

# The People Problem in Security of Financial Transactions in India

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Views expressed are personal  
and not necessarily of the  
employer organisation.



# Changing Face of Banking



# Transforming channel usage

Channel	Share of transactions in Mar 2000	Share of transactions in May 2004	Share of transactions in Dec 2008
Branches	94%	27%	18%
ATMs	3%	46%	45%
Internet & mobile	2%	17%	33%
Call centre	1%	10%	4%

## Trends in Payments

Year	Cheque Clearing		Electronic Payments	
	Number in lakh	Amount in Rs crore	Number in lakh	Amount in Rs crore
2006-07	13673	1,20,42,426	3787	2,35,693
2007-08	14606	1,33,96,066	5353	10,41,991
2008-09	13974	1,24,69,135	6678	5,00,322
2009-10	13803	1,04,09,942	7182	6,84,886
2010-11	13874	1,01,34,128	9086	13,08,687

# Payment Cards Usage

<b>No. 9A: Retail Electronic Payment Systems</b>								
(Number in Million and Amount in ` Billion)								
<b>Year/Period</b>	<b>National Electronic Funds Transfer NEFT/EFT</b>		<b>Card Payments#</b>					
			<b>Credit</b>			<b>Debit*</b>		
	<b>4</b>		<b>5</b>			<b>6</b>		
	<b>Number</b>	<b>Amount</b>	<b>Number of Out-standing Cards**</b>	<b>Number</b>	<b>Amount</b>	<b>Number of Out-standing Cards**</b>	<b>Number</b>	<b>Amount</b>
2007-08	13.32	1,403.26	27.55	228.20	579.85	102.44	88.31	125.21
2008-09	32.16	2,519.56	24.70	259.56	653.56	137.43	127.65	185.47
2009-10	66.34	4,095.07	18.33	234.24	618.24	181.97	170.17	264.18
2010-11	132.34	9,391.49	18.04	265.14	755.16	227.84	237.06	386.91
2011-12	226.11	17,903.50	17.65	319.96	966.13	278.28	327.54	534.32
# Card Payments figures pertain only to Point of Sale (POS) transactions.								
* Debit Cards figures for 2003-04 and 2004-05 are estimated based on 2005-06 figures.								
** Cards issued by banks (excluding those withdrawn/blocked).								



# E-Com Market in India

<b>Net Commerce Market Size from 2007 to 2011</b> <b>(Figures in Crores. Percentages indicate share of the overall market size)</b>					
<b>Year</b>	<b>Dec 2007</b>	<b>Dec 2008</b>	<b>Dec 2009</b>	<b>Dec 2010+</b>	<b>Dec 2011+</b>
<b>Total Market Size</b>	<b>8,146</b>	<b>14,030</b>	<b>19,688</b>	<b>31,598</b>	<b>46,520</b>
<b>Online Travel Industry</b>	<b>6,250 (77%)</b>	<b>10,500 (75%)</b>	<b>14,953 (76%)</b>	<b>25,258 (80%)</b>	<b>37,890 (81%)</b>
<b>Online Non-Travel Industry</b>	<b>1,896 (23%)</b>	<b>3,530 (25%)</b>	<b>4,735 (24%)</b>	<b>6,340 (20%)</b>	<b>8,630 (19%)</b>
- eTailing	978	1,120	1,550	2,050	2,700
- Digital Downloads or Paid Content					
- Subscription	238	290	435	680	1100
- Financial Services *		1,200	1,540	2,000	2,680
- Other Online Services (incl. Online Classifieds)	680	920	1,210	1,610	2,150

\*: Financial Services were not calculated in the years prior to 2008. +: Estimated Figures



# Fraud Volumes

Fraud Type	Credit (INR Crores)	Debit (INR Crores)	Total (INR Crores)	Source
Counterfeit & Lost & Stolen (POS)	12.01	1.18	13.19	Visa/MasterCard
MOTO/CNP	22.88	0.21	23.09	Visa/MasterCard
Others	4.11	0.01	4.11	Visa/MasterCard
<b>Total</b>	<b>39.00</b>	<b>1.40</b>	<b>40.40</b>	
Spends Value (Net ATM)	74,079	36,897	1,10,976	RBI Data**
<b>Fraud to Spends Ratio (in bps)</b> (Total Fraud Net ATM)	<b>5.26</b>	<b>0.38</b>	<b>3.64</b>	
POS Spends Value (Net of Ecommerce & ATM)	55,189	32,529	87,717	RBI Data**
<b>Fraud to Spends Ratio (in bps)</b> (POS Only Net Ecom & ATM)	<b>2.18</b>	<b>0.36</b>	<b>1.50</b>	
**Note: Transaction volumes for 12 months considered for calculation				



# Importance of Security

## REASONS FOR NOT SHOPPING ONLINE

Lack of trust is the prime reason for not shopping online. According I-Cube 2009, various reasons for not shopping online as mentioned by internet users include:





# The Human Element



# Financial Puzzles

- ♦ “You had \$100 in a savings account that paid an interest rate of 2% a year. If you leave the money in the account, how much would you have accumulated after five years: more than \$102, exactly \$102, or less than \$102?”



# Financial Puzzles

- ♦ “You had \$100 in a savings account that paid an interest rate of 2% a year. If you leave the money in the account, how much would you have accumulated after five years: more than \$102, exactly \$102, or less than \$102?”
- ♦ “Only half of Americans aged over 50 gave the correct answer.”



# The Cost of Security

1. **Direct Costs:** money lost, time and effort for remediation
2. **Indirect Costs:** loss of trust, fewer business opportunities
3. **Defence Costs:** anti-virus, training for users, take down services, law enforcement

[After Ross Anderson, et al]

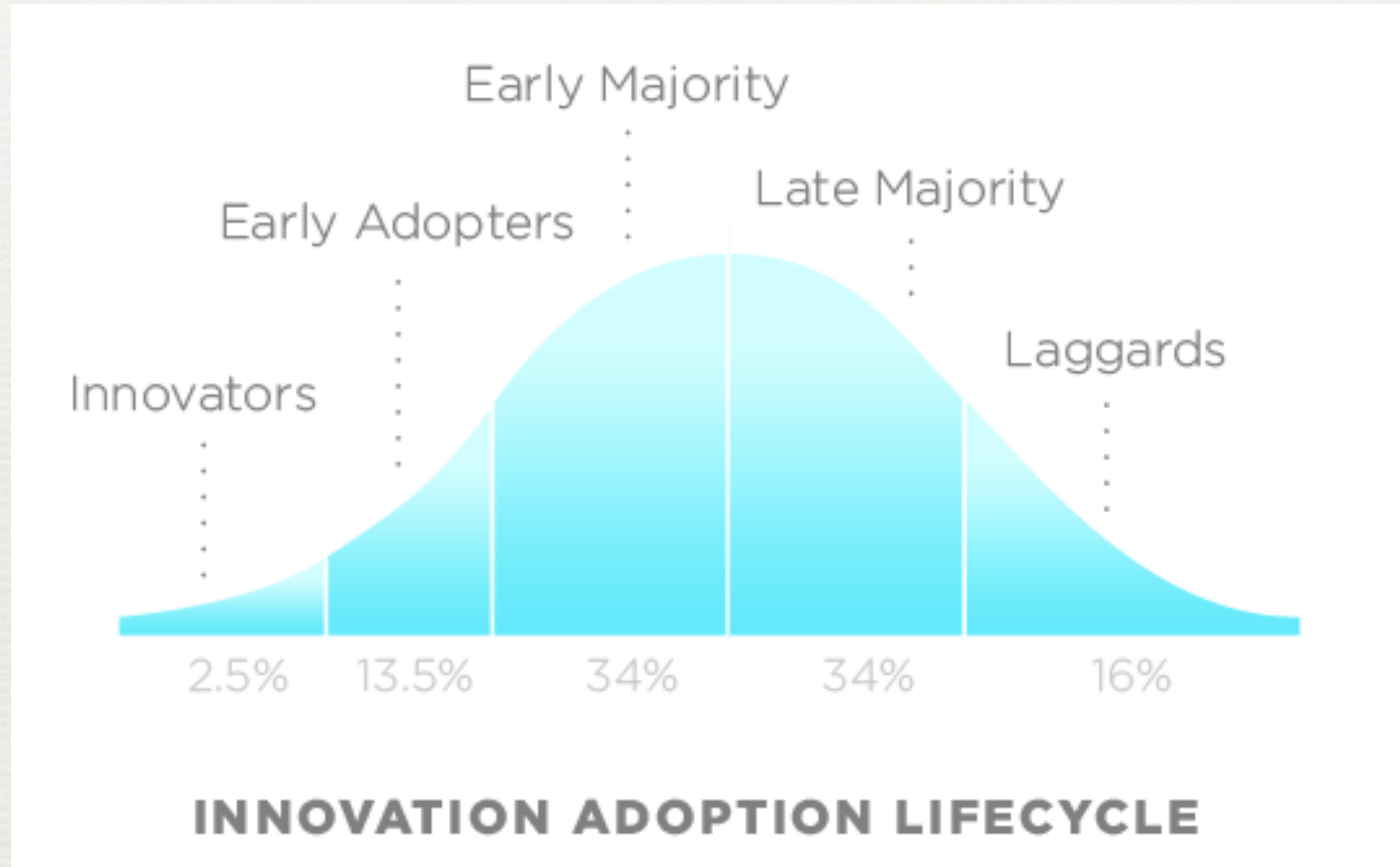


# Smart Users

- ♦ Cormac Herley: “The defence cost is unaffordable.”
  - ♦ For phishing, direct cost = \$61 million
  - ♦ Clean up cost = \$96 million
  - ♦ Education cost = \$15.9 billion
- ♦ User education burden borne by the whole population, while offering benefit only to the fraction that fall victim.
- ♦ Victims are found not to have paid attention to tips.

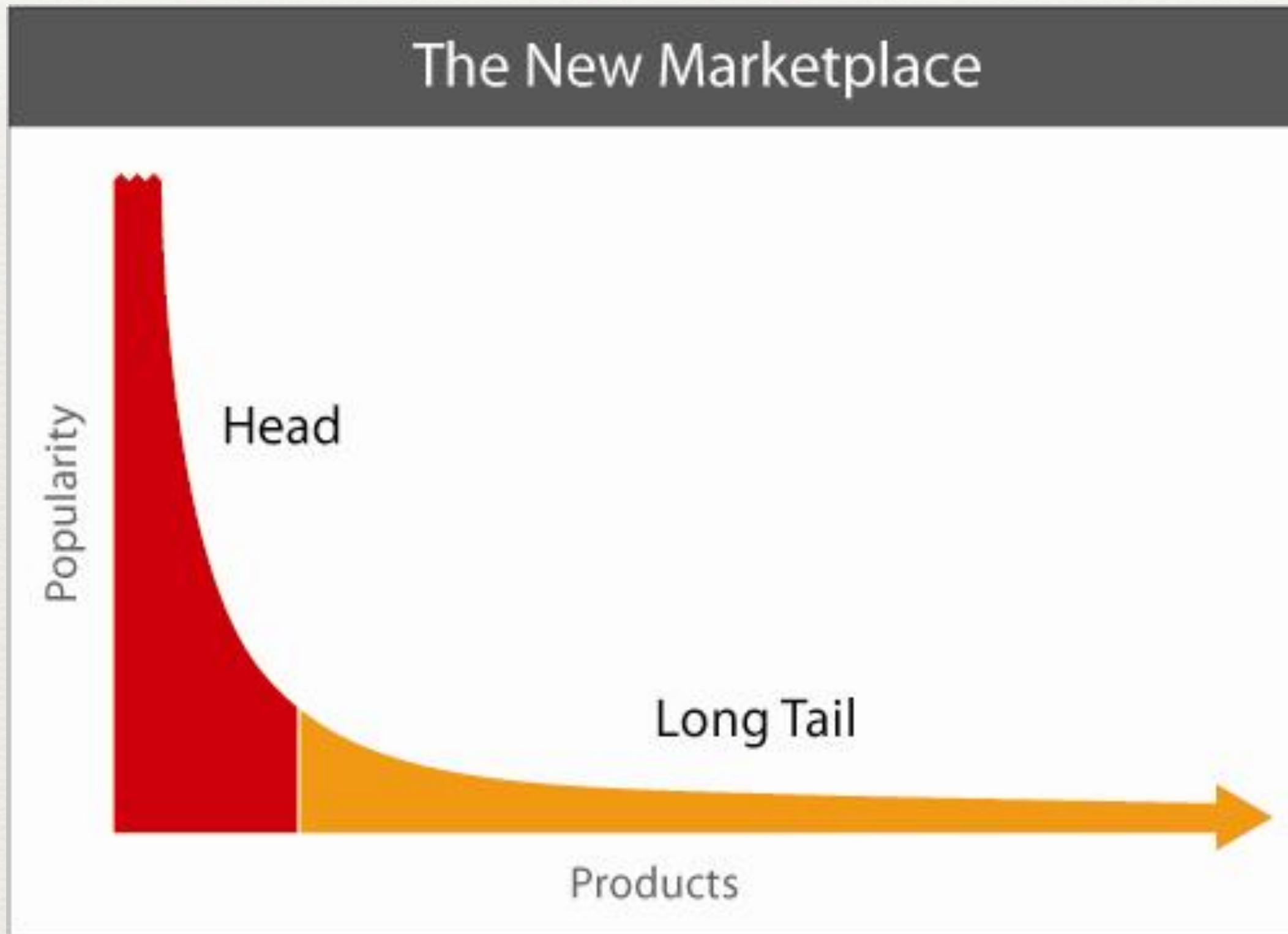


# Not Everyone is on the Same Page





# The Long Tail Problem





# A Top-Down Approach

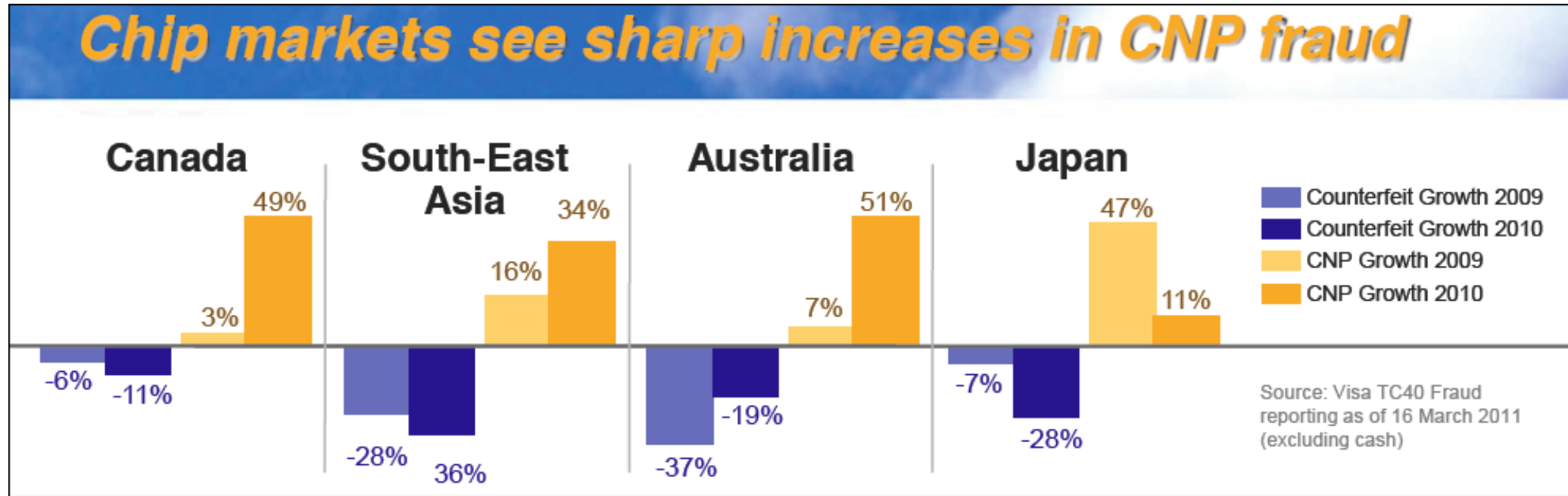


# Providing a Level Field

- ♦ RBI issued a directive in February 2009
- ♦ Online transactions must be 3D authenticated from August 2009
- ♦ SMS alerts for online transactions > Rs 5000
- ♦ Followed by another directive in April 2010 for IVR transactions, effective 1 January 2011

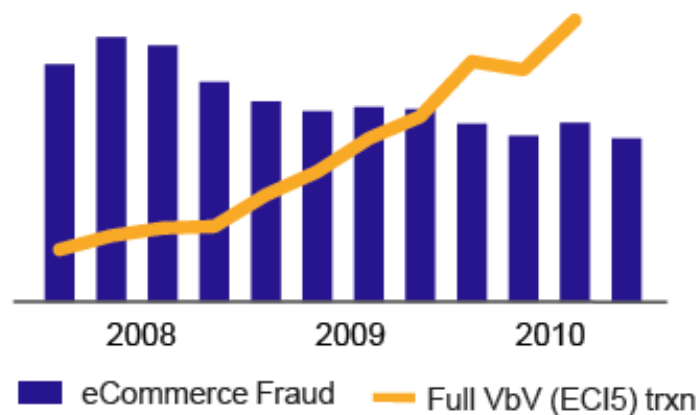


# Turning it on head



➤ But the trend can be reversed with: **Verified by Visa**

## Visa Europe Domestic eCommerce Fraud



## India: Two-Factor Authentication in 2010

- **80% Decrease** in CNP fraud
- **80% Increase** in eCommerce sales

Visa Public



# Choice Architecture

- ♦ All new debit and credit cards to be issued only for domestic usage
- ♦ Issuing banks should convert all existing MagStripe cards to EMV Chip card for international users
- ♦ Threshold limits and transaction monitoring
- ♦ PCI-DSS and PA-DSS compliance
- ♦ Customer configurable caps and SMS-based blocking



# Some Conclusions

- ♦ The cost of security extends beyond fraud
- ♦ Who takes the hit is important
- ♦ Regulator can play an decisive role in influencing overall security
- ♦ The long tail defeats a people-centric approach in retail banking
- ♦ OTOH, a centralised approach can be surprisingly successful



# Questions?



# Thanks

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