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Research Protocol

Protocol for Impact Assessment of Triggerise's Tiko Platform

(Delhi, UP and Rajasthan)

Impact Evaluation
Monitoring& Evaluation Systems
Socio-Market, Economics and Policy Research
Policy and Program Design
Training and Capacity Building

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Contents

1 Introduction

1.1 Background

Triggerise has designed a web and phone based platform Named 'Tiko Explore' to digitally empower young girls and women in lower-income groups at scale, and connect them to the products, services and information that will improve their health and wellbeing, supporting local economies and building private sector service provider networks in the process. Triggerise employs a digital platform that connects consumers to health clinics, pharmacies, mobilizers and local small businesses—giving them both the power to access health information and services on their own terms. Building on these relationships, the platform uses principles of behaviour economics to motivate consumers to make positive choices—by providing incentives and discounts, rewarding continued use of products etc.

Employing tried and tested marketing principles - including rewards, promotions, discounts, coupons, reminders, alerts etc., the platform has encouraged over 85,000 young women Rajasthan, Uttar Pradesh and Delhi to take up almost 150,000 sexual, reproductive and maternal health services. By linking the demand and supply sides of the market, our platform grows Sexual Reproductive Health (SRH) and maternal and child health (MCH) demand while enhancing user choice.

Example of (SRH) services and products include: (a) contraceptives such as OTC pills, condoms, diaphragm, etc; (b) family planning services such as medical counselling, IUD insertion/removal, etc; and (c) hygiene products such as sanitary pads. Example of MCH) services include: (a) linking with medical professionals/gynaecologists for ANC check-up, laboratory testing; (b) linking to pharmacy for IFA and other supplements as prescribed by doctors; and (c) OTC products for mother and children from pharmacy.

The users use Tiko card to get substantial discounts as well as earn 'Tiko miles' which are redeemable as payment towards above products. The Pro agent is also allowed to buy hygiene products at bulk and at heavy discounts and sell them to beneficiaries. More information about the Tiko Platform (the intervention or the programme) is given in **Annexure 4**.

1.2 Research objective

Triggerise has commissioned an independent impact assessment of the platform to understand what values and benefits are derived at the end user level – both health impacts at the beneficiary level and economic impact at the 'agent' level who is responsible to onboard the beneficiary on the platform and link them with services. The study also aims to gain insights on the merits of the various platform features and their efficacy. Triggerise expects the research organization to publish the findings of the study in an international journal.

1.3 Key Research Questions

Key questions include, but are not limited, to the following for beneficiaries of the Toko platform – women who use SRH and MCH products and services.

1. Health Impact and users perception

- Do users take up SRH and maternal health products and services because of our innovation or regardless of it? (In other words, are we stimulating new SRH users or are the members previously active SHR clients?)
- When they first enrolled in the program, were they using contraceptives or are their first-time users? Did the platform make it easier for them? How? What other benefit appeal? If they were switchers, what were the motivators to switch from their previous source of health services to ours?
- How often did they use the platform? If they were repeat users, what was their motivation to come back to the platform? If they were only one time users, why did they not come back?
- Does the Tiko digital platform increase consistent use of short-term contraceptive methods? Why or why not?
- Does the Tiko digital platform increase consistent MNCH behaviours? Why or why not?
- What did they like about the platform and the experience? What barriers did it solve for them? Will they use it again? Will they recommend their friends to use?
- Why did they choose Tiko platform? What would they have done if it were not available as an option?
- What perception or behaviour shifts have our intervention been able to address around stigma, access, privacy, dignity/respect, willingness to pay, etc?

2. Cost per user/health uptake and benchmarking

- How cost effective is our innovation compared with other projects focused on SRH and MNCH service uptake in India, particularly in the private sector?
- Impact of our services in terms of DALYs, CYPS, pregnancies averted using exiting data and models such as IMPACT and LIST2.

2 Research Methods

2.1 Overview of methods

This evaluation will be a mixed methods observational design with mainly descriptive and exploratory analysis. The desk research will review documents, secondary data public available (such as NFHS), and any App background data (deidentified) to better understand the programme.

This is followed by qualitative surveys for which 40 in-depth interviews of various beneficiaries and programme stakeholders (demand creators, service providers, lifestyle partners) will be conducted in person or over phone.

Depending on the insights, we will develop a structured quantitative questionnaire and administer the in-person survey to approx. 480 beneficiaries of SRH and MCH services (total). These surveys will seek information on knowledge, practices, barriers, enablers for SRH and MCH services, exposure o Tiko platform, and how it helped or did not help. The survey participants will be women (18-35years of age) who had subscribed to Tiko card between 2018 and 2020. A subset of these would be regular users, a subset will be sporadic

or one-time user and remaining will be 'non-users'. The sample will try to get adequate representation from all categories.

The in-person surveys will be followed with shorter (10-15 minutes) phone surveys with 1200 active users and 600 non-users who had enrolled on Tiko platform. Phone surveys will collect only basic information needed to confirm findings from in-person and qualitative surveys.

The analysis will triangulate the insights from both qualitative and quantitative analysis. We mainly anticipate descriptive analysis to tabulate indicators related to knowledge, practices, barriers, enablers w.r.t. SRH and MCH services, exposure and use of Tiko platform, how it has helped or not helped or affected their well being, suggestions and preferences for different components of the platform, etc. We anticipate cross tabulation by socio-economic characteristics, regions (say by Cities), and duration of use.

While no analytical tests are anticipated at this time, we expect to conduct standard bivariate tests (t-test and chi2 test) and regression analysis for more nuanced group mean tests or multiple comparison tests (logit, OLS, mixed models). We will be adjusting for standard errors for robust inference. In case of statistical inference, we expect one side test with alpha < 0.1 to consider a relationship or test statistic significant.

For cost effectiveness analysis, we will use existing (and publicly available) models such as LIST 2 and Impact. These models will need as inputs data on type and number of contraceptives and family planning services, and number of women who have completed ANC protocol of at least 4 visits. The rest of the inputs and data is in-built in the model to estimate Couple of Years of Protection (CYP) and DALYs. The data needed is available as App backend data without any identifiable information of the respondents such as address, name, phone number. The researchers will only know about the city and age of the beneficiaries along with details of their each transaction on Tiko platform – which service pr product, from which service provider, date, and quantum of purchase if any.

Then, a quantitative health-impact analysis will be done using insights from qualitative research. The insights will then be used by for a CEA and CBA based on primary and secondary data.

2.2 Sample Design and Power Calculations

For detailed 45-50 minutes in-person surveys, 570 respondents will be interviewed across Rajasthan, Uttar Pradesh and Delhi, of which we expect to complete 480 interviews. This sample size was determined on basis of measuring a proportion of 50% with 5 pp error rate and 95% confidence which yields n of 384 and this n was increased by design effect of 1.25 to account for clustering if any at the city level. In person surveys will be done in Agra, Jaipur

For phone surveys, we designed a sample of 2000 complete surveys. Moreover, over sampling will be done in Rajasthan, Uttar Pradesh and Delhi to ensure at least 50 interviews in each city. This sample is designed such that we can conduct descriptive analysis for 3-4 sub-groups (say by cities or by socio-economic categories) with at least 300-400 sample in

each sub-group. The purpose of phone surveys will be to add more statistical power to limited in-person sample size we have for few key questions of interest.

We also expect that the phone surveys and in-person data will be used for statistical group mean tests between regular users and one-time or non-users to compare SRH and ANC related practices between the two groups. It is not a controlled trial of Tiko platform but will be exploratory to understand additionality in service usage of regular users if any.

Assuming at least 150 regular and 150 non-users included in the in-person surveys, the sample will have power to detect 25% relative change or 0.25 SD change from an outcome distributed binomially with mean of 0.50 or with standardized normal distribution with mean 0 and SD of 1 N~(0,1) with power of 80% and Type I error of 0.10 with one sided test.

Assuming 500 regular and 500 non-users included in the in-person surveys, the sample will have power to detect 15% relative change or 0.15 SD change from an outcome distributed binomially with mean of 0.50 or with standardized normal distribution with mean 0 and SD of 1 N~(0,1) with power of 80% and Type I error of 0.10 with one sided test.

2.3 Sampling for In-Person and Phone-Surveys

The sample frame for both surveys will be the Tiko beneficiary database available with Triggerise. Below is the summary of viable database sample frame (exclude smaller sites where the programme is too small to be considered in this study)

State	City	Area	Number of		
			Enrollments	Actual Users	Non-Users
Uttar Pradesh	Agra	Both	34,726	21,743	12,983
Rajasthan	Jaipur	Both	29,588	28,531	1,057
Rajasthan	Ajmer	Urban	7,325	4,532	2,793
Rajasthan	Tonk	Peri Urban	5,176	3,993	1,183
Delhi	Delhi	Urban	3,846	3,142	704
Uttar Pradesh	Firozabad	Peri Urban	1,044	119	925
		TOTAL	**81,705**	**62,060**	**19,645**

The following steps will be followed for sampling of in-person survey respondents:

1. Restrict the study to only Jaipur and Agra which constitutes 70% of the enrollments and 84% of the actual user base.
2. Stratify sample as 150 non-users (enrollment minus users) and 350 users
3. Distribute sample in approx. proportion to the actual numbers in both cities for users and non-users as below.

City	Non-users	Actual Users	Total
Agra	100	150	**250**
Jaipur	50	200	**250**
Total	**150**	**350**	**500**

4. Distribute the sample across the 'Tiko Pro Agents' working in the city. We currently don't have this data, but we expect to complete at least 5 interviews per agent and spread the sample to cover about 25% of the agents working in the city.
5. Based on above, randomly sample the Pro Agents from database that will be made available by Triggerise.
6. Obtain a list of randomly sampled Beneficiaries from Triggerise for each sampled pro agent. We will obtain 3-times the number of completed interviews required per agent because our scoping visit suggests expecting 30-40% response rate in finding the beneficiary house with help of agent and then getting their consent for the interview. If required, Triggerise will make available more beneficiaries (their name and phone numbers per agent) if the sample size is not achieved.
7. NEERMAN enumerators will call each beneficiary sequentially in the list and fix appointments for the in-person interview. The phone records will track validity of numbers, refusals, and consents. Pro agent's help will be sought to find address or in field logistics or to establish our enumerators' bona fides.

The following steps will be followed for sampling of phone-survey respondents:

1. Exclude Firozabad which has no programme in 2020
2. Stratify sample as 500 non-users (enrollment minus users) and 1500 users
3. Distribute sample in proportion to the actual numbers as below.

City	Non-users	Actual Users	Total
Agra	347	527	**873**
Jaipur	28	691	**719**
Ajmer	75	110	**184**
Tonk	32	97	**128**
Delhi	19	76	**95**
Total	**500**	**1500**	**2000**

4. Obtain a list of randomly sampled Beneficiaries as above. We will obtain 10-times the number of completed interviews required per agent because our scoping visit suggests to expect 10-15% response rate in phone surveys. If required, Triggerise will make available more beneficiaries (their name and phone numbers per agent) if the sample size is not achieved.
5. NEERMAN enumerators will call each beneficiary sequentially in the list and fix appointments for the phone interview. The phone records will track validity of numbers, refusals and consents. Pro agent's help will be sought to establish our enumerators' bona fides if needed.

2.4 Sampling for Qualitative Research

Sampling for qualitative inquiries will be guided by principle of saturation where we will keep interviewing different respondents from varied contexts and backgrounds until the information on themes of interests is repetitive and does not provide more or useful insights. The mix of

respondents and exact questions to ask them is driven by research objectives but the tools, their flow are not standardized. At this stage we anticipate the following.

For qualitative research, in-depth interviews are best suited. Total IDIs of approximately 40 will be distributed across the three states (UP, Rajasthan and Delhi). We currently anticipate 4-6 IDIs with Triggerise managerial and programme staff, 10-12 IDIs with Tiko Pro agents/peers/mobilisers; 10-12 IDIs for mobile health workers, private sector clinics, pharmacists, Kirana stores, Salons, etc; and 12-14 IDIs for users and non-users (beneficiaries). These IDIs will be divided in 2-3 phases so that the initial phases helps in better understanding and design of questionnaires, second phase helps in actual assessment and third phase (if needed) to explain the findings of the quantitative research.

2.5 Questionnaires and Tools

The DRAFT questionnaires and discussion guides (in English) (***Annexures 5 and 6***) and Consent form in both English and Hindi are attached separately (***Annexure 7 and 8***) as follows:

- Tiko enrolled users (in-person surveys)
- Tiko enrolled persons (both users and non-users) (phone surveys)
- Tiko Pro and Agent, Tiko service providers (pharmacists, doctors etc) and shops (IDI guide)

2.6 Quantitative Data Quality Assurance, Processing and Analysis

We would conduct 20% centralised back-checks over phone to ensure in-person visits actually happened and cross-check factual data. For phone surveys, 20% audio- listening-in checks by the coordinator/monitor will be done to cross-verify the factual data. Apart from this, thorough back-office data quality checks (outliers, straight line responses, etc) will be done on pre-identified important variables. A researcher will ensure accuracy of data every third day of the survey by using high-frequency data quality checks for quantitative surveys.

Quantitative data will be entered in a CAPI App on ODK system, transmitted to secure server with 16-key encryption, and downloaded to a dedicated desktop for data. The data will be deidentified immediately first. Second, the processing will include giving variable and value labels, removing duplicate submissions if any, coding open ended responses if they exceed 5% of any categorical question's answers, etc. Then, this de-identified and processed data is submitted to researchers for further analysis in STATA format.

We mainly anticipate descriptive analysis to tabulate indicators related to knowledge, practices, barriers, enablers w.r.t. SRH and MCH services, exposure and use of Tiko platform, how it has helped or not helped or affected their well-being, suggestions and preferences for different components of the platform, etc. We anticipate cross tabulation by socio-economic characteristics, regions (say by Cities), and duration of use.

While no analytical tests are anticipated at this time, we expect to conduct standard bivariate tests (t-test and chi2 test) and regression analysis for more nuanced group mean tests or multiple comparison tests (logit, OLS, mixed models). We will be adjusting for

standard errors for robust inference. In case of statistical inference, we expect one side test with alpha < 0.1 to consider a relationship or test statistic significant.

For cost effectiveness analysis, we will use existing (and publicly available) models such as LIST 2 and Impact. These models will need as inputs data on type and number of contraceptives and family planning services, and number of women who have completed ANC protocol of at least 4 visits. The rest of the inputs and data is in-built in the model to estimate Couple of Years of Protection (CYP) and DALYs. The data needed is available as App backend data without any identifiable information of the respondents such as address, name, phone number. The researchers will only know about the city and age of the beneficiaries along with details of each transaction on Tiko platform – which service pr product, from which service provider, date, and quantum of purchase if any.

2.7 Qualitative Analysis

We will not be doing typical transcription, translation and coding practice because our researchers will be conducting IDIs themselves and not commercial moderators. After each IDI, a 2-3 page case narrative will be prepared which will organize key discussion points, answers, quotes by 8-12 themes. The themes will be developed by the qualitative lead (Gayathri). Qualitative lead along with RAs will review all case narratives, identify patterns, contrasts, stories, etc to answer evaluation questions.

2.8 Report and Publication

The TL, RA for quantitative analyses, Qualitative lead (Gayathri) and RAs for qualitative research will collectively hold a workshop to review both quantitative and qualitative findings and triangulate the insights for the final report. The final report will be developed in a format of a journal publication with <8000 words. The annexures and supplementary material will provide tools, details of analysis, data summary etc. We will also develop a slide deck based on final findings for Triggerise management.

We expect few Triggerise staff to collaborate with us in writing the manuscripts. Their role will be clearly reported as 'funders role' in the manuscript.

3 Ethics and Protection of Research Participants

This research is socio-economic-health impact assessment of a private mHealth platform. There is no drug, intervention or device being tested. The platform simply connects users to service providers and products available as per existing government rules and approvals already. So, it is basically a study of how a 'market place' actually helps beneficiaries?

Overall, the research should merit expedited IRB review. However, below is our assessment of risks and benefits to the participants.

Interview of Tiko Users – the platform users' age ranges from 18 years to 45 years. The qualitative IDIs or field visits include discussion with a few users about the practices, knowledge, benefits, barriers or contexts of users interviews. However, the quantitative surveys will be conducted of similar Tiko platform users. For all the respondents written consent will be administered and recorded.

Uneasy questions – Some of the questions related to contraceptives, pregnancy, family planning can be perceived as private. The respondent has a right to refuse answer to such and any questions. The interviews are also conducted by female interviewers in privacy. The consent form will specifically mention this risk and their right to refuse.

Data privacy and security – Qualitative interviews will be audio recorded along with notes, quantitative interviews will be conducted using CAPI/CATI apps, and both interviews will collect identifiable information such as name and phone number for survey management purposes only. These variables will be used in case of repeat visits and back checks of data only. We will also collect GPS coordinates purely to track movement of enumerators in field surveys but this data will not be linked to individual respondents.

Qualitative interviews/discussions will record name and phone numbers only in a diary and use a pseudo name (Rafiki, Doc, Bhai, etc) and never real name in the conversation once the audio recording starts. The case narrative for each interview will be written up within 3 days of the interview. After study conclusion all audio files will be deleted after 3 months period along with diaries which can link audio recordings to specific respondents. All this data will be controlled by a single person on non-networked computer.

Quantitative data with CAPI/CATI will only display name to the interviewer but the raw data will automatically deidentify/mask any identifiable data before it is shared with researchers for analysis. Only a single data manager will be responsible to keep survey data and linked identities of respondent (name and phone number) as two separate files in a non-networked computer under password protection. This data will be deleted three months after study completion. The data transmission between devices and data security on CAPI server follow 16-key encryption and comply with IT Act of India 2012.

COVID-19 Related Infections – The risk is a possibility during in-person interactions but we will adhere to ICMR guidelines on minimizing this risk such as use of a mask, sanitization of hands and tablets before/after interview, and maintaining a distance of 4-6 feet during interviews. Every enumerator will be given a covid-19 test 2-3 days prior to start of field work begins. Everyday morning and evening oximeter and temperature checks for enumerators will be done. Respondents will not be interviewed if they report flue like symptoms or report having COVID-19 in 2 weeks preceding the survey.

Benefits of participation: There will not be any monetary benefits to the survey participants, but they will be told that their participation helps in greater social good of improving the platform, scaling it up and sustaining it which can benefit others like them. However, we seek IRB permissions to in-kind care package for phone survey participants to ensure higher response rate. We are planning to offer a care package in form of Tiko miles (equivalent of money they can spend with linked service providers) or phone recharge coupon, etc.

Consent Administration: The consent form for quantitative and qualitative survey respondents are attached as ***Annexure 7 and 8***. These consent forms clearly discuss survey purpose and methods, above risks and benefits, rights of respondents, and contact information of the IRB and ethics officer at NEERMAN who can be contacted in case of

grievances. We will record the consent in the tablet or on printed consent form with their (digital or actual) signature along with enumerator as a witness. In case a respondent refuses to sign the consent, then we will administer a verbal consent only but audio record it and get signature of a third party witness.

4 Field Organization

We will recruit 3 teams of 9 enumerators and 1 supervisor in each of the four cities for quantitative surveys. Moreover, 15 CATI enumerators will be recruited who will work from Delhi/Mumbai office for phone surveys. These teams will be managed by a dedicated field coordinator and a senior field manager. There will be one senior field managers present throughout the field work and their executives will shift between two cities. The researchers will be involved throughout the training and first 2-3 days of field work and they will conduct random audit visits in between. The overall organization is depicted below.