

# **First Commercial Limited**

## **Global Consumer Trends in Low Value and Micropayments**

*Mobile Money Workshop 2008*

**John Vivian and Andrew Andersen**

# Session Structure

## Section 1 – Presentation

mCommerce/Banking is just a question of when, how and what. The product innovation challenge faced by business and regulators distils down to economics:

- too much is not economic
- too little is risky.

Understanding the business models or schemes is core to determining the successful regulation.

Line between banks and non banks become blurred.

## Section 2 – Workshop

Working through scenarios to illustrate regulatory risk management for low value/mobile product.

# A Glimpse of the Changing Low Value Payments Landscape

Global trends in consumer payments provide some insight for the management of new products in developed and developing countries.

Questions and observations which will be discussed in this presentation:

- The context of consumer trends in mobile, low value and micro payments
- Emerging consumer payments products and trends
- Rapid technology development in the consumer payments context
- Leap frogging of technology in developing countries without significant infrastructure investments in legacy systems.
- Key systemic and regulatory policy questions which arise from products built on the new technologies and heightened consumer expectations
- Key commercial drivers for system and product development.

# Micropayments Terms in Context

- **Issuer:**
  - Accept and securely hold cardholders' value (versus cash) for future use
  - Authorizes disbursement of funds to merchants
  - Satisfy regulatory obligations for the cards they issue
  - Cause cards to be supplied to cardholders and define products and services available to them
  - Ascertain liability for cardholder complaints and disputes.
- **Customer:**
  - Apply for payment instrument and accept issuer terms
  - Provides value for purchases
  - Purchase goods and services
  - Pay, re-pay their issuer account.
- **Merchant or Agent:**
  - Apply to become a participant subject to terms of the scheme
  - Accept instrument as payment for goods and services
  - Receive funds in settlement
  - Fulfil the purchase.

# Micropayments Terms in Context

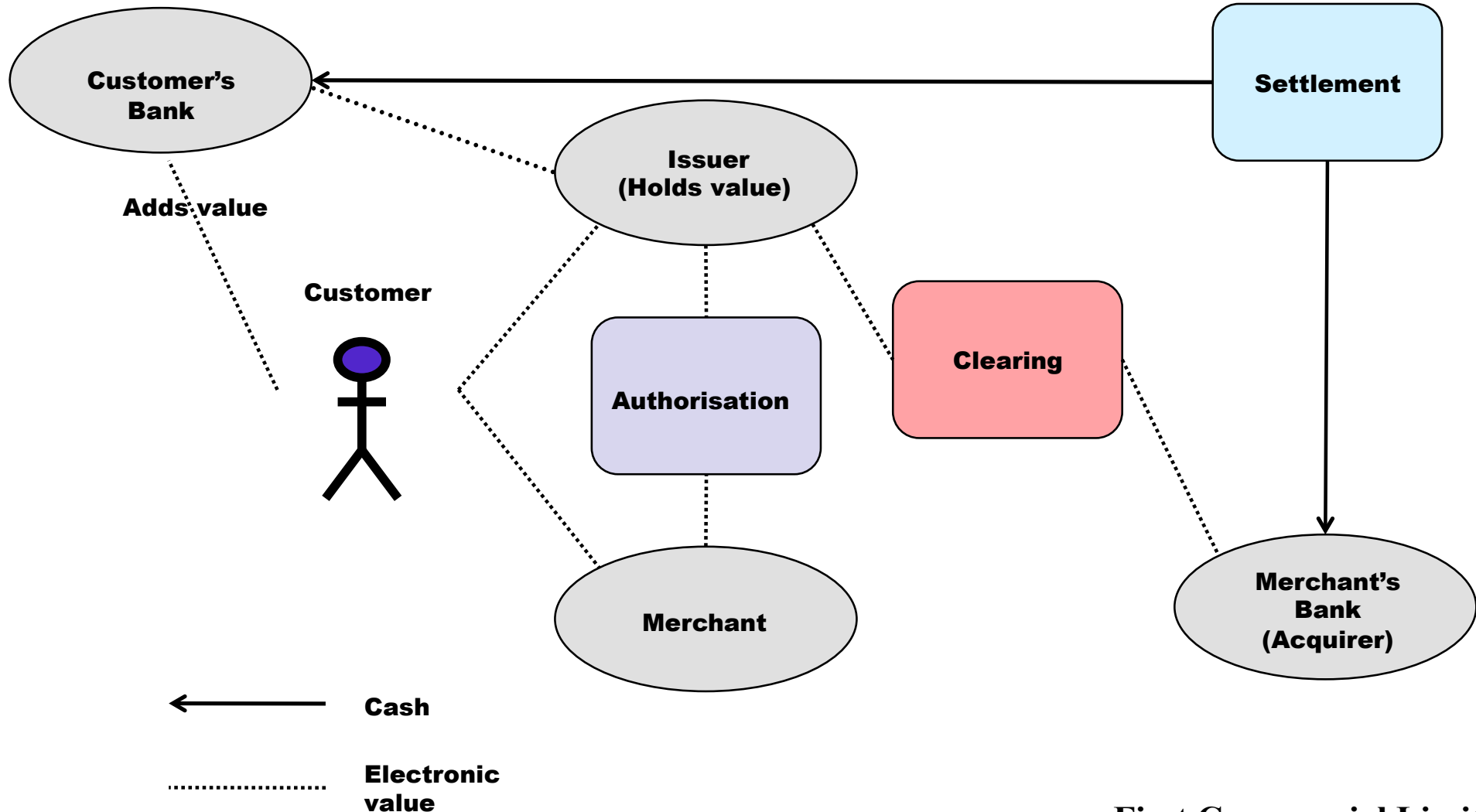
- **Acquirer:**
  - Recruit merchant subject to terms and provide merchant services
  - Receive and process merchant transactions
  - Receive fees.
- **Authorisation:**
  - Communication to merchant approving a proposed transaction, commonly bundled with the transaction.
- **Clearing:**
  - Process of electronically sorting and validating transactions.
- **Settlement**
  - Process of summing and allocating transactional value to the accounts of various participants
  - Typically the Deposit Taking Institution's role as the customer, issuer and merchant's prime banking relationship.

## **Two Ends of the Spectrum Define Micropayment Schemes**

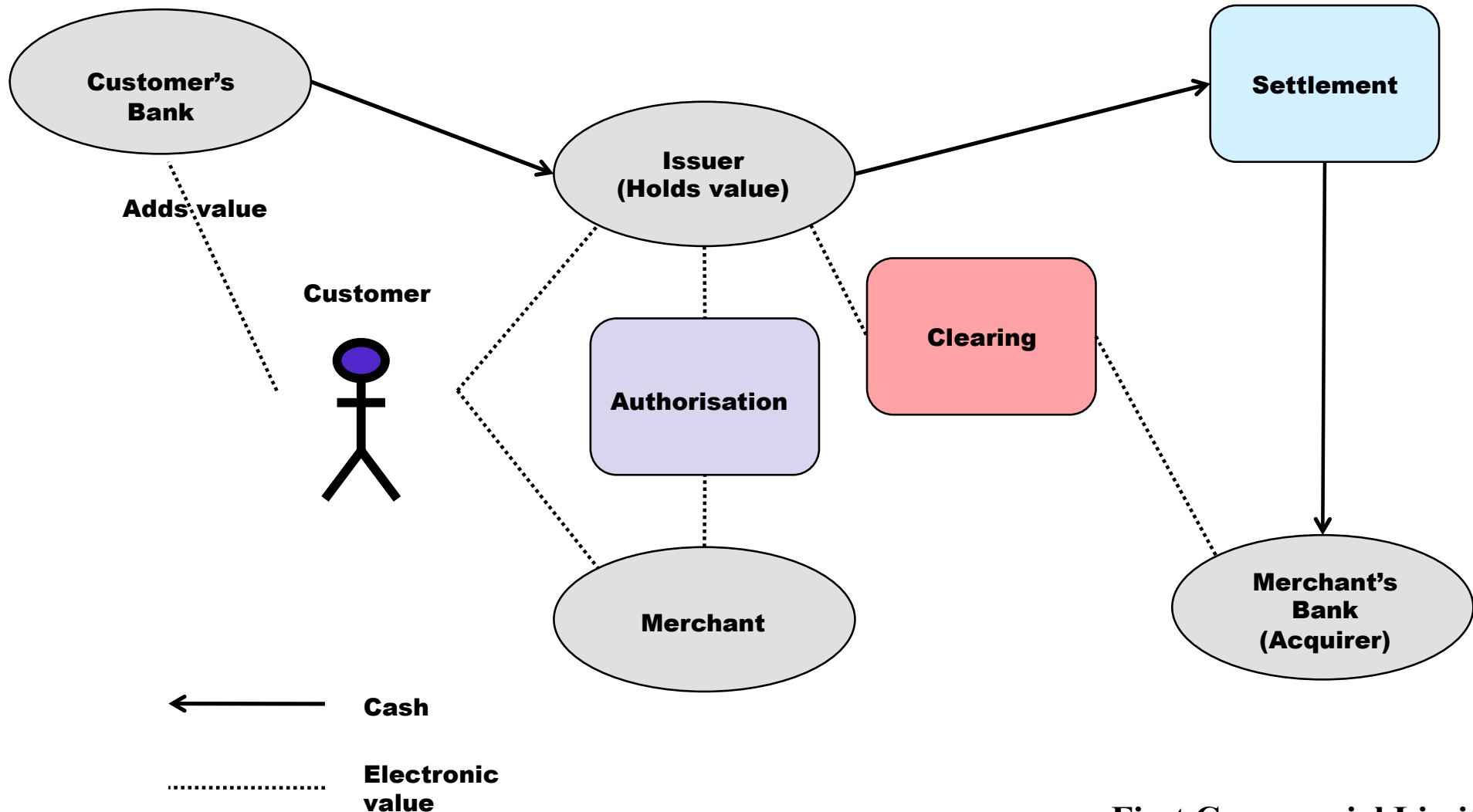
1. The Participants in an Account-Based Payments Scheme
2. The Participants in an Purse-Based Payments Scheme

The differences are subtle but significant.....

# The Participants in an Account-Based Payments Scheme

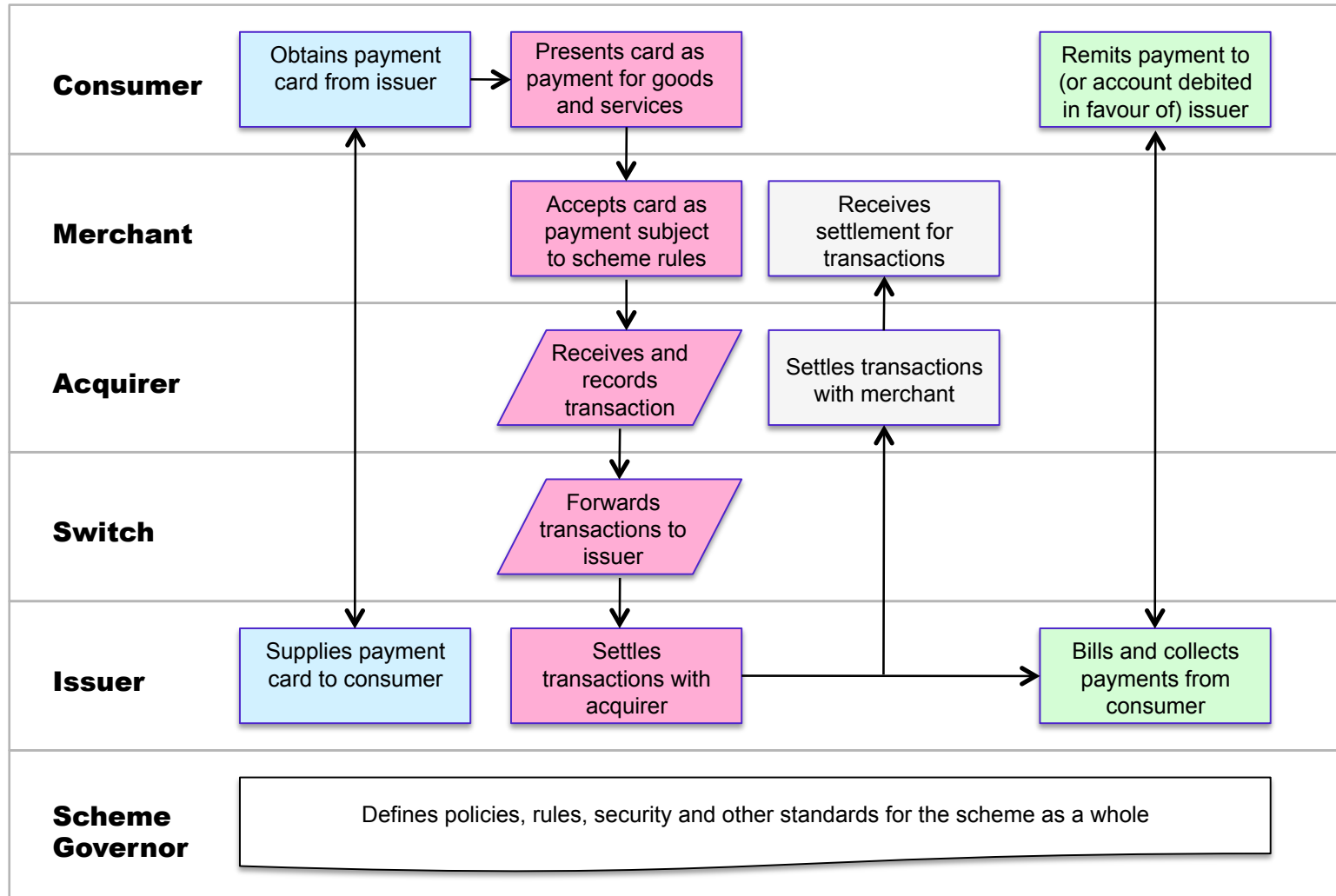


# The Participants in an Purse-Based Payments Scheme





# Participant Roles in a Payments Scheme



Simplified representation; transaction authorisation and other less relevant processes omitted.

# Advantages of Single Issuer Schemes

Where there is one issuer in a micropayments scheme, roles may be combined:

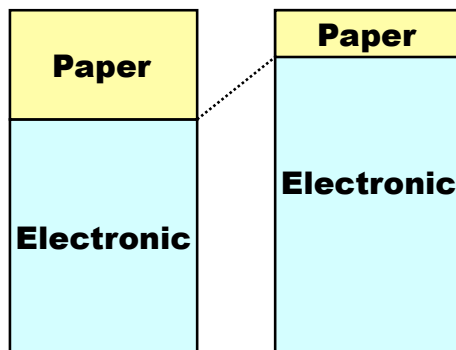
- Most economic if the initial market take-up is insufficient to sustain multiple issuers
- Control of cardholder funds can be centralised and simplified
- Switching transactions can be avoided
- Clearing and settlement will be far less complex
- Security can be more tightly controlled
- Transaction authentication is simplified
- Lost/stolen/cancelled, card ordering and management simplified
- Consumer complaints can be managed uniformly.

# Trends in Payment Products

## Key Questions –

### Consumer Payments:

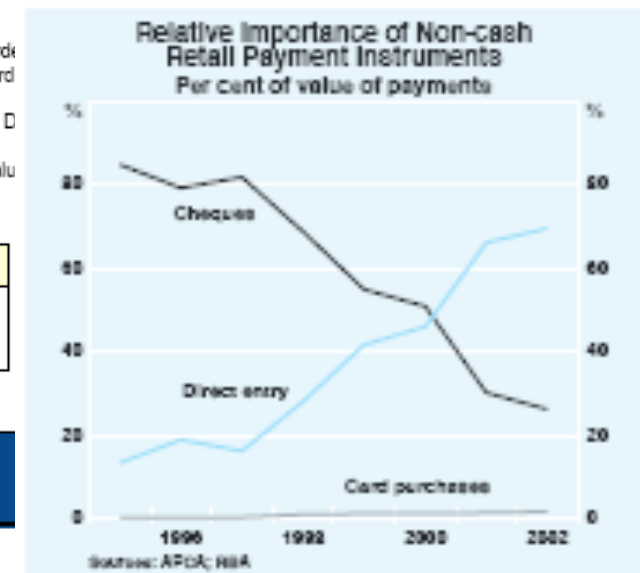
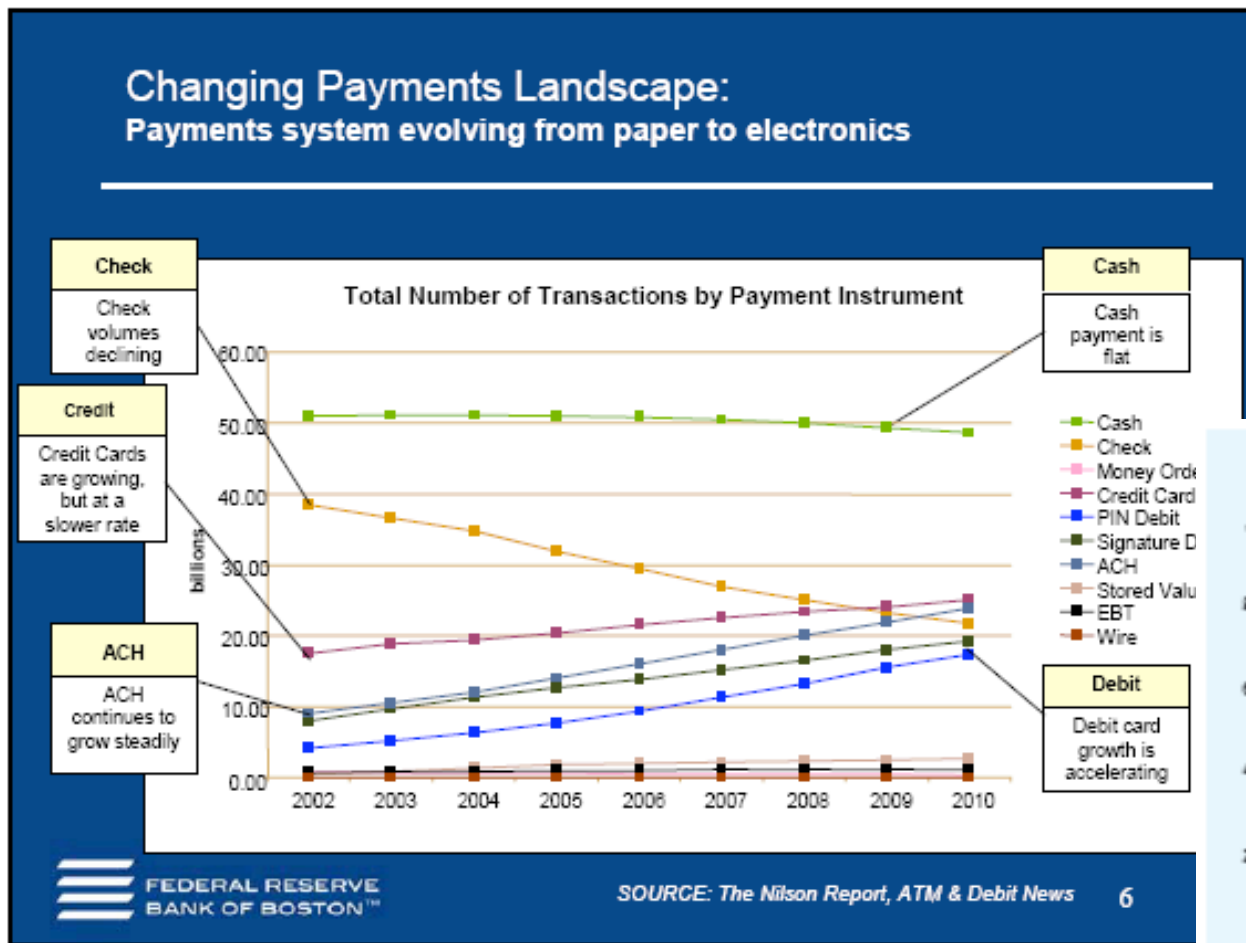
- How do trends, products and practices compare between developed and developing countries?
- What opportunities exist to leap-frog with technology and avoid legacy infrastructure investments?



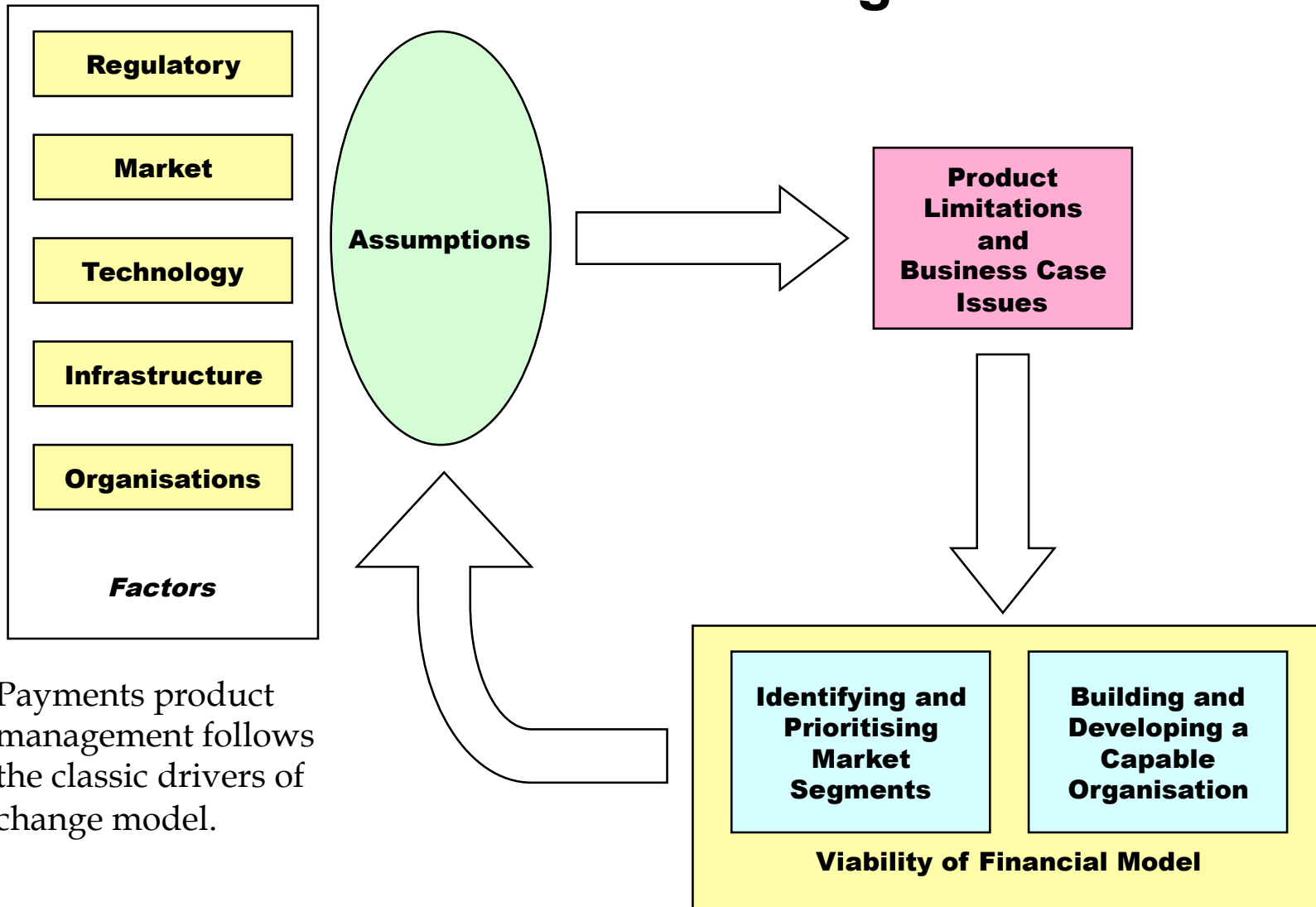
*As the shift from paper continues...*

- Globalisation is a major factor in payment product demand:
  - Consumer cross-border purchases are increasing
  - The internet and mobile have emerged as channels in own right – desktop and PDAs
  - Card schemes including Visa, MasterCard and Amex are becoming the keys to international and cross-border consumer payment product success.
- Established payments system players defending their substantial domestic market share.
- Developed countries feature significant infrastructure and well-established regulation
- Developing countries have limited infrastructure and less sophisticated regulation

# USA - Different, But the Trends the Same



# Drivers of Change



Payments product management follows the classic drivers of change model.

# Consumer Behaviour

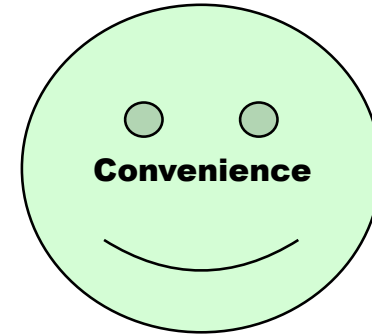
## A Function of Cost versus Convenience

*Consumers Want:*

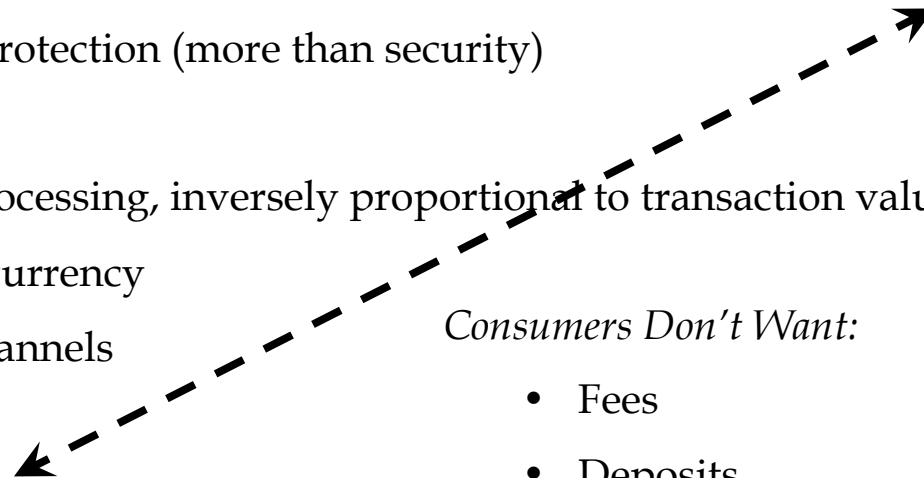
- Wide acceptance
- Trust and Protection (more than security)
- Reliability
- Speed of processing, inversely proportional to transaction value
- Their own currency
- Multiple channels

*Consumers Don't Want:*

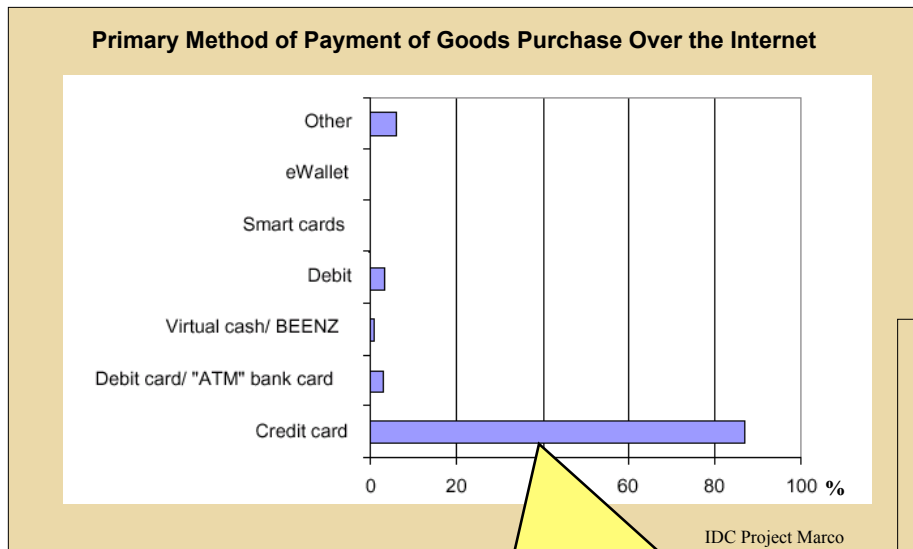
- Fees
- Deposits
- Currency Conversions
- Service Queues
- Complex security



**Cost**



# What Consumers Want ... They Often Can't Get

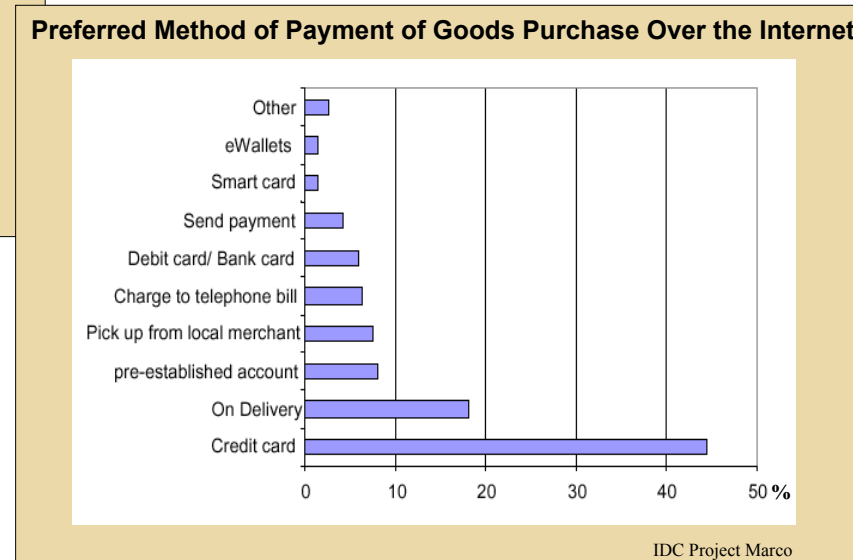


In developed countries, over 80% of internet payments are made by credit card – not what the research indicates the consumer wants.

Q. Why?

A. Robust procurement, regulated, dispute management?

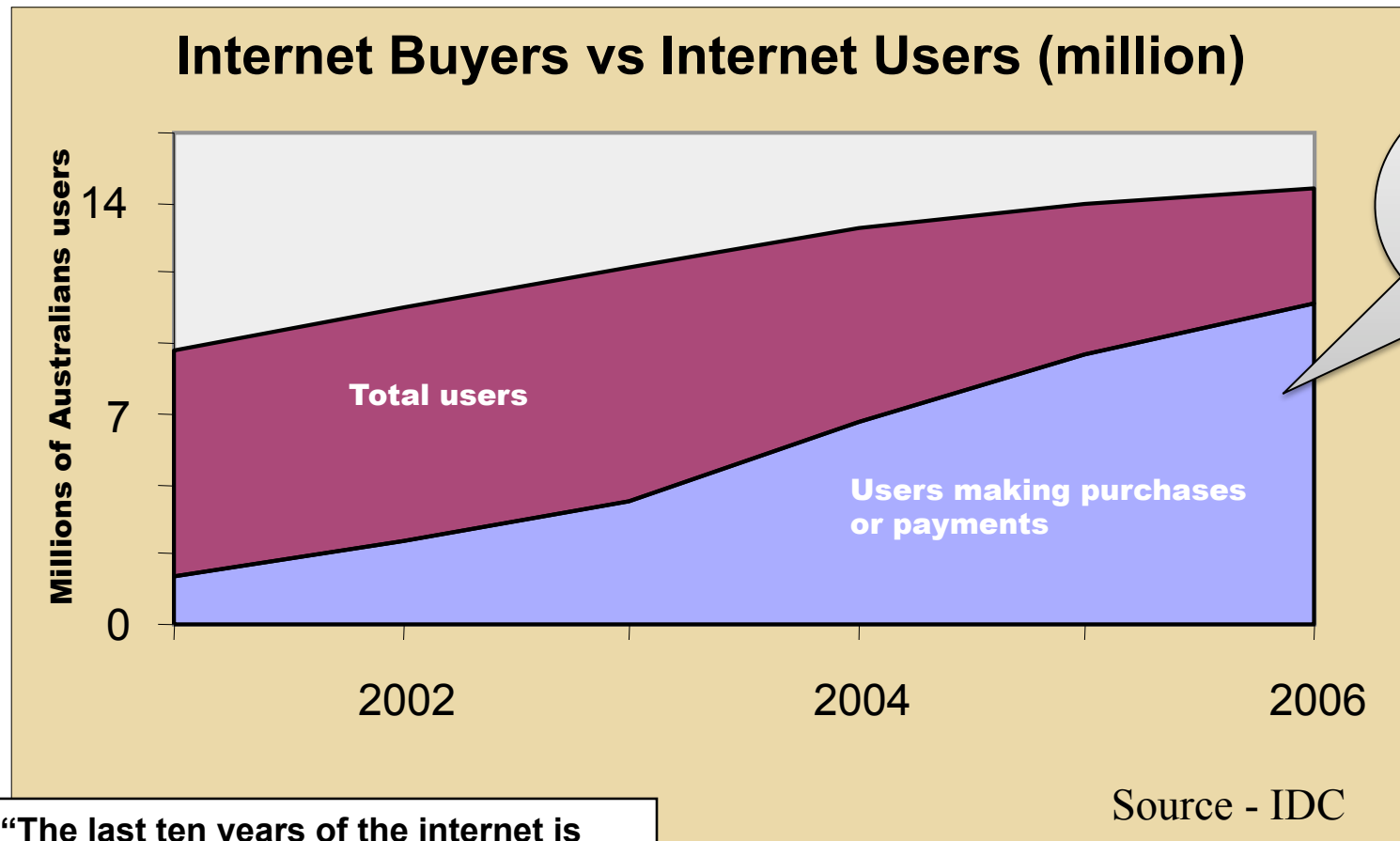
A. First in best dressed?



What will be the difference in developing countries?

- limited credit card penetration
- bank card / debit card programs
- larger 'unbanked' population
- less certainty in the fulfilment

# The Internet Has and Will Continue to Change the Face of Payments



PDA's, smart phones and further convergence will extend internet usage beyond the desktop

“The last ten years of the internet is just a warm up for the next ...”



# The Internet Has Been a Foundation for 'Mobile Commerce'

<b>Channel</b>	<b>Platform for:</b>
<i>Internet</i>	Internet banking Ecommerce business (bank product) ePayments systems eg PayPal - micro Entertainment and gaming - pay for service/fun
<i>Mobile Phones (2G+)</i>	Mobile business - prepaid functionality Secure messaging/enquiry/transactions Unique identifier handset Java applications Independent verification (SMS authorisation code) WAP technology Mobile EFTPOS merchant or agent
<i>PDA/Smartphone (3G +)</i>	Wider Internet applications Business applications, including B2B Security

# What is Needed for a Successful Micropayments Scheme?

Criteria for Success*	Observations
<i>Universally accepted</i>	<ul style="list-style-type: none"> <li>✓ Accepted by all parties in the chain - consumer, business, regulator and banks/Fis (customer still needs a bank account).</li> <li>✓ Merchant acceptance is critical and subject to product critical mass – eg PayPal</li> <li>✓ Or closed circuit operations high a high benefit</li> </ul>
<i>Trusted</i>	<ul style="list-style-type: none"> <li>✓ Payments systems have been around for centuries and they are underpinned by trust – well publicised, hard to earn and easy to lose</li> <li>✓ Octopus card take-up and success is attributed to public trust in the smartcard.</li> <li>✓ More importantly if consumers perceive the product is not trustworthy they will revert to trusted products</li> </ul>
<i>Secure</i>	<ul style="list-style-type: none"> <li>✓ Reduce fraud, protect the user from theft of funds and PI.</li> <li>✓ High technology factor – black box.</li> <li>✓ Mobile phones/ stored value cards – “lose everything” mentality</li> </ul>
<i>Simple</i>	<ul style="list-style-type: none"> <li>✓ Conflict between the need for security and simplicity</li> <li>✓ End to end process and servicing must be at least as good as credit/ debit cards</li> <li>✓ Meet the needs of each party in the chain</li> </ul>

**How can developing countries fulfill these criteria?**

\* University of Melbourne, Lim B; Lee H; Kurina S

# Does the Channel influence mCommerce Success?

## Payment of Utility Services

- Closed circuit payment
- Pre approved credit worthy bill issuer
- Known customer
- Limited product/service per bill
- Certainty of fulfillment or service
- No cash refund
- Strong dispute management

## Gaming

- Closed circuit payment
- Unknown customer
- Unknown service provider
- Multiple small product/service per session
- Certainty of fulfillment or service
- No cash refund
- No dispute management

Regulation?  
Consumer protection?  
Fraud?

# Knowing Your Customer – Errors and Economics of the Payments System

	<b>High Value Payments</b> <b>&gt;\$ x00,000</b>	<b>Low Value Payments</b> <b>~ \$ 10 - \$100,000</b>	<b>Micro Payments</b> <b>~ \$ 0.10 - \$10</b>
<i>Transaction Types</i>	Corporate  High Value Low Volume	Corporate, SMB & Consumer  Low Value High Volume	Consumer  Very Low Value High Volume
<i>Authorisation</i>	Pre-determined at entry to scheme	Electronically for individual transactions	Implied by instrument security features
<i>Clearing Arrangements</i>	Significant detail for every transaction; all parties known	Business rule -based validation; exception item management	Bulk clearing and bulk exception management
<i>Settlement</i>	Scheme rules define process and parties; every instance managed	Automated processes for merchants and issuers; individual reconciliations	Automated processes for merchants, issuers and cardholders; bulk reconciliations
<i>Fraud Characteristics and Detection</i>	Risks in authorisation Highly supervised Regulator oversight	Misrepresentation Automated detection of suspicious transactions; known cardholders	Cloning and misrepresentation Automated fraud detection based on instrument security controls; cardholders unknown
<i>Regulator Profile</i>	High and active	Wide, but remote	Narrow and remote

# Processing Costs Are All About Exceptions

- Industry figures indicate that 2-5%\* of all payments give rise to an exception
- Straight through transactions cost on average, just a few cents
- Non-settlement - manual investigation - can cost up to US\$100. Excludes:
  - follow-up cost of the non-settlement of a transaction
  - Financial losses on funds not retrieved, penalties, compensation of settlement errors, and the operational costs incurred in processing exceptions.

**Consider mobile Transactions!**

## Exceptions & Investigations: The Stumbling Blocks

- Investigations are traditionally a post-settlement event - the responsibility lies with the financial institutions involved in a transactions' lifecycle - not at the Issuer/Merchant face
- Bank deals with a payment that it doesn't have enough information to allocate correctly, which turns into a payable/receivable matching challenge
- While high volume payment processors automate exception management, many issuers and merchants are not automated. Exceptions typically handled by two or three financial institutions and intermediaries along its lifecycle before it is settled - many not automated.

\* Source [http://www.gtnews.com/feature/278\\_4.cfm](http://www.gtnews.com/feature/278_4.cfm)

# And Then There Are Regulatory Questions...

- **The access dilemma:**
  - Consumer interests are advanced by competition
  - Those who built payments networks want competitive advantage and return on investment
  - New entrants inevitably compete with existing participants
  - Payments system development is a national and sometimes political priority
  - Past self-regulation seen by many as too cosy.
- **Financial products:**
  - A payment card is an effective substitute for a cheque account for many
  - Non-cash payment systems imply the need for trustworthy issuers, but they may not be prudentially supervised
  - The accumulating value in incentive, gift and loyalty schemes is not prudentially regulated
  - Some payment instruments are no more than access methods for other, more regulated products.
- **Regulatory functions split among authorities** and cost-recovery can dampen regulatory ambition.
- **Cross-border payments**, especially those facilitated by non-bank participants.

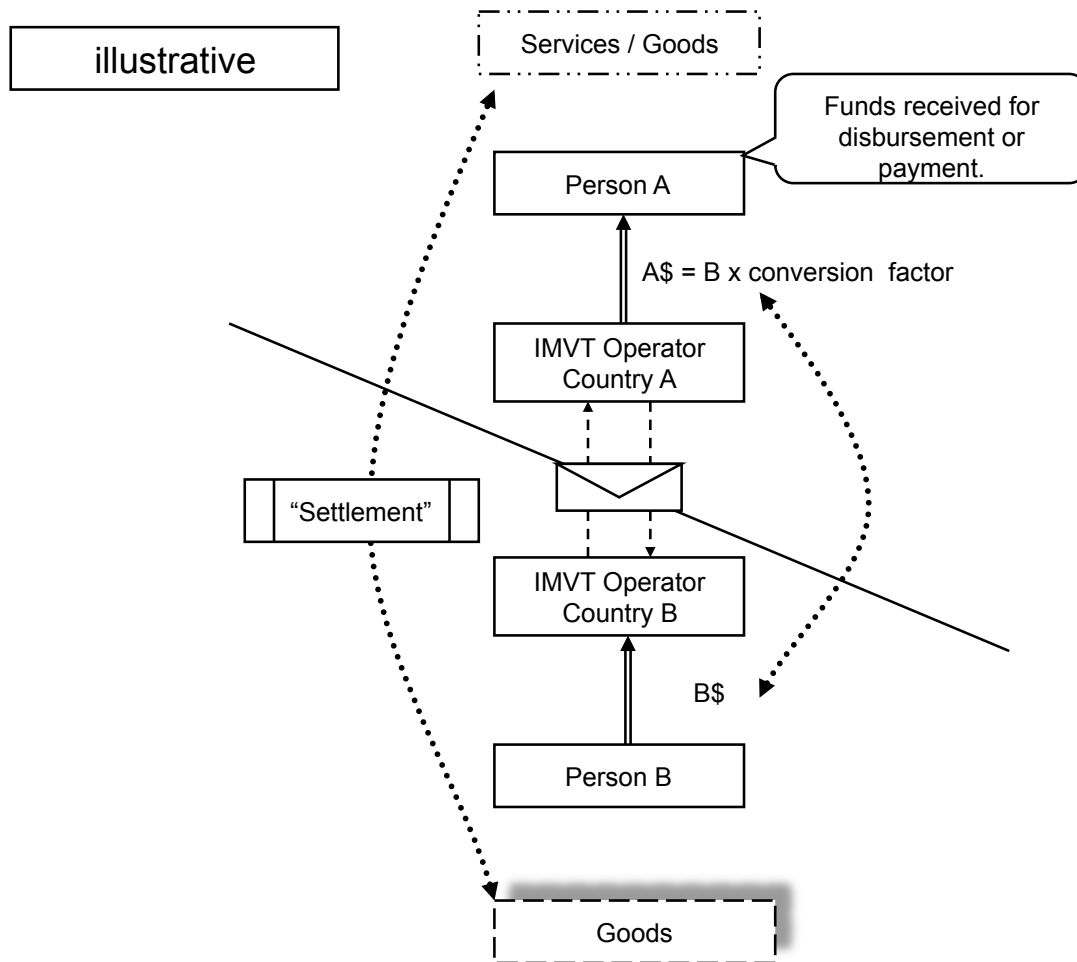
# Potential to Frustrate the AML Regime

AML features:

- ✓ Systems to legitimise cash
- x Systems to identify beneficial owners
- x Reporting cash and suspicious transactions
- x Systems for apprehension and prosecution
- ✓ Shell companies
- ✓ Alternative remittance systems
- ✓ Correspondent banking
- x Transparency/beneficial owners
- ✓ Wire transfers/rapid movement of money
- ✓ Structuring / “Smurfing”
- ✓ Front end loading credit facilities / cards
- ✓ Electronic Funds Transfers
- ✓ Fast money schemes

<i>Illustrations</i>
Gaming/ fun sites using prepaid facilities.
Mobile Money Transfer applications – velocity and tracing transfers
Online ‘services’ business
Not for profit donations

# Informal Money/Value Transfer (IMVT) System Supported by Import / Export



**Electronic micropayments:**

- Easy to generate a a very large volume of small value transaction for unidentified owners
- Difficult to detect because they operate outside the regulated systems:
- Unusually large transaction volumes not commensurate with the business
- Cash economy / un-banked and un-taxed



## International Trends

- The shift to debit
- Web interfaces to the payment system
- Cheque truncation
- Consolidation of consumer lending
- Banks move to free on-line and cheque payment services
- ATM interconnectivity
- Second currency travel cards
- Contactless pre-paid gift cards
- New standards such as EMV
- Non cash purchase cards eg buyer credit-for-rewards.

# Technology Development

- Mobile payments
  - Rapid growth
  - Leverages wireless terminal technologies and infrastructure
  - Merchant-preferred in many cases.
- Micro-payments
  - Contactless smart-cards (purse) for service convenience
  - Solutions for specific markets.
- Business to business technologies lagging.
- Bill presentment, not just payment.
- Biometric authentication.
- To some extent, capacity makes its own demand:
  - Availability of direct debit service supports more frequent lower value transactions
  - Greater credit certainty for electronic payment acceptors.
- Internet Protocol (IP) and encryption technologies propelling developments.

# Infrastructure Costs - The Key Driver

Option 1 - Developing innovative payment products for multiple market segments which utilise common clearing and settlement infrastructure.

At the core a high volume, low margin, high capital cost business.

- Capital costs are relatively high, although the mix of investment has changed:

↓ Computer hardware costs are falling, software costs are static or increasing

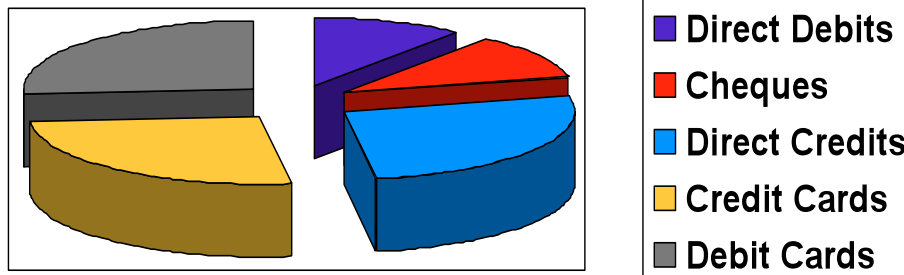
↑ Telecommunications costs are lower per unit but increasing with device populations

↑ Product development costs are increasing with transactional complexity and specialization

↑ Testing, commissioning, business continuity, support and service costs are increasing.

- Operating costs are characterized by very high fixed cost components.

Market share by volume, Australia



Source: RBA, Payments Systems Board 2006

Option 2 - Developing viable closed circuit product/payment systems with “wholesale” bank account linkages e.g phone cards

# Market Factors Directly Impact on the Success of Payment Systems

- Volume is king:
  - For both issuers and acquirers
  - Electronic transaction growth across the board
  - New niche applications
  - Competitiveness and market share.
- Unbundling of acquirers and issuers:
  - No longer just financial institutions
  - Merchant self-acquiring
  - Independent ATM owners
  - Intense acquirer competition.
- Non-bank issuers.
- Regulators' activities may impinge on fee income and payment product business case.
- Consolidation of switching services and infrastructure as a means to reduce cost.

# Cost / Revenue – The Economic Driver

*Electronic Participants:*

- Consumers
- Channel
  - Merchants
  - Retail Out
  - Banks
- Issuers
- Switches
  - Interchanges
  - Third Parties



*In Australia, the average consumer pays around \$300 pa for transactions:*

- 10x ATM/EFTPOS /month
- 3x bill pay /month
- 2x cheques /month

**And the cost keeps rising!!**

Customers want to pay less

Merchants/Retail want to pay less

Issuers and Banks want more

Intermediaries want more

*Paper Participants*

*Supply Chain / technology*

*Regulators*

*Third Parties*

# Niche Markets - Cost Driven Innovation

## *Micro-Aggregators:*

- Smart-card applications - emerging opportunities for:
  - Public transport
  - Taxis
  - Parking
  - Low-value transport-related (eg news stands).
- Innovative acquiring:
  - Currency options
  - Integration with sales applications
  - Web payments solutions.
- Travel-oriented products:
  - Foreign-currency denominated pre-paid payment cards : the electronic alternative to travellers' cheques, free of credit risk.
- Payroll card

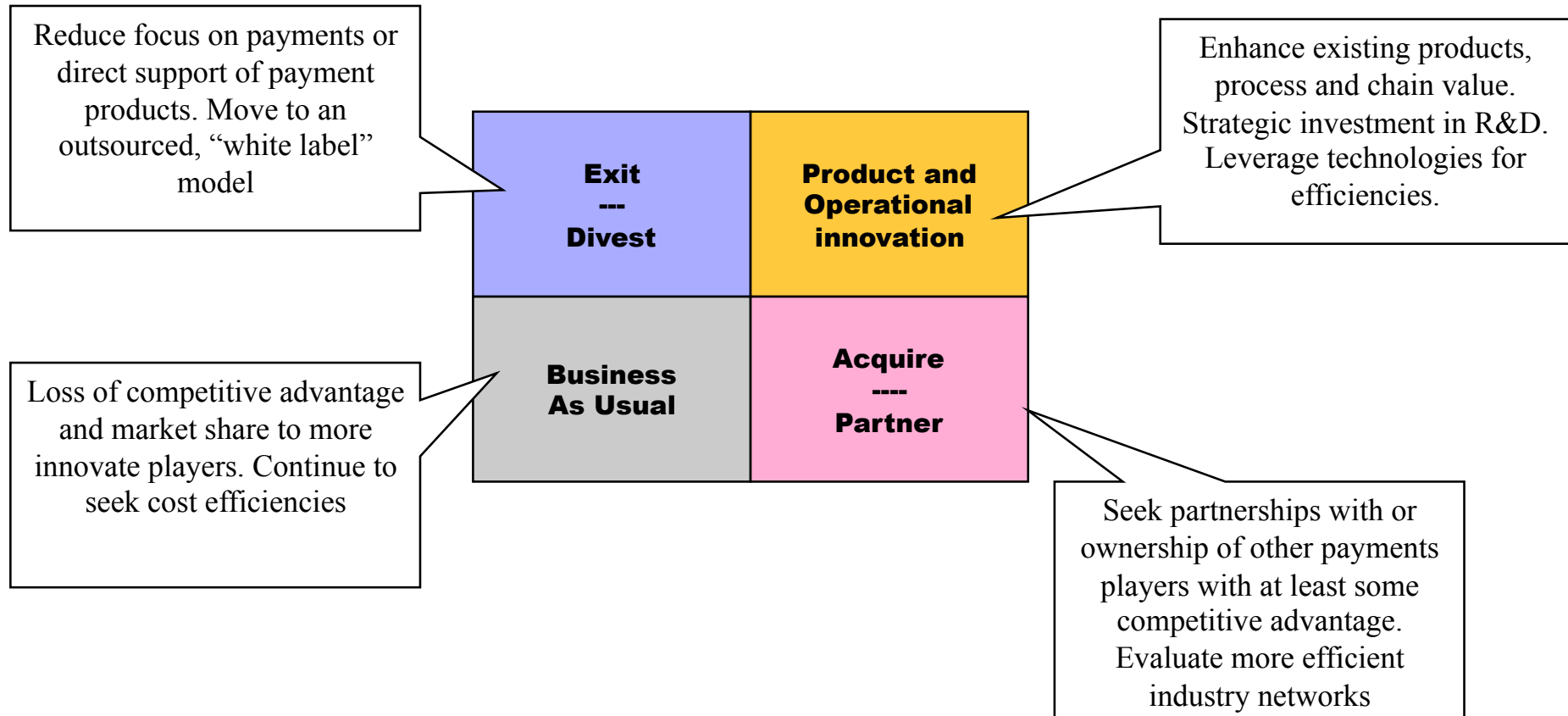
# Truths or Myths?

There are many:

- Customers would prefer a one-stop financial service provider
- You can't provide transactional services to people you don't know
- Mortgage lenders can never succeed at full-service transactional banking
- Smart cards will rule the payments world
- Contactless card presentation will be better for everyone
- The internet is the future and traditional Mail Order Telephone Order will soon be a thing of the past
- Reward and loyalty programs need a technology leap to make any further significant market inroads
- Limited-purpose smart card applications will never be part of the mainstream payments system.

# Path Forward on Consumer Payment Systems

**the path maybe different but ultimately it will come down to innovation**





# Workshop

# Workshop

*First, some housekeeping!*

- **Goal:**
  - To identify relevant:
    - behaviours (things people do); and
    - factors (things within a situation that affect an outcome or result)to learn and avoid the pitfalls.
- **Approach:**
  - Recognise that there may be no “right” answer in many cases
  - Scenarios generated from a particular micro payments product, but with broad applicability
  - Risk-based analysis – simple for workshop purposes, but likely to be controversial and complex in many real situations
  - Alert participants to the possible need, but what the regulatory instruments should cover, or how they should be framed is beyond today’s scope.

# Workshop

- **Scenarios**
  - Purse-based smartcard
  - Many similarities to other technologies
  - We have chosen the smartcard purse because it presents a complex combination of various financial products and activities
  - For today's purposes, the most common customer interactions are sufficient.
  - Specifically:
    - Consumer acquires (buys) a smartcard
    - Consumer loads stored value to the smartcard's purse
    - Consumer uses smartcard to make a purchase
    - Consumer makes an enquiry or notifies a dispute.

# Workshop – Regulatory Considerations

- **Regulation in Perspective**
  - Electronic payments in developing countries will frequently be safer, more secure, more reliable and involve lower risk than cash-derived and paper alternatives.
  - Whilst we examine risks that give rise to regulatory potential in a complex micropayments scheme, we spend no time examining the risks that impact existing payment methods, especially relating to time and reliable confirmation.
- **Access to Payments Technology**
  - Access to payments technology will frequently be limited by telecommunications infrastructure.
  - Regulation in relation to infrastructure development that supports take-up of micropayments schemes may be useful in certain situations.

## Workshop – Considerations

### *Scenario 1: Consumer Acquires (Buys) a Smartcard*

<b>Process</b>	<b>Risk: <i>Factors</i></b>	<b>Risk: <i>Behaviours</i></b>	<b>Possible Mitigation</b>
Consumer hears about smartcards and considers acquiring one	Uninformed consumers Inadequate disclosures Inadequate product description Access (infrastructure) limitations Limited acceptance	Unfair or predatory marketing behaviours	General consumer information protections  Conduct of agents and representatives  Positive encouragement to corporations and government to adopt suitable schemes.

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Issuer offers smartcard to consumer and consumer decides to purchase	Terms and conditions of use, including charging of fees	Unconsciable behaviour Hidden or undisclosed fees and charges	

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Consumer pays a fee and/or provides personal and financial information	Transfer of information Payment handling Means of delivery Transaction record	Identity and other theft Misrepresentation	General criminal sanctions Access to transaction record Privacy controls

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Consumer activates and retains smartcard for later use	Smartcard expiry Balance checking Activation malfunction	Loss or theft Human error	Access to balance and expiry information



## Workshop – Considerations

### Scenario 2: Consumer Loads Stored Value to Smartcard Purse

Process	Risk: <i>Factors</i>	Risk: <i>Behaviours</i>	Possible Mitigation
Consumer wants to add value to their smartcard purse for future spending and attends at an agent, or device, or by phone or internet	Uninformed consumers Inadequate disclosures Security of consumer interaction	Unfair or predatory marketing behaviours Identity and other theft Misrepresentation Concealment of fees and charges	General consumer information protections Conduct of agents and representatives

## Workshop – Considerations

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Smartcard is encoded with stored value	Proper completion of transaction Technical malfunction	Human error	Little or no regulatory potential
Central record updated with new stored value & balance			

## Workshop – Considerations

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Central record updated with new stored value & balance			
Issuer retains loaded funds for later expenditure by consumer	Solvency and liquidity of holder of stored value	Cloning Imprudent or fraudulent diversion of stored value funds	Regulatory supervision, reporting or controls on the holder of stored value

## Workshop – Considerations

### *Scenario 3: Consumer Uses Smartcard to Make a Purchase*

<b>Process</b>	<b>Risk: <i>Factors</i></b>	<b>Risk: <i>Behaviours</i></b>	<b>Possible Mitigation</b>
Consumer desires goods or service, wants to pay with smartcard and attends merchant (either bricks and mortar or virtual)	Uninformed consumers in relation to merchant acceptance rules  Unexpected surcharges	Unfair or predatory marketing behaviours  Concealment of fees and charges	Oversight of scheme in context of others  Trade practices controls on merchants

## Workshop – Considerations

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Consumer presents smartcard to reader	Technical malfunction	Skimming Human error	Criminal sanctions

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Consumer presents smartcard to reader	Technical malfunction	Skimming Human error	Criminal sanctions
Value is deducted from smartcard purse	Proper completion of transaction Technical malfunction Transaction record	Human error	Little or no regulatory potential
Central record updated with new stored value & balance	Technical malfunction Inconsistent record between card purse and central system	Ineffective scheme management	

## Workshop – Considerations

<b>Scenario 3: Consumer Uses Smartcard to Make a Purchase</b>			
<b>Process</b>	<b>Risk: Factors</b>	<b>Risk: Behaviours</b>	<b>Possible Mitigation</b>
Consumer desires goods or service, wants to pay with smartcard and attends merchant (either bricks and mortar or virtual)	Uninformed consumers in relation to merchant acceptance rules Unexpected surcharges	Unfair or predatory marketing behaviours Concealment of fees and charges	Oversight of scheme in context of others  Trade practices controls on merchants
Consumer presents smartcard to reader	Technical malfunction	Skimming Human error	Criminal sanctions
Value is deducted from smartcard purse	Proper completion of transaction Technical malfunction Transaction record	Human error	Little or no regulatory potential
Central record updated with new stored value & balance	Technical malfunction Inconsistent record between card purse and central system	Ineffective scheme management	
Consumer receives goods or services	Loss	Fail to deliver Incorrectly ordered Deception	Trade practices controls on merchants



## Workshop – Considerations

### *Scenario 4: Consumer Makes an Enquiry or Notifies a Dispute*

<b>Process</b>	<b>Risk: <i>Factors</i></b>	<b>Risk: <i>Behaviours</i></b>	<b>Possible Mitigation</b>
Consumer questions an aspect of smartcard or disputes transactions recorded	Adequacy of customer support service or facilities	Misrepresentation/unreasonable expectations by consumer	Terms and conditions Standards for dispute resolution
Consumer reports lost or stolen smartcard	Technical capability to refuse further transactions	Theft	Terms and conditions

## Workshop – Considerations

### *Scenario 4: Consumer Makes an Enquiry or Notifies a Dispute*

<b>Process</b>	<b>Risk: <i>Factors</i></b>	<b>Risk: <i>Behaviours</i></b>	<b>Possible Mitigation</b>
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## Workshop – Considerations

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Resolution involves refund	Refund means of payment differs from added stored value	Misrepresentation by consumer	Refund rules in relation to other forms of payment (eg scheme cards)

## Workshop – Considerations

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Consumer identified to support service	Identity theft	Human error Misrepresentation by consumer	Privacy and identification process
Resolution involves refund	Refund means of payment differs from added stored value	Misrepresentation by consumer	Refund rules in relation to other forms of payment (eg scheme cards)
Consumer dissatisfied		Unreasonable expectations by consumer Unfair conduct by issuer	Trade practices controls Avenue for review or appeal Ombudsman

# Workshop – Concluding Notes

## **Risks that warrant consideration:**

- What people do
- The situation in which they operate.

## **Mitigations can include:**

- Regulation of access to existing schemes and establishment of new schemes
- General criminal fraud sanctions
- Consumer protections and trade practices law
- Scheme and infrastructure access controls
- Prudential and financial supervisory actions.

## **The environment is complex - but do-able:**

- Fundamental differences between scheme types and characteristics
- Understanding the technology and types of schemes that are emerging and already operating is critical
- Access and take-up may benefit from positive action
- Heavy-handed regulation will stifle innovation, limit take-up and acceptance and make the low-value economics of micropayments unsustainable.

**About First Commercial Limited**

First Commercial Limited (FCL) was formed in 1997 as a boutique consulting and advisory group working primarily in financial markets in Australia, the South Pacific and in Asia. Its client base includes Banks, Central Banks, Finance Companies, Superannuation Funds, Governments, listed Industrial Firms and not for profit organisations.

FCL services cover business acquisitions, transformation projects, strategic planning, organisational structural solutions, asset management strategies, securitisation arrangements, product and service design, business process reengineering projects, technology solution alternatives, evaluation and development of credit risk processes as well as range of general management issues. In addition the firm is an active participant in raising debt and equity for organisations and specific projects.

FCL's point of differentiation is that the core team are all, both seasoned bankers and experienced management consultants. This delivers pragmatic solutions that can be implemented and do deliver real value shareholder value.

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