Open Application Programming Interface (API): A Financial Revolution
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HIGHLIGHTS

- Financial and payments-related Open APIs are poised to grow exponentially due to regulatory mandates and increasing collaboration between financial institutions and fintech firms.
- A majority of financial institutions in Malaysia have plans to deploy Open APIs, although the current level of adoption remains low. Key impediments include security concerns and confidence in third party providers.
- An Open API strategy is viewed as a key lever to increase efficiency, broaden access, promote greater innovation, and encourage competition in the financial sector.

Application Programming Interface, or API in short, has been utilised to connect software application programs for decades. In recent years, APIs are increasingly recognised as a potential game changer to enhance customer experience and spearhead digital innovation in financial services. This article takes a closer look at Open APIs in financial services, including new services made possible through Open APIs, issues associated with its adoption, and industry and regulatory responses. The article concludes with a specific focus on Open API adoption within the Malaysian financial sector.

API: Terminology and Mechanics

An API works in a manner analogous to the studs and tubes of a Lego brick. The connective feature of a Lego allows for the formation of building blocks of various permutations, depending on the creativity of the builder. Similarly, APIs allow for software programs to connect with each other to create new solutions that enhance the customer experience, deliver efficiency gains and generate new revenue streams for service providers.

APIs can be broadly categorised into either private, partner, or open APIs. Private APIs facilitate information flow within an organisation by connecting different databases or systems. Partner APIs are APIs that support interfaces between data providers and third parties with which they have entered into business relationships. Open APIs, on the other hand, provide access to third party developers without needing to establish a business relationship with the API publisher. Access to restricted or more sensitive data through Open APIs is commonly supported by security, legal and governance frameworks necessary to protect confidentiality.

The Open API Revolution across Business Sectors

The availability of Open APIs has transformed industries, from social media, to retail and financial services. The following are examples of Open APIs used across various businesses:
Social Media: Facebook
- Other social media such as Instagram or Twitter are able to use Facebook’s Open APIs to replicate postings onto Facebook.
- Ability to create an account on an external site/application using Facebook credentials.

Transportation: Uber
- Uber ride requests can be embedded on external website applications, such as in restaurant or travel apps. For example, Uber rides can now be requested directly from Google Map app without the need to access the Uber app.
- Other features such as contacting the driver, viewing the location of the driver/passenger, updating on the trip status, making price comparisons across all other taxi services, and paying for the trip can also be done in third party apps such as Google Maps, which would automatically link itself to Uber’s Open API.

Retail: Walgreens
- Publishes Open APIs which allow external developers to integrate their applications for prescription requests, daily health tracking and education with Walgreens services.
- The revenue per customer who interacted with Walgreens via their website and mobile applications was six times higher than retail customers who shopped in stores. In Walgreen’s experience, the use of Open APIs not only enhances customer engagement and experience, but also creates new business opportunities to generate revenue from Open API usage fees.

Financial: TransferWise
- Transferwise gained significant market share by offering international funds transfer services comparable to SWIFT payments for cross border transactions.
- Released Open APIs which enable third parties, including banks, to integrate with its services.

Financial: PayPal
- Enables a third party to incorporate PayPal’s functionality into the website and mobile application, which allows merchants and customers to securely accept or make online/mobile payments via PayPal with only a few clicks.
- Details of completed payments, refunds, and authorisations from various merchants are also captured in the customer’s PayPal account.
Open API Trends and Developments in the Financial Sector

Financial and payments-related Open APIs are poised to grow exponentially due to regulatory mandates and increasing collaboration between financial institutions and fintech firms.

Charts 1: Number of Financial-Related APIs added per year

Source: Programmable Web

Publications of APIs in the financial sector are expected to grow exponentially, with a greater focus on Partner and Open APIs¹. From 2005 to mid-2017, over 2300 financial-related APIs were estimated to have been published globally (Chart 1). Between 2012 and 2017, over 200 APIs were added annually, up from less than 20 prior to 2007. Two growth surges for financial-related APIs were observed and both appear to be spurred by government or regulatory initiatives²:

- in 2012, largely from data-driven APIs covering a broad range of data on financial and capital markets. This was in tandem with open government data initiatives and modernisation in the delivery of public services³. Examples include APIs related to financial sector data, government budgetary information, grants and tax facilitation matters; and
- in 2016, owing to regulatory developments allowing third parties to access account information or to initiate payments on behalf of customers in the UK and Europe.

Leading the pack—financial institutions embracing Open APIs

Open API publications by financial institutions would pave the way for the more rapid diffusion of technology to improve the delivery and consumption of financial services. This is more pronounced where access (with consent) to customer’s data is permitted. Some of the ways in which the publication of Open APIs has enabled financial institutions to create value include the following:

- facilitating money transfers to intended parties through more convenient and accessible third party applications without having to log onto an online bank account or obtain bank account information;
- enabling individuals to access and compare a wide range of financial solutions from alternative providers which are matched to their specific needs and circumstances; and
- integrating banking data across banks and with other personal applications to help individuals track and manage their financial affairs through a single interface.

¹ Capgemini, Efma (2017), World Retail Banking Report
² Santos W., (2017a), Financial APIs have seen two growth spikes, Programmable Web
³ HM Government (2012), Open Data White Paper – Unleashing the Potential
Examples of banks that have adopted Open APIs to enhance their delivery of banking services include:

**UK: HSBC**
- HSBC is one of the first banks in the UK to satisfy the requirements for publishing Open APIs on publicly available data.
- The bank has published Open APIs on branch and ATM locations, as well as product information for retail and businesses.

**France: Credit Agricole**
- Credit Agricole, one of the top three banks in France, launched its own application store (the CA store) in 2012.
- Applications on the CA store allow the customer to:
  - Change the currency their account is displayed in
  - See the location of their transactions on a map
  - Manage healthcare expenses
  - Turn savings into a game

**Spain: BBVA**
- BBVA has become one of the first major banks in the world to deliver open banking in 2017. The bank made eight APIs available through the BBVA API Market, which includes:
  - Customer profile data
  - Retail accounts, cards, payments, loans and notifications
  - Business accounts
  - Aggregated data
- Through the Open APIs, companies, and developers will be able to build new products and services by accessing and integrating customer's banking data – with consent – into their applications.

**Singapore: OCBC**
- OCBC bank is among the first ASEAN banks to publish publicly available data APIs. Its APIs provide latest forex rates, allowing online businesses to deliver product prices denominated in the customer's home currencies.
- These APIs reduce the time required to integrate such functionalities into new application from more than 2 months, to just a few hours.

**Opportunities and Concerns Surrounding Open APIs**

*Open API publication offers a myriad of opportunities. However, concerns remain around data security and privacy issues.*

From a public policy perspective, Open APIs hold significant potential to:
- further expand access to financial services, for example by enabling the remote on-boarding of bank customers and through payment innovations that allow individuals to safely manage and transfer money without visiting a bank branch or facility;
- promote greater competition in the financial sector, for example through product aggregators that compare products across financial institutions and by enabling customers to port over their data to alternative financial providers conveniently; and
- empower customers by giving them greater control over how their data can be shared and used securely by financial institutions and third parties to better serve their specific needs through innovative financial solutions.
Some challenges however remain:

- Legal ownership of customer data is not always clear, particularly where they involve intellectual property rights over, or proprietary claims to, customer information that is shared by various parties (e.g. financial institutions and fintech companies);
- Liability in the event of data breaches or security lapses is often not clearly established; and
- Poorly constructed APIs may make financial institutions’ internal systems vulnerable to cyber-attacks.

**Open API Deployment in Other Jurisdictions**

Regulators play a key role in the proliferation of Open APIs

In several developed economies, actions by regulators have contributed to the wider adoption of Open APIs in the financial sector:

- In the EU, the Payment Systems Directive 2 (PSD2) requires account providers to allow third parties to access customer’s account information and initiate payments on behalf of the customer.
- The Competition and Markets Authority (CMA) has required the nine largest banks in the UK to publish Open API on personal and business current accounts effective January 2018. To this end, the Open Banking Working Group (OBWG) in the UK has recommended an Open Banking Standard framework to address the data, technical, security, and governance aspects to data sharing in an open banking environment.
- The Australian government recently committed to launch an open banking regime that mirrors that in the EU and UK. It is currently reviewing proposals for recommendation to the Treasury by end of 2017.
- The Monetary Authority of Singapore (MAS), in collaboration with the Association of Banks Singapore, has recommended the adoption of 411 APIs by the regulator, government agencies, insurers, banks and asset management companies. MAS has published 12 Open APIs on data sets which are frequently used including credit card statistics, interest rates, and currency exchange rates.

**Open API in Malaysia’s Financial Sector**

A majority of financial institutions have plans to deploy Open APIs

In a recent survey of Malaysian banks and insurers:

- 51% indicated plans to roll-out Open APIs, with 69% targeted to deploy within the next 24 months;
- Only 48% claimed to have the necessary resources to deploy Open APIs, pointing to significant investments in manpower and financial allocations needed to achieve scalability; and
- By sector, significantly more banks viewed the adoption of Open API as a high priority (54%) compared to insurance institutions (11%) (Chart 2). This appears to be consistent with higher concerns observed among banks over the threat of disintermediation (Chart 3):

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6 Bank Negara Malaysia issued a survey in 3rd Quarter 2017 to gauge the Malaysian financial institutions’ readiness to adopt Open APIs. 63 institutions responded (64.3% response rate), which includes insurance (79.5% response rate) and banking (51.9% response rate) institutions.
In the area of payments, the proposed Interoperable Credit Transfer Framework recently issued by Bank Negara Malaysia (Bank) in December 2017 encourages approved operators of shared payment infrastructure and issuers of payment instruments to publish APIs to facilitate convenient credit transfers and the development of other value-added services. The Bank expects to finalise the framework in early 2018 - a move likely to encourage the wider adoption of Open APIs⁵.

### Moving Forward with Open APIs

The Bank views an Open API strategy as a key lever to increase efficiency, broaden access, promote greater innovation and encourage competition in the financial sector. To this end, the Bank will undertake the following in 2018:

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⁵ The ‘Interoperable Credit Transfer Framework’ Exposure Draft is open for a 1-month public consultation period.
• Identify and consult on priority use cases for the adoption of Open APIs in the financial sector, with a view to finalise a clear roadmap for the publication of priority Open APIs by first quarter of 2018;

• Establish an Open API Implementation Group by first quarter of 2018 with members drawn from the Bank, financial industry, fintech companies and relevant key stakeholders to develop Open API standards for the financial sector, including open data specifications, security standards (including access rights), and oversight arrangements for access by third party service providers; and

• Review existing regulations on controls over confidential customer data and consult on requirements to be observed by financial institutions for securing customer consent to share confidential data under Open API and to safeguard customer credentials that are shared.

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