Digital Payments Landscape and Emerging Risks

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KPMG India
Payment Evolution – But Much Faster
Evolving Payment Ecosystem...

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<th>CASH</th>
<th>CHEQUE</th>
<th>CARDS</th>
<th>ONLINE BANKING/TRANSFERS</th>
<th>WALLETS MOBILE Payments</th>
<th>NEW GEN CHANNELS</th>
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- **CASH**
  - Bankers Cheque
  - Demand Drafts
  - Cheque

- **CHEQUE**
  - Credit Cards
  - Debit cards
  - Prepaid cards

- **CARDS**
  - VISA
  - Mastercard
  - American Express
  - Maestro

- **ONLINE BANKING/TRANSFERS**
  - NEFT
  - CROSS BORDER TRANSFER
  - SWIFT
  - RTGS
  - DIRECT DEBIT

- **WALLETS MOBILE Payments**
  - Stored value wallets
  - Contactless Mobile Wallets
  - eCommerce wallets

- **NEW GEN CHANNELS**
  - Biometric payments
  - Wearables
  - NFC/Contactless
  - Blockchain based
Digital Payment Ecosystem - Nepal

130% Mobile penetration
57% Internet usage

Digital Wallets
Cards
Bank Wire Transfer

CASH 75%

25 %
Digital Payment Ecosystem - Trends

NEXT GEN PAYMENTS – GLOBAL MARKET TRANSACTION VALUE

2017: $3,104 BN
2018: $4,296 BN
2019: $6,109 BN
2020: $8,961 BN
2021: $11,141 BN
Factors responsible for this evolution...

- Ongoing technology and digital revolution
- Acceleration in digitization of the cash over the next few years
- Growth in merchants acceptance network
- Entry of non-traditional players and Enabling regulations
- Reduce entry barriers for customers and more demanding customer expectations
- Convenient, intuitive easy to use safe products

Factors responsible for this evolution...

Entry of non-traditional players and Enabling regulations

Convenient, intuitive easy to use safe products

Reduce entry barriers for customers and more demanding customer expectations

Growth in merchants acceptance network

Ongoing technology and digital revolution

Acceleration in digitization of the cash over the next few years
Let's understand Payment Ecosystem...

**ECOSYSTEM ENABLERS**
- Internet Penetration
- Mobile Usage
- Enabling Regulation
- Emerging Technology
- Non Banking Institutions

**PAYMENT TYPES**
- **HIGH VALUE**
  - **CASH**
    - Illustrative: Banknotes
  - **CHEQUE**
    - Illustrative: Cheque
  - **CARDS**
    - Illustrative: VISA, Mastercard, American Express
  - **ONLINE BANKING/TRANSFERS**
    - Illustrative: NEFT, CORDT, RTGS, Direct Debit
  - **WALLETS/MOBILE PAYMENTS**
    - Illustrative: Paytm, Alipay, WeChat Pay, Amazon Pay

- **PUSH**
  - **HIGH VALUE**
    - Illustrative: Cheque
  - **PULL**
    - Illustrative: Card

- **LOW VALUE**
  - **PUSH**
    - Illustrative: Mobile Wallet
  - **PULL**
    - Illustrative: E-wallet

**TECHNOLOGY**
- NFC
- Mobile
- QR Code
- Biometric
- Cloud
- Blockchain
- API

**PAYMENT ECOSYSTEM**
- Consumers
- Banks
- Tech Providers
- Aggregators
- Merchants

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Payments landscape has evolved and transformed rapidly over the last few years. Banks along with ecosystem partners (platforms) are processing end to end customer payment services across the value chain at lightning speed. This highly digitized landscape is hence prone to operational, technical and cyber risks.
In Summary Digital Payments landscape...

- Customer Centric (Ease of use/experience)
- Automated to Autonomous
- Highly Interoperable
- Always ON, Anytime, Anywhere
The rapid growth of digital payment channels have significantly increased risks demanding focused response at organization and industry level.
Trust game...
Managing digital identity is paramount
Sutton’s law in 1980s

Willie Sutton….bank robber….author

“Why do you rob banks?”

“Because that’s where the money is”

In digital ecosystem robber has tremendous opportunities to remain invisible.
Risks in Card Payment Ecosystem

1. Card Holder
2. Merchant
3. Merchant Account/Gateway
4. Acquiring Bank/Processor
5. Card Networks
6. Issuing Bank
7. Fraud Check
8. Fraud Check
9. Fraud Check
10. Fraud Check

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Risks in Digital Payments – What we are seeing

Last few years have witnessed many high impact cyber security attacks globally and across sectors. The magnitude of risk has exponentially increased with enhanced adoption of digital channels. Various studies indicate cybersecurity risk has climbed to become top three risks where CEOs would like to invest.

Nature of cyberattacks faced by organizations on digital payments channels

- Phishing: 40%
- DDoS: 40%
- Exploits of Vulnerability: 40%
- Spam: 40%
- Malware: 20%
- Cyber Espionage: 20%
- Social Engineering: 20%
- Identity Theft: 20%
- Merchant Fraud: 20%
- Others: 40%
Recent Incidents - Digital Payments Space

In 2018, the average fraud with contactless payments amounted to DKK 189, while for chip payments the average fraud amount was DKK 2,194 in Denmark.

Outlook India, 29th Aug 2019

A New Delhi based man lost Rs 91,000 in a digital wallet fraud after he gave away his phone to an authorized agent of the mobile company for repair work.

Hong Kong economy

HSBC tightens e-wallet app security after PayMe breach allowed access to 20 accounts holding HK$100,000

• Two-step verification and text message notification added to process.

On Feb. 07, 2018, three fraudulent remittances had gone through PNB Bank SWIFT system to our correspondent banks, which were not initiated from bank’s end.” Hackers tried to transfer nearly $2 million in these transactions.

Outlook India, 29th Aug 2019

7-Pay app in Japan allowed a third party to make bogus charges of ($500,000) on hundreds of customer accounts.

mobile company for repair

7-Eleven Japan shut down its mobile payment app after hackers stole $500,000 from users

The feature launched earlier this week and has since been suspended.

Punjab National Bank hit by another fraud, this time of Rs 3,800 crore

The Punjab National Bank (PNB) on Saturday said it had reported a borrowing fraud of 36.95 billion Indian rupees ($556 million) in Bhushan Power & Steel Ltd's account to the Reserve Bank of India (RBI).
By 2020, 60% of Digital Businesses will suffer major service failures due to the inability of the IT Security team to manage the digital risk

- GARTNER
What banks are thinking...

- How do I secure my systems?
- Who all shall have access to System and how do I Manage It?
- How to I track and manage my payment Infrastructure.
- What are the current regulations for digital payments?
- How Much security is Too much?
- Shall I involve my Board in decision making?
- How do I decide the Budget management payment risks?
- How do I train my employees, partners, & customers?
- How do we decide on which risk to Mitigate and which to accept?

A holistic Approach is crucial
Tackling Digital Payments Risks

Introduction of **stringent guidelines around authentication, data storage & privacy, customer identification & verification etc.** by regulators across the world to prevent breaches.

Development of **robust cyber security framework cutting across people, process and technology** to manage, mitigate and contain risk.

Use of **tokenization, biometrics, address verification service, P2P encryption** by bank sand service providers to make transactions more secure.

Banks are exploring near **real-time data analytics and block chain combined with cognitive learning** to mitigate risks arising in payments systems.
Cyber Maturity Assessment Elements

**LEADERSHIP AND GOVERNANCE**
- Board demonstrating due diligence, ownership and effective management of risk.

**HUMAN FACTORS**
- The level and integration of a security culture that empowers and ensures the right people, skills, culture and knowledge

**INFORMATION RISK MANAGEMENT**
- The approach to achieve comprehensive and effective risk management of information throughout the organization and its delivery and supply partners

**LEGAL AND COMPLIANCE**
- Regulatory and international certification standards as relevant

**OPERATIONS AND TECHNOLOGY**
- The level of control measures implemented to address identified risks and minimize the impact of compromise (IT Strategy & Business Integration, Vendor Management and Sourcing, Data Privacy, Resource Management, Program & Change Management, IT Infrastructure, Application Architecture, IT Asset Management etc.)

**BUSINESS CONTINUITY AND CRISIS MANAGEMENT**
- Preparations for a security event and ability to prevent or minimize the impact through successful crisis and stakeholder Management
“As custodian of consumer TRUST, banks have to create a robust security culture.”
Thank you

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