

THE SUMMARY OF THE 1st ROUND OF TESTING THE @HBS

AUTHORS

Summary report edited by: Brigita Vrabič Kek

Country reports:

- Finland: Marjaana Järvensivu, Anna Niemelä
- Netherlands: Deirdre Giesen, Mart Nyholt, Stefan Theunissen
- Slovenia: Mateja Zgonec

project number 847257 — 2018-NL-INNOV

6 January 2020

summary This report is a summary of the first usability test round as described in the "Test plan @HBS 2019" and includes results of the testing and recommendations for improvements and proposals for the next round of testing.

Contents

1.	Introduction			4	
2.	De	scrip	tion of testing	5	
	2.1	-	uitment method	5	
	2.2	Sum	mary of main characteristics of test respondents	6	
	2.3	Desc	cription of test components	7	
3.	Re	sults		8	
	3.1	First	response after opening app	8	
	3.2	Func	tionalities respondents miss in the app	9	
	3.3	Qual	lity scanned receipts	10	
	3.4	Mair	n findings per task	11	
	3.5	List o	of technical issues (bugs) found in the test	19	
	3.6	Com	munication, motivation and overall data collection strategy	20	
		3.6.1	Evaluation of materials / strategy discussed in test		20
		3.6.2	Reasons for (not) participating in (app assisted) HBS		21
		3.6.3	Need and location of information on response task and app use		21
		3.6.4	App use and alternative methods for HBS data collection		22
		3.6.5	App assisted data HBS data collection within multiple person households		22
	3.7	Use 3.7.1	of geolocation and access to other data sources Geolocation information	22	22
		3.7.2	Scanner data based on time/location		22
		3.7.3	Bank transaction data		22
		3.7.4	Data from some loyalty cards		23
		3.7.5	Other possible data sources discussed with respondents		23
4.	Co	nclus	ions	23	
••			of an app for part of HBS data collection	23	
	4.2		munication and motivation strategy	23	
	4.3		as tested	24	
		4.3.1	Installation		24
		4.3.2	Help information		25
		4.3.3	Calendar screen		25
		4.3.4	Search lists for stores and products/services		26
		4.3.5	Scanning receipts		26
		4.3.6	Manual entry of receipts		27
		4.3.7	Spending screen		28

Арре	nd	ix 1: S	creenshots of the app	32	
Refer	en	ces		31	
4	4.5	Recor	nmendations for next tests	30	
Z	1.4	Data l	inkage within the app	29	
		4.3.11	Other recommendations		29
		4.3.10	Settings screen		29
		4.3.9	Overview/insights screen		28
		4.3.8	Editing transactions that have already been completed		28

1. Introduction

The @HBS project develops an app-assisted approach towards data collection for the household budget survey (HBS). This app contains both generic and country-specific components (e.g. expenditure classification). The @HBS project is a co-operation of ONS, Stat Austria, Stat Finland, Stat Netherlands, Stat Slovenia and the University of Essex. Part of the project is performing small scale cognitive and usability testing of both the app and the accompanying recruitment and motivation strategy and materials (e.g. letter, incentives and feedback). The testing was conducted in Finland, Slovenia and the Netherlands. The University of Essex and ONS will review the test plan and the test results.

This report is a summary of the first usability test round as described in the "Test plan @HBS 2019" and includes results of the testing and recommendations for improvements and proposals for the next round of testing.

The Household Budget Survey (HBS) app is available in both in the Google play store and iOS app store. Upon opening, the app users choose the country. Screenshots of the app in English are in Appendix 1. Available versions are UK, Suomi, Nederland, Slovenija. The first round of testing of the app was performed in the three countries: Finland (FI), Netherlands (NL) and Slovenia (SI).

The test interviews were conducted in the period from 26th August to 13th September 2019 according to common guidelines and templates for all relevant testing materials (detailed explanations are available in the document: Testing Materials @HBS Test August-September 2019, 28 August 2019). The staff involved in the interviews were mainly methodologists, accompanied by survey manager, UX/UI designer, intern or some other colleagues.

The overall goal of the test was to evaluate both the recruitment & motivation strategies/materials and the app, as adapted for Finland, the Netherlands and Slovenia. Regarding the recruitment & motivation strategy the goal of the test was to explore:

- How do respondents spontaneously interact with the recruitment & motivation materials (e.g. do they notice all materials, do they only look briefly at the material or actually read?).
- How well can respondents understand the recruitment & motivation materials?
- How do respondents evaluate the recruitment & motivation materials (e.g. how do respondents judge the attractiveness, relevance, clarity).
- What are factors that would motivate respondents to participate, what are barriers for them to participate?

Regarding the app the goal of the test was to explore:

- How easy or difficult is it for respondents to find and install the app?
- How well does the app communicate the response task: e.g., meets the respondents' needs for understanding the required task?
- How well does the app facilitate performing the response task (usability of using the app, e.g. meets the respondents' needs for completing the required tasks)?
- How do respondents perceive the task of responding via the app compared to alternatives (e.g. a paper questionnaire, a web questionnaire, collecting paper receipts)?

The general approach of the test was:

- Make respondents perform the tasks that are essential for the use of the app, in a way that is as realistic as possible and evaluate these tasks with them. In each test we will evaluate effectiveness (are respondents able to perform tasks), efficiency (to what extent can they do so quickly / easily) and satisfaction (how do the respondents perceive the app in general and specific tasks within the app).
- In each country we tested as much as possible in a similar way and documented findings in a template that allows easy comparison of findings in the three countries.

Each country recruited 12 test respondents who were not familiar with the project and/or the HBS survey and split the test respondents over two groups:

- Group 1 "full observation group": respondents who installed the app and perform several tasks with the app (based on their own receipts brought to the test and vignettes) while being observed and videotaped. After observation, the respondents were interviewed.
- Group 2 "retrospective interview group": respondents who were provided with materials to independently install the app at home, used it for at least three days and then interviewed in person. After the retrospective interview they were also asked to perform some of the same tasks as group 1, observed and videotaped doing this and these tasks were also evaluated in an interview.

From the group 1 observations and interviews we expected to get detailed and recorded information of how people interact with the app. From the group 2 respondents we expected to receive more realistic user experience feedback of people using the app independently, in real life situations, with real expenditures and over several days.

2. Description of testing

2.1 Recruitment method

Recruitment method had some common features (the respondents were divided in two groups: a half of respondents installed the app beforehand; a half installed the app at the beginning of a test situation), but there were also some differences across the countries:

In Finland the contact letter including basic information on the pre-test was sent to a small sample of the population of Helsinki. After a few days they were contacted by telephone. Only the respondents with smart phone were recruited to participate in a test interview.

In Netherlands the respondents were recruited via various methods: flyers in supermarkets, and other public locations were used, respondents who have participated in a labtest before, acquaintances from colleagues.

In Slovenia it was difficult to obtain external respondents therefore the respondents were three external and ten internal respondents. Internal respondents did not have knowledge of statistical data collection and the HBS survey.

As incentive, the test persons received a gift card, voucher or some practical gift.

2.2 Summary of main characteristics of test respondents

In all three counties there were 37 respondents altogether. Among them there were more women (21) than men (16). They were aged from 18 to 74 years or 41 years on average respectively. Women were on average slightly younger than men (39:42). On general they were well educated mostly with tertiary education. They were mostly in employment, but respondents were also students, housewives/men and retired persons. Most of them were shoppers or at least they shop with someone else, but there were also some non-shoppers.

For comprehensive testing, we selected respondents with different types of phones and mobile operating systems to participate. Among them 14 had iOS and the others Android operating systems.

Type of phone	Number of respondence
Iphone 7	4
Iphone 6	3
Iphone 6S	2
Iphone 8+	2
Samsung	2
Samsung Galaxy	2
Honor 9	1
Huawei Honor	1
Huawei P9 Light	1
iPhone 5	1
Iphone 6 (own phone: Samsung S10)	1
iPhone SE	1
J5 Samsung	1
Lenovo	1
LG	1
Motorola Moto G5	1
Nokia 1	1
Samsung Galaxy A3	1
Samsung Galaxy A7 (2018)	1
Samsung Galaxy note 8	1
Samsung Galaxy S6	1
Samsung Galaxy S7	1
Samsung Galaxy S8	1
Samsung Galaxy S9	1
Samsung S10	1
Samsung S7	1
Sony Xperia	1
XIAOMI	1

Type of phones included in testing (in terms of frequency):

One of the main characteristics of test respondents was also evaluation of their smart phone skills. This was done during the interview with questions about respondents' ability to use or perform particular skills. We rated them with very low, average, high. The majority of them got the rate "high", but there were also respondents with the rate "very low".

RateNumber of respondentsHigh20Average12Very Low5

Evaluation of smart phone skills of the respondents:

2.3 Description of test components

Most tests were carried out in the lab at the statistical offices and in some cases also at the respondents' home. The interviews took 40 to 90 minutes. As planned, the duration of the full Observation interviews were longer compared to the retrospective interviews. The respondents own devices were used for testing.

At the beginning the respondents were informed about the test setup and their rights and asked for written permission for recording. The interviewees were informed to think aloud while using the app. The tasks and evaluation questions were included in the interview protocol and asked during the test. In addition, the usual probing techniques were used whenever it was needed. All interviews were video recorded: the mobile phone, and hand movements were filmed by the camera.

Materials evaluated with respondents:

- The national version of the HBS app
- Advance letter
- Instructions how to install the app
- Brochure or flyer: How to participate in the HBS
- In some cases we showed the respondents also the YouTube movies with instruction during the interview (NL).

Basic idea was to capture the purchased items from the receipts with the help of the app. In addition to normal purchase in the store, the app also enables to capture the purchases done online (in an online shop), the purchases done abroad (outside the country where the interviewee lives) and registration of the discounts received (discount on the retail price of an item).

The following tasks were tested:

- Installing the app
- Manual registration of a simple receipt with one item only (without online, abroad, discount)
- Scan of a simple receipt with one item only
- Manual registration of a short receipt with about three different items
- Scan of a short receipt with about three different items
- Spontaneous registration of a long receipt

- Scan of long a receipt
- Manual registration of a receipt with 2 or more identical items
- Manual registration of discount on a product
- Manual registration of discount on a receipt
- Adding a shop or product/service not found in the search list
- Manual registration of expenditure abroad
- Manual registration of online expenditure
- Change price of a manually registered expense
- Change price of scanned receipt
- Delete one item in a list of more than one manually registered items
- Add an item to an manually entered transaction
- Completing a day with expenses
- Completing a day without expenses
- Use of Overview Screen
- Use of Expenses screen
- Use of Insights screen
- Use of Settings screen
- Removing the app

3. Results

3.1 First response after opening app

Most respondents look around in the app first, opening some or all of the possible screens. Most respondents never look at the provided manual, although some did look at it and appreciated it. Upon first opening of the app, the empty screens are not very inviting / informative.

Almost all respondents found rather quickly the option to enter expenses. Overall impressions were positive. The app was more versatile than expected. The app was considered clear and simple, and it was easy to learn how to use it. Critical feedback was linked to the limited product list (FI and SI) and laboriousness to enter certain expenses (FI and SI).

Rating given (number of stars)	Number of respondents
5	7
4	18
3	10
2	1
1	0
Not assessed	1

Rating given to the app by respondents:

On average, the app got 3.9 stars that is quite high for the app in development and encouraging for further elaboration. Some comments:

"Easy to use, visually appealing, nice colours. Burdensome to fill in precisely."

"Very easy to start, clear and nice-looking app."

"It took a while to get started. Good user interface."

"The app was more complicated than corresponding tools for viewing expenses."

3.2 Functionalities respondents miss in the app

Entry of expenses:

- to enter expenses via the calendar
- an option to add, edit and delete also via calendar (Overview screen)
- searching products by brand of the products (were not already available)
- searching shops by name of the shop (were not already available)
- a function of converting currencies (expenses abroad)
- an option to download e-receipts (pdf-files) from e-mail, e.g. receipts from online shops

Insights:

- An additional option to control own consumption and set limits to alarm when purchases in some category exceed those limits.
- Several respondents would like to be able to scan data from a receipt, e.g. get a list of detailed expenditures based on a picture.
- Some respondents mentioned that the possibility to store and find a receipt would be
 practical, especially if they would have to return a product to the shop.
- Displaying expenses on "Insights" screen by name of the shop (for own evidence).

Reminder:

- Confirmation that a reminder is on.
- The app could remind you to fill in/complete a previous day when a new day started.
- Option for the respondent to receive reminders several times a day or for example every second day (different times of day and/or on different day, etc.).

Other:

- An option to link debit or credit card purchases directly to the app
- Some respondents with Android phones say they want to be able to use the buttons on their phone for navigation.
- One respondent suggests that voice recognition may make data entry easier.
- One respondent after we asked about providing access to bank data, which she would not allow – suggested that it would be easy if she could automatically add repeated expenditures in the app – this would be mainly useful for her if she would use the app for a long period for her own budget planning.

 One respondent says she misses the euro sign (possibly means she wanted to be able to add prices in different currencies, but this was not explored further in the interview).

3.3 Quality scanned receipts

In the test situation it was slightly inconvenient to look through picture from a user's phone and there was no time to go deeper to all receipts. Instead, users were asked to open some randomly selected receipts for evaluation. Unfortunately, a couple of users had the app version with a bug in scanning functionality when pictures were displayed as white screen and therefore impossible to evaluate. We assessed scanned receipts according to the scan quality checklist:

Photo quality:

- The Lighting of the picture. There is not enough light/contrast, or too much shadow.
- The receipt does not stand out from the background. Background is not dark, or uniform enough.
- The receipt is not the only object in the photo.
- Angle of the photo. The receipt is not facing the camera, but seen from an angle.
- Resolution of the picture. The picture was not taken sharp enough to see the receipt properly.
- Incompleteness. Not the whole receipt is on the photo.
- Orientation of the receipt. The orientation of the receipt is sideways or upside down.
- No issues.

Receipt quality:

- Condition of the receipt. The receipt is curvy and does not sit flat on the surface.
- Visibility of the receipt: The text on the receipt is not visible due to aging, damage etc.
- Incomplete. The receipt is not complete anymore (for example a part of the receipt has been ripped of).
- No issues.

All users seemed to manage to scan the receipts. The biggest difficulty when having in mind photo quality occurred in incompletes of the receipt, contrast, orientation and background. In addition, it was not possible to zoom a picture in order to check the quality of photo.

The receipt quality has also an impact on photo quality. The biggest problems we encounter with curvy receipt and bad visibility (low ink).

When the evaluation is based on visual images on users' phone screen, it gives not a full picture how suitable those photos are for OCR (optical character recognition). However, for manual processing the quality of scanned receipts seemed to be good enough with only one exception. One receipt was so blurred that it was impossible to read afterwards. Other receipts were readable and clear enough despite some shadows, colourful backgrounds or wrinkled paper (at least for purposes of manual processing).

3.4 Main findings per task

Task description	Summary of test results
Installing the app	 All respondents could independently install the app, most of them by typing the name of the app in the appstore/playstore; some also used the QR code in the letter. Issues found: Feedback from users was positive since any username, password or creating an account etc. was not needed to log in but this is not the actual situation or real data collection. Several respondents made typing errors, because of this they had to look a bit longer or search again before they found the right app. Several respondents were not aware that they can scan a QR code directly with their phone camera (works for most iPhones and Android 9), this made them not use the QR code or use a QR app. In the appstore the app is listed as a financial app, this may not provide the message that this primarily a data
	collection tool for official statistics
Manual registration (without online, abroad, discount)	 The actual task of entering the product and price is generally fluent. In the beginning of the usage some difficulties appear with adding the product before completing. Some learn quickly, others never find out spontaneously that they can enter several products. Issues found: The majority of the respondents started entering expenses by clicking on calendar days. Respondents were surprised when they saw that in that way they cannot enter expenses and that they have just the possibility to "complete" the day. Adding a first product. Save may be more logical. The use of the add and complete button is not intuitive for many respondents. Some learn, but some keep trying to add via the complete button Very easy if the type of shop is self-evident (like food market) and if the product category is unambiguous. In less simple cases, users tend to keep on scrolling the categories and wondering which to choose. The option to search by typing is not easily noticed. In some shop types, the provided product categories cause confusion.

Task description	Summary of test results
	 deal with that - put the whole amount on one item as that happened to be something they bought or deciding upon the reason they went to the store or put the total costs of a long grocery receipt on fresh vegetables as that seem to be the most items on the receipt. The actual task of entering the product and price was generally fluent. In the beginning of the usage some difficulties appear with adding the product before completing but the function is realized quickly. Several respondents preferred registering all products under one category and total sum instead of entering products one by one – even when they understood that this could be done Usability related findings: In the right side of the category row, there seems to be an arrow -> leads some users to tap it in order to find subcategories.
Scanning of a receipt	Scanning of a receipt was an easy task for all users and nice
	 Scanning of a receipt was an easy task for an users and nice way to keep ones' receipts. Issues found: Provided product categories are insufficient even though they recognized 'Other' category. The "other" option should be the last one. Product categories differ between scanning and manual entry, which was opposite to users' assumptions. It is hard to categorize a receipt that has different types of items. This caused hesitation and frustration since users feel they will provide inaccurate or false information. It is not possible to indicate that some of the expenses on a receipt should be excluded (for example when part of grocery shopping was done for a neighbor). The icon to retake the picture is not clear; some respondents though they could make a note or edit the picture. Many respondents were reluctant to give permission to access the camera if they do not understand why (additional information could theoretically identify the respondent) Two respondents are disappointed with the functionality; they had hoped to be able to read the information in the receipt. Regardless of how the picture was taken, sometimes
	 pictures are shown landscape, sometimes portrait. This was annoying as in landscape the pictures were even harder to read. Several respondents complained that is was not possible to zoom in to check if the picture could be read.

Task description	Summary of test results
	 Amount of space the pictures would take on phone if he would collect data for a month or so.
Manual registration of a receipt with 2 or more identical items	 Using the + button to add identical products was mostly not difficult function; except in SI where some respondents did not notice the button for some time or at all. Other issues connected: Several respondents said they did not like the fact that each duplicated item is presented as a single item on the expenses lists. This does not correspond to the original receipt and it makes the list very long (for example 24 cans of cat food). When a duplicated item has to be changed this is difficult as this may mean all duplicates have to be edited.
Manual registration of discount on a product and Manual registration of discount on a receipt	 The most confusing part of testing. This task had an impact on the respondents in the next task, which included a discount on a receipt. Results were as follows: In FI after the first interviews revealed that registration of discount on only a single product did not function, the task was excluded from the rest of test interviews. Afterwards the function Manual registration of discount on a receipt was generally easy to find and use. In SI brochure there were a brief and simple instructions on how to enter both types of discounts. Unfortunately, the respondents did not read this. Respondents did not know whether to enter the final price (with the discount included) or the price without the discount. Respondents were convinced that the discount working. Respondents expected that when they entered a discount on a particular product, that the discount would be visible immediately at the price of this particular product. Also, the discount is displayed too far below. In NL some respondents saw and used the "discount on total receipt" button, but others did not. However, this button is not enough to facilitate the entry of receipts with different types of discounts. In addition, entering negative amounts is not possible. Discount entered is not used in the insights, which can
Adding a shop or product/service not found in the search list	lead to expenses people do not recognize. For both the stores and the products/services the app provides a search field with below it a list of suggestions. This structure does not work well and results in reporting error and response burden. The limitedness of shop types caused repeatedly difficulties (e.g. entering purchases from bookstore, music shop, hairdresser, online game). It all depends on different strategies respondent had (some only

Task description	Summary of test results
	 used the list of suggestions, others only typed in the search field and some mix). Issues found: The suggestions provided are often not logical, both in content and in order. For some shops the wrong products lists are shown; for example, after selecting H & M the options for a supermarket are shown. Respondents did not understand what level of information is needed to classify a product/service. Was cheese enough or should the type of cheese be stated or was it enough to state dairy products. The grey arrows next to the suggestions suggest that there is more to choose from but by clicking on it the option is selected. The option to search by typing was not easily noticed and even though typing is used, the function of "Not found?" button seems to be unclear. One respondent understood it as a notification from the app: the typed word was not found in the categories. Another supposed that the button leads to some kind of help page. The categories presented after "Not found, Add it yourself" were often not logical and led to loss of information as often only the "additional option is applicable. In the categories presented after "Not found, Add it yourself" the first option is preselected, this may affect the respondents' choices. Several users end up to choose" the least wrong" type of shop/product, even if they consider it incorrect. Two respondents from the retrospective group did not register some expenses during the testing period due to insufficient categories. It was also mentioned that at home respondents probably would leave unregistered expenses that did not clearly belong to some of the expenses that did not clearly belong to some of the probably would leave unregistered expenses that did not clearly belong to some of the probably would leave unregistered
Manual registration of expenditure abroad	provided categories. The function was easy to find and use. In SI some respondents expected that after choosing "abroad", they will have to choose another currency or a currency converter. They think that the application should have the function of converting currencies. Other issues: - respondent thought that expenditures abroad can only be added manually as the picture option does not provide the possibility to indicate the purchase was abroad

Task description	Summary of test results
	 respondent says with an online expenditure you do not always know if the expenditure is abroad or not
Manual registration of online expenditure	 The function was easy to find and use. Other related issues: Several respondents wondered how to enter postal charges of online expenses or delivery costs, specify or exclude. No suitable category or product name was found. One respondent was uncertain if mobile purchases are supposed to register as online expenses. A few respondents started searching online shop in the
	shop-searching list.
Change price of a manually registered expense	The editing function was easy to find. Issues found: — In the editing interface, the previously entered price is
	 grey which can be understood as an inactive field. There is no warning after the delete button. Because the editing symbol is very close to the X (delete) there is a risk to delete products by mistake without option to cancel. If the user first chooses one product for price edit and then changes to another product, the previously chosen product was removed from the expense. This can be canceled only by closing the expense and starting again. If the price field was tapped twice the screen moved to display the discount field in the bottom of the screen and the cursor was not visible (the problem occurs only with manually entered prices).
Change price of scanned receipt	Function for editing price (or other information) was easy to find and use. Issues found:
	 However, there were some usability issues on the Expenses screen. If an expense is at the bottom of Expenses screen, it opens so you need to scroll to see it. After verifying edits, a user gets back to Expenses screen, but an expense with scanned picture leaves open and a user needs to scroll to find where he or she ended up and close an expense to see the list of expenses again. In addition, using back-button of a phone does not help. This usability flows confused users and it took them time to move on. Respondent did not notice the camera icon for scanned receipt. Respondent re-scanned the receipt and then changed the price.

Task description	Summary of test results
Delete one item in a list of more than one manually registered items	 Issues found: There is a risk to delete items by mistake. A few respondents expected that they will get a warning and that they will have to confirm the deletion of one item. One respondent deleted the entire receipt by mistake.
Add an item to an manually entered transaction	Function for adding an item is easy to find and use.
Completing a day with or without expenses	 Issues found: A couple of users had beforehand found this functionality; others did not expect this kind of a task. Main usability issue is that there is no sign or hint where to find this function. Users tried to find it e.g. from Expenses and Insights screens with no success. Completing a day as such was very easy and visually clear (after a user had found it 'behind' the calendar). Several respondents do not understand that, how and why days should be completed. If completing a day is a crucial task to do in the HBS data collection, it needs to be added at least to user instructions and even better, to Overview screen of the app. Otherwise users do not recognize this. Several respondents were unsure that once they completed a day they could still add or change thinks, but they found out they could and appreciated that. Therefore, it is also important to communicate that adding and editing expenses is possible even if a day has been marked completed.
Use of Overview Screen (other findings not mentioned above)	 Visually clear and nice-looking screen. Good calendar, informative colors. Important that there is not too much information placed on the Overview screen. Issues found: Some users assumed that expenses can be filled in (also) through the calendar. They clicked a day and wondered why there is no place to enter an expense. Some respondents say they want to see in the calendar if something has already been entered on a certain day. Sometimes letters in calendar are black sometimes white, but no logic behind this. Several respondents spontaneously say something that they like, that they see, that the amount earned grows, that this motivated. One respondent says she finds it not necessary, "like you only participate for the reward" Some respondents say they wonder if they can keep using the app until after the reporting period, they would like that

Task description	Summary of test results
	 The 'More information' button is not used, one respondents says she thinks it is information about the incentive If you open 'More information' pop-up screen, you need to tap X to get back to the main screen. Several users tried to use back-button of their phone with no success. Also clicking an Overview tab leads you nowhere. This stopped the flow and confused users. Illogically, clicking on tabs Expenses, Insights and Settings screens is possible.
Use of Expenses screen (other findings not mentioned above)	 All respondents used this screen and it generally worked well. Issues found: Long texts in the field of type of shop make a screen visually somewhat messy Respondent tried out the filter settings but later forgot about this and then did not understand why she did not see a new transaction she had just entered. This was not shown because of the filter. After selecting a transaction from the Spending list, the delete and edit buttons are not always visible. For longer lists of expenses and longer receipts, respondents have to scroll (see screenshots below). This is sometimes confusing for respondents.
Use of Insights screen	 Insights screen was generally evaluated very interesting, useful and motivating! Somewhat unexpected feature in a data collection tool and therefore "a nice surprise". However, some options emerged to further improve this: It is not always clear more categories can be seen after scrolling. It is not clear to everybody they can click on parts of the circle to see more details. Some respondents were irritated by the categories displayed that make no sense to them – categories displayed are not always easily linked to expenses they entered. Insights from scanned receipts are only very limited. Differences between insights based on manual entry and scanned receipt not clear for everybody – If you scanned the receipt, then the (sub)category of product on the "Insights" screen was not appropriately named (e.g. "Receiving food and beverage" instead of "Receipt of food and beverage). It is hard to find the connection between the selected product category and the category shown on the "Insights" screen. Some respondents want to be able to understand exactly where the numbers shown come from, it would be

Task description	Summary of test results
Use of Settings screen	 helpful to them if they could see a list of the detailed expenses used for each category. Some users mentioned that similar tools are a common service combined with e.g. loyalty cards and bank accounts. This sets high expectations on usability and usefulness when combined with the HBS tool. Some technical and usability issues raised. Not found and manually added products are displayed as a question mark on the Insights screen. In addition, category names for scanned receipts were unclear, e.g. 'Receipt clothing'. A connection between scanned receipts and category labels was not recognized. A very unpleasant surprise happened when one user took a closer look at the category of 'Other products and services'. There were only few expenses added to this category and therefore the forth sub-category with 0 % displayed on the screen was 'Prostitution'. The user was very confused about this and thought that this was a bad joke made by application designers. Issues found: Settings to set a reminder were easy to find and turn on. One exception was a user with iPhone who did not allow the app to send reminders and because of that he was unable to set it. iOS phones ask permission when you enter the Settings screen, Android phones do not. "on/off" and the related content of the notification from the daily reminder, says it is strange that you have to click on off to switch it on. Contact information was a more ambiguous part of the Setting screen. It was mixed up with user profiles which conventionally are placed in settings. Several users thought they were supposed to complete grey fields with their own phone number and e-mail. Several respondent expect to be able to click on the
Removing the app	contact details and open their phone or email The task was easy. Respondents were instructed that they may remove it whenever they want. They were also told that the app is a test version that might go out of use at some
Other issues not mentioned before:	 point. Issues found: App version not visible in app. Order of the fields shop and date should be the same for manual and scanning. Is now in different order. It is good to know that some respondents will automatically update their app and others not. So if an

Task description	Summary of test results		
	update is needed during field work communication about this is required		

3.5 List of technical issues (bugs) found in the test

Issue	Description
nr	
1.	 Scanning of a receipt: In the first tests it was not possible to scan a receipt because of bug. Updated version partly fixed the problem. At the end of the testing the photo of the receipt was not visible again on Android. It is possible to leave a product group empty, save an expense and move on even if 'Ready' button is grey. In some cases, the scanned receipt is displayed in a horizontal position If you scanned the receipt, then the (sub)category of product on the "Insights" screen was not appropriately named (e.g. "Receiving food and beverage"). It is hard to find the connection between the selected product category and the category shown on the "Insight" screen.
2.	 Manual adding of a product - problems with special letters (like ä, ö, č,ž,š): where not displayed on the 'Not found?' screen and on any other screens after adding an expense with those letters Products containing the letter "c" (e.g. Caj) and which are selected in the search list, then on the "Expenses overview" and other screens were not visible. Letter "č" was working somewhere, somewhere not. If we typed a product that starts with the "ž", "č", "š" letters (e.g., Žakelj) and then select "Not Found", then the product name was displayed without the first letter. Letter like ü and ö can be entered when adding a product of shop, but are not displayed With selecting a shop from the quick list you see corresponding products in your product search. If you manually type in a shop than you don't see corresponding products.
3.	 Navigation inside the app prevent fluent navigation: On some screens it is possible to use a back-button of phone to navigate back and on some screens it is not. Android respondents are used to use the back-button of their smartphone. They could not navigate through the app with this button. You cannot put the app away from the screen via back-button of your phone as you usually can with other apps On phones that have a setting to show larger letter type letters do not fit in buttons The – and + sign of the duplicate buttons work when they are inactive
4.	 Editing a manually entered price: If the price field is tapped twice the screen moves to display the discount field in the bottom of the screen and cursor is not visible.

	 If the user first chooses one product for price edit and then changes to another product, the previously chosen product is removed from the expense. This can be cancelled only by closing the expense and starting again. 			
5.	Insights:			
	 In insights if you scroll down and click on a category the next list starts half way from the top. 			
	 If you scanned the receipt, then the (sub)category of product on the "Insights" screen was not appropriately named (e.g. "Receiving food and beverage"). It is hard to find the connection between the selected product category and the category shown on the "Insight" screen. 			
6.				
	 info in this button cannot be deleted or edited – only overwritten 			
	 You can enter a discount that is higher than total amount of the receipt. 			
	 Registration of discount on only a single product did not function. 			
	- After discount on total is entered and added it is reset to 0, the entered			
	amount should be still visible (but advice is to remove this option anyway)			

3.6 Communication, motivation and overall data collection strategy

3.6.1 Evaluation of materials / strategy discussed in test

The test protocol was adapted to national practice for HBS or surveys on general:

FI:

The respondents were asked to evaluate a draft of brochure that pictured the process of participating in the HBS and included information about the use of HBS data on the reverse side. The brochure was given them after testing and evaluating the app.

Respondents generally liked the visual description of the survey participation; it was found simple and informative. Some critical feedback was directed to the layout. The information about the purpose and use of HBS was considered motivating and interesting. Evaluation of advance letter or other communication materials were not included in the interviews.

NL:

Respondents in the full observation group were provided with an envelope containing a letter with a pre-paid 5 euro incentive and a leaflet about the HBS. The letter was addressed without a name, as is usual in the Netherlands for address/household samples.

For the app we also provided a paper manual of which we explained this contained the information that would probably be put on a website or in the app later.

Some respondents looked briefly at the leaflet and said it was OK, others did not look at it. Some respondents said that the pre-paid incentive was appreciated and raised their interest. Also the promised incentive was discussed by some as a reason to be interested in the survey. With some respondents we discussed at a later point in time in the interview the possibility of interviewers who may call them or visit them to explain and motivate. This was not appreciated. Respondents thought it would be good enough if they can call / message / email if they need help.

SI:

The current practice HBS is to send an advance letter and the leaflet via post. The advance letter does not contain information that respondents will have to keep a diary. At the end of CAPI interview interviewers have to persuade respondents to keep diary. So, we prepared short "additional" letter which will be given to the respondents personally by the interviewer. We prepared the test situation as realistic as possible, as in the field.

The majority of the respondents looked briefly at the "additional" letter. We noticed that the respondents did not look at the additional letter after installing the application (unless they had a dilemma while entering expenses). Respondents said that "additional" letter is brief and informative. With a few rounds of testing we decided to add to the letter the content related to the discount, shopping abroad and to completing the days. We also tested an improved version of the "additional" letter.

3.6.2 Reasons for (not) participating in (app assisted) HBS

Many respondents emphasize that personal benefit would motivate them to take part in a survey. The Insights screen was generally found very useful and the option to keep the app for regular use after the research period awoke interest. The insight functions seem to have potential for an information-based incentive.

Skepticism about participation in the survey was mainly due to high response burden, no need for personal use and already using similar, corresponding app that the HBS app would not bring any benefit.

The approaching methods were only briefly discussed. According to respondents, a paper letter is the most certain way to reach them and it gives a reliable impression. Some respondents in NL commented they might not read the letter as it was not addressed to them, or they would give it a lower priority if they were very busy.

In addition, the importance of confidence and security came up in the interviews. When asking the respondents to download and use a new app in their own devices, it is highly important that data privacy issues are convincingly communicated in the advance letter as well as in the app store.

3.6.3 Need and location of information on response task and app use

All respondents said that they would primarily want information in the app itself (through e.g. Info- or Help-buttons, FAQ). Most respondents did not use the paper manual, but some did. Some said additional info on a website could be useful. Several respondents said they would like a short tour of the app at first use, provided it can be clicked easily away and that information could be found elsewhere/later.

With some respondents in the NL they also discussed the YouTube movies. Such movies may be helpful, but should be much slower and clearer what is being shown.

3.6.4 App use and alternative methods for HBS data collection

We were also interested in which, according to the respondent's opinion and experiences with this app, is the most appropriate mode to collect data for this kind of survey and how they would like to participate in this survey. The majority of the respondents would choose the mobile application as it is always available, easy and fast. Yet, respondents who were less used to mobile devices would prefer web questionnaire as a more familiar tool or to avoid downloading the app. When rrespondents would combine the use of a computer and an app, the app and the computer version should be synchronized.

3.6.5 App assisted data HBS data collection within multiple person households

Respondents were positive to an option to have several family members register the expenses in their own versions of the app. Some said however, they would not expect their husband or teenage son to be willing to do this.

3.7 Use of geolocation and access to other data sources

We tried to explain adequately respondents that permissions are useful to provide them lower response burden and a good mobile experience. However, it came out that it is of great importance to clearly and openly communicate with respondents (via an advance letter, the app etc.) to what exactly they are asked to give a consent for.

3.7.1 Geolocation information

We asked if people would allow registering geolocation so they could see in the app where they had been each day and which shops they had visited. Some respondents would allow this feature and some would not as they did not see the usefulness of this information. Here we received the most "soft" rejections. Many respondents want to avoid "being tracked". Some of them had doubts dealing with rapid battery draining issue on their smartphone.

3.7.2 Scanner data based on time/location

Some of respondents did see the advantages if scanner data could be combined to data collection. They understood this would lower response burden. Some respondents refused out of privacy considerations.

3.7.3 Bank transaction data

Regarding banking data, most respondents were very reluctant. Next to the privacy considerations, here people were also concerned that criminals may get access to their money. The impact of any errors or problems was much bigger here. A practical consideration mentioned was how to deal with several bank accounts in household and business accounts if used.

3.7.4 Data from some loyalty cards

Attitudes towards loyalty card data were similar to opinions about scanner data. This option was not seen as intrusive as geolocation or bank transaction data. Those respondents who used loyalty cards were not in favor of this option, and those respondents who had very few loyalty cards were indifferent to this option.

3.7.5 Other possible data sources discussed with respondents

Bar code scanning might be practical (if you have only a few items to enter), otherwise it was considered too burdensome.

4. Conclusions

It must be noted that we recruited people who were willing to test an app on their phone. Also the respondents in this test have only used the app in the lab or at home for a few days. For a next test round it is advised to include a longer testing period of at least one week. On the one hand this will give respondents more time to learn how to use the app, on the other hand it will give them a more realistic impression of the response burden involved. Other aspects are elaborated below.

4.1 Use of an app for part of HBS data collection

Based on users' comments and observation in the test situation the HBS app seems to be good alternative for traditional paper diary. Respondents liked using the app, saw the benefits for being able to take a picture, and always having the app with them so they can easily update expenses during the day.

Some considerations:

- As testing was individual-oriented instead of household oriented, the first test round does not give a full picture how the app will be received in the context of household data collection.
- Respondents with specific characteristics (i.e. elderly) may not be able or willing to install an app and alternatives to app data collection must be provided to prevent selective non-response.
- In the actual HBS data collection, we must consider solving implementation of user names, passwords or user profiles and back-end development.

4.2 Communication and motivation strategy

In terms of data quality, good instructions and guidance to application use are essential. Besides the guidelines for installing (link to download or QR code) and getting started with the app, the respondents must be properly informed on which expenses they are supposed to register and what information is relevant to the HBS, including information about the purpose and use of HBS data. The interviewers (if present in the process of data collection) have an important role in this process since they are able to give personal guidance

concerning use of the app as well as entering of expenses. The combination of letter and phone call seems a very good way to approach respondents.

Confidentiality and data privacy are important to communicate. These issues must be considered throughout the data collection process, including all materials.

The insight screen motivates respondents as it provides personal benefits. The insight screen might work as an information-based incentive. The insight functions should be developed to be as useful and interesting for respondents as possible.

The respondents expect the instructions/information to be located within the app in the first place.

4.3 App as tested

Overall respondents were very positive about the look and feel and the functionalities of the app. Of course, in this first user test many minor but also bigger issues came up. These have resulted in the list of recommendations below. We think the biggest priorities for a next version of the app should be:

- 1. Explain the response task and the app with information in the app (e.g. tour of the app, help).
- 2. Make real and real-time scanning of receipts possible; this will make the response task much easier
- 3. Redesign the search functionality
- 4. Redesign the manual entry screen
- 5. Make it possible to enter expenses via the calendar

4.3.1 Installation

- Make sure that for use outside of a lab setting respondents only see the app that belongs to their country and do not mistakenly install an app for another country, as they prefer that language.
- Consider to provide a choice of language (but not: country specific search lists!) within the app after installation.
- Improve layout start screen for iPhone (more space horizontally) see the picture below.



4.3.2 Help information

1. Offer a short tour on fist opening of the app, but make sure this can be clicked away (if not want to use it) and be accessed again later.

2. Provide (links to) extended help in a separate screen and/or via a button that is always visible.

3. Consider to integrate help with settings and contact info screen.

4.3.3 Calendar screen

- Make it possible to start entering an expense when clicking on a day. Instead of the empty screen develop a screen that has the following functionalities; allow entering expenses both manually and with a picture, an overview of expenses already entered for that date and an option to complete a day. For the part where there a no expenses visible yet, present a grey icon or something to indicate that this part of the screen may be filled with entered expenses.
- 2. Show the "quick start" entry buttons also in the day screen.
- 3. Explore if it is possible to find a way to build in "completing a day" more naturally in the response process:
 - by asking after entering an expense for a certain date if they have now entered all expenses for that day (but this may not work well for people who complete during the day) or by asking after a day has passed if they entered all expenses for that day / are sure they did not have to report any expenses and if they want to complete the day.
- 4. Explain why and how to complete days in the introduction of the app. Also explain that after completing a day expenses can still be changed.
 - If a day has been completed this should be shown when opening that day.
 - If a day is completed without expenses give a popup message "Did you have no expenses this day?" that can be closed with OK or Cancel
 - If a completed day is edited it should be completed again. If this is not done that should also be visible in the calendar.
 - Make a visual difference between days without any entries and not completed, days with at least one entry but not completed, completed days.
- 5. Make all numbers in the calendar white or black if there is no functionality attached to this color differences.
- 6. Put "more information" somewhere else, preferably in a way that it is visible in each screen.
- 7. Remove bug that allows reward earned to show 31/30, where this feature is available.
- 8. In the test the reporting period was fixed, for real fieldwork this may be problematic as respondents may start too late and have not kept track of expenses. May be easier to start reporting period the day the app is installed or give the possibility to manually enter in back-end by administrator.

4.3.4 Search lists for stores and products/services

Improving this functionality should be a priority. Redesign might be done as follows:

- 1. The possibility to search by typing is not easily recognized and the "Not found" button either. On first opening of a search screen only show a search field.
- 2. Once respondents enter something check if this matches our lists of items that can be coded, if so: accept entry (for example women pants) if not give a limited amount of option that are in our lists of items (so do not show words that have been typed in before by other respondents.) For example, if somebody types in pears we give the choice between pears- fresh fruit; pears-in glass or can; pear- frozen food and other. If respondents choose other, we may have to design some follow up questions to improve coding.
- 3. Present long lists of suggestions in alphabetical order and with scrollbar visible.
- 4. Consider if once an item is coded the category should be shown (e.g. fresh fruit) as respondents will see these categories in their insights.
- 5. Add an option to make products/services/stores favourite and show them in an alphabetical list under the search field.
- 6. Make sure options are never pre-selected.
- 7. Remove grey arrows after search options.

4.3.5 Scanning receipts

- 1. If possible: only ask for access to the camera for pictures (not video or audio).
- 2. Prepare respondents for the request for access to camera, by introducing making pictures of receipts more prominent in communication materials and intro to the app.
- 3. If respondents have denied access but try to use the camera later, explain that they should change permissions and how they can do that. If possible, make the permission pop-up appear again when they open the camera again.
- 4. Explain what we want to use the scanned receipts for, namely to read all items and prices and store characteristics (e.g. online/abroad).
- 5. The best solution of course would be to real time scan the receipts, show respondents the data, and give them an option to validate and change.
- 6. If we can only do this in the office it would be very helpful if we give respondents as soon as possible the data back and give an option to validate and change; this detailed feedback is also important to make the insights more informative and logical
- 7. Build in a functionality to pinch zoom on the picture (so respondents can check quality).
- 8. Give some guidelines for making a picture on first opening of the camera
- 9. If possible give feedback on quality of the picture
- 10. Allow to make remarks to state additional items to a scanned receipt and the option to state certain items should be removed (if they were bought for and paid for by someone outside the household).
- 11. Change icon for retaking the picture into something with a camera
- 12. Change product categories into more logical categories and order that is more logical; consider if we should allow respondents to select multiple categories.

13. Always give a warning if respondent leaves the screen in which something has been entered without saving.

4.3.6 Manual entry of receipts

Redesigning this screen should be a priority. Overall guideline is that it should be easy for respondents to enter the receipt as they see it and also recognize this in the entered data.

Overall screen design

- After a shop has been entered show shop name (as entered by respondent) and date in the title of the screen instead of "new transaction". This will hopefully help respondents understand that they are entering items for a specific store/date/receipt
- 2. Change logic so that after entering a product and price they can choose between Ready (or Save?) and Next product/price
- 3. If they only have one item they should not have to click both "add" and "complete"
- 4. Always give a warning if respondent leaves the screen in which something has been entered without saving.

Detailed fields

- 1. Consider to change light-grey text in date field to Select date
- 2. Change light-grey text in price field from Enter price to Enter price of product/service
- 3. Consider to make a field "Number" below the price field and for the option to duplicate items, put it default on 1.
- 4. Consider if is better to show the list of already entered items in the top of the screen in a scrollable field.

Adding identical products

- 1. Redesign plus functionality possibly best as a separate field below the price.
- 2. Show products that have been entered with the "x +" button not as an individual line for each repetition but for example as "cat food 12×1.15 13.80"
- 3. Include in instructions that products from the same category and same price may be entered using the 'x +' button.

Discounts and refunded deposits

- 1. Allow the entry of negative amounts.
- 2. Do not put discount in a separate field but let any discount be entered as an item on the receipt (as it is).
- 3. If possible design an option to indicate that a specific discount is related to specific items in the transaction, if possible also use the discounted prices for the insights.

Expenditures abroad

Include in instructions what we mean exactly by abroad. Should the payment be done in person abroad or are also on-line payments to foreign businesses intended?

4.3.7 Spending screen

- 1. If search function is activated show a white search field (now field remains blue).
- 2. If a filter is active make this always visible to avoid confusion. Consider to remove the filter function or to remove automatically filters after a new entry is made.
- 3. After entering a transaction open spending screen on the last transaction entered.
- 4. Give warning if respondents remove an item.
- 5. Consider to have an undo button
- 6. Make days more visible in this screen

4.3.8 Editing transactions that have already been completed

- After selecting a transaction from the Spending list, the delete and edit buttons are not always visible. For longer lists of expenses and longer receipts, respondents have to scroll (see screenshots below). This is sometimes confusing for respondents. Make it possible to have these buttons always visible after opening a transaction.
- 2. After deleting a transaction from the Spending list there is only shortly an undo option visible but that disappears rather quickly and cannot be found again. It is recommended to prevent unintended deleting of transactions. Maybe with an undo button that is always visible and/or maybe with a warning before deleting.
- 3. Within manual transaction the edit/delete buttons are rather small and/or too close together. Consider if buttons should be bigger and/or further apart. Always give a warning to prevent unintended deleting. Consider an undo button.



4.3.9 Overview/insights screen

- 1. Rename categories to groups more meaningful to respondents
- 2. Make sure all names of categories can be seen fully if clicked upon
- 3. Add scrollbar to list of categories
- 4. Consider to make it possible to somehow find / see the detailed entries related to amounts shown in this screen

5. Consider to show amounts with two decimals to improve the ease of recognizing which expenses the amounts are based on.

4.3.10 Settings screen

- 1. See if the request for allowing push notifications can be linked to actually setting the notification.
- 2. Change notification agreement in a switch button
- 3. If notifications are not allowed for the app and respondents switches notification on, ask again for permission or give a warning and explain how respondent can change settings for the app.
- 4. Consider integrating on this screen also the extended help options of course, screen must be renamed than.
- 5. Make telephone number and email clickable so they automatically open phone / email

4.3.11 Other recommendations

- 1. If possible: allow navigation via Android telephone buttons
- 2. Change layout to accommodate large letter settings.
- 3. Consider using speech for data entry
- 4. Develop functionalities to share the app within a household
- 5. Develop functionalities to enter data both on PC and phone
- 6. Include any additional questions/questionnaires as much as possible in the app make it possible to use only the app when participating in the survey.
- 7. Show version number in the app
- 8. Add currency in the app (not necessarily in a way that respondents can change it, but to show in which currency we expect data).
- 9. Keep order of fields / content as much as possible identical over screens.
- 10. Fix bugs as listed
- 11. Explore scanning of barcodes as an option to add easily product descriptions (or even prices?)

4.4 Data linkage within the app

Most respondents are rather sceptical about allowing data linkage to other sources such as geo locations, scanners data or banking data. Several indicate that they have become more careful with these things, as there are so many examples now of data-leakage issues. However, if they see an added value it will be something that some respondents might consider using. Most respondents did not see an added benefit of just showing geo locations as a reminder of possible expenditures. However, it must be noted this was only discussed theoretically and with respondents who only used the app in the lab or for a couple of days.

For extended reporting it may be helpful for respondents to have some reminders of where they were each day.

4.5 Recommendations for next tests

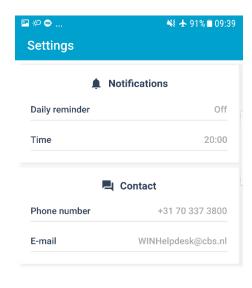
- 1. For a next test round it is recommended to include at least some test respondents who use the app for a longer time period (at least a week).
- 2. For a next test round we should look for different recruitment methods to make sure we also have more respondents with a lower education and respondents with attachment to the NSI should be avoided if possible.
- 3. In the next test round spend more time on testing the insights screen. Ask respondents to describe what they are seeing in the insights.

References

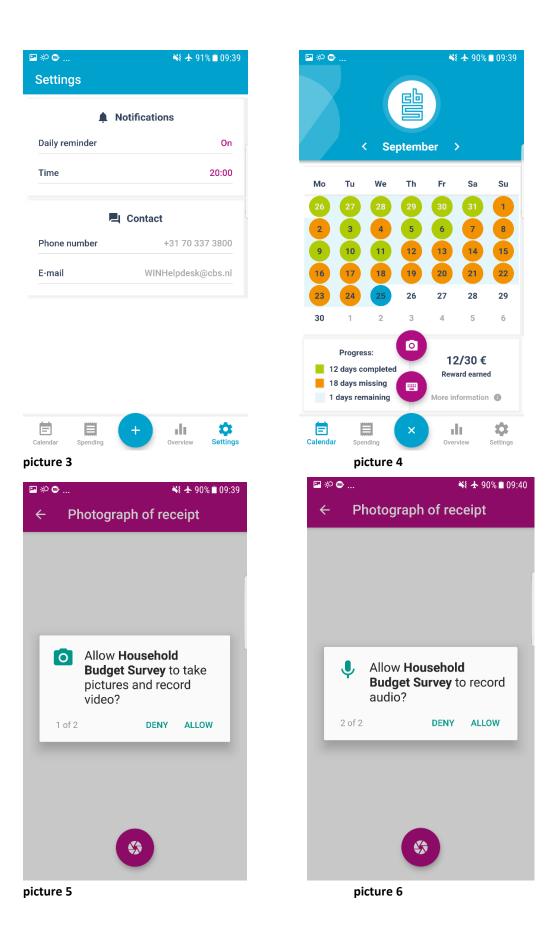
- 1. National reports from Statistics Finland, Netherlands, Slovenia
- 2. Giesen D. (2019), Testing Materials Test August-September 2019, 28 August 2019

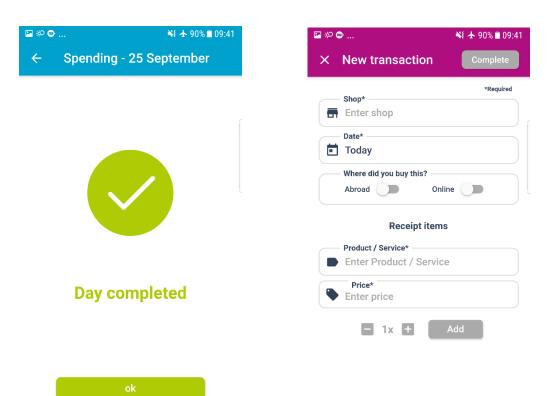
Appendix 1: Screenshots of the app









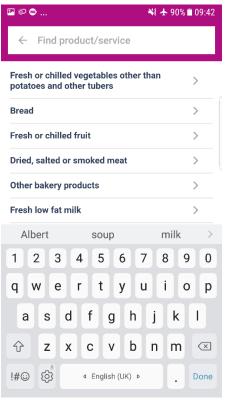




picture 8

P 🕫 🖶	¥ 🛧 90% 🖹 09:42
← Find shop	
Grocery store	>
Catering industry	>
Drugstore or Perfumery	>
Petrol station	>
Clothing store or textile store	>
Shoe store	>
Department store	>
Liquor store	>
Tobacco shop	>
Electronics store or Kitchen appliar	nces >
Construction market	>

picture 9



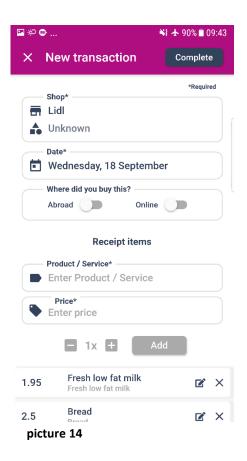
New transaction Complete Receipt items Product / Service* Enter Product / Service Price* Enter price I.95 Fresh low fat milk 2.5 Bread Bread Bread Complete	9:43
 Product / Service* Enter Product / Service Price* Enter price 1x + Add 1.95 Fresh low fat milk 2.5 Bread Bread 2 5 Strawberries 	
 Enter Product / Service Price* Enter price 1x + Add 1.95 Fresh low fat milk 2.5 Bread Bread Strawberries 	
 Enter price 1x + Add 1.95 Fresh low fat milk Fresh low fat milk 2.5 Bread Bread S Strawberries 	
1.95Fresh low fat milk Fresh low fat milkImage: Comparison of the comparison of th	
1.95 Fresh low fat milk 2.5 Bread 2.5 Strawberries	
2.5 Bread	×
	×
	×

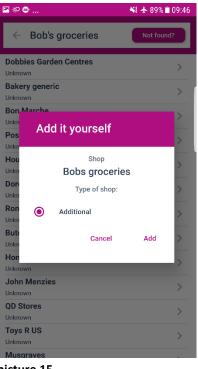


picture 13

☞ 🕫 🗢 💐 🛧 90% 🛢 09:42				
×	New transaction	Complete		
	Receipt items			
	Product / Service* Enter Product / Service			
	Price* Enter price			
	🗖 1x 🛨 🚺	Add		







🖻 🖗 😁			💐 🛧 89%	09:47
Spend	ing		Q	Ŧ
	Wednesday,	18 Septer	mber	
a	Lidl Unknown		6.95	^
Strawb Additio			2.5	
Bread Bread			2.5	
	ow fat milk ow fat milk		1.95	
	Delete		Edit	
	Monday, 9	9 Septemb	er	
-	Lidl Unknown		9.97	~
	Saturday,	7 Septeml	ber	
-	Miss Selfrid	ge	9.95	~
E Calendar	Spending	+	Overview	D Settings
picture 1	7			

🖾 💬	💐 🛧 89% 🖹 09:47
× New transaction	
Receipt items	
Product / Service*	•
Part and	
Enter discount	
Percentage	Total
- () % or	- 0
	_
Cancel	Add
	_
Discount	Total amount
Siscount	0.00
picture 16	

💌 🌣 🚥 ... 💐 🛧 89% 🗎 09:47 Overview Ŧ By category Main categories Food and non-alcoholic ... 87% E Clothing and footwear 11% Miscellaneous goods and ... 3% Alcoholic beverages, tobacco ... 0% €3 €10 -Total: €92 €80 dt. \$ Ē Calendar Spending Overview Settings

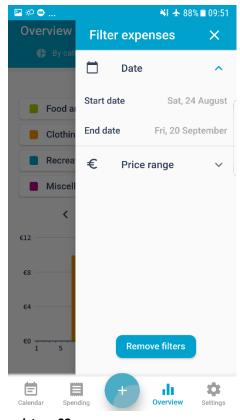


picture 19

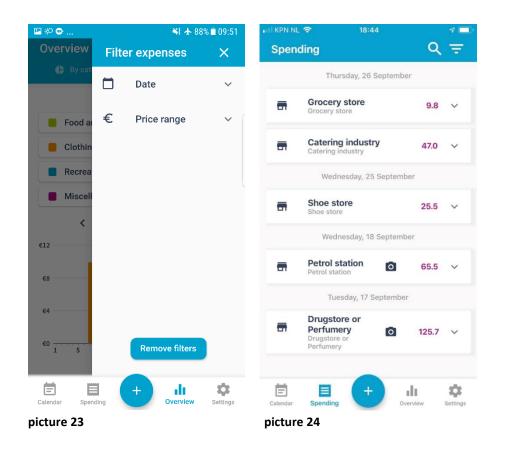








picture 22



KPN NI	- 🗢 18:48		7 🗖	🕨 📶 KPN NL 🗢	18:48	1 🗖
Spen	ding	Q	Ŧ	Spending		Q =
				Mineral or spring		2.5
	Thursday, 26 Sept	ember		Mineral or spring	waters	
_	Grocery store			Mineral or spring	waters	2.5
-	Grocery store	9.8	~	Mineral or spring	waters	
				Pizza and quiche		7.5
—	Catering industry	47.0		Pizza and quiche		
Π	Catering industry	47.0		Pizza and quiche		7.5
				Pizza and quiche		
Iced		3.0		Pizza and quiche		7.5
Soft	drinks			Pizza and quiche		7.0
Iced	tea	3.0				
Soft	drinks			Tea Tea		1.5
Mine	ral or spring waters	2.5		Tea		
Mine	ral or spring waters			Теа		1.5
Mino	ral or spring waters	2.5		Теа		
	ral or spring waters	2.0		Теа		1.5
				Теа		
	ral or spring waters	2.5		Теа		1.5
Mine	ral or spring waters			Tea		
	ral or spring waters	2.5				
Mine	ral or spring waters			Delete		Edit
Mine	ral or spring waters	2.5		Delet	e	Edit
Mine	ral or spring waters					
首		L.	-	-		1
Calendar	Spending +	Overview	Settings	Calendar Spending		Dverview Settings
		OVELVIEW	Jornings			John Seranga
cture 2	25			picture 26)	

III KPN	NL 🗢 18:39	۹ 🔲
×	New transaction	Complete
_	Shop*	*Required
	Catering industry	
	Catering industry	
	Date*	
	Thursday, 26 Septen	nber
	Where did you buy this?	
	Abroad	Online
	Receipt ite	ime
		ins
	Product / Service*	ice
	Price*	
	Enter price	
	🗖 1x 🕀 🌘	Add
1.5	Tea Tea	e ×
1.5	Tea Tea	e ×
pictur	e 27	