The GSMA Mobile Money API as an enabler for Sustainable Development Goals

Mapping GSMA Mobile Money API use cases to the SDGs

GSMA Mobile Money

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**.

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

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Introduction

Mobile money is a rapidly growing sector of the financial services industry across developing markets, reaching many people who do not have access to other financial services. Enabling the mobile money ecosystem through open APIs enables a wide range of products and services to be expanded to the over one billion people who use mobile money, increasing financial inclusion of underserved populations.

What are Open APIs?

APIs (application programming interfaces) make it possible for application programs to interact and share data with each other, and open APIs are those made widely available to ecosystem third parties to consume. In particular, open APIs in mobile money and other financial services enable a wide variety of service providers to integrate seamlessly with digital financial services and payments systems.

What is the GSMA Mobile Money API?

The GSMA Mobile Money API is an initiative developed through collaboration between the mobile money industry and the GSMA. The main asset is a harmonised API specification which aims to reduce complexity and fragmentation across mobile money platforms, and thereby simplify and accelerate third-party integrations with mobile money providers. The API is built on simple, widely-used technology principles such as REST and JSON, provides benefits such as flexibility, scalability and security, and offers the potential to raise industry capability overall by advancing API functionality and common foundations for ecosystem innovation and financial inclusion.

API use cases

The core set of mobile money use cases are supported:

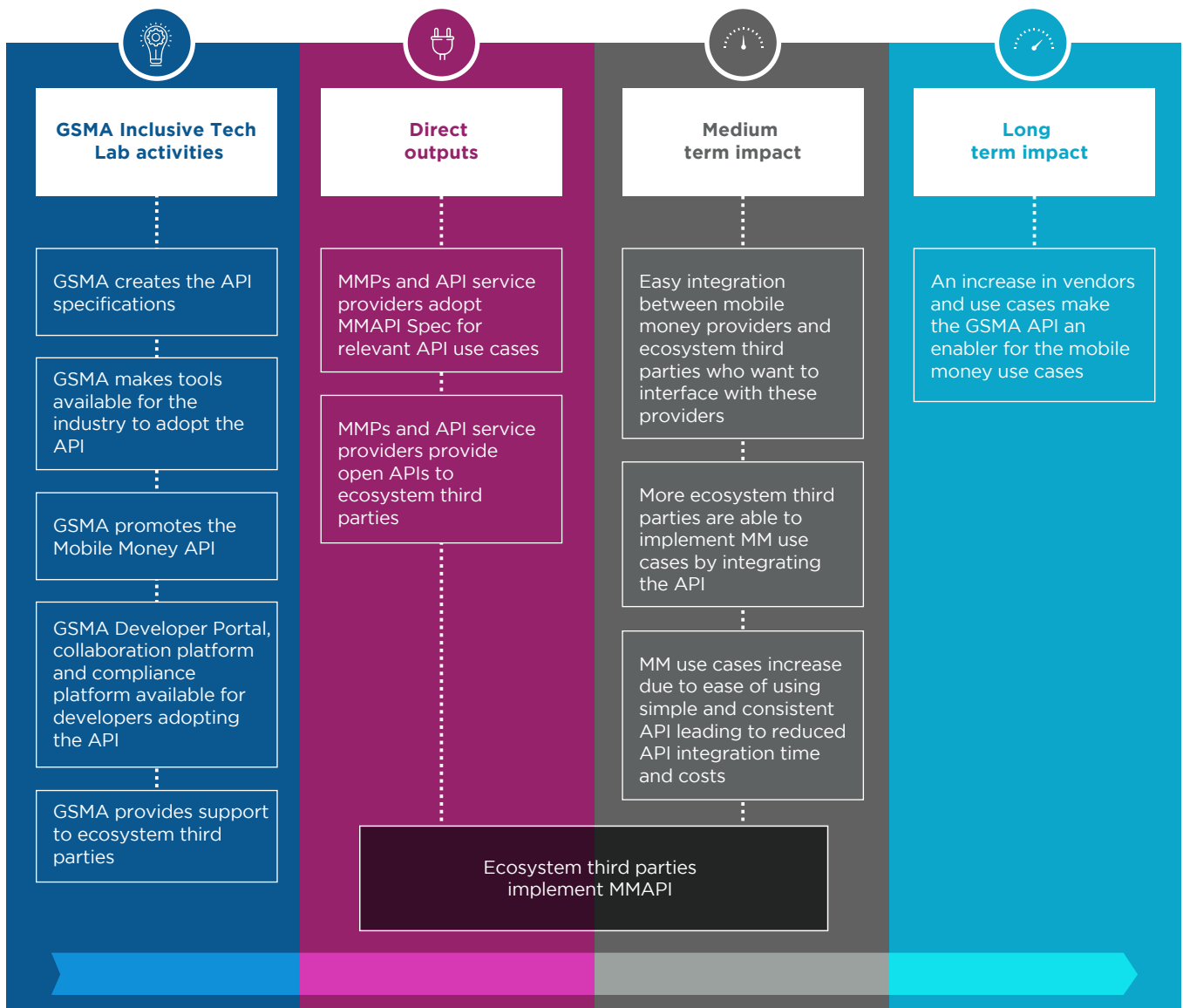| Merchant payments | Disbursements | International transfers | Person-to-person transfers | Recurring payments | Account Linking | Bill payments | Agent services |

Who can use the API?

These use cases can be utilised by all types of service providers in many different industries – these include utility and energy companies, all types of financial service providers (such as payment service providers, banks, MFIs and insurance providers), as well as agents, merchants, employers, governments agencies and NGOs. The APIs can be utilised via multiple channels such as feature phones with USSD, apps, POS devices, data systems, and online services.

How can APIs support inclusion?

There is substantial evidence that ecosystem growth and seamless third party integration can be facilitated through common API standards, enabling faster and more cost-effective development and integration. This evidence has been demonstrated in the GSMA paper on API standards [1]. This in turn extends access to services and products to users in lower income countries where the costs and difficulties of integration may often be a barrier to entry.

The GSMA Inclusive Tech Lab pathway to impact

GSMA Inclusive Tech Lab activities	Direct outputs	Medium term impact	Long term impact
GSMA creates the API specifications	MMPs and API service providers adopt MMAPI Spec for relevant API use cases	Easy integration between mobile money providers and ecosystem third parties who want to interface with these providers	An increase in vendors and use cases make the GSMA API an enabler for the mobile money use cases
GSMA makes tools available for the industry to adopt the API	MMPs and API service providers provide open APIs to ecosystem third parties	More ecosystem third parties are able to implement MM use cases by integrating the API	
GSMA promotes the Mobile Money API		MM use cases increase due to ease of using simple and consistent API leading to reduced API integration time and costs	
GSMA Developer Portal, collaboration platform and compliance platform available for developers adopting the API			
GSMA provides support to ecosystem third parties	Ecosystem third parties implement MMAPI		

The GSMA Inclusive Tech Lab develops the Mobile Money API specifications and provides direct support for mobile money providers and ecosystem vendors to adopt the API with developer tools and services. This harmonised API initiative reduces the cost, time and resources needed for API integration and facilitates integration between mobile money providers and vendors, leading to an increase and diversification in mobile money use cases.

The GSMA Mobile Money API is an enabler for mobile money use cases to flourish and scale. In turn, these mobile money use cases lead to tangible socio-economic impacts, detailed in the following section.

Objectives and methodology

This report showcases how a harmonised API ecosystem through the use of the GSMA Mobile Money API can amplify mobile money's role in achieving the United Nations' Sustainable Development Goals (SDGs). The contributions to SDGs are identified for each of the use cases that the GSMA Mobile Money API enables:

- Merchant Payments
- Disbursements
- International Transfers
- P2P Transfers
- Recurring Payments
- Account Linking
- Bill Payments
- Agent Services (including Cash-In and Cash-Out)

Due to the overlapping role of digital financial services across SDGs, a mapping approach was adopted to visualise these complex linkages. This report presents a static version of the mapping, which will also be available as a dynamic infographic to visualise the interconnections between use cases.

The links between the mobile money use cases and the SDGs are based on a literature review conducted on the impact of mobile money on various areas of socio-economic development, and builds on the 2019 GSMA report outlining how mobile money can contribute to the SDGs [2]. The links between mobile money and the SDGs were then further analysed and selected based on the concrete benefits that a harmonised API ecosystem can have on amplifying mobile money's impact on SDGs and their specific targets.

Cross-cutting impact of API supported use cases on economic growth

The expansion of mobile money use cases can increase the sector's value and contribution to GDP

A harmonised API ecosystem lowers the cost of mobile money use case integration for third parties, which in turn creates opportunities for growth in adoption by vendors, merchants, governments, NGOs, banks, MFIs and other third-party ecosystem actors. An increase in ecosystem mobile money transactions can considerably increase the value of the mobile money sector and its contribution to GDP [3] [4] [5]. The API also contributes to increased productivity through technological upgrading, especially for MSMEs in developing markets (see sections on Merchant Payments, P2P Transfers and Recurring Payments). A harmonised API also provides opportunities for uptake of mobile money use cases, leading to financial inclusion for low-income people (see sections on Bill Payments, Disbursement and Recurring Payments).

8 DECENT WORK AND ECONOMIC GROWTH

Relevant Targets

8.1 Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries

8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors

8.10 Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all

Merchant Payments

Making a wider range of mobile money use cases available to unbanked women contributes to their economic empowerment

5 GENDER EQUALITY

Relevant Targets

5.a Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws

5.b Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women

A harmonised mobile money API ecosystem would increase the range of services that can be paid for through mobile money. Mobile money payments have been shown to enable individuals to expand their MSME activities and customer outreach. Mobile money can support women in business creation and expansion [6], as it advances women's access to credit [7] compared to traditional financial products.

Lower costs of API integration can help MSMEs formalise their operations, reduce costs for enterprises to take products to the market and increase MSME productivity

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Relevant Targets

9.3 Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets

APIs make mobile payments seamless, contributing to increased productivity for MSMEs in their operations [8], in particular through processing of payments to suppliers and employees and more efficient record-keeping [9].

A harmonised mobile money API ecosystem allows developers to take products to market faster at lower cost, and scale their offerings without having to build multiple technology solutions for each provider [10] [11] [12].

Disbursements

Low-income people and people affected by crises have access to safer, more traceable digitised cash-based assistance

Relevant Targets

1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable

1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance

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2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round

2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment

Humanitarian relief organisations and governments can integrate the GSMA Mobile Money API to enhance the provision of support to target populations by enabling digital-based assistance from multiple mobile money providers. Digital disbursements of assistance are more transparent and traceable than cash [13] and can reach traditionally unbanked populations compared to bank transfers. In the context of humanitarian relief or government-led poverty alleviation schemes, these disbursements offer a safety net for vulnerable people to sustain their basic needs, including means to purchase food [14]. The GSMA is supporting the World Food Programme in integrating the API to digitise their cash-based transfer and beneficiary services management platform, SCOPE [15].

Women have access to gender-specific digitised cash-based assistance

Relevant Targets

5.a Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws

5.b Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women

The global COVID-19 pandemic has shown that the gap in access to financial services makes women disproportionately vulnerable to shocks, which have ripple effects which exacerbate gender inequalities [16]. Recommendations to address gender inequality in the face of shocks include digitising cash transfers to reach remote and vulnerable people, as well as providing cash transfers into an account registered in a woman's name and to which she has direct access [17]. Provided that measures are put in place to facilitate women's access to mobile money, a harmonised mobile money API ecosystem would enable governments to disburse gender-specific financial support through digital payments to women regardless of their mobile money provider.

International Transfers

Low-income people can rely on financial support from extended networks

Relevant Targets

1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable

1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance

The GSMA Mobile Money API provides a common API interface for multiple providers who have an interoperability solution allowing users to send remittances regardless of the sender's or receiver's providers. Remittances are a key service utilised to send money to relatives internationally and have been used to support relatives in the events of disasters, when people are displaced or when low-income families rely on relatives working abroad [18] [19] [20].

Harmonised APIs can make integration easier, bringing down costs

Relevant Targets

10.c By 2030, reduce to less than 3 per cent the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5 per cent

Mobile money-driven remittances rely on various partnership models where providers can connect directly with other remittance service providers such as money transfer operators or other mobile money providers, or indirectly through an international remittance hub [21]. The Mobile Money API has the potential to create a harmonised API ecosystem that drives these integration costs down for remittance providers, compared to many-to-many custom API integrations for each partnership. The scaling of technologies enabling remittance ecosystems, including harmonised APIs, has the potential to improve the efficiency of the market and drive down costs [22] [23].

P2P Transfers

Low-income people can rely on financial support from extended networks

Relevant Targets

1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable

1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance

The Mobile Money API provides a common API interface for multiple providers who have an interoperability solution and facilitates domestic transactions by users between mobile money providers. Domestic remittances, including peer-to-peer transfers, are widely used by relatives and wider social networks to provide financial support to peers and support their consumption needs [24] [25]. With a harmonised mobile money ecosystem, users can send or receive money to relatives regardless of their mobile money account, which can increase the scope of P2P transfers.

MSMEs increase productivity and access to financing

Relevant Targets

9.3 Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets

A significant number of P2P transfers are made by small businesses and micro entrepreneurs [3] who use their personal mobile money account for their business needs [26]. P2P lending has also recently emerged as a form of lending in providing funding solutions for MSMEs that lack access to traditional financing from banks [27].

A harmonised mobile money API ecosystem increases the scope of P2P transfers by allowing micro-entrepreneurs to make transactions regardless of their suppliers' or customers' mobile money account provider, and for users to lend money to MSMEs digitally regardless of their provider.

Recurring Payments

Low-income users can unlock access to digital loans to smooth consumption or invest in revenue generating activities

Relevant Targets

1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable

1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance

A harmonised API ecosystem can make integration of mobile money services with third parties easier and lower-cost. Digitising value chains and customer journeys, including recurring payments, creates digital records that can help low-income users build credit scoring through proof of timely recurring payments. Digitisation of recurring payments helps the unbanked build economic identities, which increases their access to financial services, including digital loans [28] [29] [30].

Smallholder farmers are financially included and can use loans to increase their productivity and

Relevant Targets

2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round

2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment

Harmonised API ecosystems facilitate the integration of mobile money and the exchange of data between third parties. In the agricultural value chain, this means that agribusinesses, agritechs, mobile money providers and financial service providers can collaborate to build farmers' economic identities through the digitisation of their procurement transactions [31] [32], to create new credit scoring data and facilitate farmers' access to input loans or loans for machinery [33], to increase their productivity and income.

Facilitated access to energy for rural low-income people

Relevant Targets

7.1 By 2030, ensure universal access to affordable, reliable and modern energy services

Rural off-grid people can gain first-time or more reliable access to electricity through micropayments to finance solar home systems using PAYGO. Harmonised APIs can drive this microfinancing of assets [34] [35] by expanding the pool of mobile money providers that can be used by customers for their PAYGO repayments.

MSMEs can increase their access to credit and their capacity for innovation

Relevant Targets

9.3 Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets

APIs can support the creation of digital lending marketplaces where MSME borrowers are matched with institutional lenders. Digital lending reduces the credit constraints of micro and small enterprises [36] [37] [38] [39]. Reduced credit constraints have been shown to foster MSMEs' capacity to innovate in terms of products, processes and organisation.

Account Linking

Smoother financial management and integration with banks enabling access to credit in bank-led models

Harmonised APIs can support account linking between mobile money accounts and bank accounts, which can allow users to manage multiple sources of income and ease management of savings. Account linking also enables mobile phone customers to transact directly with commercial banks. Their ability to do so increases commercial banks' potential to transform deposits into credit [40].

Relevant Targets

1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable

1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance
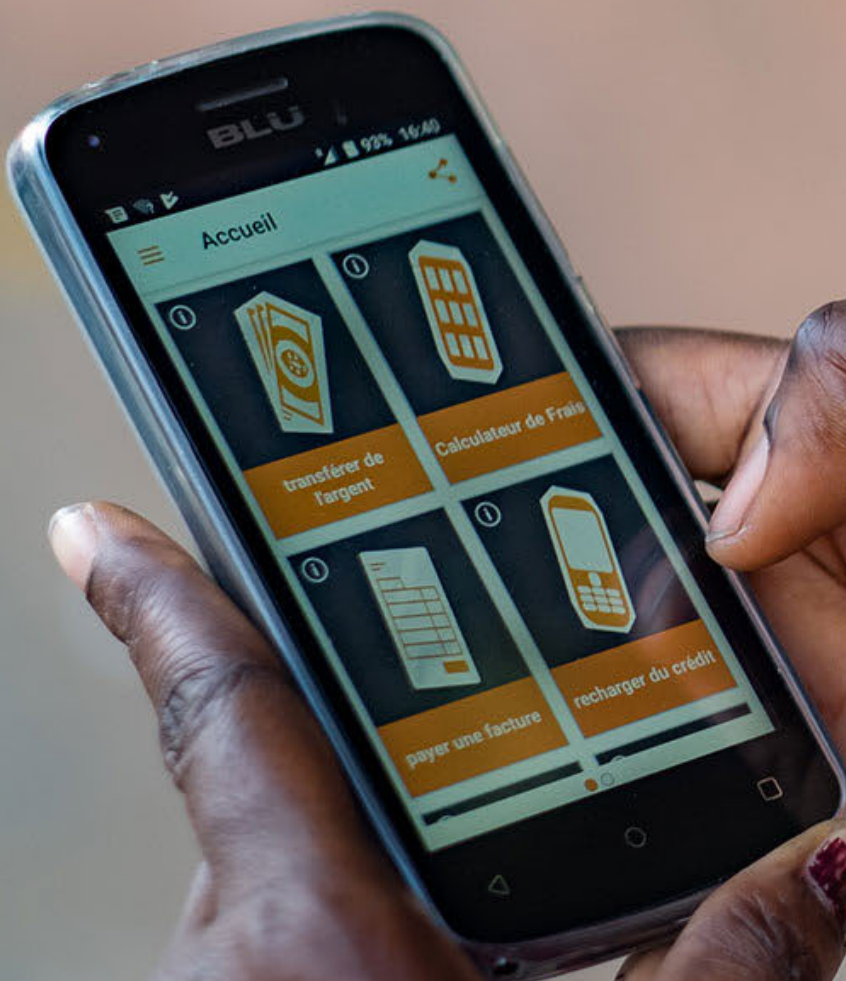
Bill Payments

Low-income users can unlock access to digital loans to smooth consumption or invest in

Relevant Targets

1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable

1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance

A harmonised API ecosystem can make integration of mobile money services with third parties easier and lower-cost. Digitising value chains and customer journeys can help low-income users build economic identities through their digital transactions, which increases their access to financial services, including digital loans [28] [29] [30].

Facilitated access to energy for rural low-income people

Relevant Targets

7.1 By 2030, ensure universal access to affordable, reliable and modern energy services

Rural off-grid people can get first-time or more reliable access to electricity through PAYGO solar home systems and pay their electricity bill through mobile money [41]. Harmonised APIs can drive seamless payments for electricity bills by expanding the pool of mobile money providers that can be used by customers to pay their PAYGO solar bill [34].

Agent Services
(including Cash-In and Cash-Out)

In markets with agent interoperability, harmonised APIs facilitate setup of agent businesses and operations, contributing to job creation. Mobile money agent networks are key in providing mobile money services to rural unbanked populations

Relevant Targets

1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable

1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance

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8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value

In markets with agent interoperability, harmonised APIs can lower the costs to individual agents (including super agents and master agents) of integrating their platforms with different mobile money operator APIs. Mature mobile money markets, in which conditions are met for interoperability to create customer and commercial value, can rely on an open API to accelerate the connection process, reduce development costs and facilitates agent business set up and operations [42]. Mobile money agent networks and outlets significantly contribute to job creation [43], with the number of registered agents on the African continent growing from 155,000 in 2011 to 3.3 million in 2019 [44]. Mobile money agent services play a key role in delivering mobile money services to rural communities and unbanked populations [45] that are underserved by traditional financial service providers. These networks of mobile money agents show higher rates of rural penetration and play a key role in the financial inclusion of the unbanked [46] [47].

Glossary

AgriTech	**Agricultural technology or agrotechnology**	The use of technology in agriculture, horticulture, and aquaculture with the aim of improving yield, efficiency, and profitability. Agricultural technology can be products, services or applications derived from agriculture that improve various input/output processes.
API	**Application programming interface**	Software interfaces that define interactions between multiple software implementations that make it possible for application programs to interact and share data with each other. APIs enable modular software implementations allowing users to integrate with the interfaces independently of the implementation. APIs can be custom made by individual parties or designed based on an industry-standard to ensure interoperability.
API spec	**API specification**	Document written using a standard API definition framework such as Open API Specification (OAS), which provides a broad understanding of how an API behaves and how the API links with other APIs. It defines how the API functions and the results to expect when using the API.
JSON	**JavaScript Object Notation**	Open standard file and data interchange format that uses human-readable text to store and transmit data objects consisting of attribute–value pairs. Very commonly used across many technical applications and industries.
MFI	**Micro finance institutions**	Financial companies that provide small loans to people who do not have any access to banking facilities.
MSMEs	**Micro, small, and medium enterprises**	Businesses whose personnel numbers fall below certain limits on number of employees and income which is defined by countries they operate in. In some countries, especially developing countries, MSMEs can sometimes outnumber large companies, employ many more people and make the largest contribution to total GDP. They can however be vulnerable to job destruction.
NGO	**Non-governmental organisation**	Any non-profit, voluntary citizens' group which is organised on a local, national or international level. NGOs perform a variety of service and humanitarian functions.
P2P transfers	**Person-to-person or peer-to-peer transfers**	Funds transfers made by users from their account to another individual's account via any channel which supports this such as online or mobile phone channels.
PAYGO	**Pay-as-you-go**	Companies sell services or products to customers through a pre-paid model. This allows users to pay in small instalments rather than full upfront costs, which is facilitated by company providing finance as well as the product and services to users. Customers usually pay a small percentage upfront and the rest as a loan over a period of years.
POS devices	**Point of sale devices**	Device used for completing a retail transaction. The merchant calculates the amount owed by the customer, indicates that amount and offers options to the customer to make payment via the device. The customer makes a payment to the merchant in exchange for goods or after provision of a service. After receiving payment, the merchant may issue a receipt for the transaction.
REST	**Representational state transfer**	REST APIs conform to the constraints of REST architectural style which include a client-server architecture made up of clients, servers, and resources, with requests managed through HTTP, with stateless client-server communication and a uniform interface between components so that information is transferred in a standard form. When a client request is made via a REST API, the API transfers a representation of the state of the resource to the client.
SDGs	**Sustainable Development Goals**	The 17 United Nations SDGs cover the 2030 Agenda for Sustainable Development adopted by all United Nations Member States in 2015. They recognise that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth while tackling climate change and working to preserve the environment.
USSD	**Unstructured supplementary service data**	A service provided by mobile money operators which can be used to deliver mobile financial services to low-income customers. The service allows users to dial a number that starts with * and ends with # to communicate between customers and their mobile payments platform.

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