Outline

• Why the RBA is interested

• General observations from international comparisons

• Some concrete examples:
  – ‘online debit’
  – B2B payment
  – Canadian bilateral system
Some Background

Wallis: Recommendation 63

….. The PSB should also ensure that new technologies are implemented to advance the efficiency and soundness of the financial system. The PSB should have the necessary resources, focus and powers to influence, or if necessary mandate, standards.
RBA’s Approach

- Raise issues for discussion
- No hidden regulatory agenda
- Would like to see industry-led discussion
RBA’s Approach

• Study international developments
  – products
  – architecture
• Understand incentives to innovate
• Understand importance of competition and co-operation
Some Questions

• Product versus network innovation?
• Competition versus co-operation?
• How is co-operation achieved?
• Access arrangements for bilateral systems?
• Arrangements for promoting and developing bilateral systems?
Products

• Australia has a generally good record
  – EFTPOS, bill payments, universal ATM, reliable and stable

  .... but recent developments overseas
  – B2B
  – ‘online debit’
  – CHIP/PIN/contactless
B2B

- Extended message formats
- Attaching electronic files
  - standardisation is helpful?
‘Online Debit’

- Both merchants and cardholders seeking an alternative to credit cards online
- Systems typically connect to internet banking
- Available in an increasing range of countries
CHIP/PIN/Contactless

- Low levels of fraud in Australia
- Faster adoption in a number of countries
- Slower take-up of ‘mobile payments’
Architecture

- Centralised
- Bilateral
- Hybrid
Bilateral Systems

✓ Useful in developing the system
✓ No single point of failure
✗ Access can be difficult
✗ Renovation can be difficult
Bilateral Systems

- Messages sent bilaterally (no central switch)
- Can also include:
  - bilateral interchange fees
  - bilateral negotiations over type of connection
  - bilateral negotiations over cost of connecting
  - bilateral business contracts
Access

- More difficult if:
  - large number of participants
  - no agreement on technical specifications
  - no agreement on interchange fees
  - no obligation to connect
Renovation

- Co-ordination problem

- No entity with incentive to promote the system

- Similar issues can arise in a centralised system
Product and System Developments
Product Developments

• Online debit
  – InteracOnline
• Business-to-business payments
  – Electronic Payments Network
• Straight through processing
  – Finvoice
Online Debit

InteracOnline, Canada
Order Summary

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shakespeare-o-pedia</td>
<td>$49.95</td>
</tr>
</tbody>
</table>

Items Subtotal: $49.95

GST: $3.50

One-Day Shipping: $12.00

Taxes & Shipping Subtotal: $15.50

TOTAL: $65.45

Payment Options

- Pay From Your Bank Account:
  - INTERAC Online: INTERAC Online is a new payment service that allows you to pay for goods and services on the Internet directly from your bank account

- Pay using your credit card
  - Card Number:
  - Expiry Date:

[Cancel] [Continue]
PAYMENT DETAILS

<table>
<thead>
<tr>
<th>PAY TO</th>
<th>ABC Books</th>
</tr>
</thead>
<tbody>
<tr>
<td>INVOICE NO</td>
<td>12345</td>
</tr>
<tr>
<td>AMOUNT</td>
<td>$65.45 CAD</td>
</tr>
</tbody>
</table>

Click to choose your Financial Institution:

123 BANK

FIRST XYZ BANK

To cancel and return to ABC Books:

CANCEL

Interac is a trademark of Interac Inc, used under license.
Secure Login

Bank Card Number (or User ID)
1234 5678 9101 1121

Web password
******

Login

Forgot your User ID?
Forgot your Password?
**INTERAC Online Payment**

<table>
<thead>
<tr>
<th>Confirm Details</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Send to:</td>
<td>ABC Books</td>
</tr>
<tr>
<td>Invoice:</td>
<td>12345</td>
</tr>
<tr>
<td>Amount:</td>
<td>$65.45 CAD</td>
</tr>
<tr>
<td>From Account:</td>
<td>Cheque</td>
</tr>
</tbody>
</table>


Confirm Details

<table>
<thead>
<tr>
<th>Details</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Send to:</td>
<td>ABC Books</td>
</tr>
<tr>
<td>Send on:</td>
<td>27 September 2006</td>
</tr>
<tr>
<td>Invoice:</td>
<td>12345</td>
</tr>
<tr>
<td>Amount:</td>
<td>$65.45 CAD</td>
</tr>
<tr>
<td>From Account:</td>
<td>Cheque</td>
</tr>
</tbody>
</table>

Clicking on “Next >” will log you out of online banking and take you back to ABC Books in order to complete the transaction.
CART – ORDER COMPLETE

Invoice: 12345

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shakespeare-o-pedia</td>
<td>$49.95</td>
</tr>
</tbody>
</table>

Items Subtotal: $49.95

<table>
<thead>
<tr>
<th></th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>GST: $3.50</td>
<td></td>
</tr>
<tr>
<td>One-Day Shipping: $12.00</td>
<td></td>
</tr>
</tbody>
</table>

Taxes & Shipping Subtotal: $19.50

TOTAL: $69.45

Payment method: INTERAC Online
Shipping Address

From: 123 Bank
Confirmation No: W3Q5

Joe Customer
350 George St
TORONTO CANADA M4B 1V6

Shipping method: TNT Courier
Estimated delivery: One business-day

Thank you for shopping at ABC Books
Business-to-Business Messaging

Electronic Payments Network, United States
Electronic Payment Network

- Private automated clearing house
- Processes over 40% of ACH transactions
- B2B Initiatives:
  - EPN STP 820
  - UPIC numbers
EPN STP 820

Payables
- Customer Account Number
- Customer Name
- Invoice Gross Amount
- Amount Paid
- Invoice Number
- Invoice Date
- Discount
- Purchase Order Number
- Adjustment Code
- Adjustment Amount
- Description For Adjustment

Receivables

Accounting Software

EPN network

Accounting Software
# Message Format

<table>
<thead>
<tr>
<th>Australian Direct Entry</th>
<th>EPN STP 820</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank details</td>
<td>Bank details</td>
</tr>
<tr>
<td>Bank account number</td>
<td>Bank account number</td>
</tr>
<tr>
<td>Bank account title</td>
<td>Bank account title</td>
</tr>
<tr>
<td>Transaction code</td>
<td>Customer account number</td>
</tr>
<tr>
<td>Amount</td>
<td>Customer name</td>
</tr>
<tr>
<td>Reference (18 characters)</td>
<td>Invoice gross amount</td>
</tr>
<tr>
<td></td>
<td>Amount paid</td>
</tr>
<tr>
<td></td>
<td>Invoice number</td>
</tr>
<tr>
<td></td>
<td>Invoice date</td>
</tr>
<tr>
<td></td>
<td>Discount</td>
</tr>
<tr>
<td></td>
<td>Purchase order number</td>
</tr>
<tr>
<td></td>
<td>Adjustment code</td>
</tr>
<tr>
<td></td>
<td>Adjustment amount</td>
</tr>
<tr>
<td></td>
<td>Description for adjustment</td>
</tr>
</tbody>
</table>
Straight Through Processing

Finvoice, Finland
Finvoice

• Common format for electronic invoices designed by Finnish banks
• Invoices are forwarded through banks using existing connections
• Uses electronic business XML standard
• Widely adopted through Scandinavia
Finvoice Message Structure

e-Envelope (ebXML)

Basic Invoice
- Invoice data
- Order reference
- Posting proposal

Attachment
- Industry specific details

Payment Details
Finvoice Processing in Accounts Payable

INVOICING FIRM

Bank connection software

Finvoice invoices

Automatic entry

Accounting entry

Payment generation

PURCHASING FIRM’S ACCOUNTS PAYABLE

INVOICING FIRM’S BANK

Payment message

Bill payment service

Bank connection software
System Developments

Interac Association, Canada
Competition Policy

• 1996 Consent Order required Interac to:
  – remove membership restrictions
  – allow indirect access
  – modify the Board structure
  – change pricing practices
  – make the network available for new services that require on-line access to demand accounts
Ownership and Processing

Three separate entities created:

• *Interac Association*
  – member services and scheme rules

• *Interac Inc*
  – not for profit; maintains network software for members

• *ACXSYS*
  – for profit; licenses the network software, InteracOnline and Certapay
Developments

• Network Upgrade
  – moved from X-25 frame relay network to IP-based system

• InteracOnline
  – online debit solution, supported by 3 Interac members

• Certapay
  – e-mail money transfer system, supported by 5 Interac members

• Cross Border Debit
  – bridge to US ATM network, NYCE, supported by 5 Interac members