

more  
than  
money



# REAL TIME PAYMENTS

Leveraging the future of payments  
for customer innovation

**November 2016**

**NAB  
LaBs**



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## **About NAB Labs**

NAB Labs is National Australia Bank's innovation hub, focused on the rapid experimentation and commercialisation of customer-led innovation. Primarily driven by human-centred design, NAB Labs investigates current challenges, analyses trends, and understands users to identify, prototype and iteratively deliver solutions. NAB Labs brings to life the infrastructure, capabilities, and talent of the organisation to allow disruptive innovation to go to market quickly and efficiently to 'change the way the bank changes'.

# FOREWORD



**Technology continues to evolve and drive rapid change to the way consumers and businesses interact with and between each other. The gap between organisations that deliver great service and those that deliver poor service is growing.**

Customer expectations for immediacy have created an environment where consumers want to make purchases, pay bills, and complete funds transfers without delay. Traditionally, the quickest and easiest way to do this has been via cash, however shifting behaviour as well as the costs and inconvenience of handling cash have led to global investment in real time electronic payment systems.

While the concept of real time isn't new when transferring funds within the same financial institution, real time payment systems allow customers to send and receive funds to anyone in real time, 24 hours a day, 7 days a week. Investment in real time payments is an evolution of the near real time model for cards-based payments, which currently delivers same day settlement for merchants. However, real time payments are not just about speed – the ability to provide detailed information with the transaction also makes payments more useful, particularly for businesses.

Around the world, central banks and governments have made significant investments in upgrading central payment infrastructure to enable funds to be transferred within the economy in real time. Whilst all of these models are different, they often have some common features including near 24/7 availability, near instant funds transfer, real time settlement between banks, simple addressing, and richer data. With the right regulatory framework and broad industry participation, real time payments can transform payment experiences across the economy.

As a business passionate to understand how we can solve pain points via customer centred design, innovation and rapid delivery, NAB Labs feels that there is great opportunity to leverage real time payments capability to deliver customer innovation.

Despite expectations of an 'Uber like' experience, Australians still face a payments landscape filled with friction and inefficiency. While payment volumes continue to grow, the underlying payment model has not changed dramatically in over 15 years. As a result, we see the New Payments Platform (NPP) as a major step in the evolution of Australian payments, transforming existing electronic payment models, and creating an industry platform for existing banks and new entrants to collaborate.

Australia's NPP will deliver a new payments model where rich data transfer is at its centre, creating the opportunity for payments to become integrated in the lives and value chains of our customers. This will support an environment where real customer value and innovative customer experiences can be delivered. This could include (but is not limited to) trigger based payments (e.g. buy a car and it automatically registers with Vic Roads and activates insurance), faster international payments, payments where contextual information is valuable (e.g. reconciling payments), as well as urgent payments.

As one of the most disruptive industry innovations to hit Australian financial services in decades, NAB is excited by the opportunity NPP provides to influence the future of payments and to continue to innovate for our customers.

A handwritten signature in black ink, appearing to read 'Jonathan Davey'. The signature is fluid and stylized, with a large loop at the top.

**Jonathan Davey**  
**Executive General Manager, NAB Labs - National Australia Bank**

# 1. CONCEPT OVERVIEW

## Defining real time payments

“Real time payments” is an umbrella term describing the ability to transfer funds between banks in real time, 24 hours per day, 7 days a week.

For individuals and businesses, this means immediate exchange of funds between major financial institutions (FIs). For FIs, this means immediate clearing and settlement of funds between major financial institutions (as opposed to the delayed settlement system of today).

## Real time vs. near real time payments

Today, card based payments (e.g. payments via debit or credit card schemes) provide merchants instantaneous confirmation of the goods paid. Whilst this gives the merchant comfort that the payer has the funds to complete the transaction, they generally don't receive the funds until after close of business. This is due to the fact that the cards payment system is not real time but near real time.

## Typical characteristics of real time payment models

Whilst real time payment models differ around the globe, they generally share some common characteristics<sup>1</sup>:



1

### 24/7

Customers can make and receive payments between financial institutions no matter the day or time



2

### Instantaneous

Funds are made immediately available to the recipient



3

### Real time settlement

Instant settlement between financial institutions



4

### Simple addressing

Personal identifiers such as mobile phone numbers and email addresses can be linked to bank accounts



5









### Richer data enabled

Many real time payment systems are enabled to transfer richer data alongside the payment

<sup>1</sup> Deloitte, Real-Time Payments Are Changing The Reality Of Payments, USA, 2015

## Benefits of real time payment models

Real time payment systems have the potential to benefit customers, banks, as well as society at large through the potential to reduce the costs to print, process, store, and circulate cash in the economy.

Payment type	Payment examples	Pain points	How real time payments could create value for customers
<b>Customer to Customer (C2C)</b>	<ul style="list-style-type: none"> <li>Buying second hand goods</li> <li>Buying an asset</li> <li>Splitting a bill</li> </ul>	<ul style="list-style-type: none"> <li>Lack of trust</li> <li>Quality of goods</li> <li>Dispute resolution</li> <li>Settlement time</li> </ul>	 <b>Instantaneous transfer and real time fund settlement means:</b> Customers can transfer to each other and receive funds immediately 24/7.  <b>Simple addressing means:</b> Customers can pay friends with their email address or phone number, no matter who they bank with.
<b>Customer to Business (C2B)</b>	<ul style="list-style-type: none"> <li>Bill payments</li> </ul>	<ul style="list-style-type: none"> <li>Return of mistaken payments</li> <li>Sending of receipts</li> <li>Collection of overdue payments</li> <li>Ensuring payment is received</li> </ul>	 <b>Data rich payments can:</b> Minimise the reconciliation burden for bill payments and enable seamless payment receipts.  <b>Simple addressing can:</b> Enable easier tracing of received payments.
<b>Business to Business (B2B)</b>	<ul style="list-style-type: none"> <li>Pay for an asset</li> <li>Pay a supplier</li> <li>Pay taxes</li> </ul>	<ul style="list-style-type: none"> <li>Reconciliation</li> <li>Paper based records – for tax &amp; other purposes</li> <li>Complex internal approval processes</li> <li>Quality control of goods</li> <li>Alignment of payment &amp; freight delivery of goods to multiple sites</li> </ul>	 <b>Data rich payments can:</b> Enable easier reconciliation of received payments. <b>Data rich payments can:</b> Deliver the ability to send, receive and store related documents alongside the payment. <b>Data rich payments means:</b> Easier processing of received goods on consignment and associated payments.  <b>Simple addressing can:</b> Enable integrated management and reconciliation of inventory/stock between suppliers.
<b>Business to Customer (B2C)</b>	<ul style="list-style-type: none"> <li>Insurance and emergency pay outs</li> <li>Payroll</li> </ul>	<ul style="list-style-type: none"> <li>Reconciling payment</li> <li>Sending related documentation with payment</li> <li>Settlement time</li> </ul>	 <b>24/7 instantaneous payments means:</b> Customers can receive emergency payouts without delay 24/7, with no payment cut offs.  <b>Data rich payments:</b> Customers can potentially reduce separate processes to send payments and associated documentation.

## 2. WHAT IS DRIVING ADOPTION?

### Factors driving demand of real time payment systems

- Consumer demand – In a world underpinned by immediacy, consumers are rapidly adopting payment technologies that are more convenient, instant and data rich. However, whilst customers increasingly rely on smartphones to make payments between friends, buy second hand goods, and pay bills, the exchange of cash remains the most convenient way to transfer funds in real time<sup>2</sup>.

**Example:** Jon wishes to buy a guitar from his friend Mitch. After inspecting the guitar, Mitch and Jon agree on a price of \$70. Whilst Jon and Mitch are friends, Mitch wants to ensure Jon has the funds before he hands over the guitar. Without real time payments, cash is the only way for Jon to pay Mitch for the guitar in real time.

- Business demand – Despite the increasing digitisation of every day experiences and processes, running a business still requires a large amount of manual processing and reconciliation. Without investment in data rich payment models (commonly used for real time payments) there is limited ability to leverage payment infrastructure to create operational efficiencies.

**Example:** Stephanie Craig Rental Management needs to manage rental contracts and documents, receive/reconcile rental payments from tenants, and send payments to landlords. Today, Stephanie has to hire an administration assistant to process these payments via online banking, as well as process and send the associated documents manually. Data enabled real time payment models could reduce the administration burden for Stephanie and her team.

- Merchant demand – Despite the ability for card based transactions to be settled same-day, merchants are increasingly looking to leverage transaction data to optimise business processes. Without data rich payment models, the ability to do this requires reconciliation and merging of multiple data sources.

**Example:** XYZ is a medium business who provide tailored customer promotions both in-store and on-line. To track the impact of the promotions today they need to manually reconcile sales. Using the enriched data capability of real time payments, each promotion can have a custom payment identifier which will automate the reconciliation, enabling XYZ to see which promotions are most effective across channels.

### Factors enabling adoption of real time payment systems

- Evolving technology – The evolution of payment and related technologies has created the opportunity for payment systems to deliver more customer value than was previously possible.
- Payments innovation by new entrants – The proliferation of payments innovation, as well as new payment related business models, has created a platform for new entrants to push the boundaries and create new customer experiences.
- Regulatory pressure – With the use of cash having high economic costs to banks and economies more broadly, regulators are placing increasing pressure on financial institutions to overcome the current inefficiencies inherent in non-real time payment systems.

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<sup>2</sup> Deloitte, Banking Reimagined: How Disruptive Forces Will Radically Transform The Industry In The Decade Ahead, Deloitte Centre For Financial Services, Australia, 2016

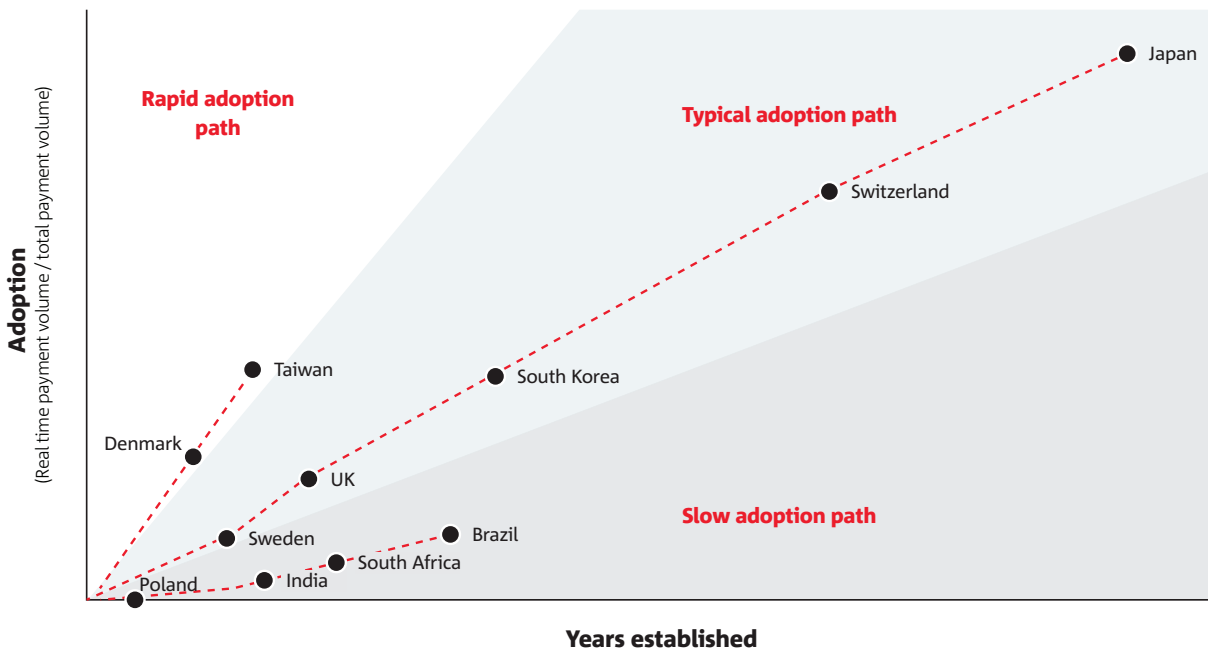
# 3. THE GLOBAL LANDSCAPE

## The size of the prize

In 2014, Boston Consulting Group estimated the total value of non-cash transactions globally to be USD \$433 trillion, growing at a compound annual growth rate of 7%, and forecast to reach USD \$780 trillion by 2023<sup>3</sup>. The substantial economic burden of cash usage (representing up to 1.5% of GDP) has accelerated global adoption of real time payment models, with some form of real time payments existing in over 35 countries<sup>4, 5</sup>.

## Adoption in the global context

In response to the demand and enablers previously mentioned, there has been an increase in global adoption of real time payment systems. The customer uptake of these payment services has varied across the world depending on existing payment infrastructure, regulators, customer value, and collaboration between domestic banks<sup>6</sup>.



Source(s): SWIFT, Global Adoption of Real-Time Retail Payment Systems, 2015; Clear2pay, Flavours of Fast – A Trip Around the World in Immediate Payments; NAB Labs Analysis

## Comparing real time payments in the UK and Denmark

Denmark’s real time payments model took half the time to achieve the same levels of adoption as the UK. Accenture reports that high adoption speed was driven by strong collaboration between banks, strong support from the central bank, and immediate migration from existing mobile payments platforms from Day 1<sup>7</sup>.

3 Boston Consulting Group, Global Payments 2014: Capturing The Next Level Of Value, 2014

4 Mastercard, Measuring Progress Towards A Cashless Society, Mastercard Advisors, 2015

5 SWIFT, The Global Adoption Of Real-Time Retail Payments Systems, 2015

6 SWIFT, op cit.

7 Accenture, Real-Time Payments For Real-Time Banking, Accenture Payment Services, 2015

Global experience suggests that the following factors are crucial in driving rapid and widespread customer adoption of real time payment systems:

**a) Regulator involvement and motivation**

High involvement from key regulators and industry bodies has been a consistent driver of rapid adoption of real time payment models.

**b) Industry collaboration**

Adoption by end users of real time payments requires widespread buy-in from, and collaboration between domestic banks.

**c) Creation of customer value**

Leveraging real time payment technology to solve customer pain points via the creation of new payment services has been crucial to consumer adoption.

**Leveraging the data potential**

Despite the widespread adoption of real time payment models that support payments with richer data, global examples of real time payments have primarily focused on real time value transfer and easier payment addressing. The UK has identified the need to evolve its Faster Payments capability to achieve this, embarking on a richer data project established by the industry body, Payments UK.

**Example**

Sweden's multi-currency mobile application "Swish" was a co-development between 6 large banks. Denmark's equivalent mobile C2C platform can be used by customers by any bank and has been rolled out in Norway and Finland.



# 4. THE AUSTRALIAN LANDSCAPE

## The value of Australia's payments

In 2013 there were estimated to be 19 billion domestic transactions, to the value of \$15 trillion<sup>8</sup>.

Despite the payments pie continuing to grow, the cash category is slowly shrinking, with ATM withdrawals (the main mechanism to obtain cash) continuing to decline<sup>9</sup>. A 2014 study by the Reserve Bank of Australia found that cash transactions fell from 62% of transactions in 2010 to just 47% in 2013<sup>10</sup>. However, despite this fall, consumers continue to frequently use cash (>65% of the time) for low value transactions<sup>11</sup>.

## Australia's real time payment models

Whilst card payments have been the major focus of innovation, delivering near real time settlement and international transfers, Australia's cards-based payment system is currently unable (in its current form) to deliver truly real time payments.

8 APCA and RFi Consulting, The evolution of cash an investigative study, 2014

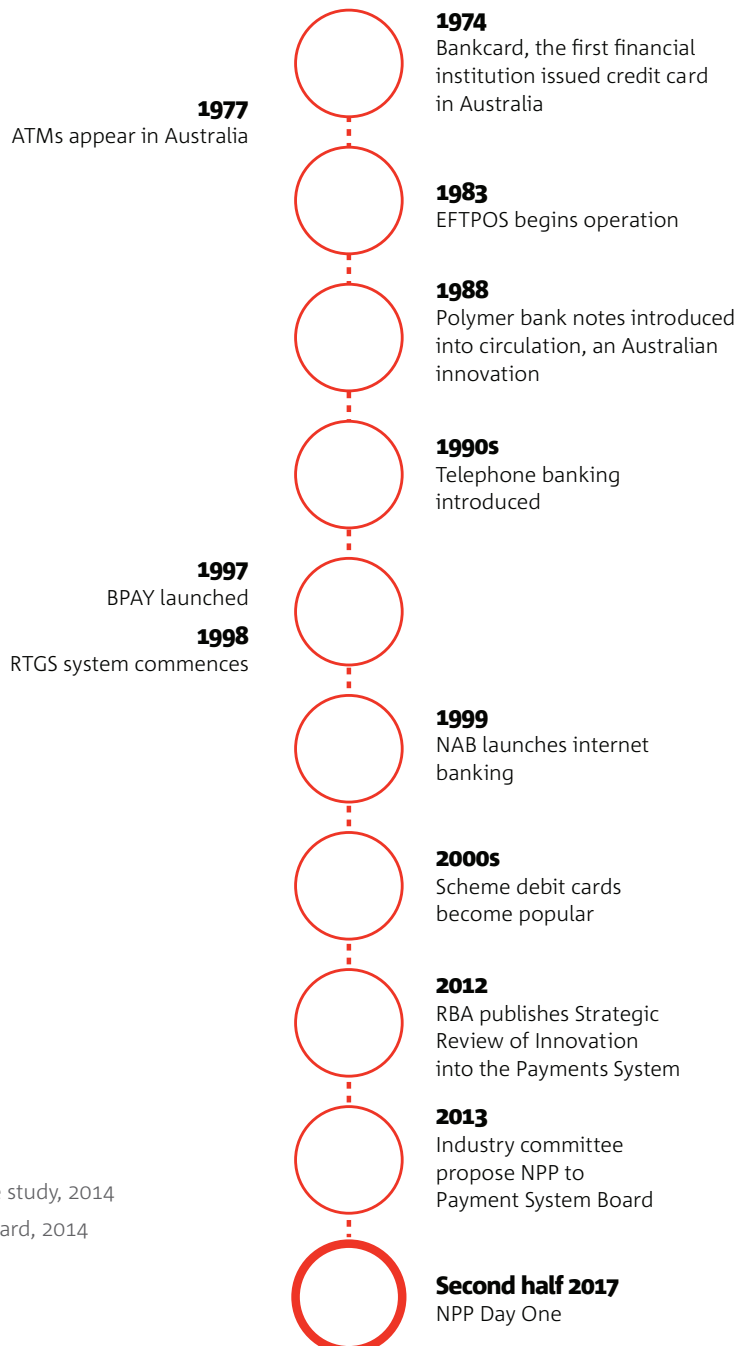
9 RBA, Payment System Board Annual Report, Payment System Board, 2014

10 RBA, *ibid.*

11 RBA, *ibid.*

## The evolution of Australian banking

The evolution of the Australian payments industry (with major innovations almost every decade) has led to the continual shift towards payment models which are easier, faster, and richer for Australians.



# 5. AUSTRALIA'S NEW PAYMENTS PLATFORM (NPP)

## History of Australia's NPP

Australia's New Payments Platform (NPP) is the financial services' industry response to the Reserve Bank of Australia's (RBA's) Strategic Review of Innovation in the Payments System. The objective of the review was to identify areas where payments innovation could be fostered via collaboration between the industry and regulators<sup>12</sup>. The NPP is intended to be open access infrastructure, with NPP being the industry's response to the RBA's explicit push for "co-operative innovation"<sup>13</sup>. Access to the infrastructure has to be via one of the "NPP Participants". NPP Participants are those (mostly domestic and global banks) who have committed to investing in building the Basic Infrastructure (BI).

To be delivered from the second half of 2017, the NPP is Australia's world leading innovative real time payments infrastructure, enabling customers to make easier, faster, and richer domestic payments. Whilst NPP will enable customers to send and receive payments 24/7 in real time, NPP's major value shift will be the ability for customers to transfer contextual information associated with the payment.

Today	The Future with NPP
Payments take 1-3 business days to settle	Customers receive payments in less than a minute <b>Speedier</b>
To send a payment you need the recipient's BSB and Account No.	Customers can register a mobile number, email, ABN/ACN or organisational identifier against an account to receive payments <b>Simpler</b>
Additional information about the payment is limited to 18 characters of unstructured text	Customers can enter up to 280 characters of unstructured text and link documents <b>Smarter</b>
	NPP is an open platform where non-traditional partners (e.g. FinTechs) can partner with NPP Foundation Members to provide new payment services <b>Innovative</b>

## Data rich payments

NPP will be a world leader in its ability to deliver data rich payments. NPP builds the capability to remove most of the manual intervention in today's payment system. By connecting the payment with rich contextual information (e.g. record of paying for a good in online banking and physical copy of proof of purchase), NPP revolutionises what is possible with Australia's payment systems.

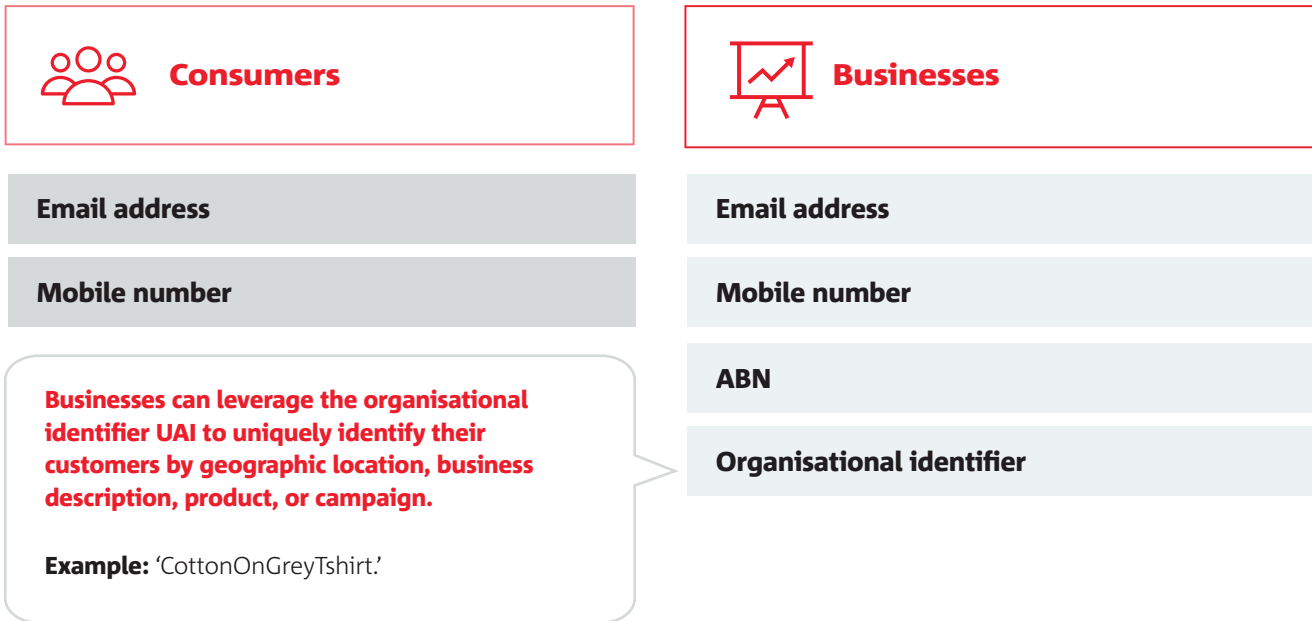
<sup>12</sup> RBA, Strategic Review of Innovation in the Payments System: Conclusions, 2012

<sup>13</sup> RBA, ibd.

## NPP's Unique Account Identifier (UAI) capability

Enabling simpler sending, receiving, and reconciling of payments, NPP's UAI capability allows customers to link personal identifiers, such as an email address or phone number, with their bank account or credit card. The use of organisational identifiers within Business to Business (B2B) and Consumer to Business (C2B) transactions could also enable easier reconciliation and reduce manual processing.

### The NPP enabled world



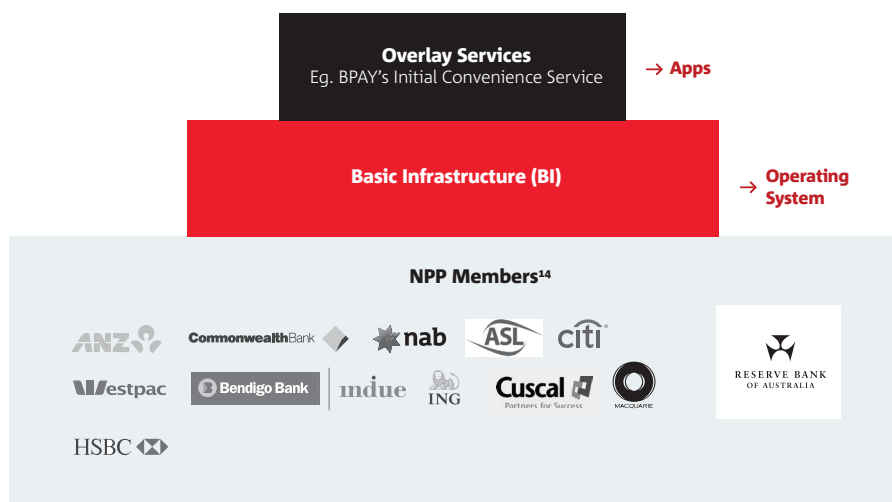
### Easier customer switching

NPP's UAI capability removes the need to remember BSB and Account Numbers which are unique to each bank. By linking customer's bank accounts with a unique identifier that is recognised by all the major banks, NPP will make it easier for customers to move their bank accounts between financial institutions.

E.g. Todd from Todd's Plumbing wants to move his transaction accounts from Bank A to Bank B. Before NPP, this process would be a huge burden as Todd would have to provide all his customers with his new BSB and Account Number. Through the NPP, Todd will just need to port his UAI from Bank A to Bank B resulting in no impacts to payments from his customers.

## NPP builds the foundation for new innovation

Overlay Services are commercial services that leverage the core components of NPP's BI to create new payment experiences and services. In simple terms, consider NPP BI as the operating system, and Overlay Services as the apps that sit on top of it.



By nature, NPP and related services will have direct network effects. That is, the ability for NPP to create customer value will increase exponentially, the greater the participation of financial institutions and new entrants.

NPP Overlay Services require collaboration between at least two Foundational Members. This is due to the need to use a “common language” to send, receive and validate information, much like the SMS network used globally. Without this collaboration, new features will be limited to use by customers from the same bank.

**Example:** Evelyn is very excited about using Bank A's new Overlay Service. The service allows Evelyn's gardener to complete required work and send Evelyn a picture with a request for payment. Unfortunately the gardener's bank (Bank B) has not signed up to this Overlay Service so Evelyn is unable to use this service to make a payment.

### Concept example: SMS

In simple terms, network effects rely on multiple industry players to work together. We've seen this previously with SMS, which created a common language for telecommunications companies to send and receive information (e.g. Telstra to Optus). Without this widespread adoption and collaboration, SMS would have been a closed loop system, limiting its reach to those on the same network (e.g. Telstra to Telstra).

14 Note PayPal Pty Ltd, Suncorp Bank and Bank of Queensland Limited are also NPP Phase 1 and 2 program participants

## BPAY's Overlay Service

The first Overlay Service agreed by a group of NPP Members was the Initial Convenience Service (ICS), delivered by BPAY. BPAY's ICS will deliver three products, in 2017 and beyond.

PAYMENTS	PAYMENTS WITH DOCUMENT	REQUESTS
<b>Guaranteed speedy payments</b>	<b>Speedy payments with linked documents</b>	<b>Request &amp; pay</b>
<b>Pay anyone situations</b>	<b>Payment &amp; document transfer</b>	<b>Request/ remind third party to pay</b>
<ul style="list-style-type: none"> <li>• Real time transfer</li> <li>• Funds availability in less than a minute</li> <li>• Up to 280 characters of unstructured text included with the payment</li> </ul>	<ul style="list-style-type: none"> <li>• Real time transfer</li> <li>• Funds availability in less than a minute</li> <li>• Up to 280 characters of unstructured text included with the payment</li> <li>• Link (URL) to document in secure repository</li> </ul>	<ul style="list-style-type: none"> <li>• Ability for consumers and businesses to request a real time payment</li> <li>• Payee and payer can receive payment reference information</li> </ul>
<b>Potential opportunities</b>	<b>Potential opportunities</b>	<b>Potential opportunities</b>
<ul style="list-style-type: none"> <li>• Consumers buying second hand goods from Gumtree, furniture, garage sales, paying a friend</li> <li>• Businesses wanting to make speedy payments from online banking, paying suppliers for goods</li> <li>• Emergency payouts made by insurance companies or government</li> </ul>	<ul style="list-style-type: none"> <li>• ATO confirming payment of tax refund</li> <li>• Company confirming dividend payment</li> <li>• Health insurer confirming payment of benefit or claim</li> </ul>	<ul style="list-style-type: none"> <li>• Credit card issuer reminds a customer of monthly minimum payment</li> <li>• Payments where immediate confirmation of payment is required</li> </ul>

NAB is very pleased to be a part of this industry wide innovation platform. We are working hard to build the core functionality required to deliver better payment experiences as well as exploring the potential for NPP innovation.

# 6. THE FUTURE POTENTIAL OF NPP FOR CUSTOMERS

NAB believes new customer innovation can be created by leveraging the NPP platform to create new payment experiences. In the future, new NPP Overlay Services will have the potential to enable payments to go beyond value transfer and integrate into the value chains and daily lives of Australian individuals and businesses. This could translate into many different new customer experiences, for example:



## Trigger based payments

A new NPP Overlay Service could create the ability to trigger a request for multiple interrelated services with a push of a button. This could reduce large amounts of friction for customers making large purchases (e.g. buying a car or house), where the purchase sits alongside a number of other payments or notifications i.e. insurance policy, motor vehicle registration, rates, utilities, change of ownership etc.



## International payments

NPP has the potential to be highly interoperable with other value transfer mechanisms including SWIFTNet FIN global payments and Ripple's international payments network. For customers transferring funds internationally, the infrastructure has the potential to connect these networks and enable real time settlement of international payments.



## Payments where contextual data and documents provide value

NPP provides the ability to connect the payment with detailed reference data. This is particularly relevant in circumstances where a customer sends or receives a payment but needs to reconcile with another system. In practice, this usually means a customer needs to reconcile online banking with a point of sale or physical receipt. The contextual data NPP delivers (e.g. reference information and attached documents) can make reconciliation easier, saving time for customers.



## Payments where urgency is key

With today's payment systems it is relatively costly (and sometimes impossible) to deliver urgent payments, even if the customer need is great. For customers where funds need to be transferred without delay, the NPP's immediate settlement capability could prove extremely valuable. Examples where this could be useful include insurance and emergency relief payouts.

# 7. NAB'S VISION

In order to leverage NPP to deliver customer led innovation which is significant, scalable and sustainable, we need to ensure we:

## ✓ **Create a great customer experience**

### • **Reduce friction and create new customer value**

Real time payment solutions need to explicitly solve customer pain points and reduce friction in the customer experience. If real time solutions fail to achieve this, there will be little incentive for customers to adopt them beyond the replacement of direct entry payments.

## ✓ **Seize the opportunity to create industry wide innovation and collaboration**

### • **Industry dialogue and collaboration**

NAB aims to deliver innovative customer outcomes across all payment channels. As a Foundation Member of the NPP, NAB is a key contributor and participator at NPP industry forums, meetings and related events. Furthermore, NAB is actively engaging with strategic industry partners to continue to drive better payment experiences for our customers.

## • **Interoperability with other payment models**

Australia's NPP represents a major evolution of Australia's direct entry payments system. This system sits alongside the cards payment system which enables payments by EFTPOS or scheme credit or debit card. As Australians demand systems which are ubiquitous, financial institutions have the opportunity to work with the schemes as well as EFTPOS to create a uniform experience. Collaboration of this kind will enable Australian financial institutions to leverage NPP to create an even more convenient and universal system.

## ✓ **Look beyond the value transfer capability and create customer centric solutions for NAB's customers**

### • **NAB Labs experiments**

NAB Labs will be leveraging its expertise to further explore how NPP can be leveraged to create richer, faster and easier payment experiences.

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