Making good use:

A measurement framework for financial service usage

Acknowledgments

About insight2impact

Insight2impact | i2i is a resource centre that aims to catalyse the provision and use of data by private and public-sector actors to improve financial inclusion through evidence-based, data-driven policies and client-centric product design.

i2i is funded by the Bill & Melinda Gates Foundation in partnership with The MasterCard Foundation.

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About the i2i measurement framework note series

This note is the sixth in a series of notes to explore the role of measurement in delivering on financial inclusion objectives, and to develop a set of new measurement frameworks to assist stakeholders in achieving these objectives.

The first note, *Introduction to measurement frameworks*, introduces the concept of a measurement framework, its purpose and components. The second outlines a scan of existing measurement initiatives in the financial inclusion space to position our usage agenda in context.

The third note builds a conceptual model of financial device usage and the triggers and drivers thereof as a theoretical underpin to the work of i2i, on the premise that actual usage, rather than mere uptake, is important for financial inclusion impact.

The remaining notes present a number of new measurement frameworks (MFWs) for policymakers, development organisations and financial service providers to practically measure, and therefore better understand, priority measurement areas for financial inclusion. The current note develops a measurement framework for the usage of financial services.

		Title	What does it cover
Umbrella notes	1.	Introduction to MFWs	Looks to other fields to explain what a measurement framework is.
	2.	Determining our focus	Scan of existing measurement frameworks and indicators in financial inclusion to position our measurement agenda ('gap analysis').
	3.	Usage conceptual model	Builds a conceptual model of financial service usage and the triggers and drivers thereof as a theoretical underpin to the work of i2i, on the hypothesis that actual usage, rather than mere uptake, is important for financial inclusion impact.
Measurement framework concept notes	4.	Needs measurement framework	Outlines a measurement framework for how financial service needs are revealed and met through financial service usage.
	5.	Financial inclusion depth measurement framework	Outlines a measurement framework for financial inclusion that considers the portfolio of financial devices taken up or used per person (termed 'depth of financial inclusion'), in contrast to a one-dimensional focus on percentage of people reached.
	6.	Usage measurement framework	Unpacks the definition of usage, clearly demarcating it from uptake; lays out a set of principles for determining usage indicators and provides examples of how these manifest.
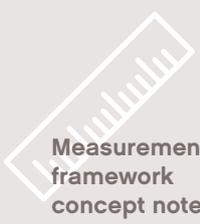
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Executive summary

The i2i facility was established as a resource centre to assist the financial inclusion community in making better use of available and new data to improve the value delivered by financial services for low-income households and nations.

A focus on usage. Following a scan of existing measurement frameworks in financial inclusion and a consultation process to understand the evolution of financial inclusion measurement to date and the key measurement needs, the measurement of usage of financial services was identified as an area where i2i can make a substantial contribution.

Core assumptions. Durable measurement frameworks are underpinned by sound theory. Thus, i2i developed a theoretical or conceptual framework around usage. This framework starts from financial needs as point of departure. It then considers what triggers financial service uptake and/or first use, what drives sustained usage and how one can meaningfully gauge how consumers deploy different financial services towards meeting the underlying need. **This conceptual model is based on three underlying assumptions:**

» Usage – rather than mere uptake – is necessary for financial inclusion outcomes and impact.
» Consumers choose financial services based on their underlying financial needs.
» Different financial devices (payments, savings, credit, insurance), from different types of formal and informal providers, are substitutes or complements in meeting a specific need.

These three core theoretical tenets imply that, from a policy perspective, it is essential for governments, donors and financial service providers to measure: (i) the nature and patterns of their citizens' usage of financial services; (ii) across the full financial usage profile, formal as well as informal; (iii) the purpose of usage, namely the needs being served; and (iv) the different devices (formal and informal, and across product markets) that are being used to meet these needs.

Building the conceptual model

Towards commonly accepted definitions. The conceptual model of usage comprises several core concepts for which a common definition is required:

» **Use cases** are defined as the specific purpose underlying usage. Examples include: the need to invest in children's education, to set up a business or buy a house; the need to cover health expenses and to cope if the harvest fails or a household member dies; the need to pay the household bills or send money to a relative in the rural areas; or the need to cope with budget shortfalls for regular monthly expenses such as food. Use cases fulfilling the same underlying function are grouped into four financial needs, namely meeting goals, resilience, transfer of value and liquidity.
» **Financial devices** are any physical, social or electronic mechanism that stores, accumulates, distributes or transfers value and that can be used to meet a financial need. People use a portfolio of financial devices – from the proverbial mattress for saving at home, to turning to community members for assistance, using a hawala or hundi service, mobile money, formal insurance, a loan from a money lender, a bank account or an MFI loan – to meet their financial needs.
» **Usage** can be defined as 'a person deploying a financial device to meet a specific financial need'.
» The active deployment sets usage apart from **uptake**, which we define as "the act of meeting the requirements and/or completing the procedures that confer on a customer the right to use a financial device".

Uptake triggers and usage drivers. The poor are especially resourceful when managing their financial lives. What they choose to use, and how, is part-determined by supply-side factors that set access barriers[1], as well as contextual matters relating to their lifecycle, socioeconomic circumstances or the macroeconomic realities of the time. But equally important are perceptions, behavioural traits and the nature of societal functioning. Uptake or usage triggers are defined as factors prompting first use (for example advertising), of which the effect erodes over time, whereas drivers exert a sustained influence over time.

Three usage paths. After first use of a financial device has been triggered, the user can follow one of three paths: he or she can sustain their usage, can defect to an alternative device (or revert back to cash as default device for living his or her financial life) or the use case can cease, in which case there will no longer be any usage. It is important to build an understanding of the drivers of decision-making along each path.

A particularly important driver is the value proposition of the financial device vis-à-vis alternative options. Does it provide better functional value towards meeting the use case than alternative devices?

The i2i facility will be developing and testing several measurement frameworks to measure different dimensions of the usage framework that are relevant to policy makers. Two measurement frameworks have already been developed and are now being tested and piloted:

Needs measurement framework.
The needs measurement framework sets out to measure the functional needs being served by financial devices. Four universal financial needs are defined: transfer of value, liquidity, resilience and meeting goals. These are measured by considering uptake of different financial devices towards use cases linked to each need. Analysing different devices that are used to meet each need enables the building of a market perspective on the competitive forces, complements and substitutes, across product types (formal and informal) for meeting the underlying need.

Thus, the objective of the financial needs measurement framework is to understand how the market for retail financial services in low-income communities works, in order to ensure sustainable and effective provision of financial services.

The indicators are usage of various types of financial devices towards a financial need, as drawn from demand-side survey data, and informed by qualitative demand-side research. As such, the needs measurement framework provides an alternative measure of retail financial services market behaviour to the traditional product market measures. It is proposed that this measure is a more realistic reflection of actual client behaviour and therefore more useful for policymakers and financial service providers to deliver politically and commercially sustainable financial inclusion initiatives and outcomes.

Usage measurement framework.
Building on the financial needs measurement framework, the usage measurement framework sets out to understand the scale and nature of usage to inform policies and business models tailored to financial needs. Applying the usage measurement framework allows the efficacy of such policies and strategies to be evaluated at a more granular and relevant level than allowed by conventional uptake measures.

The usage measurement framework measures the nature and scale of the deployment of a specific financial device, considered across recency (when the most recent incidence of deploying the device occurred), *frequency* (the number of interactions with the financial device over a defined period), *duration* (the length of time for which the person has used the financial device) and *value* (the size of deployment in monetary terms) as core metrics.

Aggregate indicators include the current state of usage, aggregate market size, relative use of specific devices and average or median use. The main data sources are supply-side data for objective assessment of frequency, recency, duration and value, complemented by demand-side data to understand the mix of devices used by consumers – formal and informal – in context.

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[1] Such as proximity, eligibility and affordability

1. Introduction

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This note sets out a ==measurement framework for usage of financial services.==

Uptake matters. Most of the headline indicators of financial inclusion currently measure uptake rather than usage. Typical indicators of this kind are number or percentage of adults with bank accounts, credit, a savings account or an insurance policy. The uptake of financial products is currently measured using both supply-side data (e.g. IMF Financial Access Survey) and demand-side data (e.g. FinDex, Financial Inclusion Insights and FinScope). A result of the increased availability and prevalence of uptake indicators is that these are increasingly targeted by policymakers. For instance, the number of Alliance for Financial Inclusion (AFI) member institutions with quantified targets has risen from nine in 2011, to 81 in 2016; and most, if not all, of these members include at least one uptake indicator within their targets. The explicit targeting of these indicators has led to significant success in growing uptake. FinDex reports that the number of people worldwide with a bank account grew by 700 million between 2011 and 2014. The GSMA reports that, as of November 2015, there were 411 million registered mobile money accounts globally, growing 31% in 2015 alone (GSMA, 2015).

But uptake does not suffice. Despite their merits, the uptake indicators as described above do not reflect how people with these services use them. For example, how frequently they use them, for what purpose they use them or the value of the transactions processed. Yet, it is these latter metrics that reflect not only the value that financial services contribute to the economic lives of the users, but indeed whether business models that provide retail services are commercially viable or not.

Uptake does not necessarily translate into usage. Increasingly, it is becoming clear that the link between uptake and usage is neither automatic nor certain. Despite the rapid growth in uptake, there is evidence that many of these financial services are not used, or are used only to a relatively limited extent. A closer look at the FinDex data shows that a sizeable number of

bank accounts lie dormant. The GSMA (2015) reports that only 134 of the 411 million global mobile money accounts, equivalent to 33%, had been used even once in the last 90 days.

More complete usage indicators required for effective targets. What you measure and target, then, is important for the outcomes to be achieved – just focusing on uptake will not lead to the achievement of the stated objectives. There is a need for better, more complete usage indicators to supplement the existing uptake indicators.

This note builds on the other notes in the i2i measurement framework note series to develop a measurement framework for usage. It focuses on explaining usage as a concept and offers a definition that clearly delineates usage from uptake. On this basis, it then lays out a set of principles for measuring usage before providing some examples of how these manifest. Lastly, the note offers practical guidance on how the data can be collected to populate the proposed usage indicators.

Recap: What is a measurement framework?

As explained in the note titled *Introduction to measurement frameworks*, a measurement framework combines theory and data to describe a condition necessary to achieve an objective. It consists of an indicator or set of indicators populated by data. The theory explains why the condition is important for the objective and why the indicators are valid proxies for the condition and any changes therein. The condition being measured is the physical state, set of circumstances, behaviour(s) or process, which are necessary to achieve the objective.

2. Uptake versus usage of financial devices

What is a financial device?

We define the term **financial device** as any physical, social or electronic mechanism that stores, accumulates, distributes or transfers value[2] and that can be used to meet a financial need.

This definition is intentionally broad, for two reasons. Firstly, the ingenuity of people to meet financial needs is vast, hence the definition should encompass as broad as possible a set of current and potential devices. Secondly, this concept should allow researchers to standardise the tools used by people to lead their financial lives across the formal and informal, to create a measurable profile of a person's full financial behaviour. Examples of financial devices include, amongst others, a bank account, cash, saving with an informal savings group, or loans from an informal money lender or family member. Savings at home, in cash or through the purchase of an asset, such as gold or livestock, is also considered a financial device if used to meet a specific financial need. A person, therefore, can use multiple financial devices to meet specific needs.

In the current discourse on the measurement of financial inclusion, the concepts of usage and uptake are often used interchangeably. It is, therefore, important to clearly distinguish between these two concepts[3].

By uptake we mean:
The act of meeting the requirements and/or completing the procedures that confer on a customer the right to use a financial device.

It is important to understand that uptake can happen in relation to both formal and informal devices, for example when a mobile user registers as a mobile money user (formal uptake), or when a new informal trader joins an existing informal savings club (informal uptake). It can also be once off, as is the case with an over-the-counter (OTC) transaction, or result in an ongoing contractual relationship, usually referred to as an account.

By usage we mean:
A person deploying a financial device to meet a specific financial need.

A person (be it a natural or a legal person), therefore, takes up a financial device when he or she fulfils the requirements to be able to use a financial device, by opening a bank account or obtaining membership to an informal Rotating Savings and Loan Association (ROSCA), for example.

When uptake has taken place, the person has been conferred the right to use the financial product, but has not necessarily started to use the product. Usage begins when the person exercises that right to meet a specific need. For example, in order to meet a liquidity need, the person deposits value into the bank account or to meet a need to pay for education, the value is invested with the ROSCA.

In some cases, uptake and usage may occur at the same time. OTC remittance payments, for instance, require the user to show some form of identification before he or she can use the product. The provision of adequate identification to the provider conveys upon the user the right to then use the payment device to send the remittance. In practice, this would all be part of a single engagement with the provider and uptake cannot exist separately from usage, as would be the case in a bank account, for example, where you can open and maintain an account without actually transacting through it.

In the case of cash, used either to transfer or store value, uptake could be said to occur whenever a consumer is in possession of a sum of cash. The possession of physical cash notes and coins conveys upon the bearer the right to use it. Usage would occur when this cash is deployed to meet a specific financial need.

The primary distinction between measurement of uptake and usage, then, is that, whereas measures of uptake simply record the fact that a person is entitled to use a service or has done so at least once, the measurement of usage is concerned with the scale of actual usage over time.

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[2] Each of these verbs denote a specific meaning, each relating to the concept of value: mostly, usage of a financial device entails the transfer of value. However, a device can accumulate value without transferring it (for example the money in your account or under your mattress). Furthermore, a device can store value without accumulating it (for example the cash in your pocket). Lastly, a device can also distribute value (in the case of insurance or credit) without value being accumulated in that device. The distribution of value requires the transfer of value as an underlying transaction. It is clear from these four instances that the definition of a financial device centres on the concept of value. The hypothesis is that something will only be a financial device if it can sound in money, that is, if it is fungible. In this way, a personal budget tool would not be a financial device, as it does not relate to something that can be converted into money; buying gold towards meeting a life goal, however, would be a device, as it entails a commodity that can be translated into monetary value. The Merriam-Webster definition of fungible is: "being something (such as money or a commodity) of such a nature that one part or quantity may be replaced by another equal part or quantity in paying a debt or settling an account. Oil, wheat, and lumber are fungible commodities" (https://www.merriam-webster.com/dictionary/fungible).

[3] As these definitions are central to the underlying conceptual framework/theory, this discussion is also included in the framework note titled *Financial service usage: A conceptual model*.

3. Constructing the usage measurement framework

3.1 Objective

Usage MFW objective: To understand the scale and nature of usage in order to inform policies and business models tailored to financial needs.

The measurement objective for measuring usage rather than uptake of financial devices is to understand the scale and nature dimensions of the usage of financial services. The objective for doing so, in turn, is to inform the development of viable policies and business models to deliver financial services that meet the needs of customers, especially low-income customers.

The ability of the usage measurement framework to achieve this objective requires not only measuring the usage of a particular financial device in isolation, but relative to the usage of other devices.

In this regard the framework note *Financial services usage: A conceptual model* suggests three core hypotheses underlying the usage model and measurement, namely:

» **Usage** is necessary for financial inclusion outcomes and impact; uptake alone will not deliver any outcomes or impact unless the person starts to deploy the financial device.
» **Consumers** choose financial services based on their underlying needs.
» **Different financial devices** (payments, savings, credit, insurance), from different types of formal and informal providers, are substitutes or complements in meeting a specific need.

These hypotheses, taken together, suggest that understanding the dynamics of usage requires measuring it within the context of a need and measuring the usage of all the devices, formal and informal, that are being deployed to meet that need. If usage is measured in this manner, **it will provide information that serves a number of policy objectives:**

» Firstly, it will provide an understanding of the underlying **competitive dynamics** within a market by showing relative usage of one instrument compared to another to meet the same need. For example, it may be shown that a certain market segment overwhelmingly uses cash stored at home to meet a liquidity need, rather than a bank or savings account. This will suggest that the cost and convenience of saving at home exceeds the cost and convenience of a formal account. Saving in cash, in turn, will impact the day-to-day payment instruments used by that person or household. Changing this behaviour into a digital equivalent will require the digital alternative to at least meet the cost and convenience of the home-based baseline. If not, forcing digital migration may cause hardship and a reduction in welfare outcomes for the person or household.

» It will also help to **identify market failures.** For example, when a population has many migrating members, domestic or cross-border, yet very few remittances are made using formal devices in contrast to the extensive use of informal devices, the formal market is either not accessible, or fails to meet the need of the target market. Being able to gauge the scope and nature of the usage of informal devices will provide valuable information for the design of formal business models that can meet the need.

» Thus, measurement of the nature and scale of usage can also serve to point out **untapped opportunities** for serving the target market.

» A correct measure of usage can furthermore assist financial supervisors to **monitor the build-up of risk** in the system from both a prudential and market conduct perspective. For example, a comprehensive indicator of the usage of credit can show overuse at household level or the extensive use of credit from unregistered providers. The scale of such usage can suggest both systemic and market conduct risk.

» Finally, good indicators of financial services usage can also **reveal obstacles to national economic growth.** For example, the development of an indicator of aggregate informal credit versus credit extended through the banking system in Myanmar[4], revealed that the value of credit being extended outside the banking sector exceeds the value of credit being extended inside the banking system. The implication was that government-directed intermediation, for example to foster industrial development, would have very little impact until more of the informal credit could be channelled through the supervised banking sector.

The availability of reasonable measures of financial usage can therefore assist policymakers and financial institutions in designing policies and business models better able to meet a country's growth and welfare objectives.

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[4] See the MAP Myanmar report (Chamberlain et al, 2014). Available at http://cenfri.org/making-access-possible/map-myanmar.

3.2 Condition

Condition: The nature and scale of the deployment of a specific financial device, considered across recency[5], frequency, duration and value ascore metrics.

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At its primary level, the measurement of usage is person and device based – measuring the extent and nature of the deployment by a corporate or natural person of a specific financial device. Data collected on such usage can then be aggregated and compared with other data to construct any number of usage indicators, depending on the requirements and context (see next section).

Figure 1 (right) illustrates the conceptual approach to measuring usage. Whereas the financial needs measurement framework measures the first three usage factors in the diagram (which financial devices are used to satisfy which use cases[6] across the four financial needs markets), the usage measurement framework focuses on the last two factors (the scale and nature of the actual deployment of a financial device). Appendix 1 contains the taxonomies for classifying use cases and financial devices, respectively, as also included in the *Financial Needs Measurement Framework* concept note.
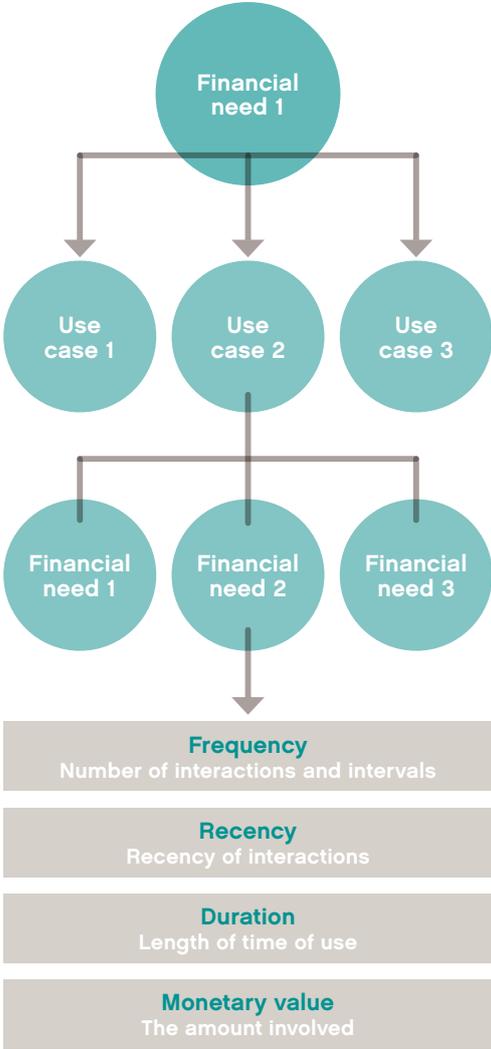
Figure 1.
Conceptual approach to measuring usage
Source: Authors' own

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[5] Recency is defined in the Businessdictionary.com as "measuring the time elapsed since the last purchase was made by a customer".

[6] As defined in the framework note *Financial services usage: A conceptual model,* use cases are the discrete purposes for which financial devices are used. Examples include being able to send money to a relative in another part of the country, being able to pay monthly school fees, being able to purchase enough food, being able to pay for unexpected medical expenses, or being able to save for old age. These use cases profoundly influence the behaviour of financial markets.

The core usage measurement framework is therefore a 3×4 measure.

Three parameters determine the subject of the measurement:

» **A person** – usage is undertaken by a person, be it a natural or a legal person, or acting individually or as a representative for a larger group. Usually, with the exception of own saving at home or in kind, there will also be a counterpart to the engagement – be it a family or community member, an informal provider, a formal institution or a collective mechanism.

» **A financial device** – the usage of a single device is measured.

» **An action or deployment** – for usage to take place, the person must engage with a financial device. Therefore, there needs to be an action[7]. Usage of a single device can entail different types of deployment or action. For example, using a bank account can involve depositing funds, withdrawing funds, transferring funds to another account, using a debit order, etc. Each of these can be measured as discrete incidences of usage.

The usage itself is measured using four metrics, each of which may comprise one or more variables[8]:

» **Recency:** When did the most recent incidence of deploying the device occur. This reflects the current value or lack thereof that the device has for the user and is a core metric for retail products and services.

» **Frequency:** Measures the number of interactions over a defined period and reflects the ongoing usefulness, cost and scope of usage.

» **Monetary value:** Measures the size of deployment in monetary terms and includes both physical money (notes and coins) and electronic value. Different variables will be required to capture monetary value across different financial devices: for example, for a savings device the build-up of value stored will be important to gauge, whereas for a payments device the value of a discrete payment transaction will be relevant.

» **Duration:** The length of time that the person has used the financial device. This may be captured as the term of a product, such as a loan or savings product, or as the persistence of use such as for insurance or payment devices.

The measurement of usage will differ across different financial devices. How one understands, and therefore measures, usage will differ across different financial devices. For example, monetary value would be a relevant variable to measure the usage of credit and insurance devices, but the different nature of these devices would mean that the measure of value of a credit device is the value of the loan, whilst for insurance it may be the size of the insured benefit or the benefit to premium ratio. And a critical variable to measure the usage of a savings device is the length of time of the saving (the duration metric). In contrast, the recency and frequency metrics are more relevant to understand time in the context of a payments device.

3.3 Indicators

Indicators: Current state of usage, aggregate market size, relative use of specific devices and average or median use.

The 3×4 measurement framework set out above, combined with other variables (especially the needs and use case measures), can be used to construct a number of key indicators to achieve the relevant objectives of the usage measurement framework.

These indicators fall into the following generic categories:

» **Current state of usage:** At the most basic level, the usage metrics will reflect the intensity and value of usage of a specific financial device for a particular market or market segment. For example, "60% of rural women over the age of 50 use an over-the-counter bank-based money transfer device at least once a month".

» **Aggregate market size.** The data collected on monetary value per device across a universe of users enables the calculation of an indicator that measures the total size of different markets based on value. These markets can be defined in different ways to explore or illustrate specific patterns of usage and market opportunity. For example, the total value of deposits in financial devices classified as savings devices would indicate the total size of the retail savings market. An indicator could also be constructed that sizes the market for serving a specific use case, for example the total value of devices used to meet a specific use case or the size of the formal versus informal market for meeting a particular use case. So, for example, the indicator may be: "the annual market for receiving cross-border remittances is worth in the order of USD2 billion".

» **Relative use of specific devices.** Collecting data for usage metrics across the different devices enables the calculation of variables that show the relative use of specific devices. Relative usage indicators will usually be more useful than absolute indicators at an individual level, as it provides context. Take a payments device such as cash, for instance. Purely measuring frequency of cash payments made over a given period may provide a misleading indicator of intensity of usage if the total number of payments made over the period using all devices is not considered. For example, two users may make the same number of cash payments over a period, yet for one user their cash transactions may be only a small proportion of their total transactions, whereas the other transacts purely in cash but makes fewer transactions. An absolute indicator would suggest that they make the same use of cash but would not be a true representation of the relative importance of cash in their financial lives.

The same approach can be scaled to the population level to calculate the proportionate use of a given device across an entire group, for example the proportion of total payments in a population made through mobile money, or total usage of formal versus informal devices by value or frequency. Relative use can also be applied to compare devices deployed per use case, for example, "70% of resilience use cases are met through savings or credit, and only 30% through insurance". Another important relative indicator is to compare usage over one period versus another. For example, "30% of accounts were used only once in the past month, but 55% were used at least once over the past three months". Period comparisons of relative usage can also be used to measure the impact of a policy intervention – for example, "the duration of average savings spells in pension funds increased by 15% following the imposition of tax penalties for early withdrawals".

» **Relative use stemming from different drivers.** A usage indicator can also be constructed based on what triggered it initially or continues to drive it (as per the various triggers and drivers set out in: *Financial services usage: A conceptual model.* An important example is whether the trigger for uptake (and, by implication, the driver for continued usage) is compulsory or not. The indicator would then be, for example, "80% of all retail insurance usage in country X is in fact compulsory".

» **Average use.** The mean or median usage by variable is an indicator that provides insight into how different devices are used on average across the population. For instance, the mean or median value of savings in different devices may illustrate how patterns of usage may differ across devices.

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[7] The underlying uptake action can be voluntary or compulsory. The latter can be dictated by contract or by law. If uptake was compulsory, continued use will then also be compulsory.

[8] We distinguish between variables and indicators. A variable is defined by the Oxford dictionary as "An element, feature, or factor that is liable to vary or change." Within the measurement of usage, the variables are therefore those aspects that will be directly measured. Individually, these variables do not provide a sufficiently complete picture of the state or level of usage. Indicators are therefore constructed, using the variables, to provide a measure of the state or level of usage.

3.4 Data

Data: Supply-side data for objective assessment of frequency, recency, duration and value, complemented by demand-side data to understand the mix of devices used – formal and informal – in context.

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» **Supply-side data renders relevant insights.** A first port of call when measuring the nature and scale of usage is supply-side data (notably transaction data collected by financial institutions) to analyse usage patterns among those that are using formal products. Supply-side data enables the four usage metrics of recency, frequency, duration and value to be objectively analysed. The exact variables tracked will differ, depending on the type of financial device on which the data is reported.

» **Picture completed by demand-side survey data.** However, as established in the framework note titled *Financial services usage: A conceptual model*, many people in developing countries primarily use informal and unregulated financial devices. To capture usage of informal financial devices towards a use case, and therefore form a complete understanding of individuals' usage patterns, it will be necessary to overlay supply-side data with demand-side data. For example, if transaction data renders insights on the recency, frequency, duration and value of usage across formal bank accounts, and if a sample of customers can then be drawn on to conduct a demand-side survey, one can place the nature and scale of account usage in perspective relative to the full financial life of those customers also in terms of their cash purchases, payments and savings. If data privacy concerns mean that the same customers cannot be analysed from both angles, demand-side insights on relative use between different types of devices for different use cases can still be compared with formal usage patterns as gauged through supply-side data.

» **Approach to demand-side survey module design.** When designing a demand-side survey module to gauge usage, the point of departure is to gauge discrete use cases witnessed and the range of financial devices deployed towards each use case (classified as per the taxonomy of use cases and devices included in Appendix 1). For each use case and financial device, data can then be collected on the four core usage metrics: recency, frequency, value and duration.

Box 1.
Indicative survey module structure

Table 1 outlines the basic structure of a survey module to provide the baseline information to collect data for usage indicators. The proposed survey module builds upon that developed in the Financial needs measurement framework concept note to collect data on use cases and financial devices deployed towards each use case. After determining the respondent's use cases and financial devices, the survey should probe the relevant usage metrics for each device, as illustrated in the following indicative table. The survey module can be designed to classify answers and draw on standard categories and examples.

Determine use case	Determine financial device	Determine recency of usage	Determine frequency of usage	Determine duration	Determine monetary value
What do you need to do with your money? One question each to gauge various use cases. **For example:**	What financial device(s) do you use, ranked by importance, to do so?	When last did you use this device?	For this device, how many times have you used it in the last <time period>?	For this device, what is the term of your loan or savings? Or: How long have you been contributing to insurance or savings?	For this device, what is the average value of this type of payment; what is the value of your savings, loan, insurance cover or contributions?
I need to pay for my son's wedding.	I save in a safe place at home.	2 days ago.	3 times in the last month.	I've been saving in cash since I started working 10 years ago.	I have more than $100 at home (but not sure of the amount).
	A bank account.	3 weeks ago.	3 deposits in the past year.	I opened the bank account only at the beginning of this year.	I have $50 in the bank.
I need to pay for my business inputs.	Mobile money account. Cash.	This morning for cash, but last week for mobile money.	I make more than 20 cash payments a month. I make fewer than five mobile money payments a month.	This is an ongoing need.	What is the average value of these payments?
I need to support others – knowing that they will support me in turn if something bad happens.	My community of fishermen formed a mutual support group to which I belong.	During our last meeting, a month ago.	Every month.	I've been a member for three years.	I contribute $10 every month.

Table 1. Indicative survey module structure and answers
Source: Authors' own hypothetical examples

Collecting data through demand-side surveys also has drawbacks. In particular, data on value and frequency of usage may be unreliable. Supply-side data is more reliable. However, it does not provide a complete picture of users' financial lives. How various data sources can be combined to generate comprehensive, reliable data requires further investigation. Innovative use of big data, for example, shows that there are other ways than demand-side survey data to collect information on informal financial device usage.

Ensuring data quality. Going forward, i2i's data and measurement teams will cooperate to design and roll out a demand-side survey module to measure use cases and the nature and scale of usage of a mix of devices towards various use cases. The survey module will be created as a public good that can also be applied and improved by others in the financial inclusion community.

Two approaches will be employed to test and improve the reliability of the survey collection methodology:

» **Testing survey questions with a sample of consumers with known usage.** Where usage can be determined from supply-side data for formal devices, the accuracy of survey responses by the same sample to these usage questions provides a test for the accuracy of the survey methodology. This also enables the refinement of questions and questionnaire design.

» **Informing survey design by qualitative research.** Qualitative research entails in-depth discussions where individuals are more likely to elicit accurate usage information across a non-representative sample. Undertaking the survey across the same population that is interviewed qualitatively will similarly enable testing of the accuracy of the survey. Qualitative research is also required upfront before any survey is conducted to understand the country context, social norms and customs likely to shape consumer behaviour, as well as likely front-of-mind needs given the above, and to determine the most commonly used financial devices that will be included in the survey. These insights will then be used to shape the list of use cases and devices probed and the structure and nature of the questions in the survey questionnaire.

CAPI (Computer-assisted personal interviewing) a likely prerequisite.

The proposed survey methodology will require a complex set of routing between questions, as the types of usage questions asked will differ depending on the use case and financial device. This would be highly complex for an enumerator to do manually and would be more likely to lead to unreliable results.

The **proposed survey methodology** will require a **complex set of routing between questions,** as the types of usage questions asked will **differ depending on the use case and financial device.**

4. Conclusion

The need to <mark>move beyond</mark> mere <mark>uptake</mark> measures to capture the <mark>scale of actual usage over time</mark> has been highlighted by a range of stakeholders.

This note offers an approach to measuring the usage of financial devices through four metrics: recency, frequency, duration and value of usage. Using these variables, indicators can be developed that measure usage patterns and provide a measure of the state or level of usage across a population.

To properly gauge the use of financial services by consumers, an understanding of individuals' full financial life or behaviour is required. Supply-side data can offer accurate and objective information on the usage of formal devices, but a demand-side data perspective is required to supplement supply-side data to gain this comprehensive view. To this end, a suggested demand-side survey module is outlined in this note.

Ultimately, the aim of the usage measurement framework is to inform the development of policy interventions and business models that can meet underlying financial needs. Applying the usage measurement framework also allows one to evaluate how effective existing policy interventions and business models are in serving needs. Actual usage towards needs is a more granular and relevant measure of success in meeting public policy objectives than merely measuring uptake of financial services. Thus measuring usage will enable us to better understand, and therefore improve, the ultimate impact of financial services on the welfare of end-consumers.

Appendix 1: Baseline use case and financial device taxonomies for new survey module design

This appendix sets out the principles and approach for classifying use cases and financial devices to inform survey module design and ensure that the desired indicators of financial needs market behaviour can be constructed – as input to the financial needs measurement framework as well as the usage measurement framework:

» The purpose of the use case taxonomy is to provide a method for labelling use cases so that any discrete use cases that may arise can be classified into a generic set of use cases that is mutually exclusive and collectively exhaustive.

» The purpose of the financial device taxonomy is to classify devices into generic categories on which it will be relevant to compare and contrast usage towards each use case from a policymaker and financial service provider perspective.

Use case taxonomy

Point of departure. When starting with a long list of individual use ases (such as "I need to pay for my children's education", "I want to grow my business", "I need to make a contribution if somebody in the community passes away" and "I need to buy groceries") – then what mutually exclusive, collectively exhaustive categories can be specified so that whatever future use cases are identified can be classified into these clusters? And once such categories have been created, how can the use cases be further labelled so that individual use cases can be compared and contrasted on different core features?

Two core filters. The use case taxonomy is designed to answer these two questions. It is built around two levels of use case filters:

1. **Per financial need.** This filter will be applied when constructing the survey module and deciding which particular use cases to include under which financial need category, but will not be explicitly asked in the questionnaire.

2. **Per core feature:** for further filtering of use cases under each need, or across use cases independent of need category.

Use case taxonomy filter 1: Classify the use cases into one of the four core financial needs. The four primary financial needs are classified in terms of either entailing lumpy amounts or 'regular' amounts. Lumpy amounts are regarded as amounts too big to cover out of a household's 'normal' or regular income cycle, and regular amounts, conversely, as amounts that are accommodated in the normal budget cycle of the person or household (rather than regular in the sense of recurring). Financial needs can furthermore be classified in terms of being relatively certain or expected vs uncertain or unpredictable. Thus, asking two questions of any use case (with binary 'yes/no' answers) should always enable the researcher to classify it as one of the four financial needs:

1. **Is it lumpy?**
2. **Is it certain?**

Each pairing of the answers to these two questions classifies the use case into a particular financial need category, as follows:

	Regular	Lumpy
Certain	Transfer of values	Meeting goals
Uncertain	Liquidity	Resilience

Table 2.
Financial needs core classifier matrix
Source: Authors' own

Note that this is merely a heuristic classification. In the first instance, the realities in the local context will determine which use cases are included in which financial need categories.

Some exceptions and further explanations to note:

» In some instances, the need to transfer value can pertain to a lumpy or uncertain expense. On the whole, however, transfer of value refers to the way that you make payments as part of your 'regular', expected receipts and expenses. So transfer of value use cases are about how a person or household gets money in or spends money, rather than in the first instance about how lumpy those payments are.

» Resilience use cases will always be uncertain as well as lumpy. They refer to the ability to cope with the impact of a risk event that has a bigger financial impact than what you can absorb in your "normal" budget cycle. This sets it apart from liquidity use cases, which are more regular. Take the example of funeral expenses. If you know that if somebody in your immediate family dies you will have to pay $1,500 towards the funeral, an amount that you do not simply have at hand, that's clearly a resilience use case for saving, borrowing or insurance. But if somebody in your community dies and you are expected to contribute what you can, or the expected contribution is, say, $50, that's a liquidity use case. Both are uncertain as you were not able to plan for this expense upfront, but in the case of the one, you can cope by making trade-offs in your normal household budget, while in the case of the other that is not possible.

» Liquidity is classified as uncertain to indicate the need that arises to smooth your income when your expenses are higher than planned for or income is lower than planned for (that is, if your budget doesn't balance in a normal income cycle), which then gives rise to a need for a financial service to help smooth consumption or manage business cash flow. So, if household expenses are larger than expected in one month and you cannot meet it from your normal income, it creates a liquidity use case. That use case may relate to the sum of a range of expected, certain expenses, such as paying school fees, paying rent and buying groceries, but the liquidity use case arises relative to your ability to make good on your expenses, which is uncertain.

» Meeting goals use cases are classified as lumpy (something you need to plan for) as well as certain (in the sense that it does not arise because of an unexpected event, but rather relates to life goals or business goals that you work towards).

Once each use case is classified as either one of the four needs, the next step is to filter use cases according to core classifiers to position discrete use cases as 'sub-needs' in each needs category.

Use case taxonomy filter 2: Label the use cases according to core classifiers.

One relevant classifier holds across all four need categories, namely whether the use case is at the individual or household level, or towards a collective purpose or responsibility. In short: do you use a financial device to serve a direct need of your household, or because society expects something of you or you are following social customs or cultural norms?

Note on compulsion versus volition

An important cross-cutting dimension pertaining to usage of financial devices (see the *Usage measurement framework* concept note) is whether usage is compulsory or voluntary. We recognise that compulsion is an important driver of market behaviour and market size and should therefore be reflected in usage indicators. This begs the question: does compulsion come into play as a cross-cutting use case classifier? As use cases deal with the purpose of usage, however, the argument is that the purpose of usage will always be functional, whether actual usage is compulsory or voluntary. For example: should a car owner be required by law to take out compulsory third-party liability insurance, the usage action (as measured through the usage measurement framework) is compulsory as the underlying trigger of uptake and driver of continued use is compulsory. However, the use case (or purpose served) remains functional, namely to protect against the financial impact of a car accident. Thus, compulsion is not used as a use case classifier in this taxonomy.

Then there are a number of classifiers that are relevant for particular need categories:

For Resilience use cases, the most pertinent classifier is whether the use case relates to **things** or to **people**:

» **For things:** are productive or personal assets at stake?
» **For people:** does the use case relate to personal risks in the immediate family that do not entail death (notably health, accident or disability, with separate mention of health); death in the immediate family[9]; or involuntary dislocation?

For Transfer of Value use cases:
» Whether the transfer need is **'in'** or **'out'**.
» Whether the transfer need is **regular**/recurring or **ad hoc**/sporadic.
» Whether the transfer need is **in person**/local (the person who transfers and the person who receives are both physically present at the moment of transfer) or over a **distance** (and if over a distance, whether cross-border or domestic)[10].

For Meeting Goals use cases:
» Is the goal being pursued productive, consumptive or related to a certain life stage.

For Liquidity use cases:
» Is the need to manage liquidity related to a **productive** purpose or for consumption **smoothing.** Note that consumption smoothing as defined here would include use cases related to social obligations. For example, if you are required to make a contribution to a community member who falls ill, the financial need generated for your household budget is one of consumption smoothing.

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[9] Note that contributions following a death in the community would be regarded as a liquidity rather than a resilience need, as it is an unexpected, but not lumpy expense as defined here.
[10] Note that there may also be other classifiers, such as whether it is a requited transfer (the transfer is to satisfy a pre-existing obligation, such as a bill payment) or whether the transfer is unrequited (such as a donation). The relevance of the specific classifiers will be tested in the pilot phase.

**The following diagram illustrates these 'classification pathways':**
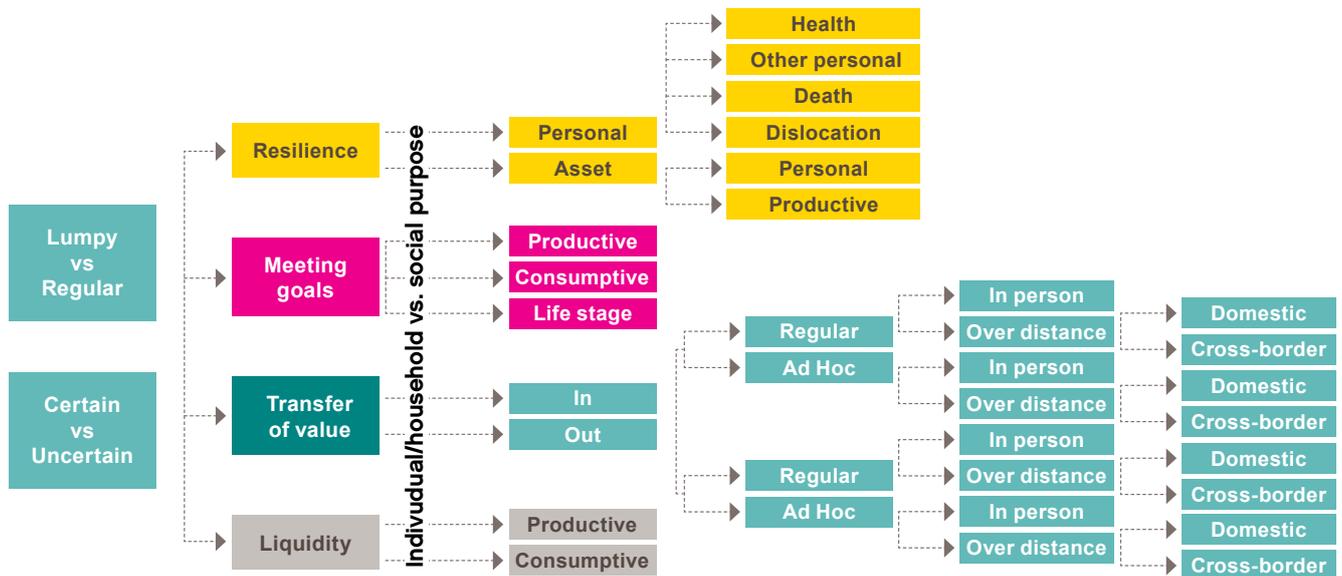
Figure 2.
Use case taxonomy
Source: Authors' own

Generic use cases to be explored in survey module.

When applying the filters as set out above, it renders the following 23 generic use cases:

Resilience
1. Coping with the impact of health risks
2. Coping with the impact of non-health personal risks
3. Coping with death in the family
4. Coping with involuntary disloaction
5. Coping with loss or damage of personal assets
6. Coping with loss or damage of business assets

Meeting goals
7. Productive investment
8. Life stage goal
9. Building comsumptive assets

Transfer of value
10. Regular in-person payments
11. Regular distance payments: domestic
12. Regular distance payments: cross-border
13. Ad hoc in-person payments
14. Ad hoc distance payments: domestic
15. Ad hoc distance payments: cross-border
16. Regular in-person receipts
17. Regular distance receipts: domestic
18. Regular distance receipts: cross-border
19. Ad hoc distance receipts: domestic
20. Ad hoc distance receipts: cross-border
21. Ad hoc in-person receipts

Liquidity
22. Consumption smoothing
23. Business flow management

Figure 3. List of generic use cases
Source: Authors' own, applying the taxonomy

It is important to note that this list is not prescriptive, nor necessarily exhaustive. The taxonomy for classifying use cases is meant as a tool to help navigate the landscape of individual use cases. The exact list of specific use cases under each financial need will need to be determined in the country context when a survey module is designed, informed by qualitative demand-side research and this taxonomy as point of reference. The list indicated above will be tested through i2i and others' measurement exercises and, if need be, will be adapted, expanded or collapsed.

Financial devices taxonomy

Point of departure: mapping the long list of devices. A person can use a variety of financial devices towards each use case. For example, if the use case is to cope with the impact of personal risks, **the list of relevant devices would include:**

» Health insurance policy or hospital plan
» Burial society or another collective support/risk pooling group
» Remittance receipt
» Savings account
» Saving at home in cash
» Saving in kind (such as in gold or in livestock)
» Saving with an ASCA or another collective mechanism
» Relying on community contributions
» Loan from a bank or another formal institution
» Loan from a cooperative or another collective mechanism
» Loan from a family member, friend or others in the community
» Loan from a moneylender or another informal provider

Mapping the universe of discrete financial devices gives a picture of a person's full financial life and what combination of devices – across provider and product types, formal and informal – is used towards each use case (which can then be aggregated at the needs level).

Classification. The next step is to classify the long list of devices into meaningful categories of financial devices so that the discrete devices used by a person towards each use case can be labelled and then compared and contrasted in a way that will render relevant insights for policymakers and financial service providers on the dynamics of financial need markets. This is done through a financial device taxonomy. Categorising financial devices per use case will also form the basis for the usage measurement framework as outlined in the *Usage measurement framework* concept note.

The most often-used device labels relate to (i) the product type (typically payments, savings, credit or insurance) and (ii) the provider type of the device[11].

Product type. While the fundamental premise of the needs measurement framework is that the market for meeting needs is not structured according to traditional product silos, it is nevertheless relevant for policy purposes to compare and contrast usage of devices from different product types towards the same use case. In this way, for example, the measurement exercise may tell policymakers that the market for meeting Resilience needs is served largely by savings or credit devices, thereby indicating a gap or inefficiency in insurance supply. Or if it shows that the market for Meeting Goals is met largely through savings and payments devices, it may indicate that there are barriers in the credit market.

Provider type. The second main device classifier is the nature of the provider. Two main provider categories are relevant:

» **Formal vs informal.** Whether the provider is formal or informal has significant policy relevance: if, for example, most Meeting Goals use cases are served through informal loans or savings, it requires close scrutiny of the accessibility, appropriateness, affordability and attractiveness of formal options[12].

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[11] It is also these two core classifiers that will form the basis of survey module design. If the survey module is able to record a granular enough list of discrete devices used across provider types and product categories, then this list of devices can be labelled ex post into each of the other categories listed here.
[12] Formal, as defined here, draws on the standard World Bank definition as being provided by financial service providers registered with a public authority to provide such services. Note that this measurement framework, and the i2i measurement work more broadly, is agnostic as to whether a device is formal or informal, lawful or unlawful. Rather, its purpose is to understand true market behaviour to make for sustainable policymaking and business models.

Institutional type. Regardless of formal/informal status, it is relevant to know by which type of institution or individual the device is provided. The most relevant categories are whether the device is provided by: (i) a **bank;** (ii) a **non-bank institution** (which can be a corporate, such as a mobile network operator, as well as individual, such as a moneylender); (iii) a **collective** vehicle (such as a cooperative, association, society or club); or (iv) **family and friends** (an umbrella category that also includes individuals within the community, based on reciprocal relationships, rather than providing financial services for profit motives). To this we add (v) **'self-provided'***,* which would apply in the case of devices that are not provided by a third party, such as the proverbial saving under the mattress[13]. Non-bank institutions and collective vehicles can be either formal or informal. Banks are by definition formal, and family and friends and self-provided by definition informal.

Two further classifiers may be relevant for certain categories of devices, namely the type of instrument and the nature of the service relationship:

» **Instrument.** Financial devices take on one of three forms: cash, digital[14] or in-kind (such as saving in livestock or gold). Knowing which instruments are used most towards which use cases can be relevant for both policy and market strategy purposes.

» **Relationship-based or ad hoc.** Lastly, it is relevant to determine whether the device is based on some kind of ongoing or underlying uptake relationship, or whether it is ad hoc. This is what distinguishes an account-based device from an over-the-counter device. Any device that is based or a contractual relationship such as entering into a policy or loan contract would also be considered relationship-based. The same holds for collective or membership-based vehicles. So, for example, a ROSCA entails an informal contractual relationship. However, providing assistance to others in the community is a social obligation which, though based on social relationships, does not entail an underlying 'contractual membership' as defined here and is hence classified as ad hoc.

» For a savings group, you have an informal contractual relationship; to provide assistance to others is a social obligation.

Though there may be a number of further relevant classifiers, such as whether the relationship is long-term or short-term, whether (for credit devices) it is asset-backed or unsecured, whether in the case of insurance devices it is an asset or life insurance device, etc., the classifiers listed above are proposed as particularly relevant for generating generic financial device categories and constructing the corresponding needs and usage indicators.

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[13] Thus, the term institution, as used here, can include formal as well as informal institutions. The term institution is used to denote the presence of a third party, be it an individual such as a moneylender or corporate such as a funeral parlour or MFI. The term institution as used here applies to formal as well as informal providers, and is used to demarcate third-party providers from collective, family and friends or self-provision.
[14] Note that all digital instruments will have some cash 'leg' (for example: money transfer operators or mobile money agents take cash in and pay cash out), but the channel is digital. Also note that payments devices are often used in combination with other devices, to give effect to savings, credit or insurance transactions.

**The following diagram illustrates these 'classification pathways':**
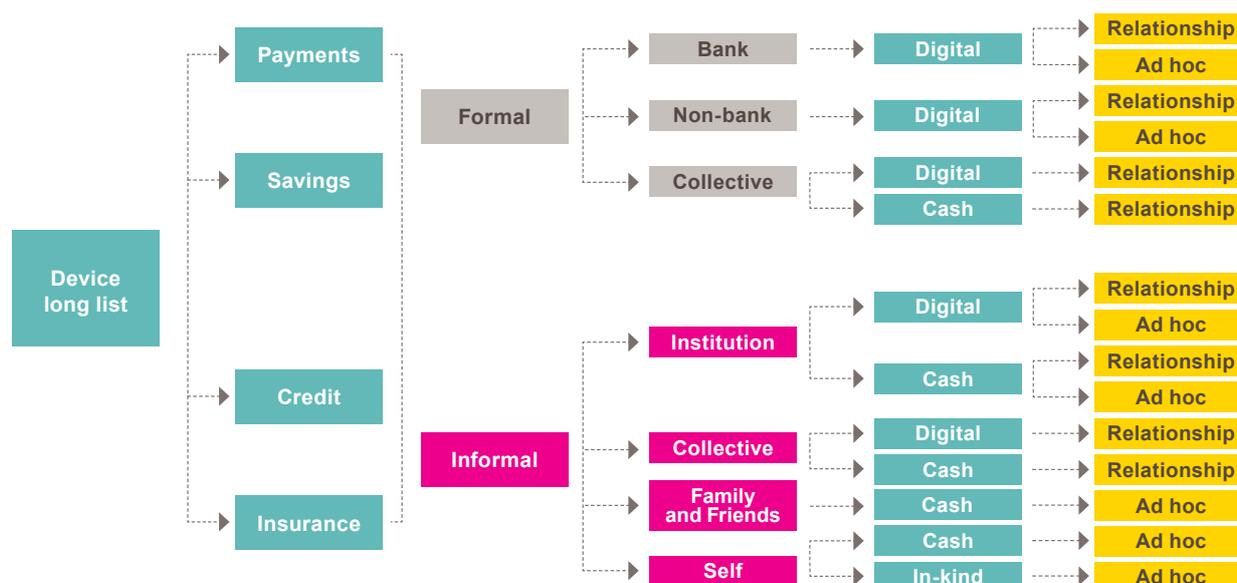
Figure 4. Financial devices taxonomy
Source: Authors' own

Generic financial device categories. Based on this taxonomy, any specific financial device encountered could be classified into the following mutually exclusive categories:

Category:	Examples:
1. Bank-based savings account	Savings account
2. Bank-based credit facility	Credit card
3. Transactional bank account	Bank account
4. Bank-based over-the-counter transactions	Money transfer at a bank
5. Non-bank formal savings	Deposit with a formal deposit-taking MFI
6. Non-bank formal credit	Loan from a formal MFI or mobile money provider
7. Non-bank formal account-based payments device	Mobile money account
8. Non-bank formal ad hoc payments device	Money transfer
9. Formal insurance policy	Life, health or asset insurance policy (from a corporate or mutual insurer)
10. Formal collective savings device	SACCO membership
11. Formal collective loan	SACCO loan
12. Formal collective insurance	Mutual insurance membership
13. Institutionally provided informal credit	Moneylender loan
14. Institutionally provided informal savings	Saving with an informal MFI
15. Institutionally provided informal insurance	Funeral cover from an unregistered funeral parlour (undertaker)
16. Institutionally provided informal payments	Sending money with a hundi or hawala
17. Informal collective credit	VSLA or ASCA loan
18. Informal collective savings	Savings club or ROSCA membership
19. Informal collective risk-pooling	Burial society or community-based health scheme membership
20. Family, friends or reciprocal community-based credit	Loans from friends, family or an employer
21. Family, friends or community-based savings	Savings guard
22. Family, friends or community-based contributions	Collections for emergency expenses such as a funeral/illness
23. Cash remittances	Sending money by bus or with travelling friends
24. Cash payments	Cash purchases
25. Self-facilitated savings	Saving at home or saving in kind

Table 3. Generic list of financial devices
Source: Authors' own

As with the use case taxonomy, this categorisation is indicative only, and the exact classification will be determined by the practicalities of survey questionnaire design and the local context and market realities. The classification pathways and preliminary generic list of devices set out above will be tested and refined through the i2i measurement pilot projects.

Overlaying use cases and devices

The measurement objective is to understand which devices are used to satisfy which use cases. This exercise is likely to render better answers by starting with the use case rather than the devices, since that is how consumer decision-making works.

After identifying which use cases a person has, the next step is to identify the universe of financial devices used by that person towards each use case, that is to match the list of possible devices as per the generic categories above to discrete use cases.

This is tricky, since people often do not use the device for its ostensible purpose (consider the phenomenon often found in MAP diagnostics whereby mobile money accounts are used as a store of value rather than for transacting). Thus, it is best not to decide *a priori* which devices serve which use cases, but to source consumer feedback on actual device usage towards various use cases. It will be important to verify the devices encountered from supply-side data, or by cross-checks inserted in another place in the questionnaire.

The financial device taxonomy allows the longlist of devices tracked through the survey to be labelled and retrofitted into the taxonomy categories for analytical purposes.

Evolving the taxonomies

Based on the classification system as set out above, and drawing on MAP and Financial Diaries research[15] in a number of countries for examples of on-the-ground use cases and devices, we have developed longlists of use case and financial devices, respectively, and have labelled and classified these into the generic use case and financial device categories as set out above. These taxonomies, which are contained in a separate Excel workbook that will be made available on www.i2ifacility.org, classify the known universe of use cases and financial devices. This is intended as an evolving database, rather than a definitive list. Any contributions or suggestions are welcome.

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[15] The MAP demand-side research has been conducted in 10 countries to date. As an example of financial diaries findings, see Zollman (2014) which contains the financial diaries findings for Kenya.

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