Open Platform for Payments Innovation

Submission to the Reserve Bank of Australia
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Background

The Payments System Board of the Reserve Bank of Australia (RBA) has undertaken a Strategic Review of Innovation in the Australian Payments System. The objective is to identify areas in which innovation in the Australian payments system may be improved through more effective co-operation between stakeholders and regulators. It will take a medium-term perspective, looking at trends and developments overseas in payment systems and at possible gaps in the Australian payments system that might need to be filled through innovation over a time horizon of five to ten years. The goal is ultimately to identify projects that the Bank and other stakeholders could work on co-operatively to enhance the payments system in Australia.

On 30 June 2011, the RBA launched the formal consultation phase of its Strategic Review of Innovation in the Payments System, inviting submissions by 31 August 2011.

Ideas & Actions is a Sydney management consultancy advising large organisations on innovation, particularly with technology leverage. Dilip Rao, Managing Consultant at Ideas & Actions, has been involved with the payments industry in Australia since 1986, most recently as founder and MD of www.paymate.com, an Australian online payments company that has extended operations into the USA. See www.diliprao.com for further details on credentials.

Purpose

This document is submitted as one input to the deliberations of the RBA and for consideration by financial institutions and industry participants to achieve transformational change in the architecture of the payments system for the benefit of consumers, businesses and the payments industry.

Acknowledgements

My thanks to Darren Flood, Deputy Head of Payments Policy and Nola McMillan, Head of Payments Settlements and their teams at the RBA for their time and feedback on these ideas. Thanks also to Simon Raik-Allen, CTO MYOB, for his review and comments on architecture.

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Executive Summary

Changing the foundations of industry clearing and settlement mechanisms for low-value, high volume, bank/stored value account payments is a potential game-changer. Creating a utility at this level could enable a whole range of new value-added services that better meet customer expectations in the fast-growing arena of mobile and Internet transactions as well as the displacement of cash at point of sale.

Current bank account-based payment services are still built on the platform of the Bulk Electronic Clearing System (BECS) which was designed for non-time critical, periodic debits and credits captured and processed in bulk for overnight clearing and settlement. The Direct Entry application systems of most banks that feed BECS are antiquated and prone to failure, yet funnel increasing volumes of payments, including transactions originating on Internet and mobile platforms. There is no open clearing mechanism to move funds efficiently and speedily between bank accounts and non-bank Stored Value accounts.

An Open Payments Clearing Hub (OPCH) with an Open Architecture to capture, process and clear low value payments in real-time between participating providers is mooted. Payments originating at any point of payment and funded by any instrument would be processed via a generic clearing utility. An ISO 20022 message standard and published Application Programming Interfaces for the submission of generic payment instructions is suggested.

In concept, a payment authority from a buyer/payer originating at an Internet, mobile or physical point of payment would be captured securely by a merchant/payee or third-party provider and submitted in a generic message format via an accredited Clearing Participant to the Open Payments Clearing Hub. The OPCH would route it to the client's account holding Clearer (Bank or Stored Value Provider) for real-time approval of funding. The OPCH would leverage the RBAs existing Exchange Settlement Account (ESA) mechanism to achieve gross settlement, with each accredited Clearing Participant maintaining an ESA for real time update. Secure notifications of payment status would be provided to the buyer and merchant via their Clearers. The merchant/payer's account could be updated in real time, near-real time (or overnight as current), based on their contracted service level and capabilities of their account provider. The OPCH would be a back-end clearing service for providers rather than a client-facing service. The Open Payments Clearing Hub could be operated by the RBA itself or by an accredited third party.

Such a platform will require significant industry investment, but can complement existing platforms to support emerging schemes. It can make a strategic change to the architecture of payment systems in Australia to provide a platform for ongoing innovation, perhaps enabling a 'thousand flowers to bloom'. A 'Payments Innovation Council' is suggested as a catalyst for industry-led innovation and to lay out a strategic roadmap for core payment capabilities over a 5-10 year period.

Focus & Scope of Submission

In the RBA's view, 'a key priority is ensuring that the governance structure for the industry is one that supports innovation. The Payment Systems Board is seeking views on the capacity of industry-driven governance to produce the level of innovation that is in the public interest.'

The RBA sees a 'second important area as the provision of payments infrastructure. An important question is whether the current structure of Australia's main payments networks best serves the public interest, acknowledging that centralised arrangements typically prove to be more conducive to innovation. This paper has raised the potential benefits that hubs can provide and seeks views on whether and how they might be used to greater advantage in the Australian payments system. Separately, with the speed of retail payments in mind, it has raised the possibility of real-time (or close to real-time) settlement arrangements for low-value payments.'

To address these key priorities, this submission focuses on the need for strategic change in the Australian payment systems architecture and for a new entity to enable industry-led innovation. The need for innovation and a conceptual proposal for an Open Payments Architecture are outlined in t he first two sections. Comments are provided on selected issues and queries raised by the RBA in their consultation document in the final section.

The Need for Payments Innovation

Consumer Needs & Industry Issues

Consumers want instantaneous confirmation of a purchase and subsequent fulfillment information, with protection against non-delivery when merchants are not well known. Merchants want instantaneous confirmation of payment authorization, with some risk management to protect against fraudulent purchases when consumers are not identifiable or known.

Currently card scheme (Visa, MasterCard) payments funded by credit or debit card-based accounts are the dominant online payment instrument, primarily because they are supported by a proprietary (card scheme) clearing/settlement service that meets most of the needs identified above. The value-based pricing of card payments, even when funded from a consumer's bank account, and the merchant's liability for 'card not present' fraud are some reasons to consider cheaper, safer alternatives.

Online bank account payments are only possible via an Internet banking based 'push' payment authorised by the consumer on their bank's internet portal; there is little or no integration into the online or mobile purchase transaction, nor any online notification provided to the merchant.

Stored Value accounts with online/mobile access, as provided by third party providers including Pay Pal, are funded via a bank account 'pull' transaction initiated by the provider, again via the Direct Entry system and BECS process. This model is inherently limited, with no certainty of authority to the underlying bank account as provided by the consumer to the Direct Entry User and the inconvenient requirement to fund the Stored Value account in advance of purchase.

Timing of Availability of Funds

The RBA has also highlighted two 'obvious obstacles to faster funds availability' in Australia:

1. First, next-day settlement of retail payments is not conducive to faster funds availability.
2. Second, the internal systems of some banks are geared to overnight processing and are not presently capable of crediting accounts in real-time or near real- time.

According to the RBA, again, 'an alternative model for providing faster customer access to funds without the need for credit provision by the receiving institution is to move, not just to same-day settlement, but to real-time or near real-time settlement of retail transactions.'

Real-time Confirmation of Payments

In our experience, and as per the RBA, 'for many merchants it is not immediate access to funds that is important, but immediate confirmation that an irreversible instruction to pay the funds has been made and that the funds are indeed available in the payer's account. Card

payments facilitate real-time confirmation of payment to merchants by checking funds/ credit available to the customer and blocking that amount in the customer's account. This allows purchased goods and services to be released to the customer immediately.'

'Given the rapid take-up of online payments, the provision of similar functionality online is important. This functionality is available from the international card schemes, which dominate this space, as well as some specialist online payment providers. It can be argued therefore that there is no gap here, but the (RBA Payment Systems) Board has been concerned that there is not greater competition in this area. Widely used systems such as BPAY and Direct Entry are not able to provide this functionality, while the eftpos system can do so only in a point-of-sale environment.'

Payments 'Value Stack' Model

The diagram below depicts the structure of the Australian payments landscape via the concept of a 'Payments Value Stack©' that conceptualises solutions for different client segments by knitting together the layers - a specific user interface at the point of payment with a funding instrument underpinned by a clearing system or stream.

As payment solutions have evolved, these layers have become tightly coupled, e.g. a physical point of sale device (eftpos terminal) with PIN pad authentication is funded by a consumer's bank account and cleared via the Consumer Electronic Clearing System (CECS). The rigid rules that have been defined around some of these elements mean that a payment captured via a mobile phone cannot today be cleared via CECS to debit a consumer's bank account. Scheme (Visa, MasterCard) credit and debit cards are supported by the ubiquitous EFTPOS terminals but cleared via the proprietary scheme networks rather than CECS.

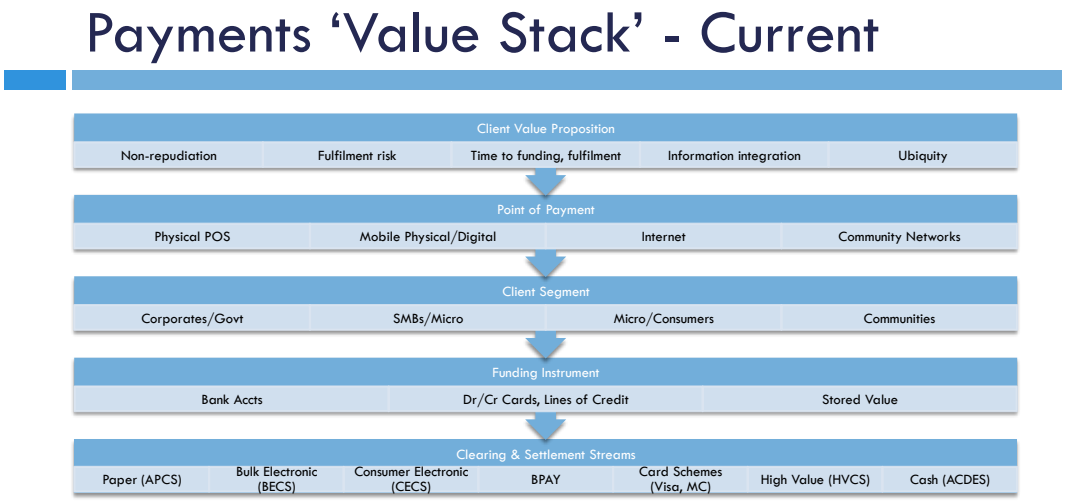

Figure 1 Payments 'Value Stack'©

The architecture of the existing silo clearing and settlement mechanisms to support a variety of funding instruments, client segments and channels creates inherent constraints as new point of payment and funding options emerge to meet changing consumer and business needs.

New providers have entered the market by offering new value propositions (e.g. protection against delivery risk), new services at the point of payment (e.g. mobile apps for payment) and new funding instruments (e.g. stored value accounts online). They are systemically constrained in attaining the critical scale required for any payments service or scheme to become viable in several ways:

Point of Payment Constraints

- Physical devices are expensive to supply, distribute, connect and support, so even for a small country like Australia the investment is significant.
- Consumer access via mobile devices and the Internet is widely available but lacking the standard authentication capabilities to support non-repudiation, risk management becomes the constraint.
- However, countries like India have shown that when the technology investment is removed and risks pragmatically managed (e.g. via mobile phone SMS interactions between consumers and merchants), then new services can be rapidly scaled across even large geographies at low cost.

Market Entry and Critical Mass Constraints

- Capturing large numbers of consumers while at the same time signing up a critical mass of merchants is the classic 'two-sided' business model with the 'chicken and egg' constraint that only a significant marketing investment (and subsidisation for a period) can overcome.
- Sometimes significant markets can be 'closed' to new providers by their makers. The case of Paymate's eventual access after two years to eBay Australia/NZ requiring intervention by the Australian Competition & Consumer Commission is one example; we can expect dominant social networks like Facebook to impose similar constraints as they promote commerce.
- Larger Australian organisations and corporates tend to be more risk averse and less likely to pioneer unproven payment services offered by non-bank providers.

Funding Instrument Constraints

- By definition, bank accounts can only be offered by banks (though Credit Unions may soon call themselves banks) and this most popular funding instrument remains the 'last mile' equivalent of the telecommunications industry - only your bank can allow access to your bank account.
- While historically constrained via regulation, Australia is actually better-placed than most Asia-Pacific countries in supporting non-bank institutions to offer funding options – the Australian Financial Service License regime supports non-cash payment

facilities without a banking license and Stored Value accounts can be offered within approved limits.

- Though recent history points to the lack of confidence in non-monetary funding instruments (such as 'e-Gold'), perhaps credits earned on popular social and gaming platforms will become legitimate funding instruments in the real world soon.

Clearing & Settlement Constraints

- Having evolved to support the banking services they were designed for, the five major clearing and settlement systems (Cash, Paper, BECS, CECS, HVCS) are managed by the Australian Payments Clearing Association (APCA) and regulated by the RBA.
- While membership of the governing bodies (under APCA) for the clearing systems has been opened up to non-banks, such as retailers, in general these are being enhanced incrementally from a bank-driven legacy, not redesigned from a blank sheet of paper for the future.
- BPAY is a closed scheme for participating banks and leverages BECS to clear and settle (largely) bill payments.
- Visa and MasterCard operate closed schemes for participating banks and licensed card issuers/acquirers and require significant capital backing for access.

As a result of these constraints, there have been no new providers or radically new services on offer at the Clearing & Settlement layer. Cheques still clear and settle via electronic exchange on a T+3 basis (three business days) while BECS (Direct Entry of batch files) and CECS (generally) settle on a T+1 basis. Only the High Value Clearing System, underpinned by the Reserve Bank Information & Transfer System (RITS) can support real-time settlement of high value payments at this time.

The RBA is keen to improve the settlement times for BECS and has solicited inputs to make this happen. **This is the level at which innovation can deliver value to multiple providers at all higher levels in the 'value stack'.** However the technology platform used for HVCS may not be suitable for high volume, low value payments, so any innovation here would require the design and development of new systems.

Transaction Trends

Since the RBA report[1] provides the most up to date sampling of consumer usage of payment systems, there is no need to revisit the statistics. However, a couple of observations are relevant to this submission.

Firstly, cash remains the most popular payment method by volume, at 70% of all payment transactions. However, being most popular for small value payments, cash represents only 38% of the value of payments every year. This implies the greatest potential for new payment methods lies in cash replacement.

[1] 'Developments in Retail Payment Systems', Reserve Bank of Australia; link.

If this is to happen at the physical point of sale, new consumer user interfaces can be expected to replace the legacy EFTPOS terminals as their replacement lifecycles require. Ideally, these should give the consumer maximum control of the funding instrument as well as associated service levels around fulfillment, security and information, while the merchant derives their key values of security, non-repudiation, settlement and integrated, richer reporting.

Non-Cash Payment Method	% Volume	% Value	Average $	5-year % Growth by Volume	5-year % Growth by Value
Cheques	4.9	11.3	4,814	-9.3	-2.3
Direct Debits	10.5	37.5	7,462	7.0	8.4
Direct Credits	22.7	47.0	4,333	6.5	6.8
Debit Cards	33.4	1.1	67	13.1	12.8
Credit Cards	24.1	1.7	145	5.9	8.1
BPAY	4.4	1.4	697	13.8	16.2
Totals	100.0	100.0	2,090	7.2	6.2

Figure 2 Australian Non Cash Payments 2009-10 (Source: RBA)

The above-market growth of debit cards reflects the popularity of payment from consumers' own funds as opposed to borrowed (credit) funds, both via EFTPOS and scheme cards. BPAY stands out as the most successful in terms of growth, though overall share of value and volume remains low, as for all online and telephone payment methods. Even the more recent online payment services (Paymate, PayPal, POLI) capture less than 1% of the value/volume of payments today, again due to the constraints already noted.

There remains great potential to improve the growth of direct debits and direct credits, which are also funded via bank accounts, via radical improvements in their value propositions to consumers and merchants.

Industry Responses to Date

Since July 2010, the RBA has been examining opportunities for innovation, including the network architecture, stating that[2] 'in addition to making governance difficult, the bilateral

[2] 'Competition and Cooperation in Retail Payments', Annual Report 2010, Payments Systems Board, Reserve Bank of Australia, link.

structure of some of the main retail systems in Australia has tended to dampen competition between participants'.

The industry, through APCA, is setting out detailed plans to migrate the industry to a Community of Interest Network (COIN) for message exchanges in the cheque, direct entry and ATM and EFTPOS systems by December 2011. While removing the inefficiency of bilateral links, COIN is a transport-layer service that does not solve the problem of delayed clearing and settlement of low value, high volume payments submitted via the Bulk Electronic Clearing System.

The major banks indicated that they intended to support a new system, operated by BPAY, which, among other things, would provide a bank-supported system to make online payments from a deposit account. Known as 'MAMBO', the system[3] would provide a platform that could allow real-time confirmation of payments as required for online commerce. In late August 2011, BPAY announced the termination of the MAMBO project after the withdrawal of two major banks.

Very few of the emerging needs of consumers and merchants may be met by currently proposed industry developments unless efforts are renewed to initiate strategic changes.

[3] 'BPAY's MAMBO readies for song and dance', ZDNet, 12 Nov 2010.

A Platform for Innovation

An Open Payments Architecture

To create a platform for real innovation, transformational change in the architecture of the payments network is required. Building piecemeal solutions on the existing architecture is not an adequate response.

According to the RBA itself, other countries have moved ahead of Australia's deferred settlement system. 'The 'Faster Payments Service' in the United Kingdom, which allows customers to initiate payments via internet banking with funds available to the recipient in many cases within seconds. Payment messages can be sent in real-time, similar to the eftpos and ATM systems in Australia, or submitted in batches, and are made immediately available to the recipient by the receiving bank providing credit. Interbank credit is managed via the use of three same-day settlement batches and a net debit cap for each bank. The National Electronic Funds Transfer system in India takes a different approach, with hourly settlement sessions 5½ days a week, and funds typically available to recipients within two hours of settlement.'

Payment clearing and settlement systems are the foundations on which innovative market current and future providers can build solutions and services.

An Open Payment Messaging Framework

Clearly, building silo solutions for different funding instruments and their characteristics – cheques, credit cards, bank accounts, etc. – and catering to the incumbent players alone – Financial Institutions, Approved Deposit taking Institutions, Australian Financial Service Providers - is NOT the way we should go about this now.

New funding instruments, new providers and operators and new channels for payments need to be supported, without necessarily knowing in detail what they may look like in the future. The rapid growth in mobile payments was not evident even five years ago, so we can expect more surprises in the future. Identifying and supporting generic requirements, both in functional terms (for timely, cost-effective and risk-managed services) and architectural terms (flexible, scalable, open components), is perhaps a better approach than betting on specific technologies.

By separating the funding instrument from the channel and the point of payment technology implementation, a generic payment-messaging framework for industry can be the focus for innovation.

Rather than mandating the technology platform to be used, it would be preferable to set Service Level standards to be met (at different price points) to suit the wide and varied needs of consumers, businesses and payment service providers including Financial Institutions.

Publishing functional and architectural specifications of requirements for industry debate and refinement would be a first step if the conceptual model proposed here were considered broadly acceptable.

With a core industry utility offering rather than complete client solutions, cooperation from all participants can be expected. The failure of BPAY's MAMBO project can be traced to the relative competitive advantage provided to two banks that had stronger biller/consumer bases, to the disadvantage of the others. MAMBO also offered a complete client service, reducing the scope for providers to differentiate their own offering. These obstacles to broad participation can be avoided.

There is some debate about the need for real-time (immediate) settlement as opposed to 'near' real-time settlement, e.g. multiple intraday settlements. The Faster Payments scheme in the UK has not been a tear-away success. However, as a design goal with a view to the future, we believe real-time settlement at the Clearer level is a must. The timing of final settlement to the payee's account can be left to their Clearer/Account Holder based on commercial and competitive demands.

Open Payments Model - Principles

The principles of the proposed model are as follows.

- The focus will be on the utility functions of payment clearing and settlement alone, not the provision of products and services to the end user - these will be the realm of service providers who leverage their relationships and add business value via their proprietary capabilities.
- Participants will be limited to approved Clearers/Settlers as per the requirements of the RBA for operators of an Exchange Settlement Account held with the RBA.
- By design, payments originating at any point of payment (Internet, mobile, physical Point of Sale) and funded by any instrument (bank account, credit account, stored value account) will be acceptable for clearing and settlement via this generic utility.
- The submission of a payment authorization will be via a single, published messaging data format (for which standards already exist, e.g. ISO 20022) and a published Application Programming Interface that makes it easy for participants to access and operate services provided by the OPCH.
- Security (payer/payee authentication, etc.) standards for access and message interchange will be agreed appropriately to the risks and payment values.
- The OPCH service would conduct the routing, authorization and notification of parties (the Clearers) as well as real-time settlement of funds using the Exchange Settlement Accounts at the RBA of the Clearers in each transaction.
- Additional functions may be added by agreement but in keeping with the 'open' principles adopted.
- Participation in the clearing/settlement agreement via this utility would be mandatory for all payment industry participants.

Open Payments Model – Logical Architecture

The logical interactions between the parties interacting with the OPCH can be summarised as follows.

1. Payment Authorisation Capture by Financial Institution/Accredited Clearer:
   - Payments may be authorised by clients (payers) on any Point of Sale or transactional platform, -internet, mobile or physical – and submitted to the Payments Clearing Hub by an accredited Clearer.
   - The Clearer may act for either the payer or the payee and may be any party that meets the RBA's Exchange Settlement Account holder requirements.
   - The authorisation would simply identify the payer, payee and amount, with the funding instrument (bank account, credit card, stored value account, etc.) being an optional item (a default funding account could be assumed by the payer's Clearer).
   - A transaction reference would allow all parties to link supporting information to the payment.

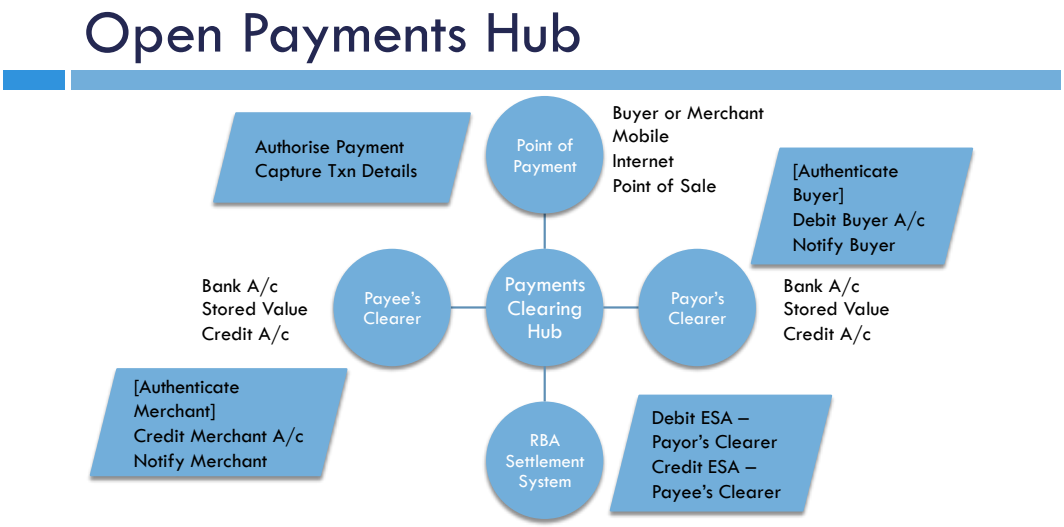

Figure 3 Open Payments Hub

2. The OPCH acts on the request as follows:
   a. If the OPCH receives a request from a Payee's Clearer, it routes it to the Payer's Clearer for authorization. The Payer's Clearer responds to the OPCH with an approval or denial response. The response would be determined after (a) authenticating the Payer's credentials (as submitted and/or via an independent method) and (b) confirming funds availability (via a real-time update or reference to a memo balance). The OPCH responds to the Payee's Clearer with the approval or denial response, for appropriate conclusion to the transaction.

   b. If the OPCH receives a request from the Payer's Clearer, it routes it to the Payee's Clearer for notification of settlement (assuming the Payer's Clearer has already authenticated the payer and confirmed funds availability).
3. In both cases, for an approved payment the OPCH debits the ESA of the Payer's Clearer and credits the ESA of the Payee's Clearer. Though ideal, the settlement need not be in real-time, but multiple intraday settlements would be feasible and beneficial from the perspective of systemic risk management.
4. For declined payments, the OPCH notifies the Payer and Payee Clearers so they can action further steps with their own clients.

Open Payments Model – Use Cases

The generic 'use case' may be outlined as follows.

1. 'Buyer' visits and makes a purchase (places order) at:
   a. a merchant's website,
   b. an online marketplace,
   c. a mobile application,
   d. a physical point of sale device.
2. The buyer is prompted to provide an industry alias (could be an alias of their choosing or a mobile phone number, email address, etc.) and, optionally, to select a preferred funding instrument, e.g. their nominated bank or stored value account. If not provided, their preferences would be known to and selected by their account-holding provider at the time of payment authorisation.
3. The buyer provides (for secure capture) the associated security authorization mechanism (could be a PIN, password, pass-phrase, token, etc. as dictated by their account provider and as suited to the point of payment) for authorisation of payment to the nominated merchant for the specified good/service/purpose (with a transaction identifier).
4. The merchant captures the payment transaction with all details above and submits it as a secure (encrypted) message to the Open Payments Clearing Hub via an agreed interface and a nominated intermediary.
5. The Open Payments Clearing Hub acknowledges the message and routes the authorization request to the buyer's nominated Clearer for a real-time response.
6. The buyer's Clearer processes the authorization request from the OPCH in real-time to approve or deny the funding request. Account operators who are able to make real-time updates to the account balance will do so while others may resort to a 'memo-posting' approach subject to a limit (as current in many FIs).
7. The buyer and merchant Clearers notify their clients of the status of the payment (approved, denied) via their agreed notification mechanisms (email, SMS, etc.) or integration into the merchant's point of sale system so that fulfillment may be initiated immediately.

8. If approved, the OPCH posts, in real-time, a non-repudiable debit to the ESA of the payer's Clearer and a credit to the ESA of the merchant's Clearer via an interface into the RBA's ESA platform. Final settlement to the merchant's account by their account operator may be to an agreed Service Level Agreement - in real-time or via multiple near-real time settlements through the business day as cost-effective and to mitigate systemic risk. [Merchants may pay different fees for the different Service Levels.]
9. Note that the RBA's current rules and requirements for Clearers/Settlers in the High Value Clearing System could be adapted for this operation, i.e. Clearers' would hold adequate funds in their ESAs to meet their liabilities. Systemic risk would be better managed with real-time clearing and settlement.

Two scenarios are depicted – one for a 'push' payment where the payer/buyer provides all transaction details and authorises a payment, the other for a 'pull' payment where the payee/merchant requests a payment.

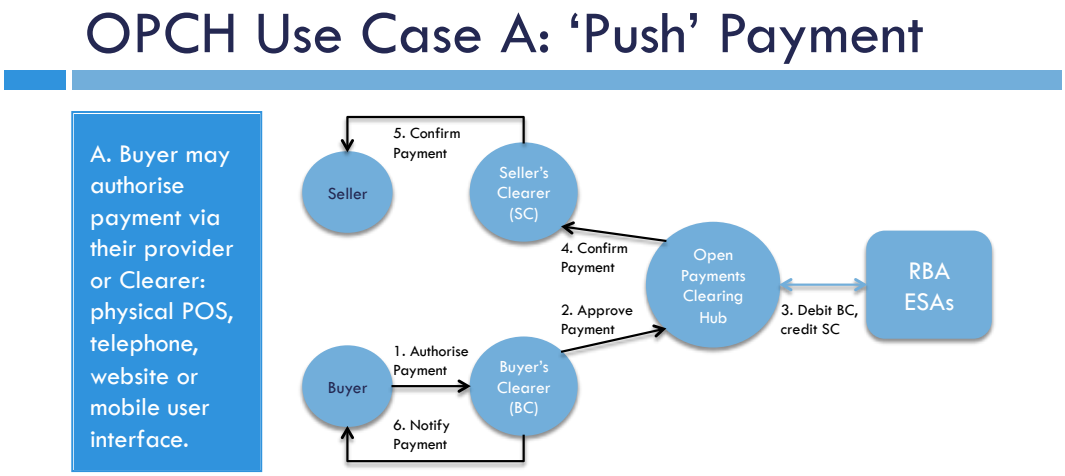

Figure 4 Use Case: 'Push' Payment

In the case of a payment authorised directly by the buyer with their Clearer, the authentication can be conducted immediately (in a physical interaction, secure session online or agreed mobile interaction) and details of the payer/merchant and transaction also captured by the Buyer's Clearer. The Buyer's Clearer then submits an approved payment to the OPCH with the Seller's Clearer identified. This allows the OPCH to clear and settle the payment via debit/credit to the respective ESAs and notification of the Seller's Clearer.

In the case of a 'pull' payment where the payee/merchant initiates a payment request, an authorization might have been secured from the buyer via the merchant, either for a specific transaction at the point of payment or via a standing (Direct Debit) authority for a defined purpose and period.

Based on their own risk appetite, the Buyer's Clearer might initiate additional authentication procedures in some or all cases. E.g. for a low value transaction the Buyer's Clearer may simply notify the buyer after the payment has been processed via the OPCH and deal with any repudiation subsequently. For a payment that exceeds some thresholds, the Buyer's Clearer may require the buyer to further authorise the payment and specific transaction, e.g. via an independent method such as responding to a mobile request for confirmation.

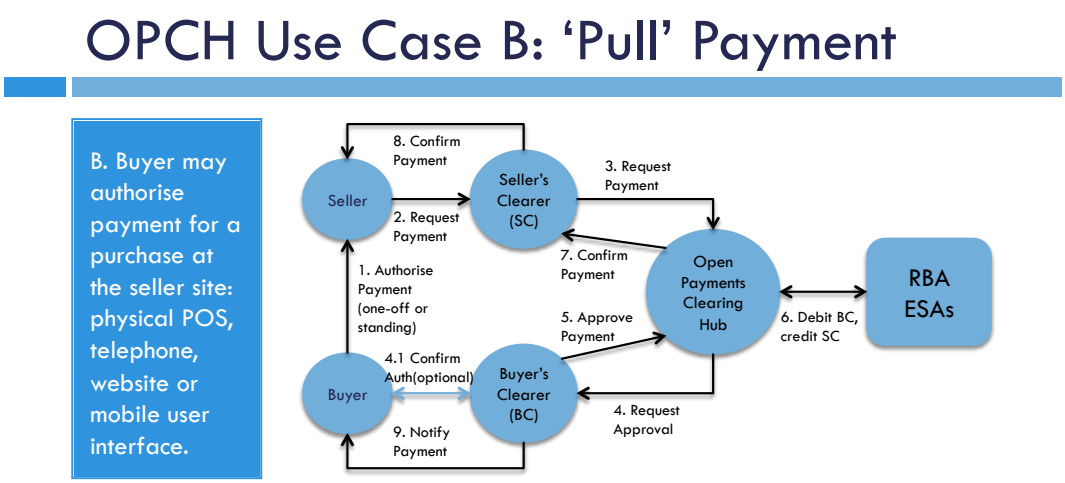

Figure 5 Use Case: 'Pull' Payment

In any case, the OPCH relies on the Clearers to guarantee the identity of the parties and authorization of payment and provision of funds to settle transactions in real-time or near real-time as agreed under the service levels.

Note that the current BECS mechanism need not be dismantled, with non-urgent bulk transactions continuing to be satisfied by the current overnight settlement SLA. Only new payment streams driven by mobile, internet and other points of sale needing real-time notification need be brought on board in a phased migration.

The clearing and settlement rules for the OPCH can be modeled on the High Value Clearing System (HVCS)[4]. [HVCS provides a best practice, efficient and highly secure electronic payments mechanism for the Australian finance industry. All members settle directly for their own transactions. Consequently, there is only one category of member in the HVCS - a direct clearer/direct settler. Participating members in the HVCS comprise all parties that hold exchange settlement accounts with the Reserve Bank, as well as the Reserve Bank.

[4] High Value Clearing System, APCA, link.

Settlement of HVCS payments occurs on a real time (i.e. immediate) basis. Large value payments and payments which are time critical have substantially shifted to the HVCS.]

Open Payments 'Value Stack'

The open architecture model proposed would underpin the earlier payments 'Value Stack' depiction by enabling the key value propositions to be offered by any combination of points of sale, client segment and funding instrument, with a single common clearing and settlement interface.

A new clearing stream could be established to run alongside existing streams until robust and only payments requiring the higher service levels need be migrated to it. Such a phased implementation would mitigate against operational, technology and other risks while keeping project and running costs under control.

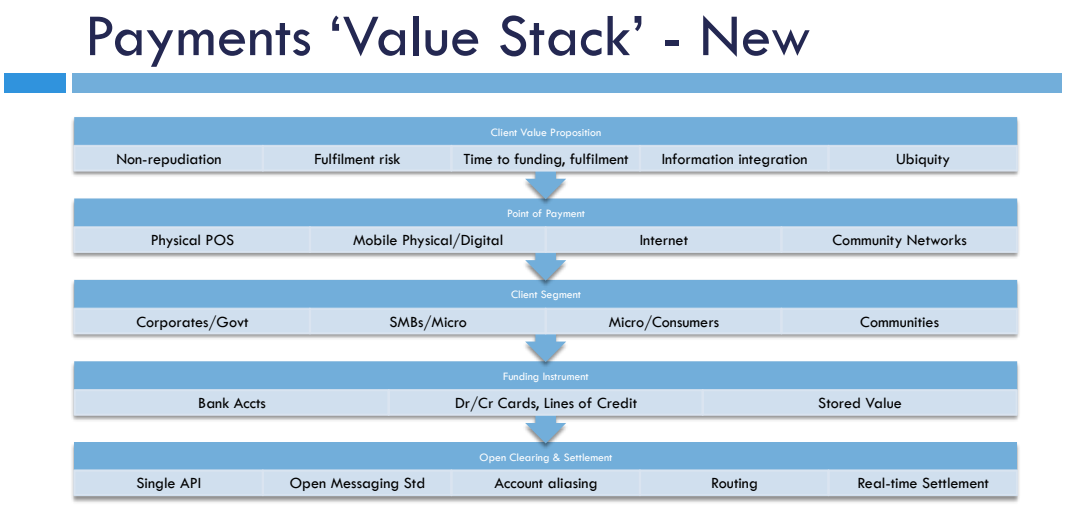

Figure 6 Open Payments 'Value Stack'

Additional types of interaction with the OPCH might be supported in the future:

- Seek authority to debit a payer's account (equivalent of current Direct Debit Authority)
- Seek authority to retrieve transaction records of an entity (e.g. for use in accounting systems) from the account holders
- Link a payment transaction via its unique identification to additional rich data (to remove the current constraint on information stored with the payment (limited to 18 characters)

Benefits of an Open Payments Clearing Hub

As the RBA has itself observed in their report:

- 'In its simplest form, a hub has the ability to receive messages from any payments system participant and send messages to any payments system participant. In this way, a hub could remove the need for bilateral connectivity and reduce the duplication of functionality to be built by all participants. This naturally reduces the cost of entry to the system for new entrants and maintenance costs for the incumbents. And unlike bilateral arrangements, the cost to new entrants will not increase as the number of participants increases.'
- 'A hub can allow communication between participants that choose to adopt different communication and security protocols and it can potentially translate between different message formats. This means, for instance, that migration to a new message standard could occur at different times for different participants or, indeed, that participants could remain on different standards indefinitely. In other words, a suitably designed hub can allow incomplete standardisation within a network, potentially reducing the barriers to innovation and facilitating more direct participation.'
- 'Alternatively, the operator of a hub could be established as a separate entity that governs the terms of access to the hub, potentially centralising some of the bilateral business underpinnings of current systems, further reducing the cost of access and simplifying decision making.'

In addition, several benefits accrue from the open architecture of a clearing hub:

- With published standards that all can contribute to and evolve to meet changing needs, an ongoing improvement culture can be built into payment systems participants.
- With new participants able to clear payments with relatively low cost access (to be determined), we can expect more entrants to offer more services to all segments of the market in a more responsive manner, even if some of these fail in the marketplace.
- Incumbents will be spurred on to bring new services to market more quickly, e.g. via value-adds such as integrated and richer payment information for merchants and business clients or transactional risk management.
- Providers who do not yet support real-time update of accounts will redouble their investments to build these capabilities to avoid loss of market share to those who do.

Risks of an Open Payments Clearing Hub

Again, as the RBA has itself observed in their report:

- 'A hub is a central point of failure and would require high levels of resilience and availability.'

Further, a hub poses additional challenges simply as a new development project of some scale and complexity:

- There are few comparable systems in the world today to draw upon, so Australia would be taking some design, technology platform and execution risks in venturing ahead of the market.
- The technical know-how to build and operate a hub is scarce and may need to be sourced internationally, increasing risks to budgets and timeliness of delivery.
- The collaboration required to agree requirements, both technical and operational, across a range of participants and drive execution would be a challenge, as recent efforts such as MAMBO have shown.
- The investment required could be significant and may need both public seed funding and private funding to implement, with the consequent challenges of securing commitments.
- The mitigation of risks to such a project would also be a challenge and require strong leadership to achieve deliverables.

Ownership, governance and management

In Australia the traditional model has been for major stakeholders to invest in and operate shared utilities, e.g. CardLink, BPAY and more recently, BPAY/MAMBO. Typically, the four major banks hold 70% of market share and hence bear the majority of investment and project risk in these ventures. Oversight is also left to the banks to manage such utilities and the interests of consumers/clients protected via the existing legislation and regulations.

However, such an approach has also typically resulted in a lack of innovation and responsiveness to emerging consumer needs due to the inherent inertia of networked entities with different priorities and viewpoints. New entrants are also generally not welcomed into these entities though access is generally provided via a sponsor bank. Innovation is generally more likely when the participants can see first mover advantages and can leverage common utilities and standards, even if services can initially be delivered only to a limited client base. Generally, if customers take up such new services, other participants follow on with similar offerings.

Commercial ventures without bank participation to deliver utility services have been rare and usually the result of an outsourcing by a consortium rather than via a commercial initiative. E.g. a commercial vendor was contracted to provide shared cheque processing services after a banking consortium determined the need and business case for such a service.

One approach to consider would be a 'public good' utility sponsored by the RBA that is funded and governed directly by the RBA until traction has been achieved in a core clearing/settlement hub. At a later date this entity could be spun out to operate as a commercial entity, if there was no basis for stakeholders to seek relative competitive advantage.

The RBA has stated that 'The Board is also prepared to consider the possibility that there are circumstances where co-operative failings or incentive structures are such that innovations in

the public interest cannot be delivered by the industry and should instead be delivered by the public sector, as occurred with the RTGS system, or with public sector involvement.'

Conclusions and Next Steps

Subject to comparison with other proposals that may be tabled, the concept of an Open Payments Clearing Hub appears to offer, at least at this high level, to offer some strategic benefits including greater access for new entrants and a platform for innovation by both incumbents and others.

Given the nature of the industry, to achieve any real progress quickly will require the RBA to drive the first steps:

1. Validate the concept further via the formation of a small project team to outline broad requirements, a high level design and address any key issues as may be identified by the RBA;
2. Scope the project and estimate costs, timeframes, key risks and resources required to deliver an operational hub;
3. Consult with key stakeholders to gauge support, resistance and actions required to secure financial and operational commitments;
4. Review the option among others to seek a go/no go decision from the RBA PSB.

A Catalyst for Innovation

'Australian Payments Innovation Council'

By definition, 'governance structures' and 'innovation' are not the best of bedfellows – the former seeks stability and lowering of risks while the latter is founded on disruption and the acceptance of risks and even outright failure. It might be far more effective (and safer for critical payment systems) to separate the two goals explicitly.

A small but separate entity - a 'Payments Innovation Council' that draws upon industry payments expertise but is substantially driven by business people, consumer representatives and organisations with a natural curiosity for invention and entrepreneurship might yield a steady source of issues and ideas for incubation, sponsorship and investment. [The UK model could be a model in this regard.] An 'open innovation' approach that offers problems for the industry and academia to take up for innovative resolution might also be viable.

RBA oversight and active participation will assist in getting more focus and resources on early stage innovation until viability and acceptance by the industry is established. Only initiatives that made the grade would then have to be 'governed' under the current regulatory structures.

Having the 'Payments Innovation Council' plug into end-users – both consumers and businesses – would be an effective way to take account of unmet and emerging needs, via a variety of consultation mechanisms.

The development of an industry 'roadmap' that charts a course from one set of broad payment capabilities to another desired set, say in 5-year periods, might be one strategic responsibility for this entity.

The strategic decisions recommended by the Payments Innovation Council would need to be underpinned by 'industry' business cases for investment, rather than the case for any one participant or big bets without any commercial basis. If focused on systemic building blocks rather than end user solutions, these decisions would more likely receive wide support, especially if they made common infrastructure or standards available. Participants would save costs and time delays in rework if messaging standards or security principles were adopted or mandated without undue delay. They could then focus on building competitive services that leveraged the common infrastructure, making better use of their own discretionary funding. Utility infrastructure would still need to be funded via a common pool with contributions reflecting usage.

The RBA could mandate that all payment clearing/settlement participants were required to implement the decisions of the Payments Innovation Council. Akin to clearing 'rules', recommendations could be mandated for implementation within agreed timeframes.

As expert stakeholders representing consumers and businesses, the RBA and PSB should set overarching goals for the industry, defined in 5-10 year timeframes. These goals would set directions for strategic change and the development of competitive capabilities. Tactical objectives might include setting payment unit clearing cost and timing benchmarks based on global best practice on an annual basis. It would then be up to the Payments Innovation Council, APCA and industry participants to deliver both short terms efficiency gains as well as longer-term strides via innovation.

Responses to RBA PSB Invitation for Submissions

To better respond to the specific 'Issues for Discussion' tabled by the RBA's Payment Systems Board in its report "Strategic Review of Innovation in the Payments System: Issues for Consultation", we have commented against selected specific report sections, most relevant to the Open Payments Clearing model proposed, with items numbered as in the RBA document.

International Models for Industry Governance (Section 5.5)

10. Do current governance arrangements adequately promote payments system innovation?

Governance cannot be held solely responsible for the constraints on innovation in Australia. In fact, it is the perception by other parts of the innovation ecosystem (angel investors, venture capitalists, private equity funds) that the Australian payments system is a 'closed shop' controlled by the banks alone, that constrains the provision of startup funding to new ventures based on innovation in emerging arenas (such as mobile payments). The major banks themselves are victims of the 'not invented here' syndrome and are not organized to invest in or incubate startups. This results in the stark contrast in the number and quality of new ventures in payments in the USA (primarily Silicon Valley) and Australia.

A model of governance that supported innovation with 'light touch' or no regulation at the early stage (when the risk of widespread consumer fraud or systemic risks are negligible) and more traditional regulatory and legislative controls at larger scale might be worth considering. The 'gatekeepers' to payment clearing and settlement will ultimately either encourage or constrain innovation in new services that leverage new technology or address unmet consumer/business needs. Non-bank aligned utilities that can support such incursions would be one way to foster innovation.

11. Are the needs of payments system users and non-ADI payment service providers adequately considered in decisions about the direction of the payments system?

No. There is no industry forum, including APCA, that actively engages with 'outsiders' (e.g. consumers, businesses, merchants, entrepreneurs) to solicit input, provide information and education, consider issues and systemic constraints or incubate new ventures relating to payments. In fact, the layperson would not even know where to start other than their own bank (or Ombudsman in the case of a complaint), if they had a generic payments-related query or submission. Neither APCA nor the RBA's PSB has this public profile.

12. Are there ways of altering current governance structures to make innovation easier?

By definition, 'governance structures' and 'innovation' are not the best of bedfellows – the former seeks stability and lowering of risks while the latter is founded on disruption and the acceptance of risks and even outright failure. It might be far more effective (and safer for critical payment systems) to separate the two goals explicitly. A small but separate entity (a 'Payments Innovation Council') that draws upon industry payments expertise but is substantially driven by business people, consumers and organisations with a natural curiosity for invention and entrepreneurship might yield a steady source of issues and ideas for

incubation, sponsorship and investment (through a competitive process). An 'open innovation' model that offers problems for the public to take up for innovative resolution might also be viable. [Procter & Gamble's 'Connect + Develop' portal[5] is a great example of the success of such models.]

RBA oversight and active participation will assist in getting more focus and resources on early stage innovation until viability and acceptance by the industry is established. Only initiatives that made the grade would then have to be 'governed' under the current structures. Since the market is 'broken' for such innovation in payments, small public funding, initially via the RBA or an industry fund and Commercialisation Australia at later stages might be required to 'make innovation easier'.

13. Are there ways of altering current governance structures to take more account of the views of end-users?

Having the above 'Payments Innovation Council' plug into end-users – both consumers and businesses – would be an effective way to take account of unmet and emerging needs, via a variety of consultation mechanisms.

14. Could a new decision-making body with broad representation of payments system participants, service providers and end-users provide a better strategic focus for the payments system, taking adequate account of costs and the public interest?

Yes, see references to a 'Payments Innovation Council' above. The development of an industry 'roadmap' that charts a course from one set of broad payment capabilities to another desired set, say in 5-year periods, might be one strategic responsibility for this entity.

15. How could such a body have the capacity to reach decisions across a diverse group of members?

The strategic decisions recommended by the Payments Innovation Council would need to be underpinned by industry business cases for investment, rather than the case for any one participant or without any commercial basis. If focused on systemic building blocks rather than end user solutions, these decisions would more likely receive wide support, especially if they made common infrastructure or standards available. Participants would save costs and time delays in rework if messaging standards or security principles were adopted or mandated without undue delay. They could then focus on building competitive services that leveraged the common infrastructure, making better use of discretionary funding. Utility infrastructure would still need to be funded via a common pool with contributions reflecting usage. [This approach is not uncommon between the major banks (for cheque processing) nor the credit union sector (for ATM networks), for example.]

16. Could such a group make binding decisions and how could they be enforced?

[5] Procter & Gamble, Connect + Develop, link.

The RBA could mandate that all payment clearing/settlement participants were required to implement the decisions of the Payments Innovation Council. Akin to clearing 'rules', recommendations could be mandated for implementation within agreed timeframes.

17. Could formalisation of a broader mandate for APCA, coupled with broader representation, provide better industry-wide outcomes?

No. It would be better for APCA, with its current structure and capabilities to remain focused on the technical aspects of any strategic directions recommended by the Payments Innovation Council and to maintain the orderly transition from current systems to new platforms and protocols.

18. What role should the Reserve Bank and the Payments System Board play in setting the reform agenda for the industry?

As expert stakeholders representing consumers and businesses, the RBA and PSB should set overarching goals for the industry defined in 5-10 year timeframes for strategic change and development of competitive capabilities while setting unit cost and timing benchmarks based on global best practice on an annual basis. It would then be up to the Payments Innovation Council, APCA and industry participants to deliver both short terms efficiency gains as well as longer term strides via innovation.

19. Have concerns about breaches of the Competition and Consumer Act (formerly the Trade Practices Act) prevented the industry from achieving greater co-operative innovation? What approaches are suggested to deal with this in a way that does not undermine the intent of the Competition and Consumer Act? What are the advantages and disadvantages of each?

No comment.

Structure of Clearing and Settlement Rules (Section 5.6)

20. Does the current structure of clearing and settlement adequately allow for the introduction of new payment products? How could this be improved?

The current structure does not cater for the flexible introduction of new payment products and services, since they have to be forced into one of the clearing streams with defined service levels and characteristics. The proposed Open Payments model would allow any combination of funding account and point of purchase channel to deliver a value proposition of relevance to the client segment. E.g. even a cheque drawn on a credit union's bank account could be captured electronically at a point of sale and the payment cleared in real-time or one business day or even three business days later, based on the service levels selected.

21. Is the current structure of rules applied to payment systems, including the five APCA clearing streams, the most appropriate?

They may well be appropriate for the traditional payment products and services with incremental improvements. Taking a fresh design approach to a new common stream design might be a superior option.

22. How should clearing and settlement rules change to take best advantage of upcoming functionality in RITS for same-day settlement of bilateral bulk payment files (and existing functionality for same-day batch settlement). Could rules be established for individual 'settlement streams', including for instance on the timing of availability of funds and the individual transaction values eligible for that stream?

No comment on the technical aspects of current rules to accommodate same day settlement of BECS files. Flexible business rules could apply at an individual payment transaction level to determine the service level provided, enabling an Open Payment Hub to offer flexible access and usage.

23. Are there alternative models for clearing rules? For instance, could a set of generic (but narrowly focused) clearing standards cover multiple payment systems, with more detailed system rules applied at the individual system level? Should such clearing arrangements be mandatory for all payment systems, including those not currently party to APCA arrangements?

To gain universal acceptance, universal access and simple rules with services delivered at very low cost can gain wide acceptance and attain the economies of scale required. To avoid a multiplicity of clearing systems without universal participation in any one, mandating participation may be a necessary at the most generic message level.

24. What other ways are there of allowing providers of new payment products or systems easy access to clearing and settlement arrangements. Is there a case for establishing a standard minimum payment message type that participants are obliged to accept from agreed counterparties?

Yes, there is a case for establishing a standard minimum payment message type that participants are obliged to accept from agreed counterparties. An open industry standard for both submission and exchange of payment messages is a prerequisite for network collaboration and reducing barriers to entry. Such message standards (e.g. ISO 20022[6]) are already available for immediate adoption.

25. Do existing clearing arrangements allow sufficiently easy access for new participants? If not, what could be done to improve this?

In theory, any organization that can qualify for an Exchange Settlement Account with the RBA can operate as a clearer. In practice, only ADIs appear to be active participants. Just as qualification and compliance requirements have been published and regulated for Australian Financial Service License holders by ASIC, a more open and supportive approach to the establishment of ESAs may encourage other providers to join the clearing network.

[6] ISO 20022 Standard – Universal Financial Industry Messaging Scheme, link.

System Architecture (Section 5.7)

26. Could greater use of hubs improve efficiency, access and innovation in the Australian payments system?

Yes, as discussed.

27. In what areas would a hub or hubs be useful – for instance, for transmission of clearing files, or for real-time individual transactions? For what type of payments would a hub be useful? What functions could a hub or hubs provide? Could a hub be available for use by multiple payment systems?

Hubs would be useful for clearing of real-time individual transactions, across multiple payment systems and schemes, as discussed.

28. Should hubs be considered best practice for new payment systems? Should existing systems be migrated to a hub? Could hub services be offered in a way that allows participants to opt in, while providing full services to new entrants?

While hubs offer many advantages, they should be used for the introduction of new systems and bedded down. While current systems are delivering the required service levels at low cost, there is no imperative to migrate their transaction volumes across to a new hub. E.g. periodic debits to bank accounts for utility bill payments (operating on a 'set and forget' basis) need never be migrated to a real-time clearing hub.

29. What type of ownership, governance and management arrangements would be desirable for a hub?

In Australia the traditional model has been for major stakeholders to invest in and operate shared utilities, e.g. CardLink, BPAY and more recently, BPAY/MAMBO. Typically, the four major banks capture 70% of market share and hence bear the majority of investment and project risk in these ventures. Oversight is also left to the banks to manage such utilities and the interests of consumers/clients protected via the existing legislation and regulations.

However, such an approach has also typically resulted in a lack of innovation and responsiveness to emerging consumer needs due to the inherent inertia of networked entities with different priorities and viewpoints. New entrants are also generally not welcomed into these entities though access is generally provided via a sponsor bank. Innovation is generally more likely when the participants can see first mover advantages and can leverage common utilities and standards, even if services can initially be delivered only to a limited client base. Generally, if customers take up such new services, other participants follow on with similar offerings.

Commercial ventures without bank participation to deliver utility services have been rare and usually the result of an outsourcing by a consortium rather than via a commercial initiative. E.g. a commercial vendor was contracted to provide shared cheque processing services after a banking consortium determined the need and business case for such a service. [The current

Experian initiative to set up a competing credit bureau has been questioned only because the major banks have a minority stake in the Australian venture.]

One approach to consider would be a 'public good' utility sponsored by the RBA that is funded and governed directly by the RBA until traction has been achieved in a core clearing/settlement hub. At a later date this entity could be spun out to operate as a commercial entity, if there was no basis for stakeholders to seek relative competitive advantage.

The RBA has stated that 'The Board is also prepared to consider the possibility that there are circumstances where co-operative failings or incentive structures are such that innovations in the public interest cannot be delivered by the industry and should instead be delivered by the public sector, as occurred with the RTGS system, or with public sector involvement.

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