

The People Problem in Security of Financial Transactions in India

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Views expressed are personal
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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

No. 9A: Retail Electronic Payment Systems								
(Number in Million and Amount in ` Billion)								
Year/Period	National Electronic Funds Transfer NEFT/EFT		Card Payments#					
			Credit			Debit*		
	4		5			6		
	Number	Amount	Number of Outstanding Cards**	Number	Amount	Number of Outstanding Cards**	Number	Amount
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** Cards issued by banks (excluding those withdrawn/blocked).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

Net Commerce Market Size from 2007 to 2011					
(Figures in Crores. Percentages indicate share of the overall market size)					
Year	Dec 2007	Dec 2008	Dec 2009	Dec 2010+	Dec 2011+
Total Market Size	8,146	14,030	19,688	31,598	46,520
Online Travel Industry	6,250 (77%)	10,500 (75%)	14,953 (76%)	25,258 (80%)	37,890 (81%)
Online Non-Travel Industry	1,896 (23%)	3,530 (25%)	4,735 (24%)	6,340 (20%)	8,630 (19%)
- 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
Total	39.00	1.40	40.40	
Spends Value (Net ATM)	74,079	36,897	1,10,976	RBI Data**
Fraud to Spends Ratio (in bps) (Total Fraud Net ATM)	5.26	0.38	3.64	
POS Spends Value (Net of Ecommerce & ATM)	55,189	32,529	87,717	RBI Data**
Fraud to Spends Ratio (in bps) (POS Only Net Ecom & ATM)	2.18	0.36	1.50	
**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

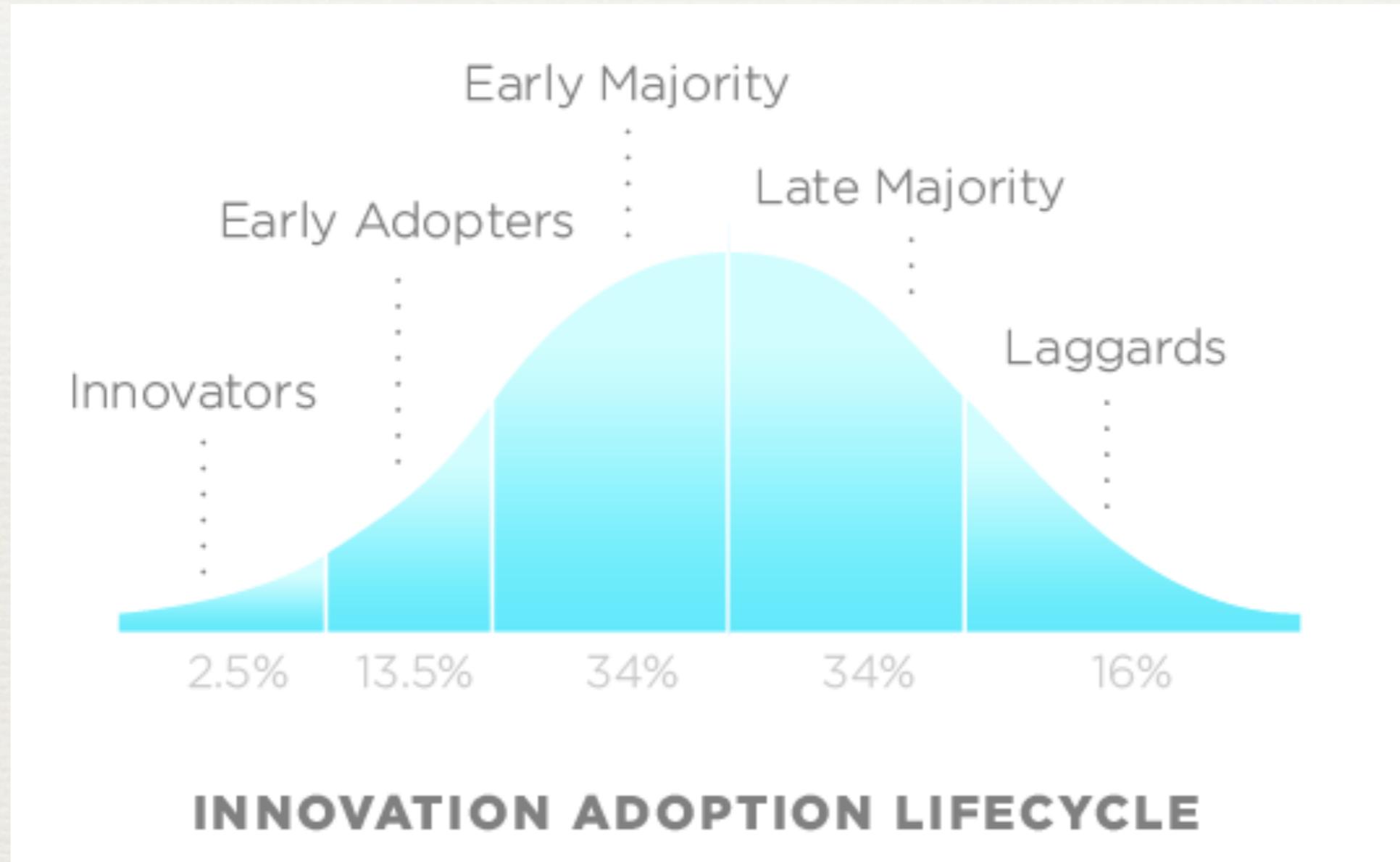
1. **Direct Costs:** money lost, time and effort for remediation
2. **Indirect Costs:** loss of trust, fewer business opportunities
3. **Defence Costs:** anti-virus, training for users, take down services, law enforcement

[After Ross Anderson, et al]

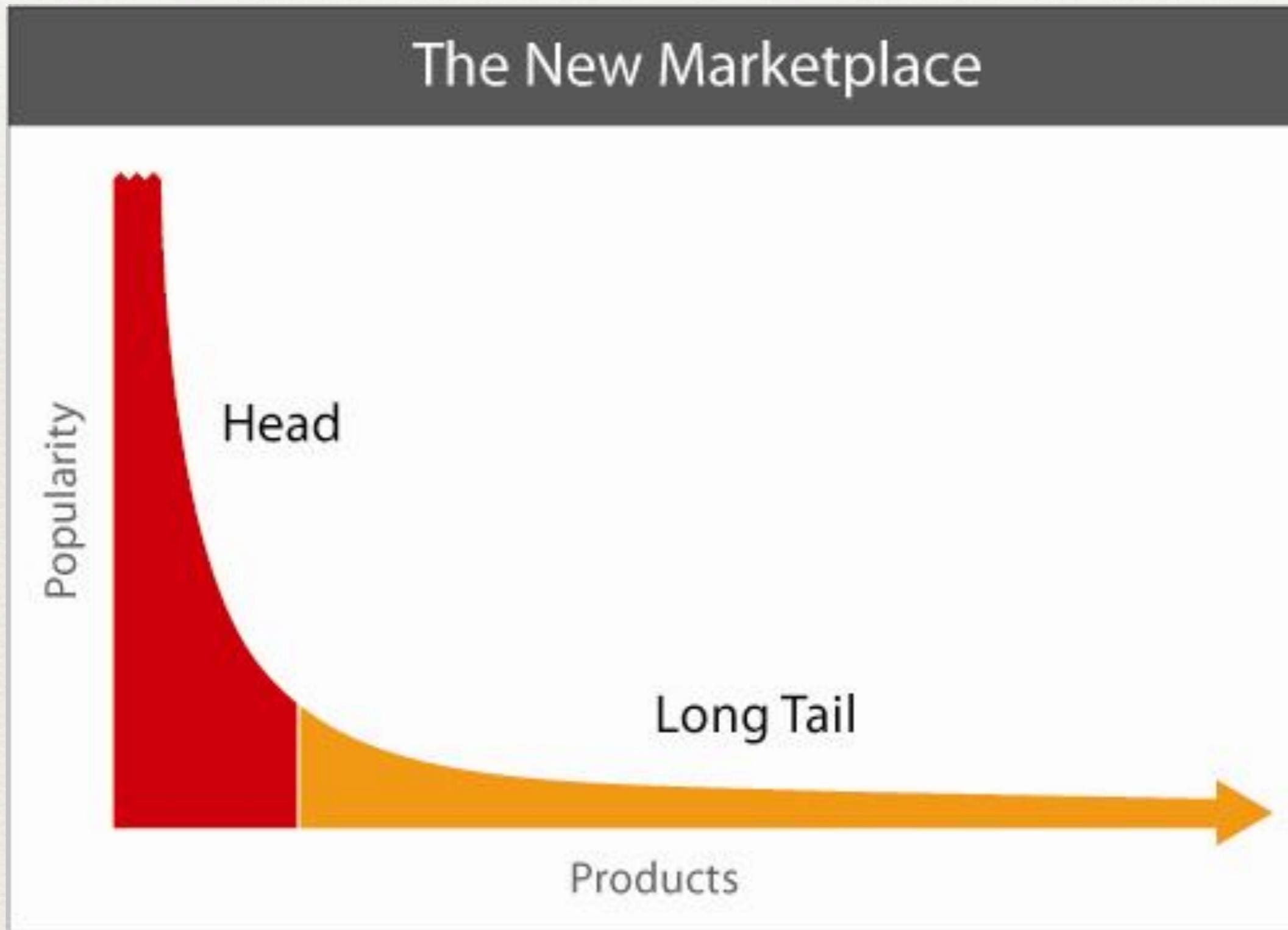
Smart Users

- ◆ 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

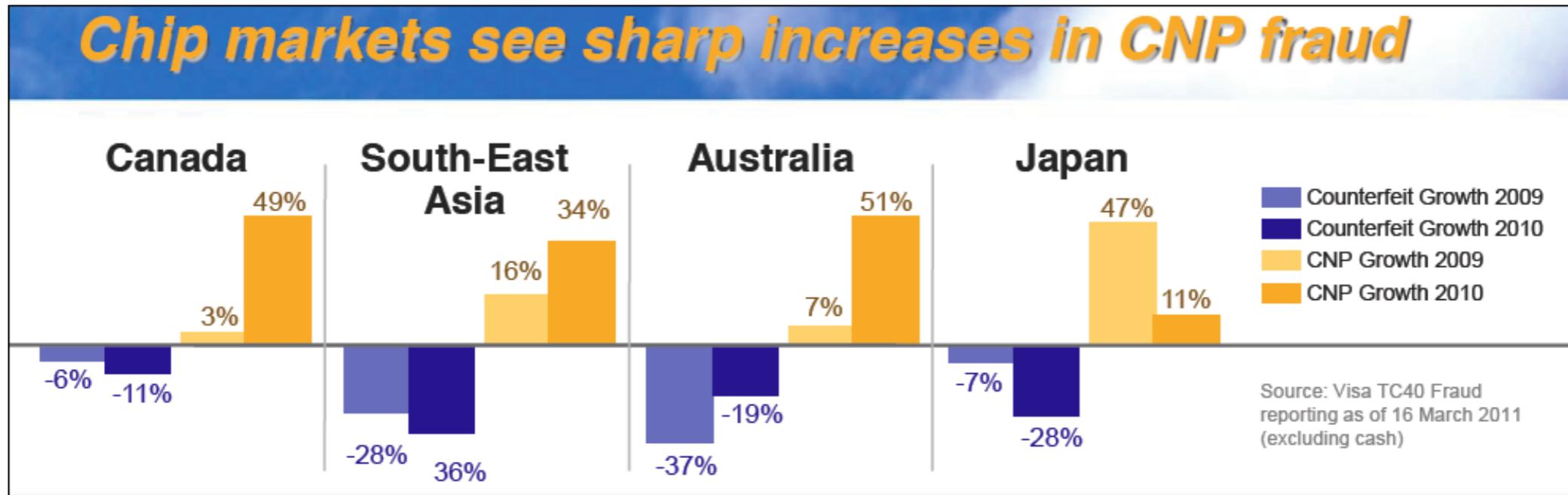


A Top-Down Approach

Providing a Level Field

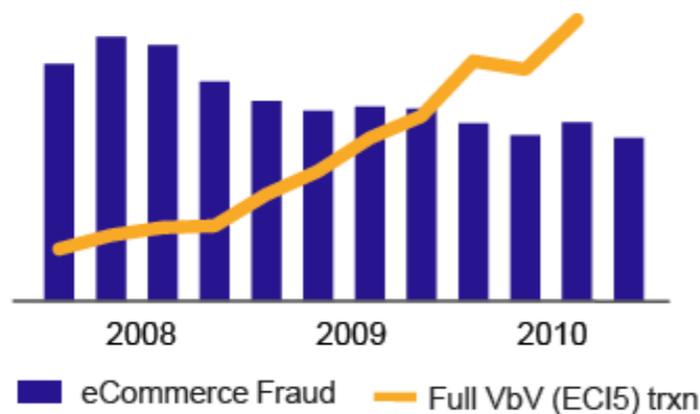
- ♦ RBI issued a directive in February 2009
- ♦ Online transactions must be 3D authenticated from August 2009
- ♦ SMS alerts for online transactions > Rs 5000
- ♦ Followed by another directive in April 2010 for IVR transactions, effective 1 January 2011

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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