Future of Cashless Payments in Singapore

Presented by
Quah Mei Lee
meilee.quah@frost.com

8 June 2018
Growing market for mobile payments in Asia-Pacific

On 11 Nov 2017…

• Alibaba smashed its 2017 Single’s Day record once again as sales cross SGD33 billion (RMB163.8 billion)

• 90% of sales were made on mobile

• Lazada netted SGD166 million in sales across Southeast Asian markets—nearly three times of last year’s performance

• 7 in 10 people bought using their mobile

In the future?

Source: Frost & Sullivan
Within Asia-Pacific, there is a shift toward “Going Cashless”
Market demand and regulatory push may result in the emergence of “Cashless Societies” 2022 onwards; mobile payment capabilities are enabling monetization of mobile Internet use.

Growth in % Cashless across Asia-Pacific

- Australia may be the first country in Asia-Pacific to achieve a true “Cashless Society”
- Bold policy moves in populous countries such as China and India, will result in Asia-Pacific becoming 56% cashless by 2022

Singapore, estimated to be 61% cashless in 2016, is expected to reach 82% by 2022

Source: Frost & Sullivan

Note: *Percentages are based on volume with the exception of Vietnam and Indonesia (based on value)
Future cashless growth trajectories in APAC skewed by heavy contribution from China and India

<table>
<thead>
<tr>
<th>2016</th>
<th>2016</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>45 million</strong></td>
<td><strong>18 million</strong></td>
<td><strong>12 million</strong></td>
</tr>
<tr>
<td>Works on the latest Apple devices</td>
<td>Works on the latest Samsung phones models</td>
<td>Works on all Android phones, which run KitKat 4.4 or later that are NFC and HCE-enabled i.e. 70% of Android phones</td>
</tr>
<tr>
<td>Added 1 million new customers every week in the 7 markets in 2016</td>
<td>Its Knox security software is one of the best security systems for mobile devices; it now also offers iris scanning authentication</td>
<td>Collaborates with PSPs such as Braintree and Stripe to support online mobile payments</td>
</tr>
<tr>
<td>Now available in 15 countries at 20 million locations worldwide, including 4.5 million in the United States</td>
<td>Tied up with AliPay in May 2016</td>
<td>Offers loyalty and gift cards</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2017</th>
<th>2017</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>520 million</strong></td>
<td><strong>700 million</strong></td>
<td><strong>200 million</strong></td>
</tr>
<tr>
<td>Taps on Alibaba's e-commerce base and is the world's no.1 e-wallet</td>
<td>Taps on its social networking base as a powerful &quot;lifestyle app&quot;</td>
<td>Taps on India's demonetization and promotion of a cashless and digital economy</td>
</tr>
<tr>
<td>Interfaces to daily activities; stores e-coupons and loyalty cards</td>
<td>Allows customers to pay for products and utility bills through the social media platform without having to exit the WeChat app</td>
<td>Plans to merge its wallet business with its payments bank in 2017</td>
</tr>
<tr>
<td>Has tied up with Samsung Pay in May 2016 to access more physical stores/businesses</td>
<td>Offers a card payment option that is funded via the WeChat Wallet or a bank ATM card</td>
<td>Offers diversity e.g. ticketing covers movies, airlines, train, events, and also hotel bookings</td>
</tr>
</tbody>
</table>

Source: Frost & Sullivan
China’s growth driven by a combination of WeChat’s ability to become an indispensable app and introduction of mobile payments to its social media platform

- Integration of payments into WeChat helped Tencent capture market share from Alipay and monetize mobile Internet usage
- However, as of 2017, only 9% or 89 million of active users use WeChat outside of China, as it is currently only official in China and Hong Kong; launching soon in Malaysia

32% of time spent on mobile purely on WeChat
Monetization from e-commerce and games

Source: China Internet Watch, China Channel, Kleiner Perkins, Frost & Sullivan
While Alipay has been on a global expansion, its reach is still limited to Chinese tourist spots, even in Singapore.

- Alipay is a global real-time payment platform
- Presence in NA, SA, EU, Africa, and APAC; however, only where Chinese tourists visit
- Mainly used by Chinese tourists
- Its investments in local partners to address local behavior, needs, and preferences, e.g. in India and Malaysia, has yet to bear fruit

Source: Alipay, Frost & Sullivan
However, there are many supportive regional and local regulations and initiatives that will help Singapore move toward a cashless society.

### Regional Enablers

- **EU GDPR**—Pressure to come from European companies that Singaporean companies are doing business with; the former are likely to start insisting that Singapore businesses implement contractual provisions.
- **Mobile Biometrics**—Increasingly relevant as Europe mandates stronger customer authentication via PSD2.

### Local Drivers

- **MAS**—SGD225 million ($167 million) commitment in 2015 to expedite the transformation of Singapore into a Cashless Society.
  
  **Infrastructure**
  - **SNDGO**—Better and easier ways for more businesses and consumers to connect; deployment of about 25,000 UPOS by early 2019.
  - **LTA**—Account-based ticketing system trial facilitated by MasterCard to allow use of contactless debit or credit cards on public transportation.
  
  **Interoperability and Standardization**
  - **MAS** has formed the Payments Council to promote interoperability and adoption of common standards among solution providers.
  - **MAS** is leading formation of Fintech international collaborations.
  - **PayNow** simplifies the process of peer-to-peer direct funds transfer across 7 participating banks.
  - **SG QR (by 2018)** can accept e-payments by domestic and international payment schemes, e-wallets, and banks; PayNow via QR.

---

**Source:** Frost & Sullivan
While cashless cafes have reached Singapore, only few have embraced it in Australia after 2 years; and food stalls in China are still cash dominated.

DEC-17: 1st Cashless Cafe in Singapore

- No cash tills
- Accepts only credit/debit cards and cryptocurrencies on Ducatus Wallet app
- Bitcoin-dispensing ATM for Ducatus coins
- Offers purchase of pre-mined 7.8 million Ducatus coins, currently trading at SGD0.13 (RM0.39) each

Pablo & Rusty’s Coffee Roasters, Australia

- Uses Mint mPOS connected to smartphones, tablets via bluetooth integrated with Kounta POS
- Cashless café, Frank Green SmartCup™ offering an enhanced customer experience

Despite Australia being the frontrunner of contactless, few cashless cafes as of 2017 and mobile payments only 1% of POS payments

Source: thestar, Kounta, Frost & Sullivan
Going cashless is seen as a catalyst for the mobile payments market; mobile payments will be a key enabler of cashless societies

- The size of the mobile payments market in Singapore was estimated at **SGD1.5 billion ($1.09 billion)**, with 23% penetration in 2016.
- At the end of June 2016, Singapore had an NFC-enabled infrastructure available at **30,000** retail points.
- Singapore has the highest smartphone penetration in Asia-Pacific at 85% to support mobile payments.

It also has an optimal number of complementary mobile payment solutions needed to drive acceptance on the island state.

- **Total Mobile Payments Market: Asia-Pacific, 2015–2021**

  - **Revenue (USD Billion)**
    - 2015: 1.1
    - 2016: 1.1
    - 2017: 1.4
    - 2018: 1.6
    - 2019: 1.8
    - 2020: 2.0
    - 2021: 3.48

  - **Active Customers (millions)**
    - 2015: 0.5
    - 2016: 0.9
    - 2017: 1.3
    - 2018: 1.7
    - 2019: 2.1
    - 2020: 2.5
    - 2021: 3.48

- **Revenue CAGR**
  - 2016 - 2021: 26.1%

- **Active Customer CAGR**
  - 2016 - 2021: 5.9%

- **Singapore’s mobile payments market is small but growing…**

Source: Frost & Sullivan
Mobile biometrics will become an enabler of mobile payment; regionally, telcos and banks have started to embrace it for KYC and enabling innovative services

<table>
<thead>
<tr>
<th>Use cases</th>
<th>Value-added Services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Know-Your-Client (KYC)</strong></td>
<td>• Enables mobile operators to generate additional revenue along the value chain</td>
</tr>
<tr>
<td>• Paperless customer onboarding by using biometric information</td>
<td>• Faster authentication process with lower fraud risk when customers perform transactions remotely via mobile for value-added services such as mobile gaming, purchase of additional plan upgrade, music, and so on</td>
</tr>
<tr>
<td>• Assist mobile operators to link each mobile subscription to its owner</td>
<td></td>
</tr>
<tr>
<td>• Reduce the chances of identity fraud during subscription process</td>
<td></td>
</tr>
<tr>
<td>• Identity fraud costs telcos $50 billion annually</td>
<td></td>
</tr>
</tbody>
</table>

**Use cases**

**Morpho eKYC Solution**

- Allows Airtel to enable paperless customer ID registration by linking it to India’s ID system, Aadhaar

**Qualcomm Snapdragon Sense ID**

- Improves NTT DoCoMo’s mobile payment function and content experience

36% Have security concerns regarding transactions made via mobile

42% would not use a mobile payment app without a biometric authentication offering, with 79% preferring more biometric authentication methods

Source: Frost & Sullivan
Getting the product strategy right is key to achieving scale, which in turn is critical to ensuring the viability of a payments business model.

- **Card Interchange Rates**
- **Regulations on Cross-border Use of E-money**
- **NFC- & QR-based Merchant Acceptance**
- **Comprehensive Solutions**

**Critical Success Factors**

- **It did not start from scratch**
  Tapped on a payment method alternate to cash that is widely available with merchants and users; needs to reach critical mass quickly.

- **Addressed a gap in the market**
  For example, lack of banking infra and/or need for alternate solutions.

- **Offered more than just payments**
  The best solutions integrate into people's life through smarter, more valuable mobile-first solutions that users cannot live without.

- **Offered a clear value proposition**
  - For example, consolidation of cards with loyalty features and/or regional merchant base.

- **Supportive regulations for cross-border regional/global growth**
  Countries are opening up and offering licenses to facilitate this; such as with e-money.

Source: Frost & Sullivan
Mobile payment solutions of today
Ideally a seamless, comprehensive solution; but not all solutions today have similar components

Payment for Offline and Online

Loyalty and Value-added Services

Document Authentication and Identity Verification Software

Financial Services

1. Capture
   - Scan front & back of credential using mobile device or scanner

2. Process
   - Images & data are processed instantly & securely in the cloud

3. Auto-Fill
   - Accurate information populates your application within seconds

4. Authenticate
   - 3D-Touch sequence securely authenticate user on mobile

5. Verify
   - Optional facial recognition match, manual review & collateral check

Source: Frost & Sullivan
Mobile payment solutions of today (continued)
Should incentivize users in addition to making their lives easier

It did not start from scratch
- In 2016, 56.6 million passengers at group level
- Total potential within 73 million customers already in database

Addressed a gap in the market
- Working toward a “secure entry system for trusted travelers” to expedite immigration at airports within ASEAN
- To offer electronic permanent bag tag for AirAsia flyers to speed up baggage check-in

Offered a clear value proposition
- Will offer lower foreign exchange rates than banks
- Will offer zero processing fees when booking a flight with the airline

Offered more than just payments
- Will offer inflight ordering system with the option to connect up to 10 debit or credit cards to make payments across ASEAN—eases customer pain points

Source: AirAsia, Frost & Sullivan
What mobile payments in the future need to be
Global alignment is key to mobile payments going mainstream

<table>
<thead>
<tr>
<th>Cash</th>
<th>Mobile Payments Today</th>
<th>Mobile Payments in Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Universal acceptance: local and across APAC</td>
<td>• Fragmented acceptance: local and across APAC; The poor, rural, and so on are not well addressed</td>
<td>• Universal acceptance: local, across APAC, and even globally</td>
</tr>
<tr>
<td>• Cross-border conversion possible</td>
<td>• Cross-border possible for larger players; nearly impossible for small players</td>
<td>• Can work cross-border and are seamless and real-time</td>
</tr>
<tr>
<td>• Customer bears full liability if lost/stolen</td>
<td>• Has added security through tokenization and biometrics</td>
<td>• Added security through tokenization and biometrics</td>
</tr>
<tr>
<td>• No value add, but can gain interest if kept in a bank</td>
<td>• Needs to offer value add to incentivize top-up behavior; can gain interest if cash taken from digital bank account only during transaction clearing</td>
<td>• E-wallet that does not need topping up as either cash is taken from the account only during transaction clearing or the credit/debit card is charged</td>
</tr>
</tbody>
</table>

- Scale is important; there is a need for more large market participants or for all small participants to join a platform
- Mobile payments may need to offer both NFC and QR for cross-border and universal acceptance
- **There is a need for regulatory and industry alignment across APAC and globally**
Future of cashless payments in Singapore
The credit card model will remain in place for years to come; what is needed is a similar model for e-money, i.e. global e-money schemes

- Credit Card is a global platform with worldwide presence
- However, it is used only by credit card users
- Innovation has only been in the Pays consolidating cards on the smartphone
Future of cashless payments in Singapore (continued)

Potential is much more than current limited partnerships (Grab->SG Tourism and EX-LINK->NETS)

Future global expansion commencing with China and India (with NPCI)

ASEAN real-time cross border payments

Singapore (peer-to-peer direct funds transfer across 7 participating banks)

Source: Frost & Sullivan

(Note: This is for concept illustration purposes only)
Future of cashless payments in Singapore (continued)
Tall order but very feasible

- Global first solutions with local presence and interoperability
- Secure solutions incorporating tokenization, biometrics, data protection, and use of digital identities
- Affordable connectivity locally and globally

Mobile payments driving cashless adoption in Singapore

To achieve this, we need more global first solution providers and local first solutions providers to partner locally, regionally, and globally with interoperability as a central theme while at the same time catering to local behavior, needs, and preferences

Source: Frost & Sullivan
Frost & Sullivan, the Growth Partnership Company, works in collaboration with clients to leverage visionary innovation that addresses the global challenges and related growth opportunities that will make or break today’s market participants. For more than 50 years, we have been developing growth strategies for the Global 1000, emerging businesses, the public sector and the investment community. Is your organization prepared for the next profound wave of industry convergence, disruptive technologies, increasing competitive intensity, Mega Trends, breakthrough best practices, changing customer dynamics and emerging economies? Contact Us: Start the Discussion

www.frost.com