

Customer Journey Framework

Adam Wills – GSMA, Mobile for Development Impact September 2015



Introduction

Background to the framework

A missed opportunity

Our earlier publication <u>Getting the most of your data in M4D</u> identified that mobile service usage data is largely a "missed opportunity" across the Mobile for Development sector and that more can – and should – be done to support organisations make greater value of their existing data.

A framework to address the need

In particular, we found that a significant number of organisations across the sector lacked appropriate tools, frameworks and approaches to dealing with such data – this framework is designed in response to this need.

What are the primary barriers to using your existing service data for deeper analysis?

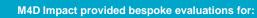


Three service examples

Concepts grounded in real examples This framework references work from 3 recent service evaluations in order to provide concrete examples. The services made reference to are:

HNI - offers public service information via Airtel 3-2-1 on a range of topics such as health, agriculture and gender in the local language via IVR, SMS & USSD

ACRE Africa – offers microinsurance, using SMS and mobile money, where the insurance premium is paid on behalf of the farmer by a seed company as part of the purchase of a packet of seeds NextDrop - offers water supply timing information to urban citizens in India, using SMS & IVR over basic phones, as well as aggregating water service information from 'valvemen' using IVR & smarthoones





Human Network International



ACRE Africa



NextDrop



Objectives of the Framework

What we will cover...

An approach to assessing operations

Helping managers understand their service performance to a greater level of depth

Using existing operational service data

Understanding mobile usage data's potential value in driving new operational insights

Identifying barriers to service success

Generated through associated analysis that identifies areas of focus to unblock barriers to success

Target audience: Those managing delivery of mobile services targeting underserved populations

What we won't cover...

A one-size fits all customer journey

A one size fits all approach doesn't exist It's more important to think about 'what to measure' in each case

In depth examples of particular analyses

Analytical approaches vary case-by-case (e.g. based on delivery technology)

It's more important to grasp the overall approach, then investigate details of running analysis when a need is clear

Prescription of which analysis tools to use

We advise on open-source and freely available tools (e.g. iPython)

Organisations invest in different tools & skillsets & need to adapt them across frameworks

Flexibility is key: This approach is designed to be flexible across deployments in different sectors, accounting for differences in business model and service designs



Elements of the framework

Our approach to conducting evaluations that support M4D services

M4D Impact's approach

This document outlines M4D Impact's approach to mobile service evaluations, built from our knowledge of conducting evaluations with a diverse range of mobile products aimed at low income populations in developing markets

From raw mobile usage data

Our approach makes use of the raw mobile usage data that these mobile service providers have access to, but are often unable to extract the full value from

Using customercentric methods The approach also draws on customer-centric qualitative research techniques coupled with data analytics on mobile usage data, linking findings with behavioral drivers

Driven by business needs

Most importantly, the approach is driven by the business needs of the product, linked to clear commercial and social success factors. Recommendations are given in the context of a rich understanding of the business model underlying the product

In 9 sequential steps

- 1 Establishing a plan of action
- 2 Mapping out the business model
- 3 Setting Commercial/Social Objectives
- 4 Assessing available data sources
- 5 Constructing the Customer Journey
- 6 Using data analytics to identify bottlenecks
- 7 Developing qualitative research briefs
- 8 Analysing and presenting results
- 9 Monitoring, implementing & evaluating



Establishing a plan of action

High Level Work Plan

Start with a plan of action, appropriate resourcing and expertise

Follow the high level plan

The high level plan on the right outlines the basic approach we took to running different evaluations, it can be adapted across different cases

Key milestones

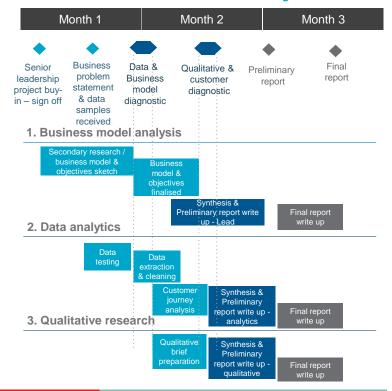
Key milestones include project buy-in and secondary research, running in-depth diagnostics, and delivering the reports back to business decision makers

3 areas of expertise

We recommend a team with three areas of expertise:

- Business model analysis / strategy
- •Data analytics with database & large dataset analysis experience
- Qualitative research with ethnographic/ Human Centered Design (HCD) experience

Note: The timeline for turning around a project is variable between 2 – 3 months



Note: The plan assumes report output is equivalent to 'full report' as for HNI, and that this is not the team's only area of focus.



Example: Planning two in-market visits with ACRE Africa

Diagnostic & Qualitative engagements are both key components

OCTE AFRICA

Data & business model

- We created a plan in advance with the ACRE Africa team: interviewed marketing, product, and other team leads, the mobile operator and seed company to investigate the agriculture insurance product
- This and early data analysis clarified that driving registration at points of distribution was critical to investigate

Clarify objectives with ACRE Africa team

Deep dive on all aspects of business model

Interview all key partners

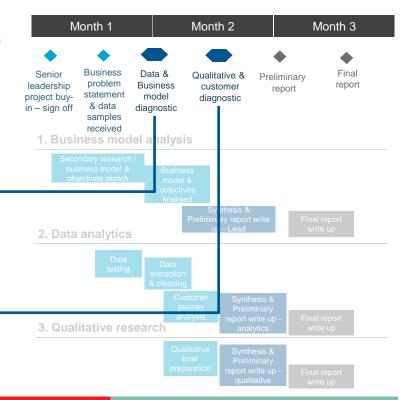
Extract all data / preliminary analysis

Qualitative Research & Customer Insights

- A bespoke research engagement focused on a key distribution point, and the interaction between farmers and agricultural merchants during the sale of a packet of
- This assessed behavior and attitudes that might limit farmer registrations, and opportunities for driving greater future registrations

Investigate



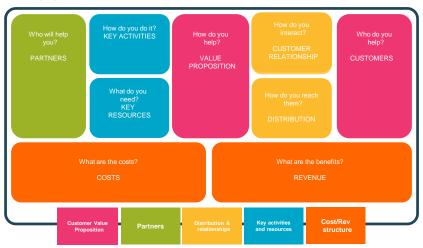




Mapping out the business model

Service business model must be broken down into components

- We suggest using the business model canvas below as a way to break down and investigate the mobile service
- Models vary widely in the M4D space, and without specific understanding of the structure, evaluations will risk leaning on false assumptions about how the service works



'Mobile' components exhibit common business model patterns

 There are some common features across mobile service models, especially when considering distribution, customer relationships, and benefits (e.g. considered from the mobile operator perspective)







NextDrop, a story of three customers and three models

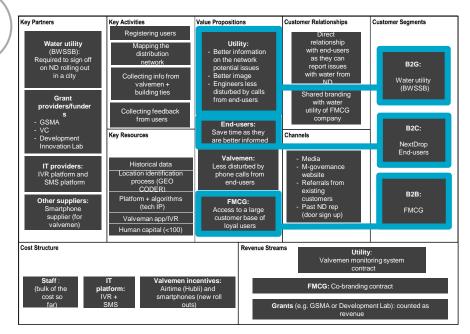
Services and their history are not as simple as expected on first glance



- NextDrop offer water supply timing information to urban citizens in India. While the value proposition sounds simple, their business model has pivoted multiple times
- The initial model was Business to Customer (B2C), but it was too hard to balance the cost/revenue equation with monthly subscription fees from end-users
- The model then pivoted to Business to government (B2G), where the water utility (government led) pay for an employee monitoring system to better monitor their network
- The model pivoted yet again, when an Fast-Moving Consumer Goods (FMCG) company showed interest to access the large base of users, offering a Business to Business (B2B) sponsorship model

Lesson:

- -Don't leave any rock un-turned, the model will be more complex than you expect
- -Few models in this space are mature enough to straightforwardly replicate, so **don't blindly assume similarity**





Setting Commercial & Social Objectives

Identify central commercial and social objectives before anything else

- In conjunction with understanding the business model the headline social and commercial objectives for the mobile product must be clearly and unambiguously defined
- This process should be conducted in close discussion with employees who have a deep understanding of the product in order to ensure the right metrics are isolated

Optimise what?

Commercial Value

Social Value

Break down the business using a pyramid approach around key levers

- Then break the logical dependencies for achieving these commercial and social objectives down into mutually exclusive and collectively exhaustive factors
- These sub-factors should be sufficiently granular & measureable, e.g. number of users registered, or value of transactions paid by brokers to farmers in value chain
- By examining relationships in the system, levers for creating the desired value can be better identified





Breaking down an agricultural micro-insurance product: it's all about registration

Driving registrations is key across both commercial and social dimensions



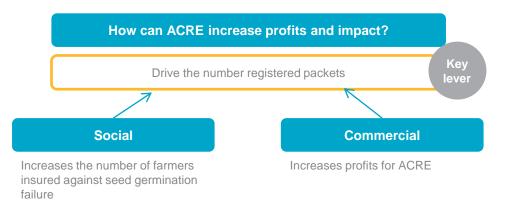
- ACRE Africa offers micro-insurance where the insurance premium is paid on behalf of the farmer by a seed company as part of the purchase of a packet of seeds. The farmer simply needs to register by sending an SMS with a unique code at the point of planting, and is insured against the circumstance of no rainfall inside a defined planting window.
- The commercial value is straightforwardly tied to profits, while the social value is tied to the number of farmers who have increased mitigation against lack of rainfall. Both factors increase with farmer registrations: increasing the number of farmers insured & increasing profits since costs are fixed with a fixed average premium revenue associated with each packet registered.

Lesson:

- Keep it simple, you need to be clear about the commercial/social objectives and what you're optimising
- Don't try to measure more than a few key things at first



= # registered packets * XX% of average premium – overheads (fixed)





Assessing available data sources

Different service models and delivery channels will create different 'data opportunities'

Feasibility

With objectives established the feasibility of what can be done with the data must be assessed. For mobile services that have gone live and have customers, we look for a record of all customer transactions, i.e. a 'free record' of behavior.

Technology / service type

This record will naturally differ across delivery technologies and service types. For example the data records will be different across IVR. USSD. SMS & Data/Web, as well as between mobile money and information services

Different data sources

Generally data is available from different sources. check service line agreements with providers, e.g. platform vendors or operators if in direct partnership

Note: for another example considering mobile money transaction data see the technical notes from the GSMA's Mobile Money team, available on request

Run early tests with available data to assess what behavior can be analysed

Start with raw transaction logs

Generally raw transaction logs will look something like the simplified, dummy example below. Logs record unique customer identifiers, timestamps, and actions

Sessions are unique, the same user can have multiple sessions

User IDs (scrambled) can generally be linked to mobile numbers

The exact time the customer dials the service (e.g. IVR/USSD) given

The exact time the user made a choice (e.g. information, or to send money)

The choice made. which may require another table to decipher (e.g. 1 = health info)

Session ID	User ID	Call Time	Choice Time	Choice ID	
1	71beb	01/10/14 00:15			
2	c5717	01/10/14 03:30	01/10/14 04:56	1	
3	c5717	02/10/14 00:15	02/10/14 00:44	15	

Then assess feasible analysis

Once the meaning of fields and supplementary data is given, discussions can begin on what is possible to analyse

E.g. In the above, we can segment the user base by how many registered users accessed the service last month, how many 'made a choice' and how many accessed & made a choice more than XX times - the decision about whether such a segmentation is valuable depends on the previous exercises with business model and commercial/social objective mapping.



Examining what's possible with IVR data – a refined notion of 'active' use

IVR data is readily available HNI, but which success metrics are possible to distill from the data?

The dummy snippet on the right shows the transaction log of an IVR table. It shows 3 unique users, making choices (or not) to access information from menus and then individual messages (choice ID) on an IVR system.

A basic calculation to understand valuable user behavior is 'active use', e.g. has the user dialed the service in the last month? 3/3 users would be active on this definition in our example — but can we do better?

More nuanced behaviors can be looked at with the data:

Frequency

Have users called in multiple times?

Note: 2/3 users dialed in multiple times in our example

Diversity

Have the users looked at multiple content areas or just one Note: 0/3 users looked at multiple content areas in our example

Engagement

Have the users listened to messages in full or not? Note: 1/3 users have listened to a message in full in our example

In HNI's case, listening to messages in full (engagement) is a logical precondition of social behaviour change, and since the commercial value was seen to be based on indirect revenue benefits to the operator, engagement was also a good fit for tracking commercial value



Check your data is clean: in another service example it was discovered that timestamps for the same event differed across datasets – the most basic issue can lose you a week if you don't spend enough time to understand the data first



3 unique users in this snippet of the transaction record (IDs scrambled, not MSISDNs) Choices are empty where the user doesn't pass the home menu, leaving null values

Session ID	User ID	Call Time*	Choice Time	Choice ID	Duration of call after choice (sec)**
1	71beb	01/10/14 00:15	K	V	
2	c5717	01/10/14 00:15	01/10/14 00:44	1	11
3	c5717	01/10/14 03:30	01/10/14 04:56	1	32
4	d0fc5	01/10/14 03:34			
5	71beb	02/10/14 00:15	02/10/14 00:44	13	20

^{*} a user doesn't access content by just dialing in, they must first make a choice to listen to content

** a user must listen for >30 seconds to listen to a message "in full"

Lesson: Make sure you look at the fields and experiment, this is critical in understanding what customer segments will be feasible to construct with the data



Constructing the customer journey

Data is a key dependency, and unique service designs must be factored

The Customer **Journey**

The customer journey is a set of events that define key experiences in the life cycles of customers. Customers will progress through such a journey in their evolving use of a service. The aim is to have them gravitate towards an ideal use case. Data can be used to quantify how many customers sit at different points of the journey

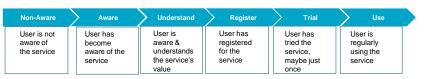
The data constraint

Assessing available data sources provides a natural constraint on what journey segments can and cannot be described (e.g. SMS is limited, IVR is much better since more customer behavior is visible in service usage logs)

Unique service features Also consider the unique features of a particular service that may be important to include in the journey - e.g. a pre-registration phase or a posttrial phase

Use a basic model to start – but tailor to fit your service

The journey below is a useful basic model to start thinking about the customer's journey from a state of low awareness to regular use of a product - it can and should be adapted to fit different service models



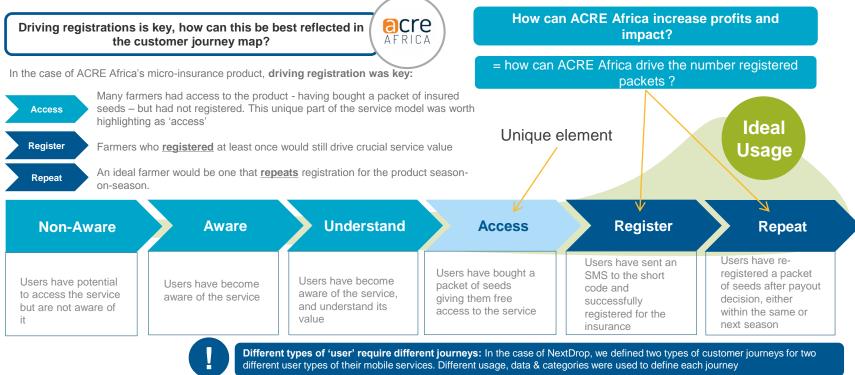
Tailoring to fit

With the data constraint & unique service features in mind. the most appropriate customer journey segments must be identified - the key is that later stages of the journey correspond with the kind of value that the service is aiming to create, which depends on the social and commercial objectives outlined beforehand





Example: Segmentation of customers who register and have repeat use of the insurance

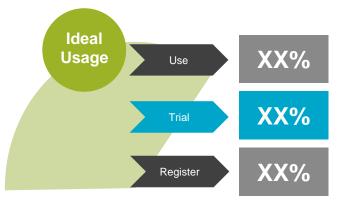




Using data analytics to identify bottlenecks

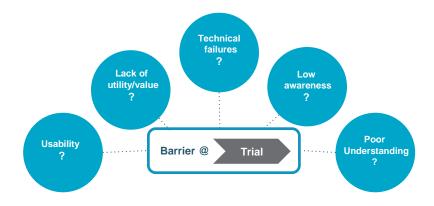
Use the customer journey framework to show where use is being obstructed

- The customer journey framework (constructed at the previous stage) coupled with data analytics can be used to quantify the percentage of the entire customer base falling in specific segments - e.g. % of base not going past trial stage
- This will create a data-driven view of where users are 'stuck on a journey toward ideal use' – use this view to address the biggest bottlenecks to 'ideal use'



Establish hypotheses around what causes each bottleneck

- With a priority bottleneck in mind, brainstorm hypotheses around what could be causing customers to get stuck at this stage
- For example, suppose 'trial' was the main bottleneck, is this due to usability issues, understanding the service, or something else? These hypotheses are critical to inform the qualitative briefs that deep dive on customer's behavioral and attitudinal drivers





Understanding where usage falls off – the home menu problem

For HNI, the cursory segment was 'stuck at home'

For HNI's information service in Madagascar a customer journey included the following categories:

- •Cursory user calls the IVR menu, but never listens to a final message
- •Occasional called <5 times & accessed at least one message
- •Repeat called >=5 times & accessed at least one message

45% of the user base are in the cursory segment and 84% of that segment exit at the home menu. **Why?** Some early hypotheses might be:

Home menu too long

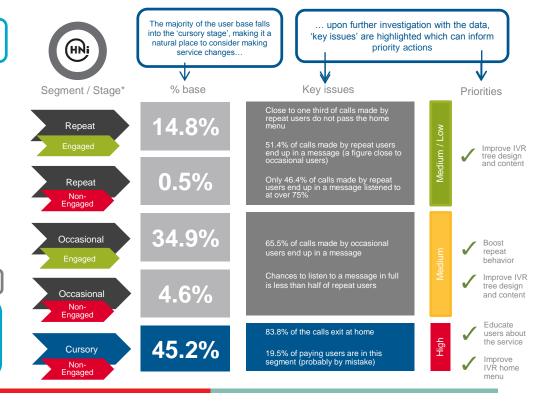
Voice is not appealing

User dials wrong number

End-user research can help confirm/refute hypotheses

Lesson:

- -Oftentimes the biggest bottleneck segment and the key issue within it is identifiable from the analytics
- -Good segmentation and data analytics should make the priority issue much clearer





Methodology notes: Use open source free analysis tools until more advanced tools are required

The tools used for analytics will vary across organisations, but freely available tools are powerful

Free & powerful tools

Powerful and freely available tools to conduct a customer journey analysis on large data sets are available e.g., **iPython**, **R**

Strong online communities

A strong community of practitioners for such tools exist, with a **multitude of tutorials & material online** to support those willing to invest in learning more advanced analytical toolsets

We chose iPython

All analysis conducted for examples in this toolkit used iPython, the advantage of this approach is that well-documented python code in 'notebooks' can be effectively passed between individuals across teams/organistions

Each must choose their approach

More advanced tools may be required later on, but investments in new team skillets/ software must be considered with a long term view in mind*

Useful Links:

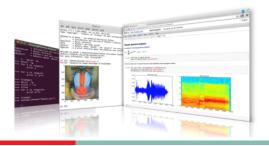
- Python basics (review Gilles)
- IPython intro (review Gilles)
- Review of analytical tools (ensure iPython, R included, preferably with others like Tableau)

IP [y]: IPython
Interactive Computing

Install Docs Videos News Cite Sponsors Donate

IPython provides a rich architecture for interactive computing with:

- Powerful interactive shells (terminal and <u>Qt-based</u>).
- A browser-based <u>notebook</u> with support for code, rich text, mathematical expressions, inline plots and other rich media.
- Support for interactive data visualization and use of <u>GUI</u> toolkits.
- Flexible, embeddable interpreters to load into your own projects.
- Easy to use, high performance tools for parallel computing.





Developing qualitative research briefs from bottlenecks identified

Appreciate the limitations of data analytics, qualitative work can add critical insights

Limits of data analytics

- Data analytics are good for seeing trends and correlations, but not the causal factors that underlie them
- Good at enabling segmentation of the entire user base, but not at getting a rich picture of typical individuals in different segments

Need for qualitative research

- Understand thought processes/motivations underpinning an individual's relationship with the wider world - behavioural
- Understanding how people's behaviour and attitudes are situated in the wider world anthropological

Across a range of techniques Examples of techniques that can be applied:









workshops

Deep dive on more granular journeys and behaviors/attitudes that have no digital trace

Create a brief with a qualitative research team that **investigates kev** barriers and opportunities for overcoming the bottleneck identified through customer journey data analytics - different problems call for different techniques, so choose the method that fits best:

Community immersions/ intercepts

Ethnography

Deep-dive into

needs, attitudes and

detailed behaviours

of subject matter

Depth interviews

Shorter, more

individual sessions

structured

Focus groups or workshops

Flexible/ wide-angled/ in-context

Structured topics/solution focused

Flexible. respondent-led

Broad community /context focus

> Valuable where little is known about subject matter and community

> > dynamics are

desired

Valuable for observing

behaviour in

action and

understanding

the role of context

Valuable where research objectives are more focused. less exploratory vet depth is also desirable

Shorter, more structured group sessions

Congruent sample

Valuable for focused solution testing and structured idea generation, with groups of people who share similar characteristics



Ethnography at the point of sale

What happens between the merchant and farmer during the sale of a packet of seeds?

What could drive more uptake?

Registration was identified through data analytics as the key barrier to adoption for ACRE Africa's micro-insurance product, but questions remained about what was driving the low uptake

A qualitative brief scoped In response, a qualitative scope of work that focused on barriers and opportunities to driving uptake of the service was created. In particular, it included examination of 'agrovets' – local merchants who sell seeds and other farming inputs to small-holders

Immersion at points of sale

3 x distribution points Observation & Intercept interviews

Ethnographic depths

6 x half-day farm visits

Depths with agrovets

arrica

3 x extended depth interviews with agrovets

A qualitative brief scoped Findings at the 'purchase' stage of a farmers' seed journey (shown on the right) showed that agrovets had no incentive to make farmers aware of the product, and both farmers and agrovets were concerned with seed authenticity which potentially confused or detracted from the micro-insurance value proposition. The lack of incentives and the authenticity concern are barriers and opportunities to driving greater product registration

Re-purchase The farmer re-

purchases a packet of seeds of same brand after positive product experience

the insurance service

WHOLESALE & RETAIL

Purchase The farmer buys

Pre-purchase

The farmer hears about

the relevant seeds and

The farmer buys a packet(s) of seeds from their local agrovet

No incentive

Seed

authenticity

concern

Register

The farmer registers by sending SMS to a short code at time of planting

Replanting
If there is no rain, the farmer is paid in time

with mobile money to buy new seeds and replant

Barrier at

Registration



Analysing and presenting results

Pull together findings across all aspects of the project

Keep commercial and social objectives top of mind

Use analytics to clarify pain points

Target the business model

Provide qualitative evidence

Measureable outcomes for actions

When presenting results, the social and commercial objectives established at the project outset should be of central focus – how do recommendations support social/commercial goals?

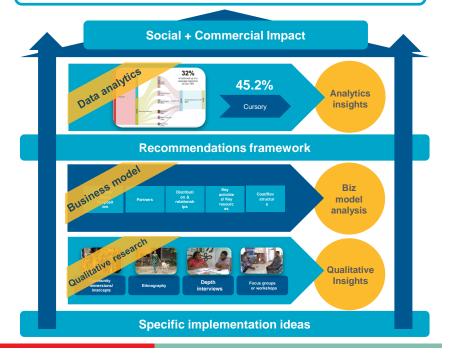
Customer journey analysis establishes barriers to ideal usage, it should be used to quantify where customer engagement is lost – what are the most significant bottlenecks?

Recommendations must be linked to changes to the product or wider business model – what is the weakest areas of the business model to focus on?

Qualitative research should provide an evidence base from which implementation actions are inspired – what are the key insights that support recommendations?

Actions proposed should have expected outcomes that can be linked to impact on social/commercial objectives stated – how can recommendations be made accountable through remeasurement?

Present these as part of a larger framework of actionable recommendations





Reviewing valvemen incentives to drive

active usage

One key recommendation area for NextDrop put valvemen in focus

NextDrop have to capture high quality data from valvemen who enter information over the phone as they patrol the city, manually opening and closing valves which control the water supply to citizens - how can NextDrop drive more quality (active) valvemen usage of the mobile service?

Objective Active valvemen The earlier phase of the project determined that NextDrop needed to drive more registered end users. end user feedback, and active valvemen usage to drive social & commercial impact

Recommendatio n Valvemen incentive

Recommendations were delivered as part of a full package. Dealing with valvemen incentives was one area of focus. Using data analytics a clear benchmark for improvement was established - 9% of the registered base were exhibiting the ideal 'consistent' use

Detailed Actions Across valvemen usability / utility

Qualitative work showed that any mobile solution must meet kev valvemen usability/utility criteria. With the kev objective of driving more valvemen usage, implementation ideas were sketched with the usability criteria in mind and the benchmark of improving against the 9% consistent user ratio.

Next Drop

Social + Commercial Impact

= How can NextDrop drive more registered end users? More end user feedback? And more active valvemen usage?





SMARTPHONE APP

How can NextDrop make changes to improve against valvemen requirements?

- Must fit with the routine - i.e., not take too much time
- Must be practical i.e. not risk damage during mucky work
- Must be risk free i.e. not expose them to abuse/ phone

reduce complaints

- Must help 'deflect V4 customer complaints-i.e.

Conduct user testing in 'mucky environments' with valvemen

Ensure they have sufficient data & battery to use and mitigate against

Provide a protective hull with the smartphone to avoid it being damaged

scenarios in which these are depleted (e.g. provide top-ups at beginning of

- Have phone heavily branded to reduce risk of stealing

Show them that it will eventually help them to save time

routine, limit data use, instruct on phone charging practices)

- Create casing to **conceal phone** in everyday use as much as possible
- Direct users calling valvemen to NextDrop (e.g. an automatic message sent) to reduce harassment
- Consider social incentives (e.g. valveman of the month highlighted on utility website and by SMS to the residents of the area)



Monitoring, implementing & evaluating

The approach is most effective when repeated, not just as one-off analysis

Measurement approach

By framing recommendations to service providers using the data-driven baseline of the customer journey there automatically is a future measurement approach

Controlled experiments

controlled experiments with expected outcomes on the quality of the user base, translated into indicators on the customer journey – e.g. expect a XX% reduction in users stuck at trial stage (note: using ratios is better than aggregate numbers)

Changes to the service can be conducted as

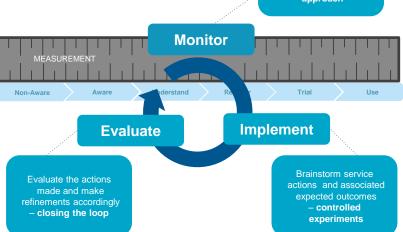
Create cyclic evaluation

With these indicators as 'lines in the sand' implementation changes can be evaluated by reanalysing recent service data logs. By determining how effective changes have been against expected outcomes new actions can be refined

Use the customer journey across each stage of an ongoing cycle

The customer journey developed for the service can impact all stages of the cycle from constant monitoring, implementing and evaluating actions made on the service

Use the customer journey to monitor the service at a more granular level - measurement approach





Following up with all 3 service provider examples



Monitor

Changing key monitoring KPIs

From users to engagement

Enhancing

business

intelligence

HNI changed the way they monitored service performance, measuring the number of engaged users listening to messages in full as opposed to user numbers alone— a much better fit with their stated success metrics

In addition, they used the **Sankey** representation of the customer engagement journey (shown right) to monitor the performance of the service over time

On review of the recommendations, ACRE Africa planned tests with multiple registration card designs to determine which would drive the strongest registration uptake by communicating the right value proposition

Similar implementation experiments were planned for the **distribution channel**, incentivising agrovets with airtime to drive farmer registrations of the product

NextDrop responded to recommendations to remove the consent barrier entirely, while reframing the messaging to share 'water status updates' to get users more involved

They saw sizeable increase in the amount of feedback users gave in just a few weeks, providing a boost in one of the success metrics identified for the service

Implement

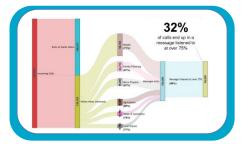
Making business model changes

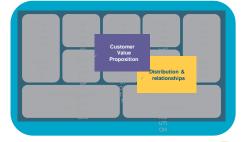
Changes to the registration card

Incentivising the distribution channel

Removing unnecessary consent & reframing

To see strong user feedback







Evaluate

Seeing uplift in end-user feedback



What other elements would you like us to add?

This toolkit outlines our 9-step approach how would you like to see us build on it?

9 step approach This toolkit provides a holistic overview of our approach – in 9 succinct steps – in conducting customer journey evaluations across a range of diverse mobile service types with existing mobile service data – all with a common theme of trying to achieve commercial and social impact in developing markets

... which could be added to

We hope the approach is valuable to individuals across a wide range of organisations in the Mobile for Development space in thinking about how to make better use of their data, but realise that some may want more detail, in which case **please get in touch**

If there are any elements you would like to see added to this framework

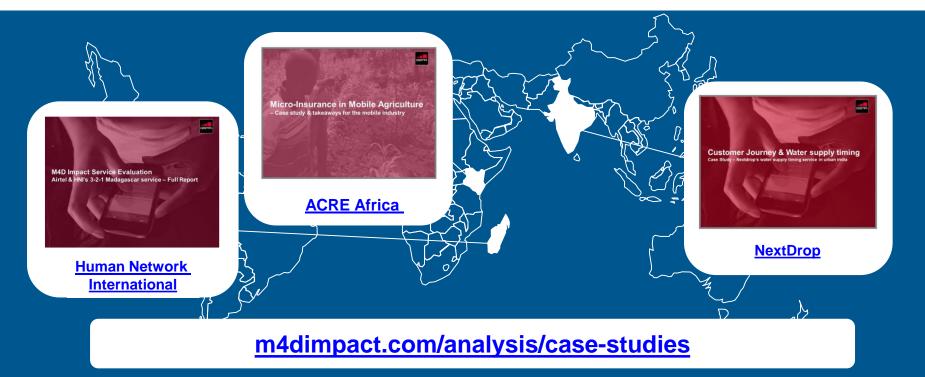
Please email m4dlmpact@gsma.com



- 1 Establishing a plan of action
- 2 Mapping out the business model
- 3 Setting Commercial/Social Objectives
- 4 Assessing available data sources
- 5 Constructing the Customer Journey
- 6 Using data analytics to identify bottlenecks
- 7 Developing qualitative research briefs
- 8 Analysing and presenting results
- 9 Monitoring, implementing & evaluating



Read our evaluation case studies





Read our Appendix for More Information



http://www.m4dimpact.com/analysis/insights









Supported by:







BILL & MELINDA

GATES foundation

Contacts

Mobile for Development Impact m4dimpact@gsma.com











