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# Why is there a need for GSMA Mobile Money API Specification?

A comparison with  
other industry standards

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July 2020



## GSMA Mobile Money

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The GSMA represents the interests of mobile operators worldwide, uniting more than 750 operators with almost 400 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organizations in adjacent industry sectors.

The GSMA also produces the industry-leading MWC events held annually in **Barcelona**, **Los Angeles** and **Shanghai**, as well as the **Mobile 360 Series** of regional conferences.

For more information, please visit the GSMA corporate website at [www.gsma.com](http://www.gsma.com).

Follow the GSMA on Twitter: [@GSMA](https://twitter.com/GSMA)

The GSMA's Mobile Money programme works to accelerate the development of the mobile money ecosystem for the underserved.

For more information, please contact us:

Web: [www.gsma.com/mobilemoney](http://www.gsma.com/mobilemoney)

Twitter: [@gsmamobilemoney](https://twitter.com/gsmamobilemoney)

Email: [mobilemoney@gsma.com](mailto:mobilemoney@gsma.com)

Inclusive Tech Lab: [www.gsma.com/lab](http://www.gsma.com/lab)

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### Authors:

Viji Pathy, API Architect, Inclusive Tech Lab

Bart-Jan Pors, Director, Inclusive Tech Lab, Mobile Money

Gareth Pateman, Founding Partner, MFX

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THE GSMA MOBILE MONEY PROGRAMME IS SUPPORTED BY THE  
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# Executive Summary

Mobile money is a rapidly growing sector of the financial services industry across developing markets, having surpassed one billion accounts in 2019. Enabling seamless integrations of third parties with mobile money platforms via open Application Programming Interfaces (APIs) is a key catalyst to drive this growth and expand customer access to financial products and products with payment functionality.

There are a variety of approaches that mobile money providers could potentially use to deliver open APIs to their ecosystem partners, such as creating their own bespoke APIs or utilising an existing API standard aimed at Digital Financial Services Providers (DFSPs). Mobile money providers can also integrate with interoperability software which offer DFSP APIs. The GSMA Mobile Money API (GSMA API) Specification offers an alternative approach. By providing a harmonised API Specification for mobile money use cases developed in collaboration with the mobile money industry, it promotes an industry defined common API.

This paper examines these different approaches and outlines the findings of detailed analysis undertaken on the scope of the existing API standards and APIs, and how they compare with the GSMA API. Based on this examination and analysis, the paper argues that adoption of the GSMA Mobile Money API Specification offers unique benefits for mobile money providers and presents the optimum approach for delivering open APIs.



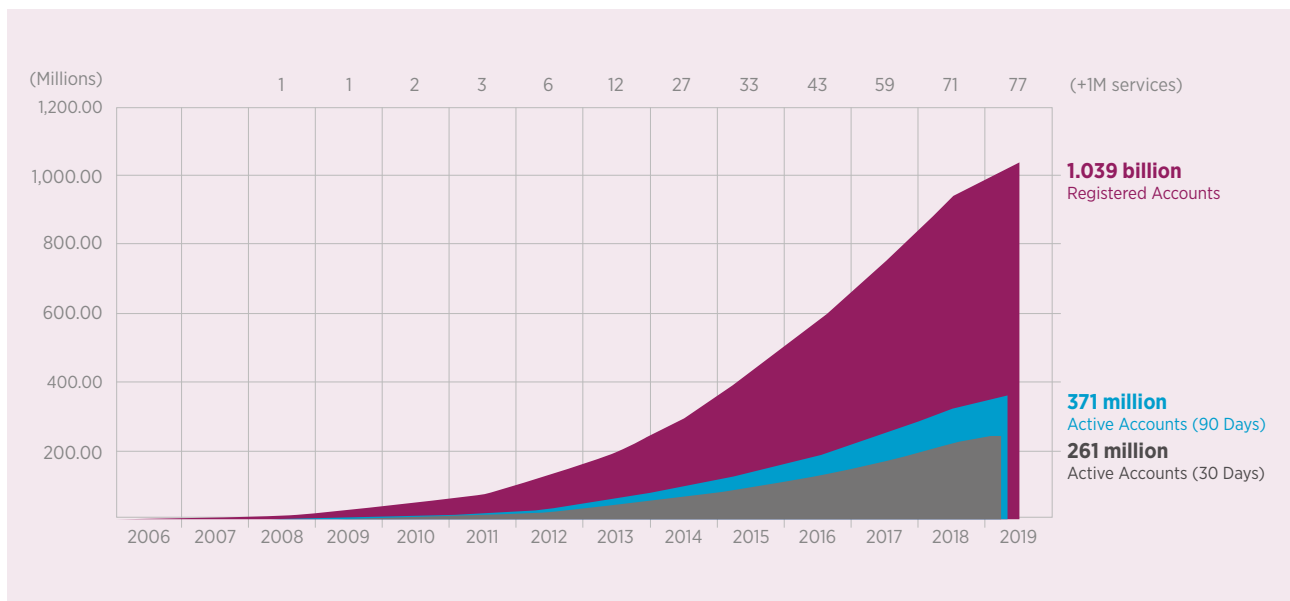


# 01 Introduction

## 1.1. Mobile money industry growth

Mobile money is a rapidly growing sector of the financial services industry across developing markets, having surpassed one billion accounts in 2019. The mobile money industry is over a decade old, and now includes a host of seasoned providers with a broad set of operational capabilities, a full suite of products, and a global reach. With 290 live services in 95 countries and 371 million active accounts, mobile money is entering the mainstream. It is also becoming the path to financial inclusion in most low-income countries, with mobile money services available in 96 per cent of countries where less than a third of the population have an account at a formal financial institution.<sup>1</sup>

The history and growth of mobile money since its inception 13 years ago, and especially the rapid growth over the last five years (Figure 1), shows that the industry has reached a critical stage in its evolution. The forecast for mobile money anticipates further growth and expansion.<sup>2</sup>



1. Naghavi, N. (2020). [State of the Industry Report on Mobile Money 2019](#). GSMA.  
2. Ibid.

## 1.2. Growth of ecosystem integration with APIs

### 1.2.1. Mobile money

Ecosystem development is likely to be a key driver for industry growth. Over \$1.9 billion is processed daily by mobile money platforms, and in 2019, for the first time, digital transactions represent the majority (57 per cent) of mobile money transaction values, with more money entering and leaving the system in digital form. One of the key reasons for this is lower barriers to third party integration.<sup>3</sup>

A GSMA API Landscape Survey completed in 2019 analysed responses from 37 mobile money providers globally covering over 260 million accounts. The resulting report aimed to understand the main industry trends in terms of third party integration including API design, and recommend a set of best practices.<sup>4</sup>

The mobile money industry is evolving towards a platform-based approach where other apps and services can easily integrate with the mobile money product through APIs. By providing easily accessible APIs, providers can create almost endless opportunities to build additional services to mobile money as well as opportunities to monetise those services.<sup>5</sup>

### 1.2.2. Financial services

Looking at the wider financial services industry, CGAP (a World Bank group of leading development organisations whose focus is on financial inclusion for poor people) has undertaken extensive tracking and analysis of open APIs throughout the developing markets. Their conclusions show both the business case and financial inclusion benefits for open APIs.<sup>6</sup>

Drawing on best practices in other industries and pilots with several DFSPs, CGAP have outlined recommendations for open API offerings,<sup>7</sup> from which it can be seen that platform providers need to consider a wide range of business, technical and security factors to create a successful open API strategy. An industry-wide API definition could hugely benefit providers in this task.

One of the biggest challenges for open APIs is promoting uptake with third parties. A common industry API could create an industry-wide ecosystem and community to facilitate this uptake. It could also be argued that there is a strong case for common industry APIs making a significant contribution to the objective of a successful open API strategy by providing the foundations required to support some of the technical and security considerations; for example, by providing comprehensive toolkits for developers and security best practice guidelines on authentication and authorisation. Having these foundations in place to build on allows platform providers to concentrate on on-boarding and optimise their integrations with key business partners.

Equally importantly, using a common industry API can facilitate the wider ecosystem of service providers and developers to easily integrate on the technical and security level with multiple platforms, allowing them to concentrate on on-boarding with platforms key to their target business markets. This is even more important in low-income markets where the cost of integrations can be a barrier to entry. Finally, common APIs also allow intermediates to grow the ecosystem by providing Software Development Kits (SDKs) and other service layers to ecosystem players.

3. Naghavi, N. (2020). [State of the Industry Report on Mobile Money 2019](#). GSMA.

4. Pasti F, and Awanis A, (2020). [Mobile Money API Industry Report](#). GSMA.

5. Ibid.

6. CGAP (2020) [Open APIs in Digital Finance](#).

7. Vaughan, L., McKay, C. and Hanouch, M. (2020). [Technology Building Blocks for an Open API Strategy](#). CGAP.



## 1.3. Barriers to ecosystem integration with APIs

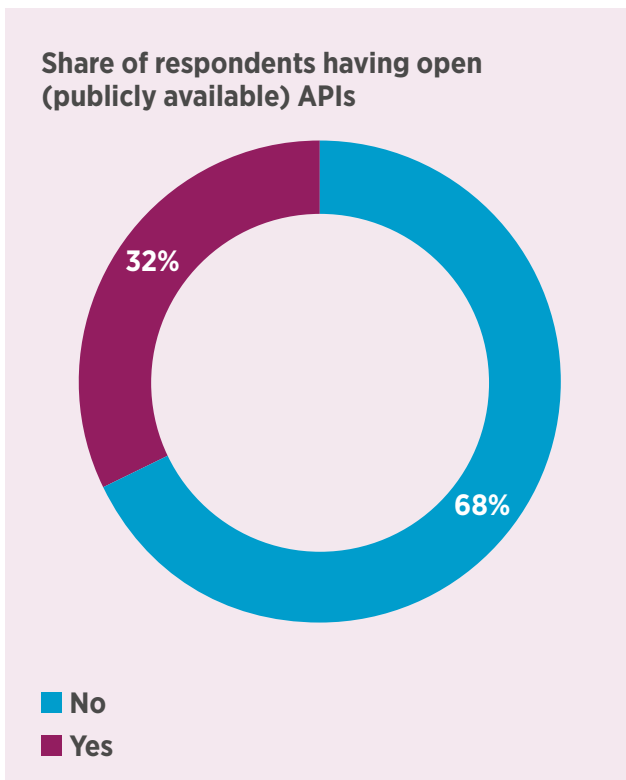
Currently, one of the key limitations to expanding the mobile money ecosystem via integration with APIs is the fragmentation that exists within the industry.

The GSMA API Landscape Survey found ecosystem development remains a top priority for mobile network operators (MNOs) at a global level and that the sustained growth the industry has experienced was driven by providers hosting a large number of payments APIs.

However, only 32% of operators surveyed expose their APIs publicly and most providers (61%) adopted a proprietary API, which highlights market fragmentation and results in lengthy third party on-boarding time (Figures 2 and 3).<sup>8</sup>

Figure 2

GSMA API Landscape Survey public APIs.

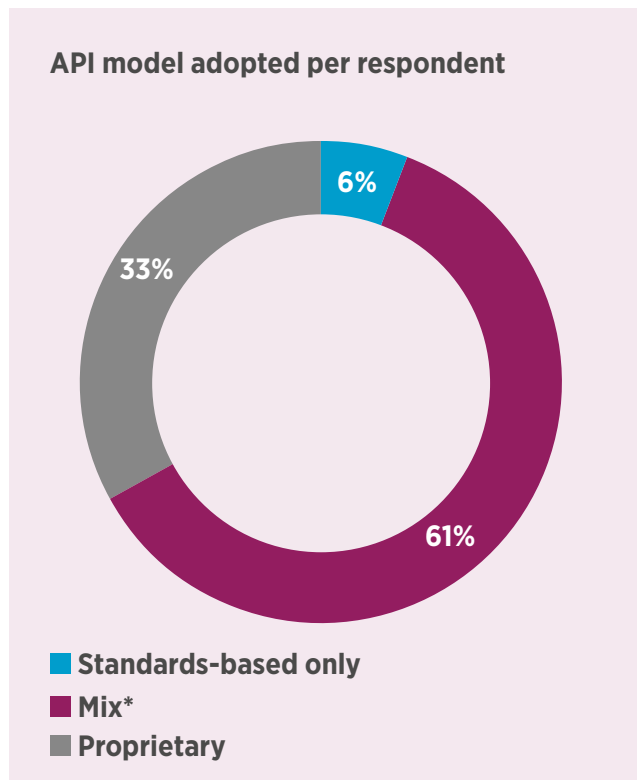


Source: GSMA

Extrapolated across the industry to potentially several hundred providers of mobile money services as they move to open APIs, this would result in a very fragmented industry ecosystem consisting of many proprietary APIs.

Figure 3

GSMA API Landscape Survey API models.



Source: GSMA

One of the recommendations for accelerating ecosystem growth and third party integration is therefore the adoption of existing API frameworks and standards to optimise developer on-boarding through faster development and integration via common interfaces.

8. Pasti F, and Awanis A, (2020). [Mobile Money API Industry Report, GSMA](#).



## 02

# Financial services API standards

## 2.1. Evolution and growth of financial services and payments industry

The mobile money industry does not stand alone in the financial services sector. In considering optimum approaches to facilitate the mobile money industry, adjacent financial services verticals—such as card payments and banking—have seen a similar evolution over previous decades and can offer lessons.

For instance, the card payments industry has seen huge growth over the last two decades (Figure 4). This can be partly attributed to the wide standardisation of card transaction mechanisms and payments in general.

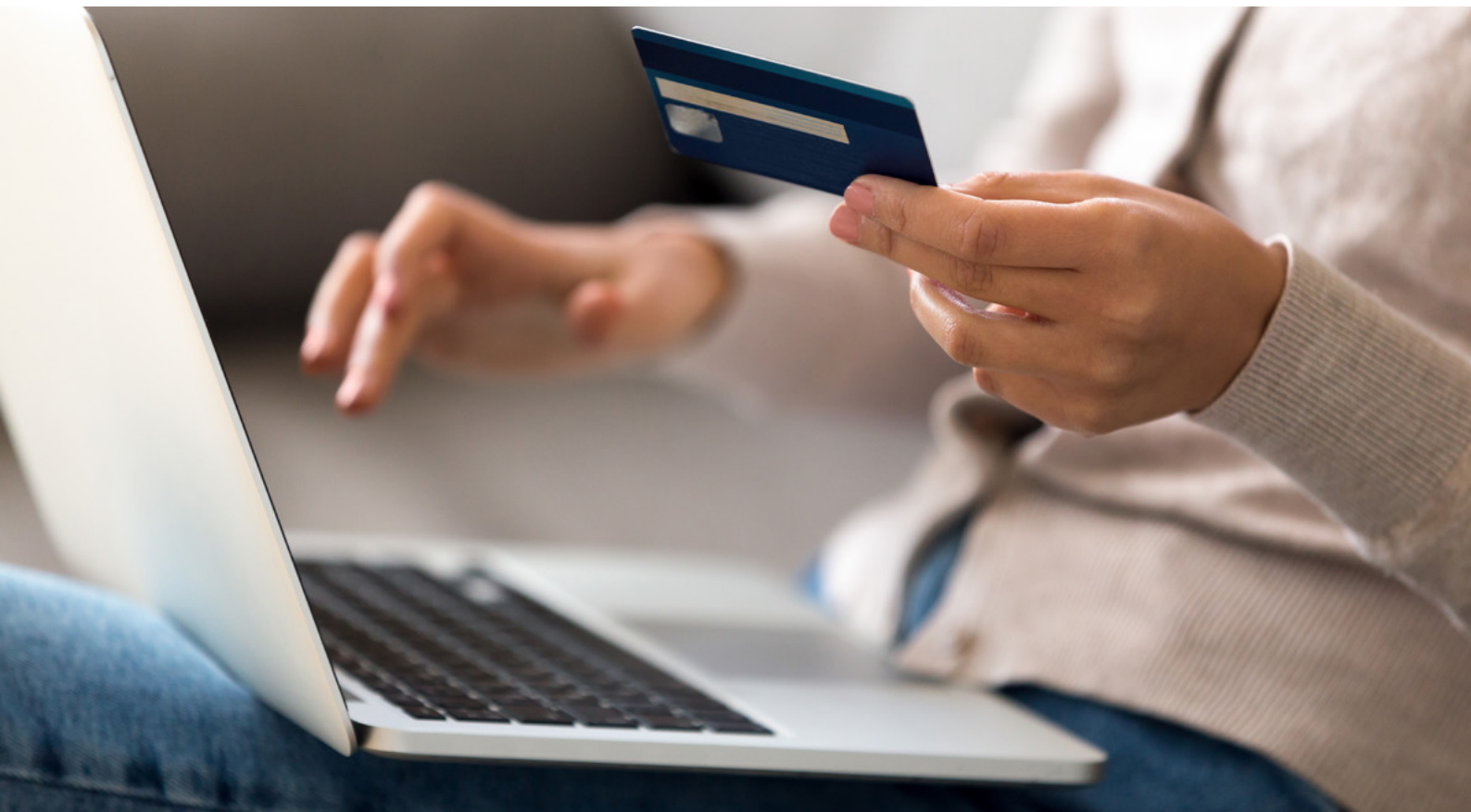
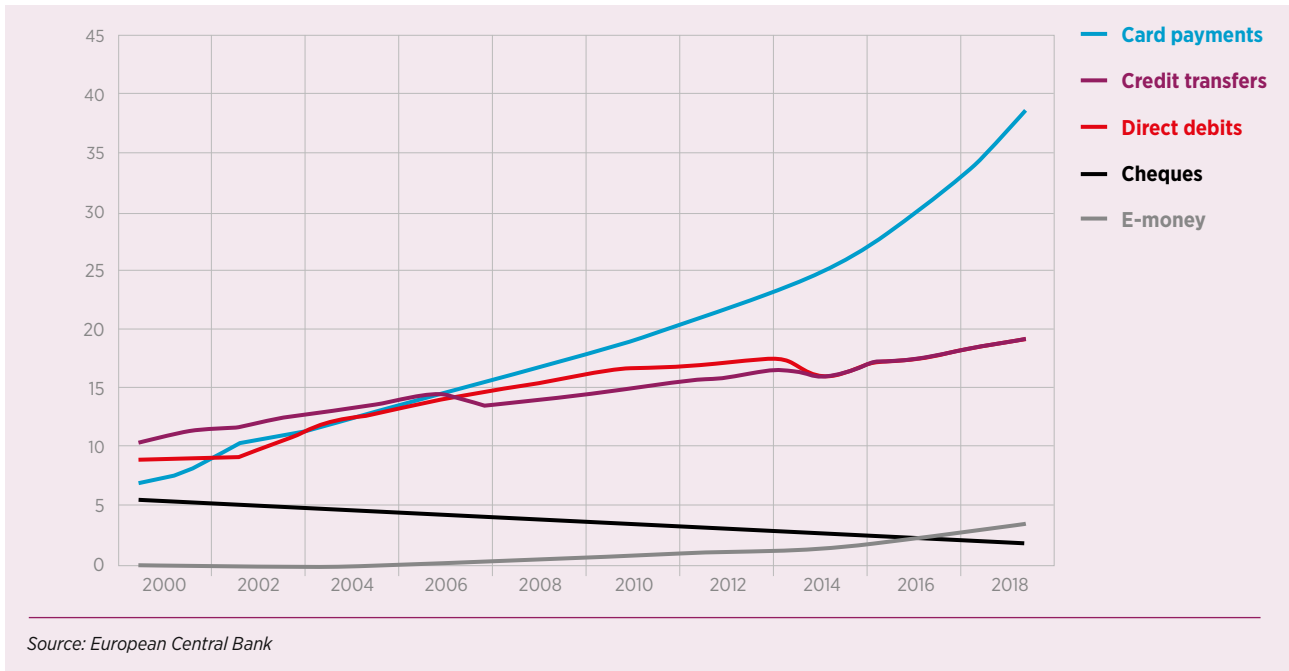




Figure 4

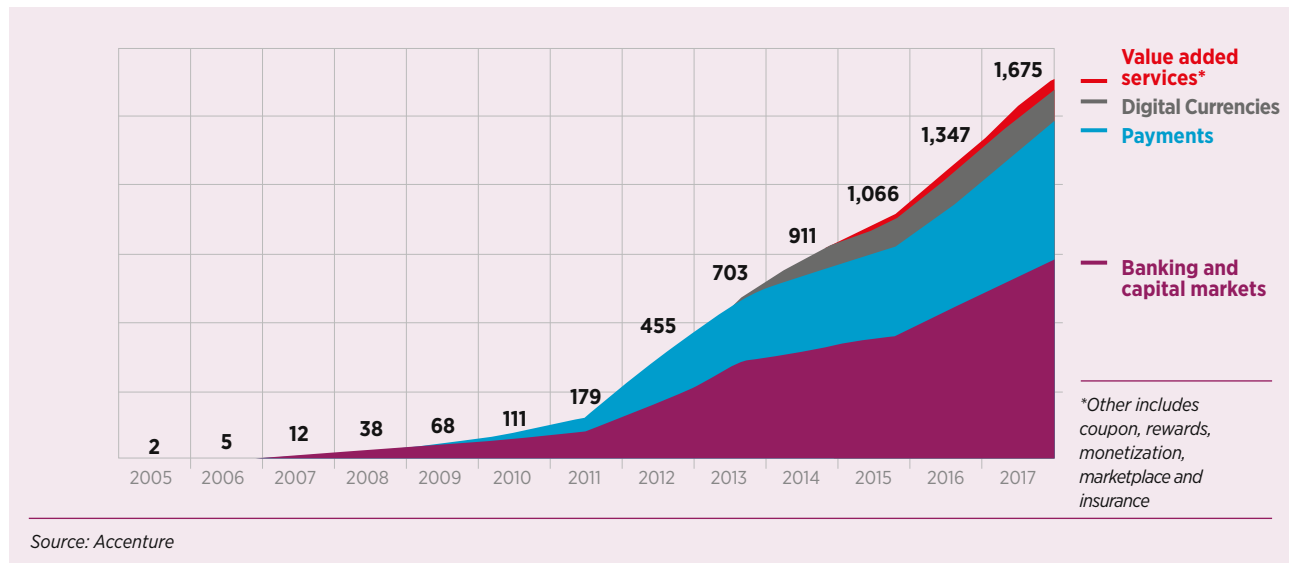
### Card payments growth 2000 to 2018 in Europe



Looking at trends in the financial services ecosystem, the availability of financial services APIs has been significantly accelerated as a result of open banking standards. Figure 5 shows the increase in financial services-related APIs over the last decade.<sup>9</sup>

Figure 5

### Growth in financial services-related APIs. 2005-2017 cumulative numbers



Driving the rise of API propositions, there are now several API standards globally aimed at facilitating and simplifying the movement of money by companies in the financial industries - companies ranging from card payment processing networks, acquiring and issuing banks to the wider range of DFSPs. More recently, initiatives in interoperability software which offer DFSP APIs have also emerged.

9. Accenture (2018). [The Brave New World of Open Banking](#)



## 2.2. Financial services and payments industry standards

Some of the key financial services API standards that have contributed to driving this growth in the financial services and payments industry are ISO 8583, ISO 20022 and UK Open Banking [compliant with PSD2].

### 2.2.1. ISO 8583

ISO 8583<sup>10</sup> is an international standard from the International Organization for Standardization (ISO) which specifies a common interface by which financial transaction card-originated messages can be interchanged between acquirers and card issuers. It provides a standard for systems that exchange electronic transactions initiated by cardholders using payment cards, specifying message structure, format and content, data elements and values for data elements.

The standard has been iterated over several decades and major card payment processing networks such as Visa and MasterCard as well as many financial institutions have adopted the standard.

### 2.2.2. ISO 20022

ISO 20022<sup>11</sup> is an international standard from ISO that describes a common standard for electronic data interchange between financial institutions, including a metadata repository containing descriptions of messages and business processes. The standard covers financial information transferred between financial institutions, which includes payment transactions, securities trading and settlement information, credit and debit card transactions, and other financial information. The repository includes financial services metadata shared and standardised across the industry, which is transformed into the syntax of messages used in financial networks.

ISO 20022 was refined over the last decade and is now widely used in financial services. Organisations participating in ISO 20022 include SWIFT, Visa and other key members of the financial services industry.

### 2.2.3. UK Open Banking [compliant with PSD2]

PSD2 is the revised Payment Services Directive adopted by the European Parliament that aimed to promote the development and use of innovative online and mobile payments through open banking. Following this, the UK Competition and Markets Authority (CMA) required the largest UK banks to allow licensed start-ups direct access to their data down to the level of transaction-account transactions, alongside the broader PSD2 rules that apply to all payment account providers. To this end, Open Banking Limited<sup>12</sup> was set up to create software standards and industry guidelines to drive competition and innovation in UK retail banking. As per the PSD2 directive, consumer protection for account information and payment initiation services is managed by the UK Financial Conduct Authority (FCA).

Since the initial EU PSD2 adoption in 2015 and the UK CMA ruling in 2016, UK Open Banking has grown significantly and today, there are 202 FCA-regulated providers who have adopted the standards. Globally, a number of other countries have launched open banking initiatives based on the European and UK models, either through industry collaboration or legislative changes.

### 2.2.4. Benefits of financial services API standards

The resulting maturity of the ecosystem through increased third party seamless integrations and the subsequent growth in the industry has provided benefits for both financial services providers and third party service providers, as well as ultimately the merchants and users who are connected through the network of systems.<sup>13, 14</sup>

10. ISO (2003). [ISO 8583-1: 2003 Financial transaction card originated messages – interchange message specifications – Part 1: Messages, data and code values](#).  
11. ISO (2020). [ISO 20022](#). See: <https://www.iso20022.org/>  
12. Open Banking (2020). See: <https://www.openbanking.org.uk>.  
13. The World Financial Review (2019). [3 Benefits of Open Banking APIs](#).  
14. Phaneuf, A. (2019) [How open banking and bank APIs are boosting fintech growth](#). Business Insider.





## 2.3. DFSP interoperability

### 2.3.1. Overview of DFSP interoperability

Interoperability is a complicated topic that requires careful analysis to assess opportunities and potential pitfalls, and will become increasingly important as financial services providers, including mobile money providers, operate in an increasingly interconnected world. A recent GSMA report<sup>15</sup> examined the many ways in which interoperability can be rolled out in a mobile money context and how these models have the potential to help financial inclusion.

### 2.3.2. Mojaloop

Mojaloop,<sup>16</sup> an open source software for creating digital payments platforms, is a relatively new technology of interest in several markets with a strong mobile money footprint. It aims to connect customers, merchants, banks, and other financial providers in a country's economy, and establish a technology blueprint which bridges all the financial products and applications in any given market. Mojaloop's main focus is to connect multiple DFSPs

together into a competitive and interoperable network to drive financial inclusion on a national scale. The core software allows commercial providers to create a set of central services through a Mojaloop hub implementation, allowing money to flow from one DFSP to another without necessarily requiring a central bank or clearing house. There are then a set of DFSP APIs which allow financial service providers to connect to the interoperable network.

### 2.3.3. Benefits of interoperability platforms

Interoperable networks can increase competition by allowing multiple players to be integrated into the payments industry without monopolies or maintaining isolated sub-networks which cannot connect with each other. As well as providing benefits for financial services providers, third party service providers, merchants and users, they can also potentially drive financial inclusion.



15. Nautiyal, A. and Pors, B-J., (2020). [The many paths to mobile money interoperability: Selecting the right technical model for your market](#). GSMA.

16. Mojaloop (2020) [Mojaloop Overview](#).

# 03

# GSMA Mobile Money API Specification

## 3.1. Introduction

The GSMA Mobile Money API Specification<sup>17</sup> aims to advance the mobile money industry towards the use of harmonised APIs that are secure and simple to use. Since its inception in 2016, the GSMA API has already been adopted by a range of providers across Africa, Asia, and Latin America. The GSMA Mobile Money API is an initiative developed through collaboration between the mobile money industry and the GSMA to provide a harmonised API specification for common mobile money use cases. Using best practices from the technology industry in API design and security, it aims to simplify and accelerate integration with mobile money platforms and stimulate growth of the ecosystem.

APIs can be used by service providers, agents, merchants, and financial institutions through multiple

channels such as apps, POS, and e-commerce. The core set of mobile money use cases are supported; including funds transfers, merchant payments, bill payments including instant payment notification, account management, international transfers including quotations, bulk transactions, and cash-in-cash-out.

The GSMA Mobile Money API is based on API best practices including REST architectural principles and JSON data format for requests and responses.<sup>18</sup> It includes a foundation for the key toolkits and channels that providers would need to successfully deliver open APIs.<sup>19</sup> Additionally, the GSMA provide security best practice guidelines on authentication and authorisation for implementing the GSMA API, which is a key consideration when providing open APIs.<sup>20</sup>

## 3.2. Latest release scope

The latest release of the GSMA Mobile Money API v1.1 is based on industry feedback since the original release. The new release adds improved support for mobile money use cases through API updates and technical improvements, an update to the API framework, and improved security guidelines. As part of the new release, the GSMA Mobile Money API Specification has been updated to support the latest Open API Specification Framework

version 3.0. The release also has complementary Security Design and Implementation Guidelines document to ensure that best practices are applied to the connection between the API client and the API gateway, and to authenticating an end-user to the mobile money platform. The GSMA Mobile Money API will be updated as required to ensure the API reflects mobile money requirements as the industry continues to evolve and grow.

17. GSMA (2020). [Mobile Money API](#).

18. Vasudevan, K. (2016). [Best Practices in API Design](#). Swagger.

19. CGAP (2020) [Open APIs in Digital Finance](#).

20. Litwin, K. (2019). [Why open banking standards mean a security-first approach to API management is needed](#). Finextra.



# 04

## Standards comparison

### 4.1. Why analyse comparisons of API standards?

It may appear that mobile money providers could utilise financial services API standards to provide seamless integration with third parties and grow their ecosystems. However, the GSMA Mobile Money API Specification offers an alternative approach to these standards as a harmonised API Specification for mobile money use cases developed in collaboration with the mobile money industry, promoting an industry defined common API.

The GSMA (GSMA Inclusive Tech Lab) undertook detailed analysis on the scope of the existing API standards and APIs, and how they compare with the GSMA Mobile Money API Specification to consider the optimum approach for mobile money providers to develop open APIs.

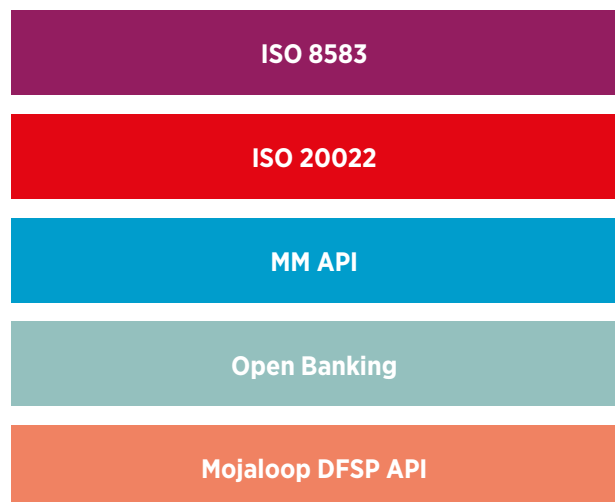
### 4.2. Introduction to analysis

The GSMA analysis looks at each of the existing API standards and how they compare with the GSMA Mobile Money API Specification in terms of the following factors:

- Overall scope
- Detailed use cases
- Technical design
  - Technical architecture
  - Communication patterns
  - Protocols
  - Data formats
  - Security models
  - Documentation
- Complexity

### 4.3. Comparison analyses

Colour coding:









### 4.3.1. Card payments - ISO 8583

#### Standard overview

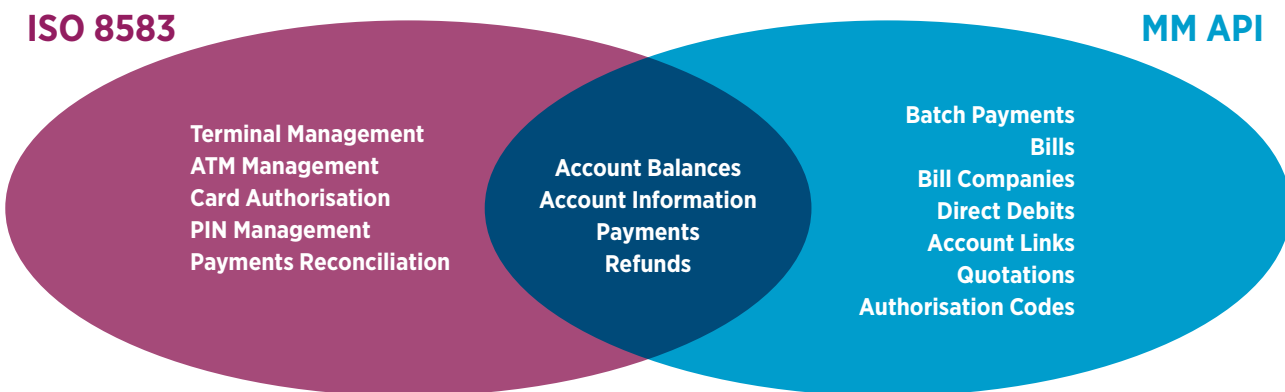
- Facilitates POS and ATM card-based payments
- Standard based upon several encodings (e.g. ASCII, EBCDIC, Hex, Binary, BCD, others)
- Does not support XML or JSON, although non-standard converters exist
- Latest ISO standard is 2003, though adoption varies across multiple versions of the standard

#### Comparison summary

<b>Scope, use cases, complexity</b>	Some overlap between features and use cases but there are large mutually exclusive areas. The use case flows of card transactions are very different from typical mobile money flows  ISO 8583 encapsulates card-based business processes that reflect those required in the banking industry, particularly for card-present ATM and POS transactions
<b>Technical design</b>	ISO 8583 does not focus on mandating the implementation of security or transport-level protocols (though adopters usually add these layers of security)

#### Comparison charts

**The comparison between use cases in GSMA Mobile Money API and Card payments - ISO 8583**



**The comparison between technical design in GSMA Mobile Money API and Card payments - ISO 8583**

Architecture / Data Formats		Documentation	
ISO 8583	MM API	ISO 8583	MM API
Binary/text message formats	REST/JSON	Human - readable text	OAS 2 (V1.0) OAS 3 (V1.1)

#### Conclusions

There are large gaps between use cases designed to support mobile money and the payments card industry which are reflected by the significant differences between ISO 8583 and the GSMA Mobile

Money API as illustrated above. However, it should be noted that ISO 8583 is completely open in some fields like Field 47, 48, 120 and other adopters can implement non-standard support for additional use cases, which has been the case in some markets.





### 4.3.2. Financial services - ISO 20022

#### Standard overview

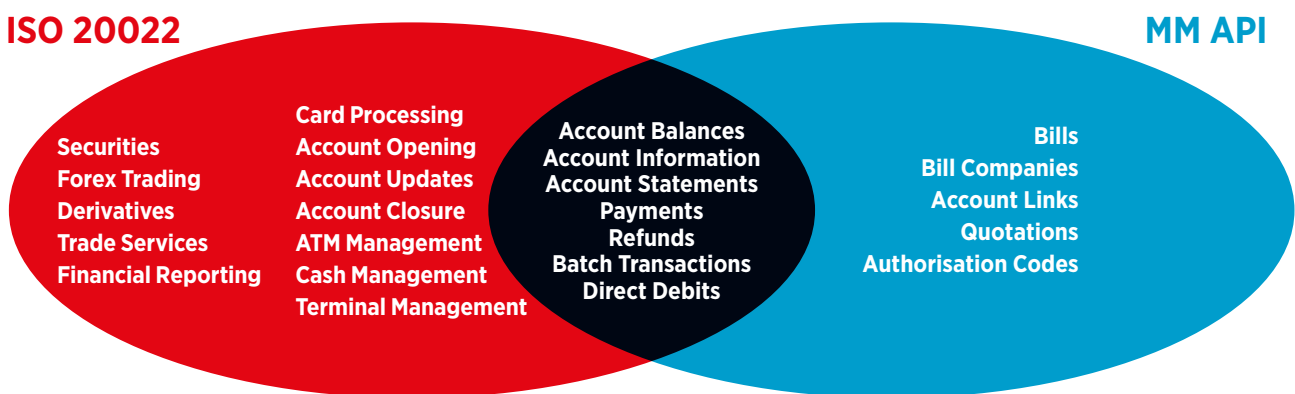
- Captures financial business areas, business transactions and associated message flows in a syntax-independent way
- Provides a central dictionary of business items used in financial communications
- Supports XML and ASN.1 Protocols
- Used as basis of many financial messaging implementations, e.g. SWIFT, SADC Interoperability

#### Comparison summary

<b>Scope, use cases, complexity</b>	Some overlap between features and use cases, but ISO 20022 encompasses a far greater set of use cases than required for mobile money  ISO Messages encapsulate business processes that reflect those required in the banking industry
<b>Technical design</b>	ISO 20022 does not focus on mandating the implementation of security or transport-level protocols

#### Comparison charts

The comparison between supported use cases in GSMA Mobile Money API and Financial services - ISO 20022



The comparison between technical design in GSMA Mobile Money API and Financial services - ISO 20022

Architecture / Data Formats		Documentation	
ISO 20022	MM API	ISO 20022	MM API
XML ASN.1	REST/JSON	Human - readable text	OAS 2 (V1.0) OAS 3 (V1.1)

#### Conclusions

ISO 20022 is comprehensive but highly complex, and centred on banking industry processes and central bank and clearing system requirements. Take-up of ISO 20022 in mobile money regions is very low. A lack of support

for API document tools and focus on XML/ASN.1 adds to adoption complexity. ISO 20022 consists of a large catalogue of messages that implement business processes across banking and financial service domains and many of these messages hold no relevance to mobile money.





### 4.3.3. Financial services - UK Open Banking [PSD2]

#### Standard overview

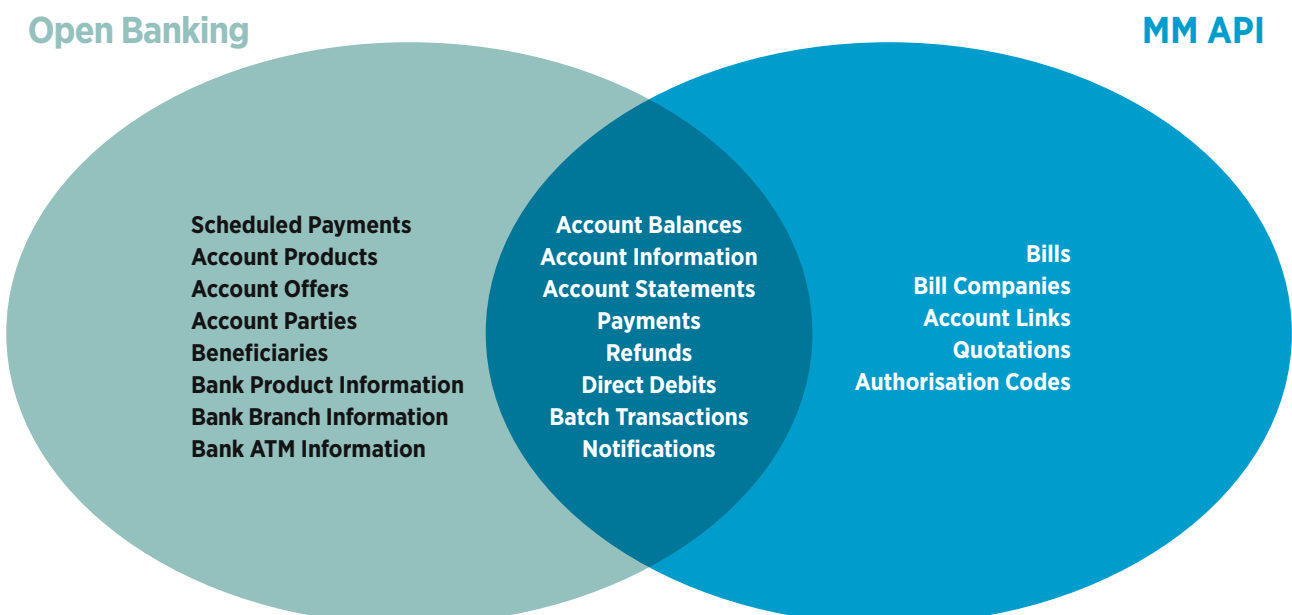
- Driven by UK CMA's desire to open up competition in financial services space
- Closely aligned to European PSD2 directive
- Provides a set of Restful APIs to enable third party providers to interact with customer accounts subject to consent
- Specification based on underlying ISO 20022 standard and extended or customised where necessary
- Specification strongly aligned with OpenID initiatives, including the Financial-grade API (FAPI) Profile

#### Comparison summary

<b>Scope, use cases, complexity</b>	<p>Some overlap in API use case scope such as commonality of data objects</p> <p>Open Banking API Security and Identity models are more prescriptive than the GSMA API, i.e. mandating security implementation vs more the flexible mobile money API guidelines</p> <p>Open Banking API mandates the use of identity registration and directory services</p>
<b>Technical design</b>	<p>There are similarities in API design such as the common use of REST and the use of OAS for the specification documentation</p> <p>Open Banking API provides greater sophistication in allowing API clients to choose notification models via subscription services</p>

#### Comparison charts

The comparison between supported use cases in GSMA Mobile Money API and Financial services - UK Open Banking [PSD2]





The comparison between technical design in GSMA Mobile Money API and Financial services - UK Open Banking [PSD2]			
Architecture / Data Formats		Documentation	
Open Banking	MM API	Open Banking	MM API
REST/JSON	REST/JSON	OAS 2	OAS 2 (V1.0) OAS 3 (V1.1)
Security Model		Supported Patterns	
Open Banking	MM API	Open Banking	MM API
TLS JOSE OAuth2 OpenID	TLS JOSE OAuth2 OpenID (Enhanced Level)	<b>Read:</b> Synchronous <b>Create:/Update:</b> • Asynchronous/Polling* • Asynchronous/ Callback*  *Subscription service is provided for client to set its notification preference	<b>Read:</b> Synchronous <b>Create:/Update:</b> • Synchronous* • Asynchronous/Polling* • Asynchronous/Callback*  *Notification preferences are determined by server and clients are not able to set a preference

### Conclusions

While there is a large degree of overlap between Open Banking and the GSMA Mobile Money API data objects, there are some specific gaps. Many of the feature sets are aligned with driving industry competition (e.g. opening-up products for price

comparison sites). Other gaps reflect different use cases in the banking and mobile money industries. Open Banking provides a richer set of interfaces, but this comes at a price of increasing complexity and client implementation cost.





### 4.3.4. Mojaloop DFSP API

#### Standard overview

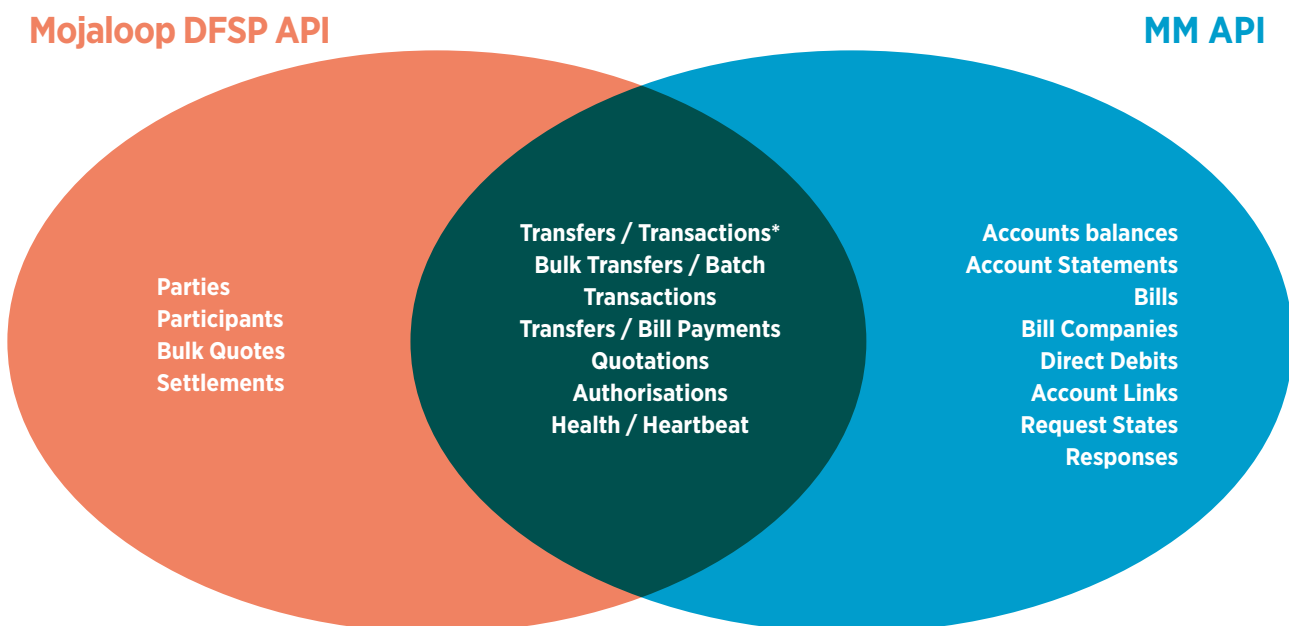
- Supports core interoperability use cases including account lookup, quotations, and transfers
- API is built on prescriptive use cases that must be implemented
- Strongly aligned with the Internet Ledger Protocol (ILP) which is used for transaction routing and authorisation

#### Comparison summary

<b>Scope, use cases, complexity</b>	<p>Some overlap in API use case scope and commonality of data objects but there are key differences.</p> <p>Mojaloop DFSP API only supports interoperable transfers and is not designed to support a wider range of mobile money client use cases</p> <p>Mojaloop DFSP API is much more prescriptive and mandates a specific implementation. The GSMA API generally takes a more permissive approach by defining a set of objects and methods, and allowing the provider to implement only use cases relevant to them</p>
<b>Technical design</b>	<p>The two APIs are based on similar architectural building blocks such as the use of REST API design, JSON data format, OAS for the specification documentation and the option to use JOSE security model</p>

#### Comparison charts

The comparison between supported use cases in GSMA Mobile Money API and Mojaloop DFSP API



\*Transaction Requests + Quotes + Transfer = Transactions





The comparison between technical design in GSMA Mobile Money API and Mojaloop DFSP API			
Architecture / Data Formats		Documentation	
Mojaloop DFSP API	MM API	Mojaloop DFSP API	MM API
REST/JSON	REST/JSON	OAS 2 RAML	OAS 2 (V1.0) OAS 3 (V1.1)
Security Model		Supported Patterns	
Mojaloop DFSP API	MM API	Mojaloop DFSP API	MM API
TLS JWE JWS Client Certificate  *Mandates one specific set of security models  *Payload fields can be selectively encrypted.	TLS JOSE Client Certificate + OAuth2 OpenID (Enhanced Level)  *Options for security models  *Payload fields must all be encrypted	<b>Read:</b> Asynchronous <b>Create:/Update:</b> • Asynchronous/ Callback*  *Due to Level 1 Project (L1P) principles, only push mechanisms can be supported  Idempotency supported	<b>Read:</b> Synchronous <b>Create:/Update:</b> • Synchronous* • Asynchronous/Polling* • Asynchronous/Callback*  *Notification preferences are determined by MM system  Idempotency supported

### Conclusions

The Mojaloop DFSP API only supports interoperable transfers and is not designed to support a wider range of mobile money service provider use cases. However, the two APIs can be used together, with the GSMA Mobile Money API providing client-facing APIs for third party integration and the Mojaloop DFSP API Interoperability APIs providing the interoperability to facilitate transfers

between mobile money providers. It is also possible to transform the GSMA API to Mojaloop DFSP API compliance using a transformer.

The GSMA has made available an Interoperability Test Platform to the industry which provides an end-to-end test environment for interoperable mobile money solutions, including joining these two key technologies together.<sup>22</sup>

22. GSMA (2020). [Interoperability Test Platform](#).



# 05

## Conclusions

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### 5.1. Benefits of API harmonisation in the mobile money industry

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There is substantial evidence from multiple sources that ecosystem growth and seamless third party integration is facilitated through common API standards in many different industries, including the financial services industries considered more specifically in this paper.

Standards provide a common industry imperative and business opportunities, optimise developer on-boarding through faster development and integration, and allow industries to create secure, mature ecosystems. This in turn benefits mobile money providers, the third party ecosystem, merchants, and users.

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### 5.2. The need for the GSMA Mobile Money API Specification

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The analysis undertaken in this publication shows that the existing standards are not optimised for mobile money providers, being either tailored for a different audience or having a scope which is not completely aligned with mobile money use cases. In addition, the complexity and remit of some of these standards can make the process of applying the standard to the overlapping use cases in mobile money onerous and prone to failure.

By contrast, the GSMA Mobile Money API Specification is a harmonised API specifically developed for the mobile money industry in collaboration with the industry itself and accommodates the most common mobile money use cases. It also takes into account the specific need for simplicity and investment optimisation of a relatively young industry in predominantly developing markets, providing a relatively straightforward to adopt yet still secure specification for common APIs.











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## 5.3. References

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**Accenture.** (2020). *The Brave New World of Open Banking*.

Retrieved from Accenture: [https://www.accenture.com/\\_acnmedia/pdf-77/accenture-brave-new-world-open-banking.pdf](https://www.accenture.com/_acnmedia/pdf-77/accenture-brave-new-world-open-banking.pdf)

---

**Business Insider.** (2020). *Open Banking API Trends Explained*.

Retrieved from Business Insider: <https://www.businessinsider.com/open-banking-api-trends-explained>

---

**CGAP.** (2020). *Open APIs in Digital Finance*.

Retrieved from CGAP: <https://www.cgap.org/topics/collections/open-apis>

---

**European Central Bank.** (2020). European Central Bank.

Retrieved from Payments statistics: 2018: <https://www.ecb.europa.eu/press/pr/stats/paysec/html/ecb.pis2018-c758d7e773.en.html>

---

**Finextra.** (2020). *Why Open Banking Standards mean a Security First Approach to API Management is needed*.

Retrieved from Finextra: <https://www.finextra.com/blogposting/18176/why-open-banking-standards-mean-a-security-first-approach-to-api-management-is-needed>

---

**GSMA.** (2020). *GSMA Mobile Money API*.

Retrieved from GSMA: <https://www.gsma.com/mobilefordevelopment/mobile-money/mobile-money-api/>

---

**GSMA.** (2020). *GSMA Mobile Money Interoperability*.

Retrieved from GSMA: [https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2020/06/GSMA\\_Many-paths-to-mobile-money-interoperability-2.pdf](https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2020/06/GSMA_Many-paths-to-mobile-money-interoperability-2.pdf)

---

**GSMA.** (2020). *GSMA Mobile Money Interoperability Test Platform*.

Retrieved from GSMA: <https://www.gsma.com/mobilefordevelopment/mobile-money/interoperability-test-platform/>

---

**GSMA.** (2020). *GSMA State of the Industry Report on Mobile Money 2019*. London: GSMA.

Retrieved from: <https://www.gsma.com/sotir/>

---

**GSMA.** (2020). *Mobile Money API Industry Report*.

Retrieved from: <https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2020/03/Mobile-Money-API-Industry-Report-Towards-Seamless-Integrations-2.pdf>

---

**ISO.** (2020). *ISO 20022*.

Retrieved from ISO 20022: <https://www.iso20022.org/>

---

**ISO.** (2020). *ISO 8583 Part 1*.

Retrieved from ISO: <https://www.iso.org/obp/ui/#iso:std:iso:8583>

---

**Mojaloop.** (2020). *Mojaloop*.

Retrieved from Mojaloop: <https://docs.mojaloop.io/documentation/>

---

**Open Banking.** (2020). *Open Banking*.

Retrieved from Open Banking: <https://www.openbanking.org.uk/>

---

**Swagger.** (2020). *API Design Best Practices*.

Retrieved from Swagger: <https://swagger.io/blog/api-design/api-design-best-practices/>

---

**World Financial Review.** (2020). *3 Benefits of Open Banking APIs*.

Retrieved from World Financial Review: <https://worldfinancialreview.com/3-benefits-of-open-banking-apis/>

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**GSMA HEAD OFFICE**

Floor 2  
The Walbrook Building  
25 Walbrook  
London EC4N 8AF  
United Kingdom  
Tel: +44 (0)20 7356 0600  
Fax: +44 (0)20 7356 0601