Evolution of Electronic Payments

K.B. Kim
President, Mondex Korea
Chairman, MasterCard Korea
Discussion Overview

- Changes in Payment Business Environment
- Changes in Payment Technology
- Evolution of Payment Products
- Future of Payment Products and Technology
- Impact on New Economy
Changes in Payment Business Environment
The New Economy

Traditional Economy
- Mature business model
- Incremental innovation
- Capital asset driven

Virtual Economy
- Immature business models
- Speed-to-market
- Business model innovation
- Technology asset driven

New Economy
- Evolving business models
- Significant innovation
- Technology enabled
- Seamless integration of virtual/traditional economy
Internet Transforms Industries

Indexed Market Capitalization

Brokerage Industry

- Charles Schwab
  - 1995: 1,039
  - 1996: 463

- Merrill Lynch
  - 1995: 1,039
  - 1996: 463

Computer Industry

- Dell
  - 1995: 5,816

- Compaq
  - 1995: 343
Emerging Consumer and Merchant Choice

- New concepts introduced weekly
- Increasing consumer choice
- Increasing merchant choice
- Inflection point in the evolution of the industry?

Number of Consumer Payment Choices

- Cash, Credit, Debit, Check
- 1995: 4
- 2000: 20
Well-Funded New Entrants

- Average new entrant investment was approximately $60M in 2000
- $17 billion spent by VCs on Internet startups in Q1 2000
- Nearly $5B spent in the financial services sector

Total VC Funding Q1 2000
$17 Billion

Total VC Funding for Financial Services Q1 2000

- B2B
- Payments
- E-commerce Technologies
- Financial Content Sites
- Mortgage
- Brokerage
- Debt Collections
## New Payments Competition

<table>
<thead>
<tr>
<th>Software Providers</th>
<th>eRetailers</th>
<th>eFinancial Services</th>
<th>Portals - ISPs</th>
<th>Telcos/ Cable</th>
<th>Online Currency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft</td>
<td>Amazon.com</td>
<td>Billpoint</td>
<td>Yahoo!</td>
<td>BT</td>
<td>flooz</td>
</tr>
<tr>
<td>Intuit</td>
<td>Carrefour</td>
<td>eMoneyMail</td>
<td>AOL.com</td>
<td>vodafone</td>
<td>infinia</td>
</tr>
<tr>
<td>BOXMAN</td>
<td>tradesafe.com</td>
<td>Yupi</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PayPal</td>
<td>freeserve</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional Competitors</td>
<td>MasterCard</td>
<td>VISA</td>
<td>American Express</td>
<td>Discover</td>
<td>JCB</td>
</tr>
</tbody>
</table>

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Competitive Impact

- Disintermediation threat at a number of places along bank’s value chains
- Pressure from new channels on infrastructure and standards
- Challenged by new economic / business models
## Competitive Dynamics

### $18.2$ Trillion Global Personal Consumption Expenditure

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Care</td>
<td>$0.9T</td>
</tr>
<tr>
<td>Government</td>
<td>$2.4T</td>
</tr>
<tr>
<td>Service/Recurring</td>
<td>$5.1T</td>
</tr>
<tr>
<td>Retail</td>
<td>$9.2T</td>
</tr>
<tr>
<td>Leisure Travel</td>
<td>$0.6T</td>
</tr>
<tr>
<td><strong>Cash/Check</strong></td>
<td><strong>$18.2T</strong></td>
</tr>
</tbody>
</table>

- Competitors leveraging online capabilities to push into traditional card markets
- Competitors employing new technologies to capture traditional cash and check transactions
New Competitive Environment

- It is early in the game but competitors and new entrants are putting significant “stakes in the ground”

- The bar is being raised on what it takes to lead, let alone remain competitive

- We are at an inflection point in our industry where “doing business as usual” will create a weakened position for MasterCard

- Success will be driven by appropriate focus and investment in emerging markets and ideas
Market is Changing


- Netscape Navigator Introduced
- Yahoo! IPO
- eBay Launched
- E*TRADE Launched
- Visa Next Card Introduced
- Billpoint Person to Person Payment
- American Express Launches Blue Card

- Secure Interface Development
- MasterCard Electronic Certification Services
- Shop Smart!
- Excite Announce Alliance
- Internal Pilot of Clarus B-to-B Electronic Purchasing
- From Marketing Alliance
- Palm VII MasterCard/Cirrus ATM Locator on Palm VII Organizer

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Creating Value in the New Economy

- The fundamentals have not changed:
  - Know your customer
  - Differentiate
  - Execute

- Our plans
  - Focus on our members and their customers
  - Invest in new activities
  - Become net ready and active across the company

- Leverage our current assets coupled with disciplined investments and execution in Leadership / Big GDV opportunity areas
e-Business Strategy

Add Member Value

Profitable GDV Growth

Focus
Leverage Platforms in the e-Business Environment

Strengthen
Expand Interactive Presence and Build Brand Preference

Differentiate
Develop Key MasterCard Partner Programs
Changes in Payment Technology
ATM

- Second Industrial Revolution
- Changed Banking Landscape
  Citibank never sleeps ➔ 24hr Banking
- Changed Banking Operations
  Automated processing
  Cost Competitiveness
Electronic Funds Transfer (EFT)

- 3rd Industrial Revolution
- SWIFT, TESTED TLX Obsolete
- Accelerate Credit card usage
- Authorization and settlement
- B2B transactions ➔ ATM Network
Internet Payment

- B2B transactions
- B2C transactions
- Cyber transactions and cyber payments
- Network type vs IC card type
- Security critical
Evolution of Payment Products
Virtual Card

- Internet Payment Card
- Virtual account
- EC driven
- Real and virtual world
  HSBC i-Life Card
Electronic Cash

- Network vs IC Card
- Micropayments for virtual and Real
- Security critical
- Life style card
- Mondex leading e-cash
Mobile Commerce

- Internet Access
- Voice, Data, Fax
- Information transmission
- Payments over mobile phone
Penetration in Major Cellular Markets

- Finland: 70%
- Norway: 60%
- Denmark: 60%
- Sweden: 60%
- Italy: 55%
- UK: 45%
- Japan: 40%
- France: 35%
- Germany: 30%
- USA: 30%
- Korea: 58%
Voice to Non-voice Communications

Challenging the Mobile Frontier

Convenience of mobile communications
- Anytime, anywhere, Anyone -

Market size

1999

2010

Data

Voice
Mobile Multimedia Service

Business Use
- Video conference
- Internet, E-mail
- E-Commerce
- Data Center
- Database
- Locating

Public Use
- Mobile TV Phone
- ITS
- Tele Medicine
- Emergency communications system
- Remote monitoring system

Private Use
- E-Commerce
- Tele medicine
- Information providing Service
- Mobile TV
- Video on demand
- Interactive TV
- Electronic newspaper
- TV
- Shopping
- Distance learning
- Electronic book

Multimedia Mobile Communications Network
Application Alliance Partners (1)

- Mobile Banking Service (300 major financial institutions)
  Full Banking Services
  (Money Transfer, Check Balance, etc.)
  - Sakura Bank
  - Sanwa Bank
  - Sumitomo Bank
  - Bank of Tokyo Mitsubishi
    150 other major banks in Japan

Partial Banking Services
(Not including money transfer from your account to others)
- CITIBANK (Money Transfer, Check Balance, etc.)
- 119 other banks and financial institutions (regional banks, credit unions, farmer’s unions, etc.). (Check Balance, Foreign Currency Delivery, etc.)
Application Alliance Partners (2)

- **Mobile Trade Service**
  You can check the latest real time stock price and trade it!
  - Daiwa Securities (Stock Quotes, Selling/Buying Stocks, MMF)
  - Nikko Securities (Stock Quotes, Selling/Buying Stocks, etc.)
  - DLJ Direct (Stock Quotes, Selling/Buying, Virtual Investment Game, etc.)
  - Nomura Securities (Stock Quotes, Selling/Buying, etc.)

- **Credit Card Information**
  - DC Card (Check Account Balance, Member Information)
  - Sumitomo VISA Card (Member Information)
  - UC Card (Member Information)
  - Million Card (Check Account Balance, Member Information)

- **Insurance Transaction (Account Info, Money Transfer)**
  - Nippon Life Insurance, Meiji Life Insurance, and many others
  - AIU (Online Travel Insurance Application)
Application Alliance Partners (3)

- Airline (e-ticket, Online Reservation, Mileage Account Check, etc.)
  - Japan Airlines (JAL)
  - All Nippon Airways (ANA)
  - Japan Air System (JAS)
  - Northwest Airline (NWA)

- Travel
  - JTB (Japan Travel Bureau) (Hotel Online Reservation)
  - 6 other travel related web (incl. Railway/Subway Transit Guidance w/Timetable, Discount Ticket Search, etc.)

- Concert Ticket Reservation
  - PLA (Searching Concerts, Telephone Booking)
  - Lawson Ticket (Online Booking, Searching Concerts)
  - Ticket Saison (Searching Concerts, Telephone Booking)
Application Alliance Partners (4)

- News/Information
  - CNN (Headline News, World News, Business News, etc.)
  - Bloomberg (Market News, Stock Quotes, Company News)
  - Dow Jones (Market Reports)
  - Asahi Shimbun (Headline News, Sports, News)
  - Mainichi Shimbun (News Updates, Sports News)
  - NIKKEI Newspaper (Categorized News)
  - Yomiuri Shimbun (News Updates, Giants Channel, Sports News)
  - Weathernews (Weather news, Weather Related Info.)
  - NHK (TV Headline News, Music Info., F-1 News, etc.)
  - Nikkei BP (BizTech: Business/Technology News)
  - JIJI Press (News Updates)
  - Morningstar (Mutual Fund Ratings, Fund information)
  - People’s Daily (Chinese News, World News)
  - Chosun Ilbo (Korean News)
  - 17 other regional papers
Application Alliance Partners (5)

- Data Base Application
  - Ajinomoto (Recipe DB), Osaka Gas (Recipe DB)
  - NTT (Telephone Directory (Yellowpage))
  - Sanseido (Directory Service)
  - Zagat Survey (Restaurant Guide), PIA (Restaurant Guide)
  - Tokyo Food Pages (English Restaurant Guide)

- Sales
  - Kinokuniya Bookstore, Book Service, Hon-ya-san, Yamato (Online Book Sales)
  - Cyberwing (Online CD Sales)
  - Tsutaya (Online CD, Game software Sales)
  - TV Panic (Game software Sales)

- Visual Service
  - Bandai (Character Delivery)
  - Photonet Japan (Photo Data Web Hosting, Photo collections (downloads))
Application Alliance Partners (6)

- Entertainment
  - Network Games
    - Bandai (Virtual Gamble Game, Virtual Golf, Virtual Dating Game etc.)
    - Tomy, Namco, Konami (I-mode version of Arcade Games, etc.)
    - Dwango (Virtual Fishing Game)
    - Hudson (Miracle Ground Prix, Shogi)
  - Index

- Ringing Tone Downloads and Karaoke Search
  - Dai-ichi Kosho (Karaoke Search, Ranking, New Songs, etc.)
  - Giga Networks, Exing, Joysound, DAM, Yamaha, Sega (Ringing Download)

- Entertainment Information
  - Tsutaya (Rental Video/CD Ranking, Inventory Information)
  - Cybird (Surfing Information, Fishing Information)
  - J-WAVE, TOKYO FM, FM802, fm osaka (FM Radio Station Information, Now On Air)
  - Nippon TV, NHK, Sky Perfect, Fuji TV, (TV guides, program info, etc)
  - Other entertainment guides
    - Horoscope, Fortune telling, etc.
Content Example Mobile Banking

**MY MENU**
1. Weathernews
2. ZAGAT Tokyo
3. Nikkel News
4. Sumitomo Bank
5. Sample
6. Application Form Request
7. Customer

**<Sumitomo Bank>**
1. Mobile Banking
2. Telephone Banking Center
3. ATM Maps
4. Service Info

**<Mobile Banking>**
1. Start
2. Quit
3. Help Desk(Tokyo)
4. Help

**<Service Menu>**
Balance Check
Money Transfer
Change PIN
Quit

**<Input ACCT# And First PIN> ACCT#**

**<Account Selection>**
◎ Tokyo Brunch Savings ***1234
○ Yokohama Br. Checking

**<Balance>**
11/3 10:30
#Account Balance
Y 123,456

**<Confirmation>**
FROM:
Sumitomo Bank Tokyo Brunch Savings ***4321
TO:
CITIBANK Tennoz Savings ****135
Takeshi Natsuno
Amount Y100,000
Fee 315

**<Registered Acct>**
◎ Sumitomo Bank
Osaka Brunch
Saving ***4321
Paul Smith
◎ CITIBANK

**<Registered Acct>**
◎ Tokyo Brunch Savings ***1234
○ Yokohama Br. Checking

**<Order Completed>**
Excuted 11/3
Order # 1103-001
Back To Menu

**<Sample>**
035473811
Calling

**<Input 2nd PIN> Confirm Cancel**

**<Order Completed>**
Excuted 11/3
Order # 1103-001
Back To Menu

**<Sample>**
315
Input 2nd PIN

**<Confirmation>**
FROM:
Sumitomo Bank Tokyo Brunch Savings ***4321
TO:
CITIBANK Tennoz Savings ****135
Takeshi Natsuno
Amount Y100,000
Fee

**<Registered Acct>**
◎ Sumitomo Bank
Osaka Brunch
Saving ***4321
Paul Smith
◎ CITIBANK

**<Registered Acct>**
◎ Tokyo Brunch Savings ***1234
○ Yokohama Br. Checking

**<Order Completed>**
Excuted 11/3
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315
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**<Confirmation>**
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TO:
CITIBANK Tennoz Savings ****135
Takeshi Natsuno
Amount Y100,000
Fee
Future of Payment Products
And Technology
Future of Payment Products and Technology

- EBPP
- Electronic Cash
- Chip, Biometrix, Voice Recognition
- Security
Impact on New Economy
Virtual Banking

- Smile Bank in UK
- Deposit, Transfers, Loan, fx
- Securities Transactions
Real and Virtual Consumers

- Virtual population
- Co-existence
- US Survey on consumer banking behavior
Real and Virtual Market

- B2B
- B2C
- B2G
- Market Place
Globalization

- Cross-Border
- Global Currency
- Global Economy