivers behind the industry consolidation that occurred in the UK, as outlined in Appendix II, with the Government being sensitised to these risks during the Global Financial Crisis (GFC).

1.

[212] Via a communications programme involving newspaper, radio and TV advertising and commentary, as well as point of sale posters, flyers, etc.

iv. Competition Enhanced

512. Consolidation into a single "*Payments Australia*" entity will provide a larger, stronger competitor to the existing global players in the Australian market and to potential new entrants, such as the Big Tech companies. Such a "bulking up" of capability was clearly part of the consideration in Singapore's consolidation in 2017 (see Appendix I). As noted above, the combination of the payment streams should provide the opportunity for the development and deployment of hybrid products, and a more rapid program of innovation.

513. Indeed, the promotion of effective competition in the markets for payment systems and services, and the promotion of the development of and innovation in payment systems, were both drivers of the domestic payments industry consolidation that occurred in the UK and the formation of Pay.UK, as described in Appendix II. As with the mergers and acquisitions that have been occurring amongst the major players in the global payments market (described in the section on "Margin compression in payments" earlier in this report), there is a need to have "size to survive". Hence the new consolidated domestic payments entity should present and respond as a stronger competitor to existing and new entrant players from overseas.

514. The consolidation should not impact the growth and competition in the payment "veneers" that have been and are continuing to be developed in increasing number by FinTechs, businesses and payments providers, as these "sit on top of" the domestic payments infrastructures provided by eftpos, BPAY and the NPP. Indeed, having a single point of contact in terms of the consolidated entity may make it easier for the veneer providers to select the most appropriate domestic payment system or systems with which to interface, and potentially streamline their access to these services.

515. At the same time, a viable domestic payments entity can be operated to provide efficient, low cost retail payments services to the benefit of Australian users: consumers, merchants and businesses. Such that prices and costs can be determined locally for the local market, providing robust competition to international players, whose pricing decisions are sanctioned offshore and are appropriately operated for the ultimate benefit of their shareholders.

516. Subject to its governance structure and objectives, the "*Payments Australia*" entity can operate to ensure sufficient investment to remain strong and competitive, but at a low operating cost, not having the profit motivation of a publicly listed company.

517. Although there is likely to be growth in account-to-account payments at point of sale (physical and online) over time, card-based payments (in their various formats) will be around for many, many years to come. It is therefore important that Australia's domestic card scheme, eftpos, continue to operate and provide a competitive foil to the products and services of Mastercard and Visa. In my opinion, the survival of eftpos is far more assured

within a consolidated "*Payments Australia*" entity than if it remains separate from the other domestic payments streams; as noted in the section of this report covering the "Scenario Without Domestic Industry Consolidation", I believe that an independent eftpos debit card payment scheme will only survive beyond the next 10 years with significant regulatory intervention from the RBA, without such support then eftpos is likely to follow Bankcard into extinction.

v. Stakeholder Representation

518. As a national entity operating infrastructure which is critical for the economy of the country, the consolidated "*Payments Australia*" organisation needs to have appropriate representation in its governance structure of the various stakeholders that it is serving and from whom it is gaining funding. My understanding is that the proposed structure and governance of the consolidated entity, NewCo, will dilute the influence of the four major Australian banks, such that they would have four votes out of thirteen at NewCo's Board of Directors. This is important, particularly in relation to eftpos, due to the potential ambivalence of the banks regarding the maintenance of a domestic card scheme, given their need on the one hand to have a point of leverage in their relationship with the international card schemes and on the other hand the larger financial and other benefits provided by the international card schemes versus eftpos.

519. The proposed broad stakeholder representation in the ownership and governance of NewCo would appear to ensure that the organisation will make decisions across the three consolidating domestic payment streams which are in the best interests of Australia and Australian users, be they consumers, merchants, businesses or payments providers.

B. DETRIMENTS

520. The potential disadvantages of bringing the three payments streams together into one entity would include:

1. A loss of competition between each of these three payment methods
2. A loss of management focus on each individual payment stream
3. The inappropriate allocation of resources (investment and otherwise) and effort across the three payment streams
4. A bigger entity being less agile in its ability to innovate and react to market changes
5. The distraction to management whilst the consolidation occurs, potentially a period of 24 months

521. Each of these is explored in more detail below.

i. Loss of competition between payment methods

522. As noted previously, in the "Scenario Without Domestic Industry Consolidation", eftpos, BPAY and NPP are currently each addressing different payment markets and are only competing directly against each other "at the edges". Further, each of them has a different cost per transaction and different functionality that suits their target markets. This situation is likely to change over time as both eftpos and NPP develop new capabilities, but still the much greater source of competition will come from international payments players, in particular Mastercard and Visa.

523. Future competitive cross-over between the domestic payment streams is liable to include –

- Purchases at online websites: the amount of competition will depend on how much uptake each system achieves both with online merchants and with online shoppers; currently eftpos is in the early stages of deploying its new online capabilities with merchants, and NPP has a very small presence via overlay services such as AzuPay; the dominant forms of online payment today are the international card schemes and PayPal, and these are priced on an "ad valorem" (percentage of purchase value) basis whereas in my opinion the eftpos and NPP are likely to be priced on a fixed fee basis.

- Purchases at physical POS: the traditional and dominant domain of eftpos payments is physical point of sale, and the NPP has plans to provide capability at physical point of sale via mobile phone and QR codes; with the exception of very small merchants who are happy to effectively access the NPP as a consumer, and get the payment for free (currently via showing the buyer their PayID), this competition is some years away; this is because the cost of a NPP transaction for a major merchant is presently several times that of an eftpos transaction; so the volume of transactions across the NPP will need to grow by a significant multiple before the end-to-end cost per transaction gets as low as eftpos, and this might never occur; given that Scheme debit transactions are generally more expensive than eftpos, then NPP's competition at physical point of sale is more likely to be against Visa and Mastercard; this assumes that consumers are willing to forego their habitual tap'n'go contactless transaction interface in favour of a QR code transaction (which they may do if it provides a stronger value proposition in some way).

- Recurring payments: today, BPAY is the only one of the payment streams with any foothold in the recurring payments sector (as you can set up recurring BPAY payments via online banking), although BPAY users predominantly select it as a bill payment method in order to avoid the "unannounced" recurring withdrawal of funds by a Direct Debit transaction - using a separate BPAY payment on each occasion; both eftpos and NPP, effectively absent from this market sector today, plan to provide recurring payment capability - eftpos via "card on file" and NPP via its MPS

infrastructure (currently being developed); the initial target market sectors for these new entries would appear to differ, with eftpos trying to displace the "card on file" position currently held by Mastercard and Visa, and with NPP's MPS trying to displace Direct Entry's Direct Debit authorities - with limited crossover between the two; it is true that NPP's MPS could target the debit card area of the "card on file" market (as the funds would generally come out of the same transaction bank account), but the cost differential to eftpos, as noted above, would again come into play; that is, it will be many years before the end-to-end cost per NPP transaction gets as low as eftpos.

ii. Loss of focus on each individual payment stream

524. Currently each of the three payments streams has its own dedicated Board of Directors and management team, which are focused on just their one payment method. Therefore a potential detriment is that each payment method will no longer have a dedicated team focused on its market success.

525. My understanding is that, just as in many corporations with diverse businesses, the proposed NewCo consolidated entity will continue to have separate business "divisions" with one dedicated to each of eftpos, BPAY and the NPP. As such, each payment stream should continue to receive the attention from a dedicated management team, who would be focused on executing the agreed business plan in the marketplace.

iii. Inappropriate allocation of resources

526. One could argue that, even with the three payments streams being separate as they are today, there could still be an inappropriate allocation of resources and effort by the industry across the three payment streams. One would hope that, if consolidated into one entity, then the allocation of resources across the three "business units" would in fact be better, and more coordinated.

527. However, it would in theory still be possible within NewCo for one payment system to become favoured over another, but the relevant "checks and balances" appear to have been built into the governance and management structure in order to avoid this. For example, each payment system will still be managed separately and be tasked with delivering the mandated services, and the shareholders using a particular system will have a veto power over the Board of NewCo for specific issues affecting that payment system.

iv. Bigger entity is less agile

528. It is sometimes argued that the ability of an organisation to make decisions and react to changing conditions diminishes with size, hence the larger "*Payments Australia*" entity could be less agile than the three individual payment organisations are today. But, by having eftpos, BPAY and the NPP as separate operating divisions with NewCo, and focused on their individual payment streams and target markets, their ability to react to changing market conditions should not be impacted.

v. Distraction to management during consolidation

529. With new announcements coming each day from one or many of the international payments players and the need to keep focused on delivering against market needs, the management teams of the local payment systems should not be allowed to get distracted from their day-to-day job by the industry consolidation process. It would appear that the planned implementation of the NewCo structure and governance arrangements should be able to occur separately and unconnected to the ongoing day-to-day business of the three payments streams.

VIII. Conclusion

530. Based on my experience and knowledge of the payments market and its broad spectrum of stakeholders, in my opinion Australia and Australians would be better served by having a single, consolidated domestic payments entity instead of the fragmented structure that exists today. A larger, stronger and more robust domestic player would have the resources and coordinated approach necessary to keep pace with the innovations in products and services being deployed by a growing array of much larger international competitors. The lack of coordination between the domestic payment streams in the deployment of new technologies and services is slowing down the rate of innovation, primarily within the large number of financial institutions that need to change their internal systems to integrate these new developments within their own banking infrastructure. These internal changes at the financial institutions, who are delivering the domestic payment streams to their consumer and business customers, need to be sequenced within a coordinated roadmap in order to ensure that the capability gap with the international competitors does not widen further. This is particularly true in card-based payments today, but also applies to the other payment streams.

531. The primary payment uses of eftpos, BPAY and NPP have been separate and distinct, with payers and payees selecting them for where they are most appropriate, being physical point of sale, bill payment and "pay anyone" respectively. Current "competition" as such among the three payment streams is at the margin, although, like many things in the digital age, convergence may occur over a longer period of time. Rather than competing with each other, their main competition are the international card schemes, Direct Entry and the many veneers that sit above the core payment systems (some of which may choose to use eftpos or NPP as their "payment rails").

532. The opportunities for the cross-pollination[213] of the Australian domestic payments streams, in order to create new hybrid products for the Australian users, be they consumers, merchants or corporations (payers and payees alike), which would be highly competitive and differentiated against international payment providers, can be unleashed by a consolidation of the current independent entities into a single "*Payments Australia*" organisation. The successful execution of this will rely on the attitudes and mindset of those governing and managing the new organisation and its operating divisions, where a collaborative and cooperative approach could deliver great benefits and efficiencies to Australians and the country's economy.

1.

[213] Using combinations of the functionality and systems of the NPP and/or BPAY and/or eftpos together.

533. Without the consolidation (or significant regulatory intervention, which appears unlikely to be forthcoming), it is my opinion that the eftpos card-based payment system will fail within a 10 year timeframe. In the absence of eftpos, debit card pricing in the Australian market would be in the hands of overseas enterprises. With debit card usage now dominating retail payments, and continuing to grow strongly, the main payment method at point of sale would have no domestic player involved.

534. Although NPP has plans to make physical POS payments available (through QR codes and the MPS), its current cost per transaction is significantly higher than debit cards and the interface for consumers may fall short of the ease of tap'n'go contactless card transactions for some segments. So, the survival of eftpos is needed in this arena, and this will be achieved by, amongst other things –

- eftpos being part of a larger and more robust enterprise;
- Mandates being enforced upon the financial institutions issuing and/or acquiring eftpos by undertakings to the ACCC;
- A much more coordinated approach and roadmap of domestic payments innovation across the financial institutions and industry as a whole; and
- The ability to develop and deploy hybrid products.

535. Both NPP and eftpos are beginning to enter the online payments market, and may provide savings to online merchants in the cost of acceptance due to their fixed fee (rather than ad valorem) pricing; however, it will take time to gain a reasonable level of market penetration, with current competition well entrenched and newer entrants (e.g. PayPal, Afterpay, etc) strong in this arena. The NPP and eftpos online offers will provide further choice to merchants, with the growing ecommerce market giving opportunities for both.

536. As described in the report, the potential benefits of bringing the three payments streams together into one entity would include:

- Improved ability to develop hybrid products to better serve payments users and differentiated from the international players;
- Improved speed of innovation in Australian payment products and services;
- Increased efficiency in the Australian payments system;
- Enhanced competitive positioning of Australian payment products and services against the international players;
- Broader stakeholder representation across the three payment streams.

537. Indicative of a global trend, both Singapore and the UK have moved to consolidate their own domestic payment systems, targeting many of the benefits noted above, and avoiding the

sovereign risk (particularly in the case of Singapore) associated with having the domestic payments market controlled by overseas companies.

IX. APPENDICES

A. APPENDIX I

PAPER PREPARED FOR BPAY ON THE CONSOLIDATION OF DOMESTIC PAYMENT ENTITIES
January 2020

[Redacted – Confidential][214]

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B. APPENDIX II

PAPER PREPARED FOR BPAY ON THE CONSOLIDATION OF DOMESTIC PAYMENT ENTITIES
January 2020

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C. APPENDIX III

Lance Blockley Profile

592. Lance Blockley has acted as a management consultant since October 1988. He conducted a number of payments related assignments during the 1990's and has focused wholly on payment projects since the Year 2000.

593. The range of clients by whom Lance Blockley has been engaged is illustrated by the following list of selected clients serviced during the period 2007 to 2020:

ABACUS (now COBA)
Adyen
AirPlus
American Express
ANZ Bank
AusPayNet / APCA
ABA
Archer Capital
Asian Payments Network
Australia Post
Australian Military Bank
AzuPay
Bank of America
Bank of Queensland
BankServAfrica
BCS
BP Australia
BPAY
Cabcharge / A2B
CIMB Bank
Citibank
Coles / FlyBuys
Commonwealth Bank of Australia
CUA
China UnionPay
CUSCAL
David Jones
DBS Bank (Singapore)
eftpos
eMerchants
Emergent Technologies
eNett
Equinix
Aust. Federal Department of Communications, IT & Arts
Aust. Federal Department of Finance
Aust. Federal Department of Social Services
First Data / Fiserv
GE Capital / Latitude
Gemalto
GHL
HP
HSBC
India Cards Council
ING
Ingenico / Bambora
Investec
Keycorp
Macquarie Bank
MasterCard
Melbourne Cricket Club
ME Bank
MEPS (Malaysia)
Myer
MYOB
National Australia Bank
NETS (Singapore)
NPP
NSW Office of State Revenue
Omnio / Tuxedo
Optus
PayMark
PayPal
Potentia Capital
Priceline
Prospa
QANTAS
Split Payments
Strategic Payment Systems
Standard Chartered Bank
Transaction Network Services
Truly Travel
TSYS
Verifone
Virgin Velocity
Visa
Webjet
Westpac
Woolworths
Wilson Group
Wright Express

594. In addition, Lance Blockley has been engaged to conduct a number of industry-wide projects in the Australian payments market. Of note would be the "PIN@POS" assignment undertaken between 2012 and 2014 to remove signature from card payments in Australia, and move almost entirely to Chip&PIN - this occurred successfully on 1 August 2014. The project required Mr Blockley to facilitate a Steering Committee of 14 entities: the 4 major banks, 6 second tier banks and 4 international card payment schemes. At the request of the Steering Committee, the history of the project was written up in a case study: "PIN@POS - Australian Case Study".

595. Lance Blockley has chaired, presented at and moderated panel discussions in many payments conferences around the world, including –

- European Central Bank conference: "Retail Payments - Integration and Innovation", Frankfurt 2009
- IATA World Financial Symposium: Dublin 2017; Singapore 2016; Barcelona 2015
- Airline Information conferences: 1-2 each year 2009-2020, including the annual Air and Travel Payments Summit Asia-Pacific
- Real Time Payments Summit Australia: 2020, 2019 and 2018
- Cards & Payments Australasia conference: annually 2010-2018 (conference then disbanded)
- Ingenico ePayments: "Insights APAC", Taipei 2019
- Diners Club International: "APAC Regional Partner Meeting", Seoul 2017
- UnionPay International: "Southeast Asia South Pacific Regional Member Council Meeting", Bangkok 2015
- CAPA Centre for Aviation conferences: 1-2 each year 2016-2019, Sydney & Singapore
- UATP Airline Distribution conference: London 2018; Bangkok 2014; Kuala Lumpur 2008

596. Lance Blockley has led a number of payments study tours to different countries around the world, focused on topical subjects, including –

- 2019 Stockholm, for the Emerging Payments Association Asia, to look at how Sweden was going cashless
- 2009 Hong Kong & Singapore, for Carte Bleue (France), to look at how contactless card payments were being deployed
- 2008 Shanghai & Beijing, for Carte Bleue (France), to look at how China was adopting electronic forms of payment

Expert Industry Opinion

597. Lance Blockley is often quoted on payments topics in Australian mainstream media, including: The Sydney Morning Herald, The Australian Financial Review, The Australian, Channel 7 news, the ABC (TV and radio) and others.

598. Lance Blockley holds a number of positions associated with payments, including:

- Ambassador of the Emerging Payments Association Asia
- Chairman of the Payments Advisory Committee of the Australian Retailers Association

599. Lance Blockley has authored many whitepapers regarding payments, including:

- A range of whitepapers available from the website of The Initiatives Group, http://www.initiatives.com.au/whitepapers , co-authored with the practice's consulting team, such as
  - *Scams are now bigger business than Payments Fraud*
  - *2020 Pandemic - How it might change the ways we pay?*
  - *Perspectives on Payments Regulation – It depends which way you look at it…*
  - *Account to Account Payments For Consumers*
  - *Buy Now, Pay Later – New? Old? Better?*
  - *The Changing Face of Consumer Payments in Australia*
  - *Open Banking - A Story of Data*
  - *The Rise of In-app Payments*
  - *Card acceptance payment terminals – the case for integration*
- Whitepapers for clients, such as
  - Equinix: "*Key Trends in Digital Payments Markets and Strategic Infrastructure*"
  - Mastercard: a series of 7 whitepapers on Commercial Payments
  - Australian Federal Department of Communications and the Arts (DCITA): "*Exploration of future electronic payments markets*" - regarded as a seminal paper on payments when published in 2006
  - Australian Payments Clearing Association (now AusPayNet): "*The Evolution of Cash – An Investigative Study*"
- Whitepapers published in journals, magazines, websites and similar, such as
  - Journal of Payments Strategy & Systems: "*Innovation drivers and barriers: Implications for innovators, imitators and regulators*"
  - Emerging Payments Association Asia: "*Scams are the new Fraud*"

- ANZ Bluenotes: "*Tapping the biggest shift in consumer payments*"

CURRICULUM VITAE

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DATE OF BIRTH 26 February 1956

PLACE OF BIRTH Epsom, Surrey, England

NATIONALITY British
Australian

MARITAL STATUS Married with four children

EDUCATION

SCHOOLS 1964 – 1969 Downsend School, Epsom Road, Leatherhead, Surrey, England

Eleven Plus
Open Scholarship to St. John's School, Leatherhead
Positions held: School Captain for final year

1969 – 1974 St. John's School, Epsom Road, Leatherhead, Surrey, England

OXFORD AND CAMBRIDGE BOARD OF EXAMINATIONS

Ordinary Level: French, Latin, Spanish, Divinity English Language, English Literature, Chemistry, Physics, Biology, Elementary Mathematics, Advanced Mathematics
Intermediate Level: Use of English
Advanced Level: Physics (grade achieved=A), Chemistry (A), Mathematics (A), Biology (A)
Scholarship Level: Physics (1), Chemistry (1), Mathematics (1), Biology (1)

1.

[216] https://www.linkedin.com/in/lance-blockley-097369/

Open Scholarship to Corpus Christi College, Cambridge University, Cambridge, U.K.

Positions held: House Prefect; House Captain; School Captain for final year

UNIVERSITIES

1974 - 1977 Corpus Christi College,
Cambridge University, England
Bachelor of Arts Degree (Honours); Graduated June 1977
Natural Sciences Tripos, Part 1A:
Biology of Organisms
Biology of Cells
Physiology
Natural Sciences Tripos, Part 1B;
Physiology
Pathology
Pharmacology
Natural Sciences Tripos, Part II:
Physiology

1981 Cambridge University, Cambridge, England
Master of Arts Degree (Honours)

1982 IMEDE, Lausanne, Switzerland (now IMD)
Master of Business Administration Degree (Honours)
Dean's List on 5 occasions
Graduated December 1982

MEMBERSHIP OF PROFESSIONAL ASSOCIATIONS

Fellow of the Australian Institute of Company Directors
Fellow of the Chartered Management Institute (U.K.)
Past Member of the National Agri-Marketing Association (U.S.A.)

EXECUTIVE DIRECTORSHIPS

The Initiatives Group Pty Ltd
Marketing Initiatives Pty Ltd
Blockley Enterprises Pty Ltd

NON-EXECUTIVE DIRECTORSHIPS

Experian Australia Credit Services P/L (2011 to present)

A joint venture between Commonwealth Bank of Australia, ANZ Bank, Westpac Banking Corporation, National Australia Bank, Citigroup, Latitude, American Express and Experian. I represent the seven Financial Institutions on the Board. The company offers credit bureau services in Australia.

PAST

New South Wales Grains Board (1999-2001)
Interim Managing Director, NSWGB (Aug '00 – Feb '01)

I identified inappropriate manipulation of the organisation's financial accounts by management, leading to the standing down of previous MD and my appointment as Interim MD. I referred the matter to the Independent Commission Against Corruption (ICAC) in Sept '00, and its report of Aug '03 recommended criminal prosecution of 3 former managers. I negotiated with the NSW Government for an additional 5 years of vesting rights and then negotiated the sale of these rights (and the NSWGB business) to another industry player. Unfortunately the eight year fraud that I had uncovered eventually resulted in the loss of A$160 million by two major banks.

OTHER POSITIONS HELD

Past Treasurer, IMD Alumni Association of Australasia

Registered Management Consultant with the National Industry Extension Service in the areas of Strategic Business Planning and Market Planning

BUSINESS EXPERIENCE

2013 to present Sydney, Australia — **THE INITIATIVES GROUP PTY LTD** (previously named "RFi Consulting Pty Ltd"),

Managing Director and owner of this independent financial services and payments consultancy, which has a focus on practical, implementable advice. See www.initiatives.com.au

2004 to 2013 — **EDGAR, DUNN & COMPANY**, Sydney, Australia

Director and partner of this independent global financial services and payments consultancy, which has a focus on practical, implementable advice (Global Managing Director 2008 through 2010).

Founded in 1978, the firm was widely recognized as one of the world's preeminent experts in the payment industry. EDC provides its clients a full range of strategy consulting services, expertise and market insight, with a focus on delivering expertise for practical outcomes that result in significant improvements in client businesses.

EDC's capabilities included market entry strategies, new financial services products and channels, profitability improvement, product migration operations improvement risk management, and in-depth industry and consumer benchmarking, including Payment Dynamics, its proprietary data intelligence platform.

EDC's offices were located in San Francisco, London, Singapore, Sydney, Atlanta and Paris, serving clients in over 30 countries on six continents.

1988 to 2004 — **THE INITIATIVES GROUP PTY LTD** (different entity to current company of same name)**,** Sydney, Australia

One of the two Principals of this marketing oriented management consultancy. The firm was a strategic management consultancy which existed specifically to help clients improve corporate value. The firm specialised in the integration of information based on market data, customer needs (through such means as market research) and financial analysis to assist clients with the development of market driven business strategies.

The Initiatives Group had extensive experience both in Australia and internationally in a diverse cross section of industries, including fast moving consumer goods, such as foods and beverages, industrial and agricultural products, financial and telecommunication services.

Ownership of the company was acquired by WPP Group of the UK in December 1999.

1977 to 1988 Employed by the **TATE & LYLE GROUP**

Specific Assignments:

1984 - 1988 **PACIFIC MOLASSES COMPANY**, San Francisco, California, U.S.A.

1987 - 1988 VICE PRESIDENT - WEST DIVISION

Responsible for all of the Company's activities in the West Division (CA, AZ, NV, OR, WA, ID), including: the overall profitability of the operations; sales of molasses, feed fat and related products to the animal feed trade and industrial customers; purchase of domestic raw materials; third party bulk liquid storage activities; and operation of all plants, terminals and transportation equipment.

Responsible for the coordination of all of the company's molasses procurement and marketing nationwide, and coordination with London office of purchases and shipments of offshore molasses supplies.

1986 - 1987 VICE PRESIDENT - MARKETING

Responsible for developing and implementing corporate marketing strategies for the animal feed industry. Responsible for the coordination of all of the company's molasses procurement and marketing. Support implementation of marketing strategies by the field salesforces through centralized advertising and promotional activities. Undertake market research and analysis projects to assist in formulating marketing plans with regard to the identification of customer needs, market growth trends and competitive developments.

1984 - 1985 PACIFIC SOUTHWEST DISTRICT MANAGER

Responsible for all corporate feed trade and third party bulk liquid storage activities in the Pacific Southwest area (CA, AZ, NV), including the overall profitability of the operations, sales of molasses, feed fat and related products to the animal feed trade, purchase of domestic raw materials, and operation of all plants and terminals and transportation equipment.

1984 ASSISTANT TO THE PRESIDENT

Preparation of analyses of, and plans for, Pacific Molasses' individual businesses, particularly for the expansion of the company's operations into specialty animal feed through both acquisition and internal developments.

Assisted in the implementation of the newly adopted strategies, and in acquisition/capital expenditure analyses.

1983 - 1984 **TATE & LYLE INC.**, Yonkers, New York, U.S.A.
ASSISTANT TO THE PRESIDENT

Responsibilities: The financial and general administration of T&L Inc. as the holding company for Tate & Lyle interests in the North America, and the tax and cash management of all T&L's U.S. companies; liaising/negotiating with banks for controlling movement and investment of excess funds within the U.S. group of companies; calculation of Federal tax liabilities; the administration of the financial and management accounting for T&L Inc. as a cost centre and as a consolidated U.S. concern.

Acquisitions and divestiture analysis and negotiation. Other assignments requested by the President.

1977 - 1981 **TATE & LYLE REFINERIES**, London, England. Refiners and distributors of sugar and associated products.

1980 - 1981 REGIONAL OPERATIONS MANAGER
Responsible for programming production and product distribution for the London refinery (1 million tonnes raw sugar per annum), so as to optimise use of plant capacity and ensure security of customer supply. Coordinated the efforts of various functional departments in implementing operational strategies. Developed and successfully implemented a new Operations Computer System. Assisted in planning the closure of the Liverpool refinery; closure effected without a break in customer supply.

1979 - 1980 SHIFT MANAGER
Managed a shift of 100 persons through a team of seven foremen. Responsible for the production rate and technical control throughout the sugar refining process. Responsible for the administrative control of my shift, including the handling of all industrial relations matters.

1977 - 1979 PRODUCTION MANAGEMENT TRAINEE
Training programme covering the practical and technical aspects of sugar refining. Supervisory training in preparation for becoming Shift Manager.

D. APPENDIX IV

GLOSSARY OF PAYMENT TERMS

Australian Payments Network (AusPayNet)	AusPayNet sets, manages and develops regulations, procedures, and standards governing payments clearing and settlements in Australia.
Automated clearing house (ACH)	An electronic clearing system in which payment orders are exchanged among financial institutions, primarily by magnetic media or telecommunications networks, and handled by a data processing centre.
B2B	Business-to-business.
B2C	Business-to-consumer.
Biometrics	Technology that allows recognition of individuals through analysing bodily characteristics. The most common types of biometrics are fingerprints, voiceprints, hand geometry and retina scans.
Capability	A term used in this report to describe the functional ability to actually undertake a payment.
Charge card	A card where holders are provided with credit for the value of the transaction. Unlike credit cards, charge card users are unable to carry the balance over into the next payment period, but must pay the balance in full at the end of each payment period.
Clearing system	The system of transmitting, reconciling and in some cases confirming payment instructions before settlement.
Clearing house	A financial intermediary that performs the clearing system role.
Confidence	A term used in this report to describe a customer's belief that a payment will be successfully executed and completed, and that the value of a payments method will be respected.
Confidentiality	A term used in this report to describe the integrity of the payments system in maintaining the privacy of customer information.
Contactless card	A payments device that allows an electronic payment to take place by holding or waving it near a reader without needing to give the card or device to the merchant or inserting the card into the terminal.
Convenience	A term used in this report to describe how easy a payment method is to use, for example, the need for registration or the speed of the payment process.
Cost	A term used in this report to describe the cost of the payments system to customers such as fixed or proportional transaction charges.
Coverage	A term used in this report to describe how widely a payments system is accepted by merchants and other recipients of payments.
Credit card	A card where holders are provided with credit for the value of the transaction up to a pre-arranged limit. Credit card users may carry the

	balance over into future payment periods, whilst generally incurring an interest charge.
Credit transfer	A payment order or a sequence of payment orders made for the purpose of placing funds at the disposal of the beneficiary. Both the payment instructions and the money move from the bank of the payer/originator to the bank of the beneficiary, possibly through several other banks and/or more than one credit transfer system.
Debit card	A card which allows access to a transactional banking account. The dominant style of debit cards in Australia are multi-network debit cards, typically capable of transacting on the eftpos and Mastercard or Visa schemes.
Digital signature	Electronic equivalent of a hand-written signature. Digital signatures use PKI technology to authenticate both parties in a transaction.
Direct credit	The payer initiates a direct entry to a recipient directly from their bank account.
Direct debit	A pre-authorised debit on the payer's bank account initiated by the recipient.
Direct entry	Direct entry transactions include both direct credit and direct debit transactions. Direct entry transactions are not settled in real time.
Electronic bill payment and presentment (EBPP)	A process that enables bills to be created, delivered and paid electronically (typically over the internet).
Electronic data capture (EDC) terminals	Also known as eftpos terminals, EDCs are the main channel for accepting card-based payments in Australia.
Electronic funds transfer at point-of-sale (eftpos)	A process where a customer pays a retailer using a payments card (such as a debit, credit or charge card) at a physical point-of-sale by transferring the value of the transaction from their account to that of the retailer. In Australia, eftpos is typically used to describe the domestic debit card scheme.
Electronic payments	These are payments where the value of the payments product and payments instructions reside in the information transmitted over an electronic channel. This is in contrast to physical payments methods, such as coins, banknotes or cheques.
Enterprise resource planning (ERP) systems	These are software systems that are used for operational planning and administration as well as for optimising internal business processes.
EMV Chip	A set of specifications that define the requirements of chip-enabled cards and chip-enabled EDC terminals to operate over the Europay, MasterCard and Visa networks. EMV stands for Europay MasterCard Visa, which were the three initial parties involved in the development of the specifications.
Identity theft	The transfer or use, without lawful authority, of a means of identification of another person with the intent to commit, or to aid or

	abet, any unlawful activity that constitutes a violation of federal law, or that constitutes a felony under any applicable state or local law.
Interactive voice response (IVR)	A telephone system where the payer responds to an automated set of instructions (delivered by a recorded voice) by speaking and/or entering details directly into the telephone keypad.
Key fob	A type of security token, usually a small hardware device, that allows access to network services or information.
Lockbox location	A remote, secure location where payments are sent instead of directly to a business. The service then processes the payments (typically cheques) and credits the business.
Magnetic stripe	Located on payments cards, the magnetic stripe stores the customer's details and their credit/debit information.
Mandated payments services	In Australia, this would be the New Payments Platform's planned consent management system that would hold the payer's authorisation or consent for a payee to make "pull" payments from their bank account; this could include request to pay, direct debit and "on-behalf-of" payments (such as payroll).
Mastercard Send, Visa Direct	Card to card fund transfer platforms that are provided by the international payment Schemes.
Micro-payments	Small value transactions (typically under $5). Most micro-payment products allow an aggregation of many small payments with the accumulated amount of money then paid as one larger payment.
Mobile payments system	A system that uses the mobile telephone handset to make payments over the mobile network, for example, to top-up a prepaid phone account.
Near Field Communications (NFC)	A radio frequency technology that connects a range of devices, such as contactless cards and devices.
Overlay Service	Functional, value adding services that run "on top of" a real-time payments platform. In Australia, Osko, Assembly Payments and Azupay are examples. In Sweden, Swish is an example, and in the UK, Paym is an overlay service.
P2P	Person-to-person, also known as consumer-to-consumer.
Passmark authentification	Allows a customer to enrol in a program and choose an icon/picture as a unique, secure identifier.
Payment channel	A mechanism that facilitates the use of a payments product by establishing contact between the payer and the payee.
Payment method	This refers to the product used for making a payment, for example, cash, credit card and eftpos.
PayPal	A company that provides an intermediary service that allows customers to use their credit card or direct debit facility to make a payment to a seller who receives the payment in his or her nominated

	bank account; most commonly used/seen at online internet merchants.
PC fingerprinting	Enables a network to identify the unique characteristics of an internet access device to make sure that particular device was used to make the transaction.
Personal Identification Number (PIN)	A numeric code used to authenticate users and allow access to accounts. Usually used in physical card payment and ATM systems as means of identifying card users.
Phishing	The use of fraudulent emails and internet sites to elicit personal and/or financial information.
PostBillPay	A method of making bill payments through Australia Post.
Public Key Infrastructure (PKI) technology	PKI technology enables internet users, who do not normally know each other, to perform mutual authentication. It allows confidential communication and provides electronic documents with a legally binding digital signature.
Pull Payments	Payments initiated by the payee to draw money out of the payer's account, like a Direct Debit; see also "mandated payments services".
Push payments	Payments initiated by consumers or businesses (the payer), where they instruct their financial institution to transfer money to a payee's account.
Radio frequency identification (RFID)	Technology used in some contactless or proximity payments technologies. It comprises an embedded microprocessor chip that stores all the customer and credit/debit information, and a magnetic loop antenna to transfer the information to the reader.
Real-time gross settlement systems	The immediate (real-time) settlement of funds or securities transferred individually, order by order, (without netting).
Real time payments platform	Infrastructure that allows the movement of money from bank account to bank account in seconds, operating 24/7/365. Often outsourced by the banking industry and/or Central Banks; Vocalink and Swift are examples of organisations that provide such platforms.
Request to pay	The payee initiates a message through the real-time payments platform that sends a request for payment, usually to the payer's mobile phone. The payer then authorises payment from their mobile or via their online/app banking service.
Request to pay, with document	A request to pay message that has a document attached or referenced (e.g. by a web link) – examples of documents might be an invoice or a travel itinerary.
Skimming	Malicious duplication of electronic data from an electronic payments card.

Stored-value card	A card where customers prepay to add value to a card. The payments are deducted from the card as the customer makes transactions.
Technocash	A payments mechanism that allows money to be downloaded to a debit card which can then be used for online banking.
3-D secure	Technology protocol used to provide a more secure environment when paying by card on the internet. It usually requires the cardholder to enrol in the program, and one time passwords are usually provided to the cardholder via SMS. It also requires the merchant to enrol in the program and to make system changes and accommodate the technology.
Three-party card payment associations	Card-based payment associations where the issuer of the card is also the acquirer of the transaction at the merchant. In Australia, the dominant three-party card payment associations are American Express and Diners Club International.
Four-party card payment associations	Card-based payment associations where the issuer of the card is not necessarily the acquirer of the transaction (i.e. they may be different institutions). The dominant four-party payment associations operating in Australia are eftpos, Mastercard and Visa.

E. APPENDIX V

MARKET SIZING AND MARKET SHARE CALCULATIONS

Counsel for Industry Committee Administration Pty Ltd (ICA) requested that I provide estimates in regard to the size of the Australian payments market, both overall and for specific sub-segments, and competitive market shares, particularly in relation to the NewCo[217] businesses. The tables on the following pages provide such estimates as developed by myself and the consulting team at The Initiatives Group (TIG).

The Reserve Bank of Australia (RBA) publishes monthly volume and value statistics for the various electronic payment systems, and this data set underpins the total market figures for the years ending June in 2003 through 2020. It should be noted that this data set is subject to "series breaks", most especially Direct Debit and Direct Credit between 2018 and 2019.

The volume and value statistics for cash transactions have been extrapolated from the RBA "consumer payments diary study" that is conducted every 3 years, with the debit card to cash relationship measured in each study then used to complete the years in between.

The forecasts provided for the years ending June 2021 through 2025 are at a total market level based on a multiple being applied to Gross Domestic Product (GDP) forecasts for Australia provided by economists. At the level of an individual payment method, the forecasts are based on historic growth rates and changes to payments mix that TIG expects to occur based on its industry knowledge and project work; these expectations include new functionalities being developed and deployed by the various market participants, the levels of adoption anticipated by TIG, competitive reactions, etc. The forecasts have assumed that BPAY, eftpos and NPP continue to operate independently.

Breaking the total market down to into sub-segments is more complex, as published payment statistics are not directly available at this level. The RBA does provide some segmented data such as "device present" & "device not present", "domestic" & "overseas" and "consumer" & "commercial" for cards, but whether, for example, the card was used to make a purchase at a retail store or to pay a bill is less discernible. Therefore more estimation and extrapolation is required to calculate the size of the various sub-segments and particularly the mix of payment methods within the sub-segment. The figures shown in the sub-segment tables are based on RBA and other hard data where it exists, including the results of prior project work and market investigations undertaken by TIG; where gaps then still remained, these were completed with estimations based on TIG's industry knowledge. Assumptions and base data have been noted in the tables.

1.

[217] The proposed merged entity of Australia's domestic payments systems operated by NPP Australia Limited, eftpos Payments Australia Limited, BPAY Group Pty Ltd and BPAY Pty Ltd.

Expert Industry Opinion

VOLUME OF PAYMENTS BY METHOD IN THE TOTAL AUSTRALIAN MARKET (2003-2025)

ACTIVITY BY RETAIL PAYMENTS STREAM

Year ending June — Transaction Number (Millions)

Data Source and/or Assumptions	Type of Payment	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	FORECAST 2021	2022	2023	2024	2025	2019 Share of Volume	2025 Share of Volume
Use RBA diary ratio to cash/debit card ratio for 07, 10, 13, 16 & 19; forecast assumes post-COVID bounce back in 2021, then continued decline (based on $ value & ATV)	**Cash**	6,990	6,873	6,885	6,818	6,546	6,685	6,509	5,984	6,382	6,537	6,305	6,396	6,152	5,656	5,389	4,877	4,256	3,272	3,599	3,383	3,112	2,863	2,634	**24.2%**	**10.2%**
Calculated growth rate	YOY Growth%		*-2%*	*0%*	*-1%*	*-4%*	*2%*	*-3%*	*-8%*	*7%*	*2%*	*-4%*	*1%*	*-4%*	*-8%*	*-5%*	*-10%*	*-13%*	*-23%*	*10%*	*-6%*	*-8%*	*-8%*	*-8%*		
RBA Actuals to June 2020; forecast assumes continued decline and termination by June 2023	**Cheque**	582	556	507	467	437	395	351	311	275	241	209	181	153	126	100	81	63	49	38	29	22	0	0	**0.4%**	**0.0%**
Calculated growth rate	YOY Growth%		*-4%*	*-9%*	*-8%*	*-6%*	*-10%*	*-11%*	*-12%*	*-12%*	*-12%*	*-13%*	*-14%*	*-16%*	*-17%*	*-21%*	*-19%*	*-22%*	*-22%*	*-23%*	*-25%*	*-25%*	*-100%*			
RBA Actuals to Jun 2020; forecast calculates based on $ value and ATV	**Credit & Charge Card**	1,025	1,119	1,194	1,276	1,342	1,427	1,471	1,557	1,650	1,736	1,857	2,020	2,187	2,404	2,620	2,797	2,927	2,942	2,912	2,912	3,033	3,159	3,291	**16.6%**	**12.8%**
Calculated growth rate	YOY Growth%		*9%*	*7%*	*7%*	*5%*	*6%*	*3%*	*6%*	*6%*	*5%*	*7%*	*9%*	*8%*	*10%*	*9%*	*7%*	*5%*	*1%*	*-1%*	*0%*	*4%*	*4%*	*4%*		
RBA Actuals to Jun 2020; forecast calculates based on $ value and ATV	**Debit Card**	955	1,047	1,147	1,290	1,423	1,632	1,872	2,123	2,445	2,809	3,220	3,615	4,047	4,586	5,235	6,057	6,936	7,665	8,783	10,063	11,531	13,213	15,139	**39.4%**	**58.8%**
Calculated growth rate	YOY Growth%		*10%*	*10%*	*12%*	*10%*	*15%*	*15%*	*13%*	*15%*	*15%*	*15%*	*12%*	*12%*	*13%*	*14%*	*16%*	*15%*	*11%*	*15%*	*15%*	*15%*	*15%*	*15%*		
RBA Actuals to Jun 2020; forecast calculates based on $ value and ATV	**Direct Debit**	376	426	474	501	531	588	622	665	695	722	762	850	926	1,026	1,160	1,217	884	944	1,035	1,134	1,134	1,077	969	**5.0%**	**3.8%**
Calculated growth rate	YOY Growth%		*13%*	*11%*	*6%*	*6%*	*11%*	*6%*	*7%*	*5%*	*4%*	*5%*	*12%*	*9%*	*11%*	*13%*	*5%*	*-27%*	*7%*	*10%*	*10%*	*0%*	*-5%*	*-10%*		
RBA Actuals to Jun 2020; forecast calculates based on $ value and ATV	**Direct Credit**	916	1,022	1,188	1,269	1,365	1,489	1,596	1,717	1,847	1,935	2,020	2,130	2,185	2,415	2,562	2,659	2,388	2,381	2,369	2,254	1,916	1,628	1,384	**13.6%**	**5.4%**
Calculated growth rate	YOY Growth%		*12%*	*16%*	*7%*	*8%*	*9%*	*7%*	*8%*	*8%*	*5%*	*4%*	*5%*	*3%*	*11%*	*6%*	*4%*	*-10%*	*0%*	*-1%*	*-5%*	*-15%*	*-15%*	*-15%*		
RBA Actuals to Jun 2020; 2021 onwards NPP erodes Direct Credit and other forms of payment	**NPP**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	154	412	1,137	1,544	1,888	2,176	2,326	**0.9%**	**9.0%**
Calculated growth rate	YOY Growth%																	*870%*	*167%*	*176%*	*36%*	*22%*	*15%*	*7%*		
Calculated	**Total Transactions**	10,844	11,043	11,394	11,620	11,644	12,215	12,421	12,357	13,294	13,981	14,373	15,191	15,650	16,215	17,067	17,703	17,607	17,666	19,873	21,319	22,636	24,116	25,744	**100.0%**	**100.0%**
Calculated growth rate	YOY Growth%		*2%*	*3%*	*2%*	*0%*	*5%*	*2%*	*-1%*	*8%*	*5%*	*3%*	*6%*	*3%*	*4%*	*5%*	*4%*	*-1%*	*0%*	*12%*	*7%*	*6%*	*7%*	*7%*		

Expert Industry Opinion

VALUE OF PAYMENTS BY METHOD IN THE TOTAL AUSTRALIAN MARKET (2003-2025)

ACTIVITY BY RETAIL PAYMENTS STREAM																					FORECAST					
Year ending June	Transaction Value ($ Millions)																									
Data Source and/or Assumptions	Type of Payment	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2019 Share of Value	2025 Share of Value
TIG estimates to 2015 as per original APCA report, then cash/debit card ratio from RBA payments diary; forecast assumes post-COVID bounce back in 2021, then continued decline	**Cash**	$209,694	$206,181	$203,113	$201,123	$199,152	$197,201	$195,269	$193,356	$191,462	$189,586	$187,193	$185,478	$184,560	$177,530	$153,600	$126,789	$102,517	$76,887	$84,576	$77,810	$71,585	$65,858	$60,590	**0.8%**	**0.3%**
Calculated growth rate	YOY Growth%		*-2%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*-1%*	*0%*	*-4%*	*-13%*	*-17%*	*-19%*	*-25%*	*10%*	*-8%*	*-8%*	*-8%*	*-8%*		
RBA Actuals to Jun 2020; forecast assumes continued decline and termination by June 2023	**Cheque**	$1,984,669	$1,945,234	$1,679,223	$1,675,228	$1,773,409	$1,773,432	$1,500,299	$1,496,154	$1,345,737	$1,242,061	$1,196,996	$1,231,762	$1,220,255	$1,198,748	$1,148,174	$1,022,836	$727,703	$510,621	$382,966	$287,224	$215,418	$0	$0	**5.6%**	**0.0%**
Calculated growth rate	YOY Growth%		*-2%*	*-14%*	*0%*	*6%*	*0%*	*-15%*	*0%*	*-10%*	*-8%*	*-4%*	*3%*	*-1%*	*-2%*	*-4%*	*-11%*	*-29%*	*-30%*	*-25%*	*-25%*	*-25%*	*-100%*			
RBA Actuals to Jun 2020; International travel returns in 2022, offsetting ongoing domestic reduction	**Credit & Charge Card**	$133,737	$149,501	$163,710	$178,353	$194,036	$214,107	$221,206	$233,036	$245,792	$255,391	$263,721	$281,283	$294,971	$307,941	$319,687	$329,647	$336,195	$324,341	$308,124	$308,124	$308,124	$308,124	$308,124	**2.6%**	**1.8%**
Calculated growth rate	YOY Growth%		*12%*	*10%*	*9%*	*9%*	*10%*	*3%*	*5%*	*5%*	*4%*	*3%*	*7%*	*5%*	*4%*	*4%*	*3%*	*2%*	*-4%*	*-5%*	*0%*	*0%*	*0%*	*0%*		
RBA Actuals to Jun 2020; forecast assumes continued growth through cash and credit card displacement	**Debit Card**	$63,523	$70,757	$78,223	$88,389	$97,927	$112,452	$129,902	$142,894	$160,035	$178,382	$197,617	$216,191	$235,481	$256,432	$277,260	$305,567	$335,509	$366,186	$402,805	$443,085	$487,394	$536,133	$589,747	**2.6%**	**3.4%**
Calculated growth rate	YOY Growth%		*11%*	*11%*	*13%*	*11%*	*15%*	*16%*	*10%*	*12%*	*11%*	*11%*	*9%*	*9%*	*9%*	*8%*	*10%*	*10%*	*9%*	*10%*	*10%*	*10%*	*10%*	*10%*		
RBA Actuals to Jun 2020; forecast assumes some initial displacement by NPP MPS	**Direct Debit**	$2,408,575	$2,876,819	$3,323,530	$3,758,676	$4,284,271	$4,908,643	$4,976,254	$5,056,869	$5,446,668	$5,979,147	$5,729,703	$5,777,192	$5,681,068	$5,858,889	$6,060,156	$5,541,494	$2,760,929	$3,598,536	$3,778,463	$3,967,386	$3,967,386	$3,769,016	$3,392,115	**21.3%**	**19.6%**
Calculated growth rate	YOY Growth%		*19%*	*16%*	*13%*	*14%*	*15%*	*1%*	*2%*	*8%*	*10%*	*-4%*	*1%*	*-2%*	*3%*	*3%*	*-9%*	*-50%*	*30%*	*5%*	*5%*	*0%*	*-5%*	*-10%*		
RBA Actuals to Jun 2020; forecast assumes ongoing displacement by NPP	**Direct Credit**	$3,386,504	$3,915,282	$4,576,864	$5,262,308	$6,010,039	$6,841,291	$7,052,967	$6,445,532	$6,689,368	$7,285,429	$7,646,453	$8,124,455	$8,399,667	$8,697,061	$9,173,870	$9,403,579	$8,588,639	$9,226,723	$8,765,387	$7,888,848	$6,705,521	$5,699,693	$4,844,739	**66.2%**	**27.9%**
Calculated growth rate	YOY Growth%		*16%*	*17%*	*15%*	*14%*	*14%*	*3%*	*-9%*	*4%*	*9%*	*5%*	*6%*	*3%*	*4%*	*5%*	*3%*	*-9%*	*7%*	*-5%*	*-10%*	*-15%*	*-15%*	*-15%*		
RBA Actuals to Jun 2020; 2021 onwards NPP erodes Direct Credit and other forms of payment	**NPP**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$10,268	$131,372	$413,752	$1,706,196	$3,088,804	$4,720,234	$6,526,852	$8,139,767	**1.0%**	**47.0%**
Calculated growth rate	YOY Growth%																	*1179%*	*215%*	*312%*	*81%*	*53%*	*38%*	*25%*		
RBA Actuals to Jun 2020; 2021 onwards based on Australian GDP forecast and payments multiplier	**Total Transactions**	$8,186,701	$9,163,773	$10,024,663	$11,164,077	$12,558,834	$14,047,126	$14,075,897	$13,567,840	$14,079,061	$15,129,995	$15,221,682	$15,816,362	$16,016,003	$16,496,601	$17,132,746	$16,740,179	$12,982,863	$14,517,047	$15,428,517	$16,061,281	$16,475,662	$16,905,677	$17,335,081	**100.0%**	**100.0%**
Calculated growth rate	YOY Growth%		*12%*	*9%*	*11%*	*12%*	*12%*	*0%*	*-4%*	*4%*	*7%*	*1%*	*4%*	*1%*	*3%*	*4%*	*-2%*	*-22%*	*12%*	*6%*	*4%*	*3%*	*3%*	*3%*		
	Australian GDP ($ m)	$800,960	$861,039	$922,371	$996,430	$1,086,593	$1,177,313	$1,260,145	$1,301,211	$1,416,622	$1,499,458	$1,536,307	$1,598,530	$1,624,601	$1,660,714	$1,762,371	$1,848,560	$1,952,680	$1,870,667	$1,952,977	$2,007,660	$2,059,458	$2,113,210	$2,166,885		
Assume 2021 onwards that the retail payments value to GDP ratio holds at around 8	Ratio of Payments Value to GDP	10.2	10.6	10.9	11.2	11.6	11.9	11.2	10.4	9.9	10.1	9.9	9.9	9.9	9.9	9.7	9.1	6.6	7.8	7.9	8.0	8.0	8.0	8.0		
Deloitte 2021, Statista other years	GDP Growth %																		-4.20%	4.40%	2.80%	2.58%	2.61%	2.54%		

AVERAGE TRANSACTION VALUE BY PAYMENT METHOD IN THE TOTAL AUSTRALIAN MARKET (2003-2025)

ACTIVITY BY RETAIL PAYMENTS STREAM																								
Year ending June	Average Transaction Value ($)																				FORECAST			
Data Source and/or Assumptions	Type of Payment	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
TIG estimates outside of RBA diary years	**Cash**	$30	$30	$30	$30	$30	$30	$30	$32	$30	$29	$30	$29	$30	$31	$29	$26	$24	$24	$24	$23	$23	$23	$23
Calculated growth rate	YOY Growth%		*0%*	*-2%*	*0%*	*3%*	*-3%*	*2%*	*8%*	*-7%*	*-3%*	*2%*	*-2%*	*3%*	*5%*	*-9%*	*-9%*	*-7%*	*-2%*	*0%*	*-2%*	*0%*	*0%*	*0%*
Calculated to 2020; forecast holds constant	**Cheque**	$3,408	$3,497	$3,315	$3,588	$4,060	$4,495	$4,269	$4,816	$4,901	$5,154	$5,719	$6,806	$7,998	$9,483	$11,490	$12,630	$11,516	$10,332	$10,000	$10,000	$10,000	n/a	n/a
Calculated growth rate	YOY Growth%		*3%*	*-5%*	*8%*	*13%*	*11%*	*-5%*	*13%*	*2%*	*5%*	*11%*	*19%*	*18%*	*19%*	*21%*	*10%*	*-9%*	*-10%*	*-3%*	*0%*	*0%*		
Calculated to 2020; continued reduction in ATV through cash displacement	**Credit & Charge Card**	$131	$134	$137	$140	$145	$150	$150	$150	$149	$147	$142	$139	$135	$128	$122	$118	$115	$110	$106	$106	$102	$98	$94
Calculated growth rate	YOY Growth%		*2%*	*3%*	*2%*	*3%*	*4%*	*0%*	*-1%*	*0%*	*-1%*	*-3%*	*-2%*	*-3%*	*-5%*	*-5%*	*-3%*	*-3%*	*-4%*	*-4%*	*0%*	*-4%*	*-4%*	*-4%*
Calculated to 2020; continued reduction in ATV through cash displacement	**Debit Card**	$67	$68	$68	$69	$69	$69	$69	$67	$65	$64	$61	$60	$58	$56	$53	$50	$48	$48	$46	$44	$42	$41	$39
Calculated growth rate	YOY Growth%		*2%*	*1%*	*1%*	*0%*	*0%*	*1%*	*-3%*	*-3%*	*-3%*	*-3%*	*-3%*	*-3%*	*-4%*	*-5%*	*-5%*	*-4%*	*-1%*	*-4%*	*-4%*	*-4%*	*-4%*	*-4%*
Calculated to 2020; forecast some further decline	**Direct Debit**	$6,400	$6,761	$7,008	$7,509	$8,062	$8,355	$7,999	$7,605	$7,837	$8,277	$7,524	$6,798	$6,137	$5,709	$5,226	$4,553	$3,122	$3,810	$3,650	$3,500	$3,500	$3,500	$3,500
Calculated growth rate	YOY Growth%		*6%*	*4%*	*7%*	*7%*	*4%*	*-4%*	*-5%*	*3%*	*6%*	*-9%*	*-10%*	*-10%*	*-7%*	*-8%*	*-13%*	*-31%*	*22%*	*-4%*	*-4%*	*0%*	*0%*	*0%*
Calculated to 2020; forecast some further decline	**Direct Credit**	$3,696	$3,830	$3,854	$4,148	$4,404	$4,595	$4,420	$3,755	$3,621	$3,765	$3,786	$3,814	$3,843	$3,601	$3,580	$3,536	$3,597	$3,875	$3,700	$3,500	$3,500	$3,500	$3,500
Calculated growth rate	YOY Growth%		*4%*	*1%*	*8%*	*6%*	*4%*	*-4%*	*-15%*	*-4%*	*4%*	*1%*	*1%*	*1%*	*-6%*	*-1%*	*-1%*	*2%*	*8%*	*-5%*	*-5%*	*0%*	*0%*	*0%*
Calculated to 2020; forecast assumes ATV grows up to Direct Entry level	**NPP**																$647	$853	$1,005	$1,500	$2,000	$2,500	$3,000	$3,500
Calculated growth rate	YOY Growth%																	*32%*	*18%*	*49%*	*33%*	*25%*	*20%*	*17%*
Calculated to 2020; then more frequent, smaller transactions from the subscription economy & more frequent billing cycles	**Total Transactions**	$755	$830	$880	$961	$1,079	$1,150	$1,133	$1,098	$1,059	$1,082	$1,059	$1,041	$1,023	$1,017	$1,004	$946	$737	$822	$776	$753	$728	$701	$673
Calculated growth rate	YOY Growth%		*10%*	*6%*	*9%*	*12%*	*7%*	*-1%*	*-3%*	*-4%*	*2%*	*-2%*	*-2%*	*-2%*	*-1%*	*-1%*	*-6%*	*-22%*	*11%*	*-6%*	*-3%*	*-3%*	*-4%*	*-4%*

MARKET SHARE BY VOLUME OF PAYMENT METHODS IN THE TOTAL AUSTRALIAN MARKET (2009-2025)

Payment Stream Market Shares by Volume													Forecast				
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Cash	52%	48%	48%	47%	44%	42%	39%	35%	32%	28%	24%	19%	18%	16%	14%	12%	10%
Cheque	3%	3%	2%	2%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%
Credit & Charge Card	12%	13%	12%	12%	13%	13%	14%	15%	15%	16%	17%	17%	15%	14%	13%	13%	13%
Debit Card	15%	17%	18%	20%	22%	24%	26%	28%	31%	34%	39%	43%	44%	47%	51%	55%	59%
Direct Debit	5%	5%	5%	5%	5%	6%	6%	6%	7%	7%	5%	5%	5%	5%	5%	4%	4%
Direct Credit	13%	14%	14%	14%	14%	14%	14%	15%	15%	15%	14%	13%	12%	11%	8%	7%	5%
NPP	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%	6%	7%	8%	9%	9%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

MARKET SHARE BY VALUE OF PAYMENT METHODS IN THE TOTAL AUSTRALIAN MARKET (2009-2025)

Payment Stream Market Shares by Value													Forecast				
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Cash	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%
Cheque	11%	11%	10%	8%	8%	8%	8%	7%	7%	6%	6%	4%	2%	2%	1%	0%	0%
Credit & Charge Card	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Debit Card	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%
Direct Debit	35%	37%	39%	40%	38%	37%	35%	36%	35%	33%	21%	25%	24%	25%	24%	22%	20%
Direct Credit	50%	48%	48%	48%	50%	51%	52%	53%	54%	56%	66%	64%	57%	49%	41%	34%	28%
NPP	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	3%	11%	19%	29%	39%	47%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

VOLUME OF PAYMENTS BY METHOD AND SCHEME IN THE TOTAL AUSTRALIAN MARKET (2009-2025)

[Redacted – Confidential]

VALUE OF PAYMENTS BY METHOD AND SCHEME IN THE TOTAL AUSTRALIAN MARKET (2009-2025)

[Redacted – Confidential]

AVERAGE TRANSACTION VALUE OF PAYMENTS BY METHOD AND SCHEME IN THE TOTAL AUSTRALIAN MARKET (2009-2025)

[Redacted – Confidential]

MARKET SHARE BY VOLUME OF PAYMENT METHODS AND SCHEME IN THE TOTAL AUSTRALIAN MARKET (2009-2025)

[Redacted – Confidential]

MARKET SHARE BY VALUE OF PAYMENT METHODS AND SCHEME IN THE TOTAL AUSTRALIAN MARKET (2009-2025)

[Redacted – Confidential]

VOLUME OF BILL PAYMENTS BY METHOD IN AUSTRALIA (2013-2025) - P2B & B2B

[Redacted – Confidential]

BILL PAYMENT MARKET SHARE BY VOLUME BY METHOD IN AUSTRALIA (2013-2025) - P2B & B2B

[Redacted – Confidential]

VOLUME OF RETAIL IN-STORE PAYMENTS BY METHOD IN AUSTRALIA (2011-2025)

[Redacted – Confidential]

VALUE OF RETAIL IN-STORE PAYMENTS BY METHOD IN AUSTRALIA (2011-2025)

[Redacted – Confidential]

VOLUME OF RETAIL REMOTE PAYMENTS BY METHOD IN AUSTRALIA (2011-2025)

Retail Remote - by Volume (millions # of transactions)											Forecast					
YEAR ENDING JUNE	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
Credit Card Schemes	162	160	157	150	136	190	204	257	284	269	284	289	318	367	414	RBA domestic "card not present" data (includes Visa, Mastercard, Amex, Diners, UnionPay) less card not present bill payment and 5% of commercial credit card domestic transactions to 2020; TIG projections thereafter, with international deduction of 5%
Debit Card Schemes	15	16	29	64	97	188	301	436	588	781	1,145	1,531	2,002	2,203	2,421	RBA domestic "card not present" data (includes Visa, Mastercard, Amex, Diners, UnionPay) less card present bill payment to 2020; TIG projections thereafter, with international deduction of 5%
Visa/Mastercard	*15*	*16*	*29*	*64*	*97*	*188*	*301*	*436*	*588*	*781*	*1,095*	*1,281*	*1,602*	*1,703*	*2,021*	Assume all debit card volume is Visa/Mastercard until June 2020
eftpos	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*50*	*250*	*400*	*500*	*400*	Zero until June 2020, TIG estimates thereafter
BPAY						4	4	5	5	5	5	5	0	0	0	TIG estimate ATV$200
NPP (e.g. Azupay & MPS)						0	0	0	0	0	5	25	60	90	125	TIG estimate ATV$200
SCT									*0*	*0*						Based on overall market SCT/Osko volume split provided in RBA data
Osko									*0*	*0*						Based on overall market SCT/Osko volume split provided in RBA data
Other A2A (e.g. PayPal from bank acct)						40	52	60	65	90	110	120	130	140	140	TIG estimate ATV$100
Other (e.g. Poli)						35	36	37	38	40	40	40	20	10	10	TIG estimate ATV$100
Total	**176**	**176**	**186**	**214**	**233**	**456**	**596**	**795**	**980**	**1,185**	**1,589**	**2,010**	**2,530**	**2,810**	**3,109**	
Growth	6.4%	-0.2%	5.7%	15.1%	8.9%	-	30.5%	33.5%	23.3%	20.8%	34.1%	26.5%	25.9%	11.1%	10.6%	

VALUE OF RETAIL REMOTE PAYMENTS BY METHOD IN AUSTRALIA (2011-2025)

Retail Remote - by Value (AUD billions)											Forecast					
YEAR ENDING JUNE	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
Credit Card Schemes	$15.0	$15.5	$14.7	$15.0	$16.1	$16.9	$21.8	$25.5	$37.7	$30.6	$31.2	$26.0	$23.3	$25.5	$26.4	RBA domestic "card not present" data (includes Visa, Mastercard, Amex, Diners, UnionPay) less card not present bill payment and 10% of commercial credit card domestic spend to 2020; TIG projections thereafter, with international deduction of 5%
Debit Card Schemes	$4.3	$4.6	$5.5	$7.5	$11.1	$16.4	$22.4	$29.4	$33.0	$45.5	$59.0	$75.1	$93.8	$95.6	$97.0	RBA domestic "card not present" data (includes Visa, Mastercard, Amex, Diners, UnionPay) less card present bill payment to 2020; TIG projections thereafter, with international deduction of 5%
Visa/Mastercard	*$4.3*	*$4.6*	*$5.5*	*$7.5*	*$11.1*	*$16.4*	*$22.4*	*$29.4*	*$33.0*	*$45.5*	$56.4	$62.9	$75.1	$73.9	$81.0	Assume all debit card value is Visa/Mastercard until June 2020
eftpos	*$0.0*	*$0.0*	*$0.0*	*$0.0*	*$0.0*	*$0.0*	*$0.0*	*$0.0*	*$0.0*	*$0.0*	$2.6	$12.3	$18.7	$21.7	$16.0	Zero at least until June 2020
BPAY						$0.7	$0.7	$1.0	$1.0	$1.0	$1.0	$1.0	$0.0	$0.0	$0.0	Estimate of Qantas, etc
NPP (e.g. Azupay & MPS)						$0.0	$0.0	$0.0	$0.0	$0.0	$1.0	$5.0	$12.0	$18.0	$25.0	TIG estimates
SCT									*$0.0*	*$0.0*						Based on overall market SCT/Osko value split provided in RBA data
Osko									*$0.0*	*$0.0*						Based on overall market SCT/Osko value split provided in RBA data
Other A2A (e.g. PayPal from bank acct)						$4.0	$5.2	$6.0	$6.5	$9.0	$11.0	$12.0	$13.0	$14.0	$14.0	TIG estimates, assume 10% of PayPal from bank account rather than via cards
Other (e.g. Poli, gift cards)						$3.5	$3.6	$3.7	$3.8	$4.0	$4.0	$4.0	$2.0	$1.0	$1.0	TIG estimates
Total	**$19.3**	**$20.1**	**$20.2**	**$22.5**	**$27.2**	**$41.5**	**$53.7**	**$65.6**	**$82.0**	**$90.1**	**$107.2**	**$123.2**	**$144.1**	**$154.1**	**$163.5**	
Growth		5%	0%	11%	21%		29%	22%	25%	10%	19%	15%	17%	7%	6%	
Remote retail as share of total retail	5%	5%	4%	5%	5%	8%	10%	12%	15%	18%	19%	21%	24%	24%	24%	
Average Transaction Value at remote POS	$109	$114	$109	$105	$117	$91	$90	$82	$84	$76	$67	$61	$57	$55	$53	

RETAIL IN-STORE PAYMENT METHOD MARKET SHARE BY VOLUME IN AUSTRALIA (2011-2025)

[Redacted – Confidential]

RETAIL IN-STORE PAYMENT METHOD MARKET SHARE BY VALUE IN AUSTRALIA (2011-2025)

[Redacted – Confidential]

RETAIL REMOTE PAYMENT METHOD MARKET SHARE BY VOLUME IN AUSTRALIA (2011-2025)

Retail Remote Shares by Payment Method by Volume											Forecast				
YEAR ENDING JUNE	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Credit Card Schemes	92%	91%	84%	70%	58%	42%	34%	32%	29%	23%	18%	14%	13%	13%	13%
Debit Card Schemes	8%	9%	16%	30%	42%	41%	50%	55%	60%	66%	72%	76%	79%	78%	78%
Visa/Mastercard			*16%*	*30%*	*42%*	*41%*	*50%*	*55%*	*60%*	*66%*	*69%*	*64%*	*63%*	*61%*	*65%*
eftpos			*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*3%*	*12%*	*16%*	*18%*	*13%*
BPAY	0%	0%	0%	0%	0%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
NPP (e.g AzuPay & MPS)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%	3%	4%
SCT									*0%*	*0%*					
Osko									*0%*	*0%*					
Other A2A (e.g. PayPal from bank acct)	0%	0%	0%	0%	0%	9%	9%	8%	7%	8%	7%	6%	5%	5%	5%
Other (e.g. Poli, gift cards)	0%	0%	0%	0%	0%	8%	6%	5%	4%	3%	3%	2%	1%	0%	0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

RETAIL REMOTE PAYMENT METHOD MARKET SHARE BY VALUE IN AUSTRALIA (2011-2025)

Retail Remote Shares by Payment Method by Value											Forecast				
YEAR ENDING JUNE	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Credit Card Schemes		77%	73%	67%	59%	41%	41%	39%	46%	34%	29%	21%	16%	17%	16%
Debit Card Schemes	22%	23%	27%	33%	41%	40%	42%	45%	40%	51%	55%	61%	65%	62%	59%
Visa/Mastercard			*27%*	*33%*	*41%*	*40%*	*42%*	*45%*	*40%*	*51%*	*53%*	*51%*	*52%*	*48%*	*50%*
eftpos			*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*2%*	*10%*	*13%*	*14%*	*10%*
BPAY	0%	0%	0%	0%	0%	2%	1%	2%	1%	1%	1%	1%	0%	0%	0%
NPP (e.g. AzuPay & MPS)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	4%	8%	12%	15%
SCT									*0%*	*0%*					
Osko									*0%*	*0%*					
Other A2A (e.g. PayPal from bank acct)	0%	0%	0%	0%	0%	10%	10%	9%	8%	10%	10%	10%	9%	9%	9%
Other (e.g. Poli, gift cards)	0%	0%	0%	0%	0%	8%	7%	6%	5%	4%	4%	3%	1%	1%	1%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

PERSON TO PERSON PAYMENT METHOD MARKET SHARE BY VOLUME IN AUSTRALIA (YE Jun 2020)

[Redacted – Confidential]

ESTIMATION OF MARKET SHARES BY VOLUME OF PAYMENT METHODS IN OTHER MARKET SEGMENTS IN AUSTRALIA (YE Jun 2020)

B2P and G2P

G2P B2P		
Transaction Volumes & Shares, excludes bill payments		
YE Jun 2020	**Volume (Millions)**	**Shares (%)**
Payment Method		
BPAY	0	0%
NPP	40	5%
Osko	*33*	*4%*
SCT	*7*	*1%*
Direct Entry	636	87%
Credit Card Schemes	0	0%
Debit Card Schemes	0	0%
EFTPOS	*0*	*0%*
Visa/Mastercard	*0*	*0%*
Cheque	8	1%
Cash	50	7%
Other (Beemit, Paypal, Visa Send, etc)	0	0%
Total	**734**	**100%**

ESTIMATION OF MARKET SHARES BY VOLUME OF PAYMENT METHODS IN OTHER MARKET SEGMENTS IN AUSTRALIA (YE Jun 2020)

P2P, B2B, B2P and G2P

[Redacted – Confidential]

ESTIMATION OF OTHER MARKET SEGMENTS BY VALUE & VOLUME IN AUSTRALIA (YE Jun 2020)

P2P, B2B, B2P and G2P

Segment	$ bn	Txn m	ATV	
G2P				TIG estimated ATV in order to get transaction number where only a $ figure was available
Welfare	170	339	501	ABS
Medicare to patient	4	54	74	ABS
Tax refunds	3	1	3,000	ATO
Subtotal	177	394	449	
B2P				
Salaries & Wages	856	252	3,400	ATO
General Insurance payouts	25	8	3,000	TIG research & estimates
Health Insurance Payouts	5	20	250	TIG research & estimates
Promos, refunds, rebates	2	20	100	TIG research & estimates
Superannuation pensions	80	40	2,000	ABS & ATO
Subtotal	968	340	2,846	
B2B				
Superannuation contributions	120	6	20,000	ATO
Health Insurance Payouts	15	10	1,500	TIG research & estimates
Supplier payments	1500	566	2,650	TIG research & estimates, excludes T&E expenses
Subtotal	1635	582	2,809	
P2P				
Friends, family, etc	25	584	43	TIG research & estimates
Total	2,805	1,900		
B2B card expenses		164	RBA commercial card data to June 2020, mainly T&E	
less B2B card expenses on Bill Payment		-50		
Total with T&E		2,014		

ESTIMATION OF PAYMENT METHOD VOLUMES IN OTHER MARKET SEGMENTS IN AUSTRALIA (YE Jun 2020)

P2P, B2B, B2P and G2P

[Redacted – Confidential]