

BASICS

Narrative Report on the implementation of CleanInsights into the Tella Android app

15 April 2022

Background

Since Tella was released in 2019, Horizontal has never had access to user analytics out of concern for the privacy and security for users. This meant that we didn't have the necessary data to understand the behavior of users on the app, as well as which features get used and which features don't.

The release of Clean Insights in 2021 meant that, for the first, it was possible to collect analytics data to inform the development and improvement of Tella without jeopardizing the privacy of our users. In early 2022, with support from Internews' BASICS program, Horizontal started implementing Clean Insights into Tella 2.0, ahead of the app's public release in April 2022.

The implementation was to serve as a pilot, allowing Horizontal to answer an initial set of research questions before expanding in a later iteration (outside the scope of this project) the collection of data to all of the aspects of interest.

Activities

As part of this project, Horizontal completed the following activities:

- design of the research questions and Clean Insights campaign
- design of a consent UX to ensure that users actively opt-in and give an informed consent to the collection and use of their usage data by Horizontal
- installation of a Matomo instance on a Virtual Private Server to host and visualize the data collected on Tella through Clean Insights
- implementation of the consent UX into Tella
- integration of the CleanInsights Android SDK into Tella to allow for the collection of data
- setting up of probes into Tella to collect data specifically around the research questions
- activate the campaign to collect usage data and send it to the Matomo server

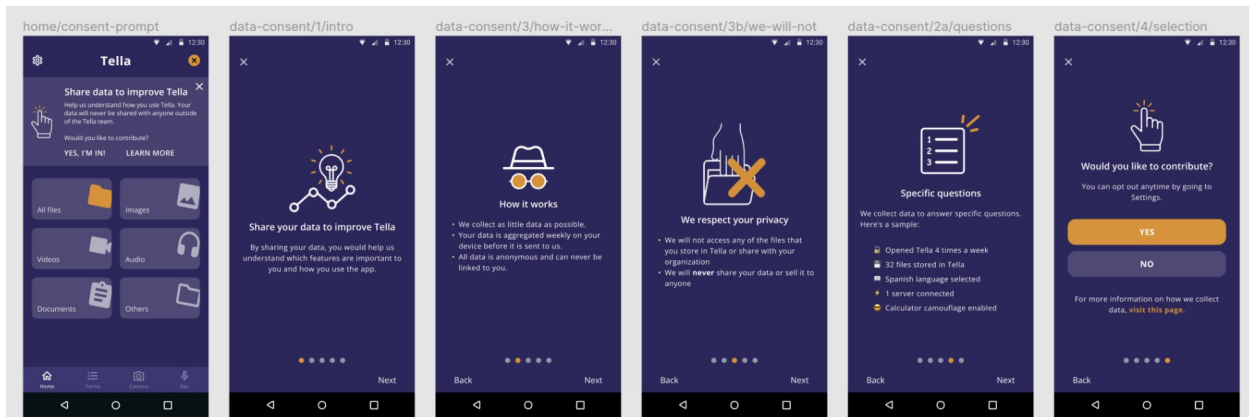
The following activities were started but not fully completed due to technical challenges encountered during the implementation:

- analysis of the data collected
- customization of Matomo to create dashboards making it easy to visualize data in the long run

Consent UX

Horizontal designed a consent UX that ensured that users had to explicitly opt-in the data collection and could understand, at a basic level, how the data was collected and how it respected their privacy.

We initially designed a consent UX that included all of the relevant information directly in the app. However, we found in our user testing that the flow was too long and the information too detailed, leading to users losing interest and leaving the consent flow. We iterated and settled on a shorter flow, but adding a link to a web page that will offer additional information, including technical information about CleanInsights for users who want to go deeper.



This flow has been successfully implemented in Tella starting with version 2.0.1, released in early April.

Research questions

The general underlying goal of the research is threefold:

1. understand how people use the app
2. understand which characteristics of the app are the most useful to users
3. understand whether users struggling using specific features or parts of the app

Defining valuable research questions, which are also easy to measure, is often the most difficult part of any research project. Doing so while ensuring the total privacy of users is even harder. The team held multiple brainstorming meetings to identify research questions. We followed an inverted pyramid process, starting from a selection of topics of interest until we narrowed it down to measurable research questions.

The first part of the process was to identify the whole journey a user will be facing when using Tella and divide this journey in broad topics. The team identified six areas within the app where understanding user's behavior and scope of interaction with the application would be valuable:

1. the general use of the application

2. the quality and ease of use of the Onboarding process
3. the use of the vault to encrypt and store documents and files
4. the use of Tella for data collection
5. Tella's security and privacy features
6. the general configuration of the app, which can be used as a proxy to better understand the population of Tella users.

The second part of the process was for the team to think about questions, within each of the previously defined areas, where an answer would allow us to either improve the application or tailor it better to the use that is being made of it. The team identified 40 questions which would be valuable. The list of all the research questions identified by the team can be found in the below.

1. App use

- 1.1. How many times is the app opened per week?
- 1.2. How long do users spend in the app on average?
- 1.3. Which sections of the app do users spend the most time in?
- 1.4. For each potential task (ex going through onboarding, setting up a server,...):
 - 1.4.1. Number of times the task is done?
 - 1.4.2. Average time to complete the task?
 - 1.4.3. Percentage of users who do not complete the task after starting it?

2. Onboarding

- 2.1. How many users go through "advanced customization"?

3. Vault

- 3.1. How many files are stored in the vault?
- 3.2. What percentage of files are images, videos, documents, audio recordings, and others?
- 3.3. What percentage of files (for each type) are uploaded versus taken directly from the app?
- 3.4. How many users have intentionally created folders/organized their Vault?
- 3.5. How many folders and subfolders are in the vault?

4. Data collection

- 4.1. How many users are connected to a server?
 - 4.1.1. ODK
 - 4.1.2. Uwazi
 - 4.1.3. Tella Web
- 4.2. What server type are users connected to?
- 4.3. How many servers are users connected to at the same time?
- 4.4. How many documents are sent to a server (number and weight)?
- 4.5. How many unsuccessful attempts to send a document to a server?
- 4.6. How many files are attached to a form?

5. Security

- 5.1. What type of lock do users pick more frequently?
- 5.2. How many times is the lock method changed (attempts and successful)?
- 5.3. How many users enable camouflage?
- 5.4. What types of camouflage are used more frequently?
- 5.5. Is Quick Delete enabled?
- 5.6. What checkboxes are checked in Quick Delete settings?
- 5.7. Is Quick Delete used?

- 5.8. Is Quick Exit used?
- 6. App Settings**
 - 6.1. What language is the app in?
 - 6.2. How many users have enabled
 - 6.2.1. Verification mode?
 - 6.2.2. Favourite Forms?
 - 6.2.3. Recent Files?
 - 6.3. How many users have enabled
 - 6.3.1. Camera Silent Mode
 - 6.3.2. Bypass Censorship
 - 6.4. Number of users clicking on :
 - 6.4.1. Tutorial
 - 6.4.2. FAQ
 - 6.4.3. Contact Us
 - 6.4.4. Privacy policy

Finally, for the purpose of this pilot, Horizontal decided to focus on a limited number of questions in order to test both the data collection through Clean Insight and the data presentation through Matomo. The criteria used to select the list of research questions studied in the first phase was to identify valuable but simple questions. Before finalizing the list of research questions, we then identify which indicators we would need to collect to answer the question and how easily we could collect this indicator through CleanInsight. In the table below we present the final list of questions as well as the indicators we are currently collecting through Clean Insight.

	Research questions	Indicators
1	How many times is the app opened per week?	Recording event: Opening the app.
2	How long do users spend in the app on average?	Recording event: time spent on the app or time closing - time opening of the app
3	How many users are connected to a server?	Metadata: when recording event "opening the app" for the first time, send servers connected to Tella if any, missing otherwise.
4	How many users enabled Quick Delete?	Metadata: when recording event "opening the app" for the first time, send Yes if quick delete is enabled, missing otherwise.
5	How many users enable camouflage?	Metadata: when recording event "opening the app" for the first time, send Yes if camouflage is enabled, missing otherwise.
6	What language is the app in?	Metadata: when recording event "opening the app" for the first time, send the language the application is in.

Over time, Horizontal will expand the use of Clean Insights to explore all of the research questions above. But before diving into these more complex questions, we want to make sure that system we set up works seamlessly from data collection to data visualization in a dashboard.

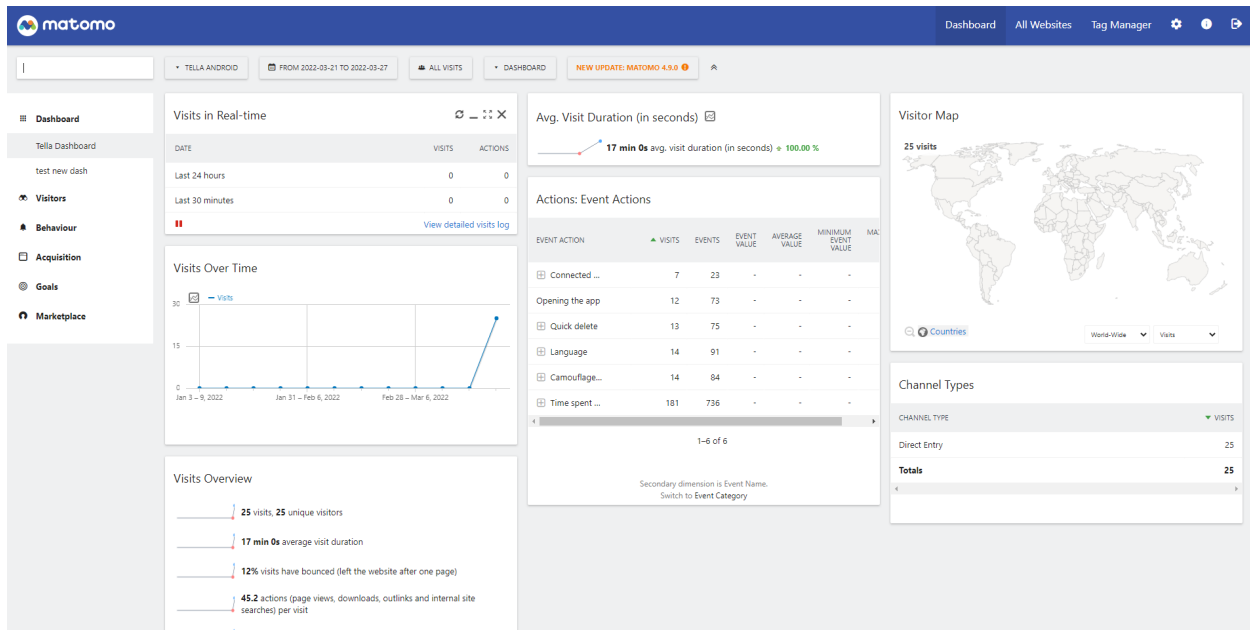
Data collection and visualization

After the team agreed on the main research questions and indicators on which to focus during the pilot, Horizontal developers started the process of integrating Clean Insight into Tella and connecting it directly to a Matomo server.

Once the set up was finalized, in order to test the workflow and start working on the data visualization, the team generated “fake data” created directly by us by using a version of Tella with Clean Insights integrated. This allowed us to assess the accuracy of the data that was coming through Clean Insight.

Unfortunately, this process took us longer than expected and as of April 15th, 2022, we are still working on tweaking the integration to ensure that the data collected is accurate and that the data is systematically sent by the app when expected, including when the user reconnects to the internet after a long period offline. As a result, we do not have data to present at this point. Nonetheless, the Clean Insights integration is complete and data is sent to the Matomo server.

Below is a screenshot of the Matomo dashboard, with data collected during our internal tests.



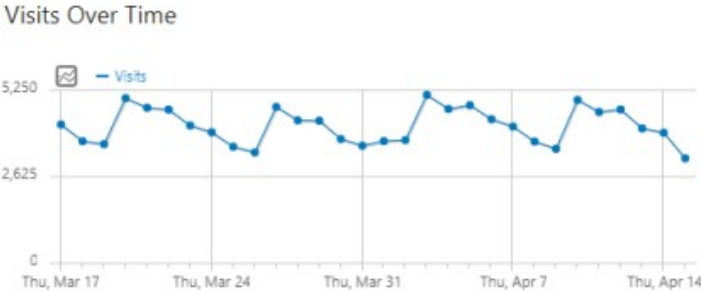
The dashboard presents the number of visits over the past two months, the average time spent on the app as well as the detail of how many people are connected to servers and which type of server, the language used for the app, and how many people enabled the quick delete and camouflage features.

Because Matomo is designed for web analytics rather than app analytics, we decided to set up our own dashboard, feeding in the data available on the Matomo server and generating a set of reports. The dashboard is still a work in progress but here is a screenshot.

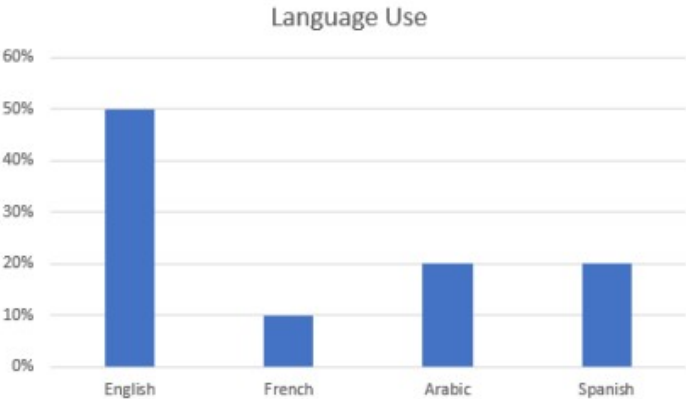
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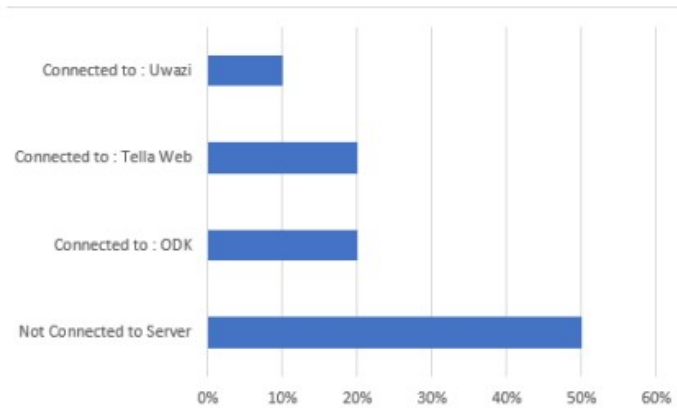
1 Visits Over Time



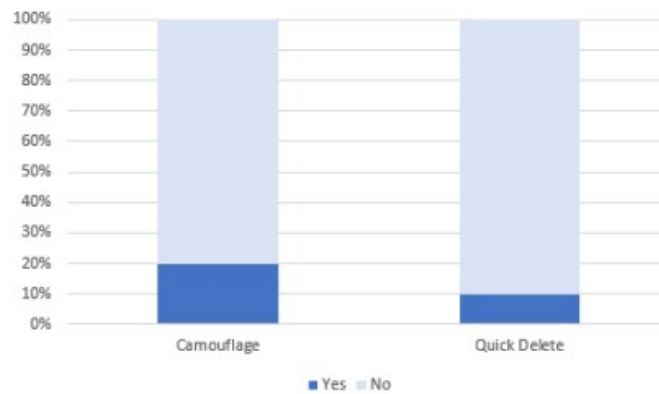
2 Language



3 Connected to Servers



4 Camouflage and Quick delete



Next steps

In coming weeks (outside the scope of this project), Horizontal is planning to continue making the integration of Clean Insights more seamless and the collection of data more robust. To that end we will:

- Continue tweaking the implementation to ensure that we receive data that is as accurate as possible
- Develop functional dashboards that enable members of the Horizontal team, including those without technical or data analysis skills, to draw actionable insights
- Expand the list of research questions to collect more data and better inform our design and development processes