POLITECNICO
MILANO 1863

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Mobile Application: IO

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Executive Summary

IO is a mobile application that acts as a single access point allowing users to interact with local and national Italian public services. The group members performing this study were responsible for assessing the IO mobile application in terms of usability. A heuristics evaluation was implemented to identify potential pain points across the interface of the product. With the results of the heuristics evaluation in mind the team conducted an onsite usability test between the 6th and the 11th of March 2022 in Lombardi, Italy. The test was administered in the private households of the users. The purpose of this test was to evaluate the usability of the mobile application interface design, the navigation, and information architecture of the product.

Since IO is used by both Italians and expats living in Italy, two main categories of users were Identified: Italians and Foreigners. In total, seven adult users participated in the test: four Italians and three Foreigners. Each testing session ranged between thirty and forty minutes. Users were asked to complete five scenarios related to Italian public administrative tasks that the IO mobile application assists in fulfilling.

Overall, all the participants found the mobile application to be difficult to navigate and at different stages in the test all participants misinterpreted some content that they saw on the phone screen. Only one out of the seven participants was able to complete all the five scenarios successfully.

The study Identified problems including:

- Participants were confused by the underlying organization and structure of the content of the mobile application.
- Inconsistency between what participants could do and what they thought they could do.
- The lack of a homepage.
- The lack of hierarchy of information within layouts prevented users from efficiently reading screens.
- Tasks could be achieved in a more efficient manner.
- Affordances and visual elements were misinterpreted by participants.
- The lack of responsiveness to gestures participants are used to employing in other digital solutions.
- The lack of consistency in language and terminology throughout the mobile application.

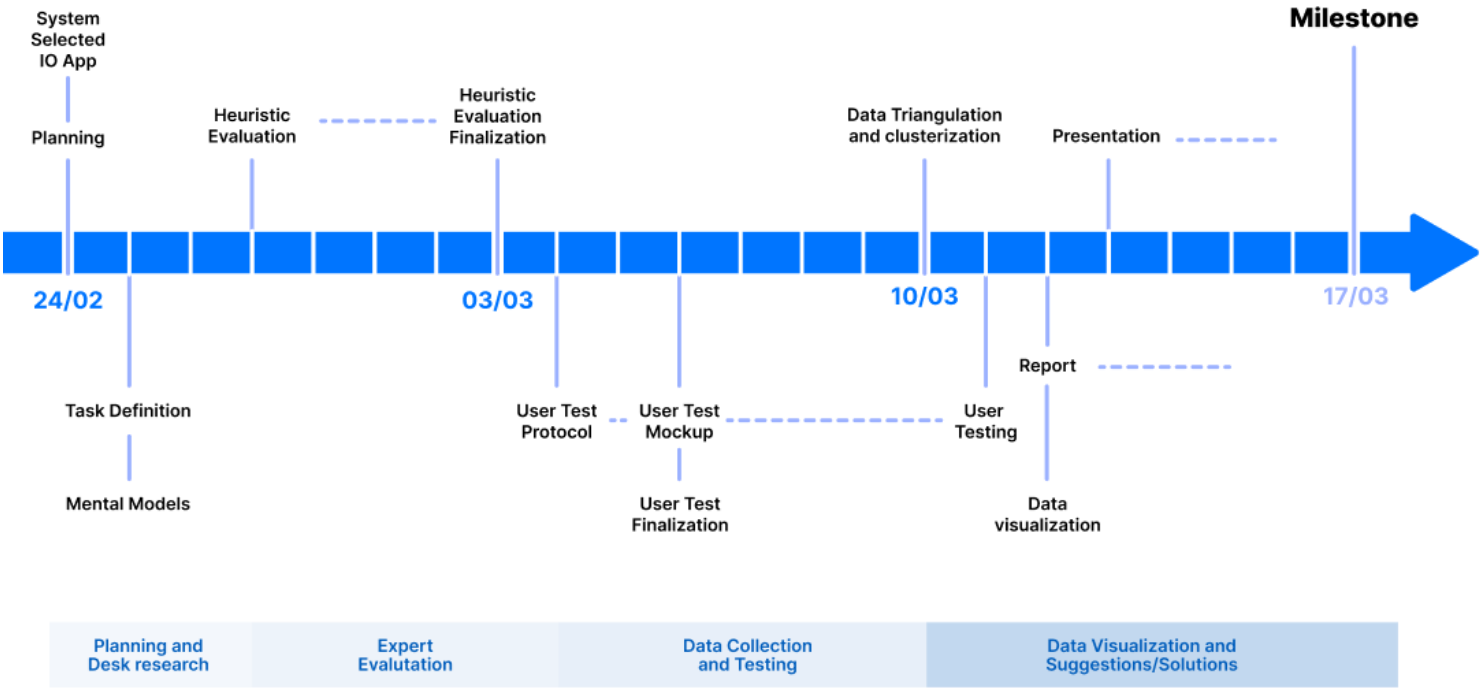
This report showcases the methodology followed throughout this study and contains all the documents pertaining to the process of generating and measuring results.

Introduction

IO is a mobile application that lets users in Italy interact with public administration facilities, both local and national, to inquire and profit from their services and to complete some financial transactions. IO also allows users to store some public documentation like the Codice Fiscale and the Green Pass. IO serves as a digital solution that facilitates the public administrative process of typical Italian citizen as well as Foreigners living in Italy (however they need to have a SPID or CIE to get access to the mobile application). The assessment of the IO mobile application was conducted by a team made of four members: Elie Barakat, Marco De Cristofaro, Manuel Reale, and Martine Saxebol. The team consisted of two Italians and two Foreigners: this allowed the group to evaluate the application from the two points of view of the prospective users. Given that IO connects many stakeholders ranging from local and national public administrations to the average civilian, the scope of the study had to be framed precisely. It was crucial for the team members to understand exactly what the application allows users to do and if it does it efficiently to be able to articulate obstacles that people could face while using IO. Five main tasks were identified as being the core features of IO: storing the green pass, accessing the information of public administrations, completing PagoPA payments, searching for discount cards and checking messages from public administrations. The group conducted a heuristic evaluation to highlight potential problems and proceeded to develop a usability test to validate some theories from the heuristics evaluation and to discover additional problems that might arise while users complete typical scenarios of the five tasks previously outlined. The high number of stakeholders surrounding IO (and the lack of coordination between them) is manifested throughout the application as there are discrepancies in the content. The team examined usability problems that manifested in the heuristics evaluation and the usability testing however the space for intervention is limited by external factors that users do not take into consideration while evaluating the application. The challenge of this study lies in the difficulty of remedying potential usability interventions with all the administrative and legal restrictions needed to run IO. In addition, the IO mobile application is still in development and is constantly being updated: the team members had to distinguish between problems that would be considered as fundamental and others that could be considered temporary. The report will begin with a detailed explanation of the methodology adopted by the group conducting the study then proceed to share the data collected and how it was treated to come up with recommendations that will improve the usability of the IO mobile application.

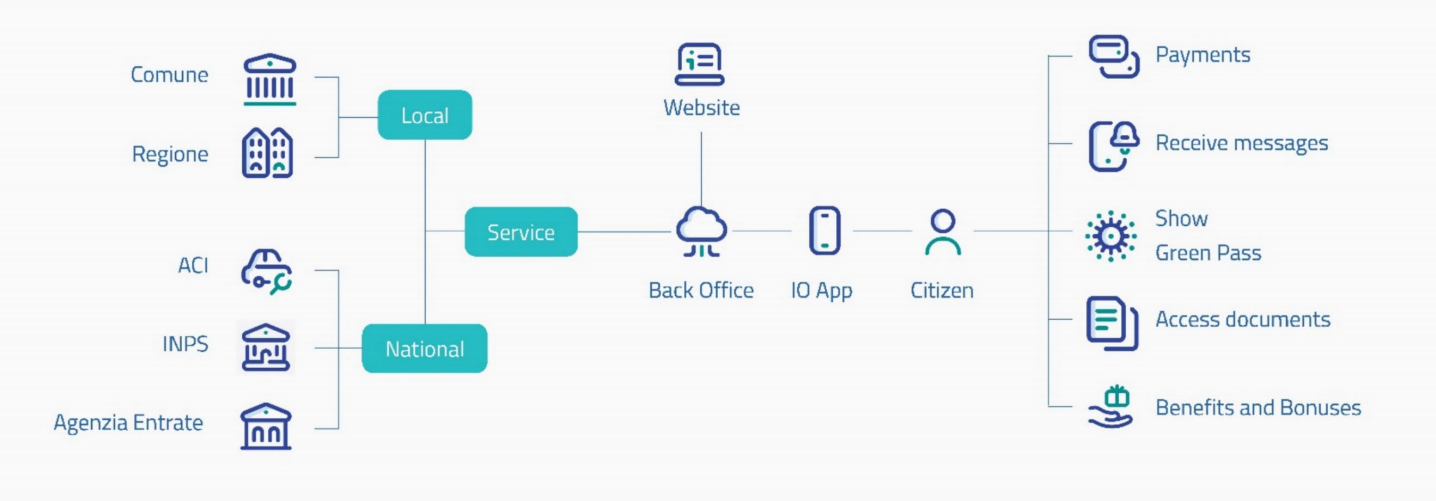
Methodology

The following timeline represents the chronological order of the steps adopted by the team members to conduct the study.



Ecology Map

Given the number of stakeholders involved with IO, the team members initiated the process by placing IO within an ecosystem map to understand the relationships between the different stakeholders and the role IO plays as a mediator inside that system. It became evident that there were multiple touchpoints (public administrations) for the citizen to interact with within that ecosystem however IO acts as a facilitator and reduces the number of touchpoints to two. It should be noted that IO is available either in mobile application format or in website format however the website merely acts as a informative touchpoint that promotes IO to potential users and does not allow them to perform any tasks. For the sake of the study the IO mobile application will be considered as the only touchpoint.

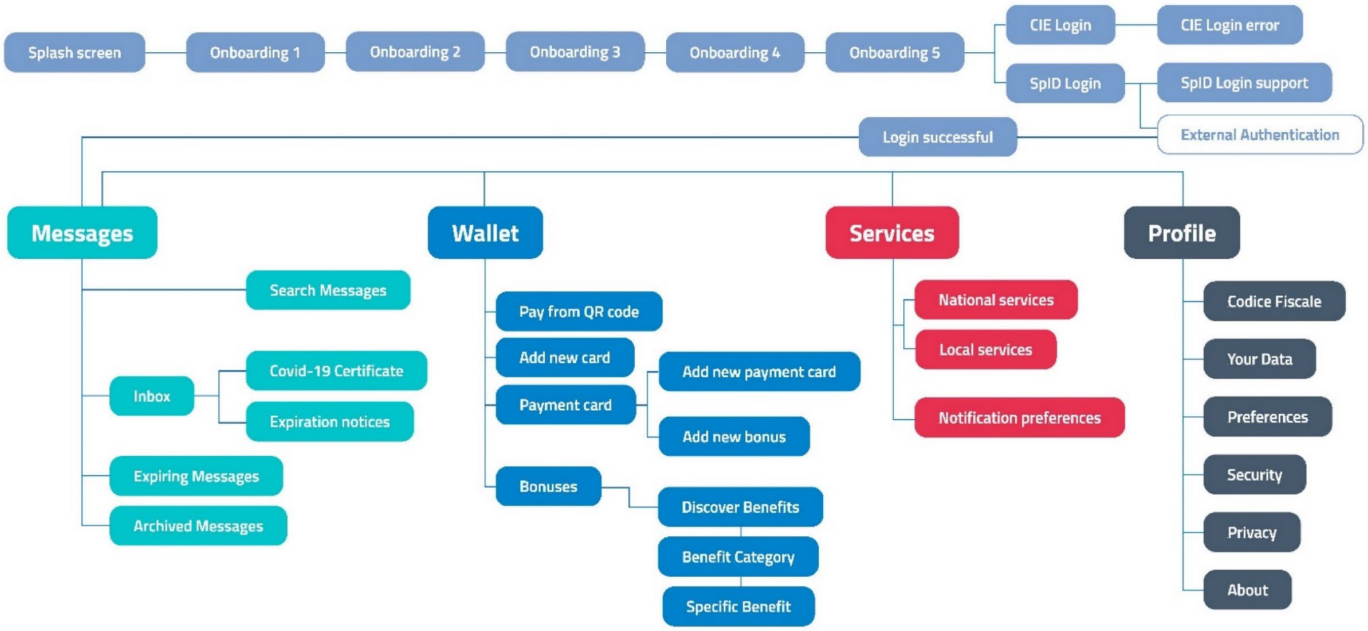


Information Architecture

The team members proceeded to analyze the IO mobile application through an information architecture map to assess it in terms of content and functionality.

Through understanding exactly what services IO offers and what actors are at the ends of these services the team was able to extract five main objectives that users can complete through the IO mobile application:

- Storing and showing the green pass,
- Looking up information regarding public administrations in Italy.
- Completing PagoPA payments.
- Searching for and adding discount cards and bonuses.
- Checking messages from public administrations.



Mental Model Diagrams

Since IO is a nationwide digital solution, it will cater to a wide range of users: from young adults to senior citizens, all genders, sexual orientations, various physical abilities, and cultural backgrounds (even if the app is for dealing with Italian public administration Italy hosts a fair share of foreigners that have access to IO if they have SPID or CIE). IO must be as easy to use and as inclusive as possible to effectively cover the wide array of potential users. Having outlined the five specific objective, the group went on to develop five mental models to explore the mindset of users achieving these objectives and to evaluate what possible advantages other ways of completing the objective could have over completing the same objective using IO. The mental models explored practices that various types of users could follow to ensure that the analysis is all-encompassing as can be. This comparative process revealed some advantages other solutions have over IO and revealed potential spaces for intervention however the number and nature of stakeholders impose different economic, administrative, and legal restrictions that might block the implementation of these solution. It was important for the team conducting the study to frame a specific scope of analysis that is limited to IO and delineate boundaries that do not include modifying other touchpoints. The mental model diagrams are attached in the appendix of this report.

Heuristics Evaluation

With the results of the previous steps and with the parameters set, the team members took on the roles of usability engineers and evaluated the interface pertaining to the path to followed in order to complete each of the five tasks previously stated from the point of view of users all while keeping in mind design rules. Each of the four members retraced the path needed to reach every objective and inspected the interface individually and recorded problems that they discovered and then rated these problems based on Jakob Nielsen's '10 Usability Heuristics for User Interface Design'. Each member took screenshots and pointed out pain points individually to prevent any potential bias that might arise while working collectively and to also ensure that the highest number of prospective problems was covered since different people uncover different usability problems. The four evaluators then communicated their findings and discussed the results. It is interesting to note that even when different evaluators pinpointed the same problem, they had classified it under a different heuristic or assigned to it a different level of severity. Level of severity was calculated based on the impact, frequency and persistence of the problem. The four team members proceeded to discuss in detail the outcomes of the individual interface inspections and following a user-centered approach collectively recategorized and re-evaluated the violations in one finalized table that sums up the results of the heuristics evaluation. Said table is attached in the appendix of this report.

Usability Testing

After having identified several potential pain points within the paths that users follow to achieve the five main objectives previously stated the team needed to validate these theories by conducting usability tests on users. Furthermore, usability testing would uncover how easy it is for typical user to consume IO and it could also reveal problems that could have been overlooked by the team that conducted the heuristics evaluation. The results of the heuristics evaluation and those of the usability testing will be triangulated together to synthesize possible recommendations that will improve the IO mobile application.

Given the short time span and limited resources to conduct this study, the team worked on developing an informal usability test. The usability test would inspect the process of participants trying to achieve the five main objectives outlined through the IO mobile applications. Based on those objectives, the team defined five scenarios for the participants of the usability test to complete. Before designing the test, it was important for the group members to identify what they needed to know and measure. Is IO supporting users achieve their goals in an effective and efficient manner? What is it about IO that is allowing or preventing users from completing the tasks they set out for? These are the questions that the usability test had to provide answers to.

The test will begin by gathering data that could be used to clusterize the participants (age, gender, nationality, experience with IO, experience with other digital solutions that assist in public administration matters...). It was important to capture both qualitative data (thoughts/concerns they had) as well as quantitative data based on a set of predetermined metrics that assess the efficiency, effectiveness and satisfaction rate while participants are completing the tasks. To gather the qualitative data the team decided to follow the Concurrent Think-aloud Method (CTA) where they asked participants to narrate their thoughts as they occurred to them simultaneously while they were completing the tasks. This would prove to be insightful because it would reveal how users read the interface of the IO mobile application before interacting with it. Since completing public administrative responsibilities in person usually triggers negative emotions, the team thought it would be relevant to measure the emotions of the participants after having completed each task to further understand if the IO digital solution can relieve citizens of possible negative emotions they might develop had they opted for the traditional alternative. The test would also reveal implicit and explicit emotions that mirror what works or what doesn't work within the IO mobile application. The tool to measure emotions adopted for the sake of this study is the Premo tool since it can give quantifiable results, allows for mixed-emotions profiles and has been scientifically validated across different cultures. The Premo test is relatively simple to administer, participants are shown fourteen emotions that cover the human repertoire and are asked to pick up to three and rank them according to intensity of the emotion felt. The Premo test will be administered five times throughout each usability test to measure the emotions of participants directly after they tried to complete one task. Once the participants have

completed the five tasks, they will be asked to answer a set of questions that will reveal the satisfaction level throughout the completion of the scenarios.

As a preliminary measure, the team conducting this study administered the usability test on a twenty-four-year-old Italian woman was has professional experience in user experience design. Administering the first test to this participant, who will be referred to as User Zero, reassured that the test should not last more than forty-five minutes however it exposed issues in the initially planned test:

- The test administrators need to emphasize the importance of the Concurrent Think-aloud Method at the beginning of the test because the participant kept forgetting to narrate her thoughts and some choices that she made while completing the scenarios were not explained.
- The test administrators need to explain the Premo test in a clearer way because it was unclear to the participant if she had to rank the chosen emotions chronologically or according to intensity.
- The participant used a different way of logging into SPID than that used by the team members while conducting the tasks. This made it evident that the test should measure the tasks as if the participant has already logged into IO (with SPID or CIE) to establish a common starting point. This was decided because the login process is out of the scope of this study as it differs through users and different phones support different features (IOS allows for facial recognition and Android allows fingerprint logins – both features that speed up the process while older phones do not offer any of these features and users have to login the conventional way which is slower).

After the preliminary testing the group revised the usability test and came up with the following framework that they followed to administer the usability test:

<u>Part One</u>

1. Introduce everyone administrating the usability test to the participant and explain the purpose of the study.
2. Ask for consent to record the usability test and to share results of the results of the test.
3. Disclose to participants that the test has three parts: brief questions, scenario completion and finally a post-test survey.
4. Categorize participants based on the following questions:

    - How old are you?
    - What is your gender?
    - What is your Nationality?
    - Are you a student or a worker?
    - Do you deal with documents and public administration often? If yes how often?
    - Do you know what IO is? (If they answer no explain what IO is).

- Have you used IO before?
- Do you use digital solutions for public services tasks or do you do those procedures in person?

Part Two

1. Tell participants that in this part of the test they are asked to complete the five different scenarios.
2. Explain Concurrent Think-aloud Method and clarify that it is crucial for participants to share as many of their thoughts as possible.
3. Make it clear that for the participants that there are no right or wrong actions during the test and that they should behave as freely as they can.
4. Explain to participants what the Premo test is and how they should share their answers to the test and explain their choices to the administrators after having completed each of the scenarios (ask questions like “what made you feel this way”).
5. Login to IO using administrator’s personal SPID.
6. Ask participants to complete the following five scenarios:

    - You are waiting in line to enter a restaurant, and you need to show the Green Pass to enter.
    - You received a PagoPA bill in your post. Pay it with the IO mobile application.
    - A friend told you about discounts in the IO mobile application, you are interested, find the ones that are available to you.
    - Read messages you received in the IO mobile application, and archive or delete the ones you don’t find useful anymore.
    - A friend asked you if you can help him to find the number of the “Anagrafe” office in the Comune of Milano. Find it in the IO mobile application and send the number to him via Whatsapp or a messaging application.

    N.B: While participants are completing each scenario, one of the administrators is responsible for taking notes of the verbal comments of the participant while another administrator is responsible for measuring the following metrics:

    - Task time.
    - Number of steps taken by participants to complete the scenario.
    - What obstacles did the participant face?
    - Did the participant ask for assistance? If yes for what?
    - Did the participant complete the task successfully?

Part Three:

1. Ask the following questions:

    - Did the app meet your expectations?
    - Do you see yourself using IO? For what? How often?
    - What did you like the most about this product?
    - What did you like the least? Did any parts cause frustration?
    - Do you think is there a better way to perform the tasks that you just did?
    - If users navigated to a different section within the application to complete a task that cannot be completed from there ask: why did you ..... to do ..... ?
    - Did you find the aesthetics of the application appropriate to its purpose? Why?
    - Will IO effectively help you organize and achieve your public service tasks? Why? What features is it lacking?
    - Was it intuitive to perform the specific tasks you've done? why not or what was in the way?
    - Do you have some thoughts you want to add?

Finding Participants

After having laid out the plan of the usability test to be followed, the team members needed to find participants that fall within the range of IO target users. Since IO is a mobile application for dealing with public administration matters in Italy it caters to a diverse range of potential users and should be as inclusive as possible. To set some parameters, the group members doing the study decided to look for both Italian and Foreign participants to include them in the usability testing. It should be mentioned that the IO mobile application is available in Italian, English and German and this indicates the creators' intention to cater to a Foreign or non-Italian speaking set of users. Since IO does not target a specific age range, participants recruited for the test had to be diverse in age and digital experience to ensure that the usability test covers problems that might be faced by users who belong to different age groups. Based on those parameters, the following seven participants were invited to undergo the usability testing. It should be acknowledged that the small pool of participants, even if relatively inclusive, does not represent the extensive scale of people living in Italy and the various aspects that could differentiate them.

User	Cristina	Alessandro	Robin	Clara	Sara	Hazal	Amanda
Age	36	23	23	53	25	26	24
Sex	F	M	M	F	F	F	F
Nationality	Italian	Italian	Italian	Italian	International	International	International
Status	worker	worker-student	Worker-student	Worker	Student	Worker	Student
IO Experience	Yes	No	Yes	Yes	No	No	No

Table showing details of user testing participants

Test Procedure

Administrators conducted the usability testing in pairs at the individual homes of the participants. All of the tests were administered in person between the 6th and the 11th of March 2022 in the region of Lombardi, Italy. Administrators worked in pairs to ensure that all the qualitative data (thoughts from the Concurrent Think-aloud Method, answers to questions) and the quantitative data (metrics measured, Premo test results) were thoroughly documented. In addition, after getting the consent from the participants, each session was recorded with a video camera and the paths participants took to complete each scenario was documented through phone screen recording. This was done to ensure that all aspects of the usability test were being recorded in case the team members needed to fill-in any missing data.

Data Compilation

The usability test results were then compiled and summarized in order for the team conducting the study to be able to analyze them and triangulate them with the results from the usability testing. It should be noted that even if participants that underwent the usability testing did not encounter all of the problems highlighted in the heuristics evaluation, these unanswered problems should not be discarded as they may be encountered by other users who did not undergo the usability testing.

Results

Collected Data

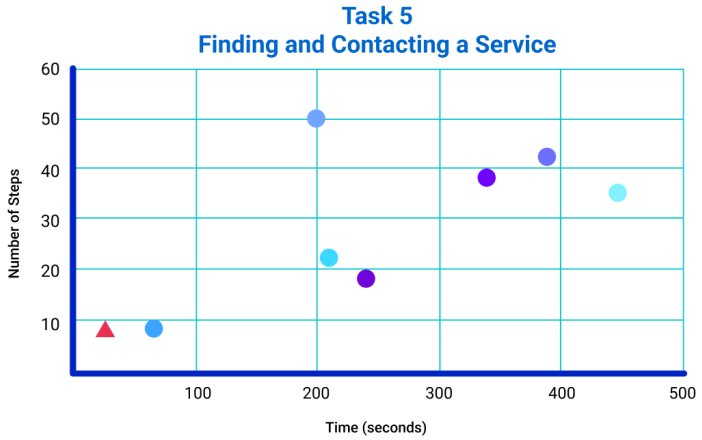
The data collected from the heuristics evaluation allowed the team conducting the study to identify problematic aspects of the interface of the IO mobile application. It led to the identification and rating of pain points according to their severity. This data will be compared to the data generated from the usability test to understand if the problems identified within the interface and their severity correlate to the behavior of the participants completing the five scenarios using the IO mobile application. The match or mismatch between the results, as well as the recognition of new problems highlighted in the usability test will allow the group to give recommendations to improve the usability of the IO mobile application. In order to thoroughly process the data it was important to characterize it, determine what can be understood from it as well as acknowledge restraints it may have:

- The quantitative data collected simultaneously while users were completing each scenario (task time and number of steps taken by participants to complete the scenario) showed the efficiency and effectiveness of the interface in allowing the participants to reach their objectives. Given the small number of participants these metrics cannot be used as statistical data that represent the user base of IO however they were helpful in validating previous findings. Moreover, it should be noted that perhaps these metrics were affected by the Concurrent Think-aloud Method: as participants were narrating their thoughts while completing the scenarios it is possible that the narration slowed down the process of completing the task or maybe even affected the navigational choices of the participants that might have been more inattentive without the Concurrent Think-aloud Method.
- The quantitative data collected from the Premo test after participants had completed each scenario allowed the team to detect common emotions experienced in the same scenario across various participants throughout the test. This data also cannot be used as statistical data that represent the user base of IO given the small number of participants.
- The qualitative data collected from the Premo test that clarifies why participants felt those emotions gave direct explanations as to how interacting with the elements of the IO interface made participants feel. It should be noted that in some cases, participants chose positive emotions after having expressed negative thoughts that the team captured through the Concurrent Think-aloud Method. One possible explanation for this could be that participants felt proud or happy to have completed a difficult task. In any case, the data from the Premo test was seen as biased when there was a mismatch between the narrated thoughts of the participants while completing each scenario and the emotions chosen at the end of that scenario.

- The qualitative data collected from the Concurrent Think-aloud Method has showed how participants perceived the IO mobile application interface and explicitly pinpointed problems within it. It should be mentioned that this data can be partially affected by the possible tendency of participants to filter their thoughts before speaking out of fear of saying something unintelligent.
- The qualitative and quantitative data collected from the questions at the beginning and end of the test allowed the team members to categorize participants, gather direct feedback regarding specific aspects of the mobile application and inquire about specific behavior participants exhibited while interacting with the interface of IO.

Findings

After compiling all the data gathered, the team members conducting the study needed to compare and extract information from the data gathered. The quantitative data gathered will be included in the analysis process but given the small number of participants the reader of this report should remember that the data is neither statistical nor representative of the IO user base and the numbers should not be misinterpreted into making false generalizations. For this purpose, each of the five scenarios that participants completed was retraced by the group conducting the study and the metrics collected were averaged into those of one hypothetical user that can seamlessly complete each scenario within the existing IO interface. The measurements of the hypothetical user (depicted as the red triangle) were compared to those of the seven usability test participants in graphs that show the relation between the time needed and number of steps taken to complete each individual scenario. This was done to create a hypothetical threshold that the measurements of each user would be benchmarked against. Doing this gave hints on which scenarios participants struggled in the most and the results showed that participants took a lot longer than needed (and made needless steps) to access discounts/bonuses, pay a bill and look up information regarding public administration.



Relation between time and number of steps taken to complete task 5 by seven usability test participants.

Foreign participants, represented in shades of purple, took longer than their Italian counterparts to complete tasks. Foreign participants are probably not that accustomed to Italian procedures (especially Italian public administration procedures) and the fact that they struggled to complete some tasks could be an indication to the limitations of the mobile application to properly explain and support the task. During the user testing, one Foreign participant stated: “some important services were difficult to find and as foreigners we don’t know how to search we might need some additional help”. It became evident that the mobile application was lacking content that explained to users how they could achieve certain goals.

While conducting the study, it became evident to the team that sometimes the same problems manifested themselves in various sections within IO mobile application and were encountered while carrying out different scenarios. For this reason, the findings were clustered into areas of intervention for the IO mobile application rather than categorizing according to existing sections of IO (kindly check the appendix the Data Triangulation Map that shows the detailed clustering of the data as part of the process of the triangulation approach). All the collected data was triangulated to highlight problems in the following categories, ranked from most to least severe:

- Information Architecture: The content and structure of information across the IO mobile applications do not align with the expectations of users and prevent them from successfully completing tasks.
- Navigation: The way users reach specific information and functionality is hindered by poor placement of elements that are not based on usage priority. The IO interface also exhibited inconsistent and sometime incomplete navigational patterns that do not support findability and discoverability (navigation bar for example).
- Affordances: Visual elements do not effectively communicate their purpose and as a result users misread the elements on the screen.
- Terminology: The terms used across the interface of IO can be misleading and clashes with the previous experiences of users and also does not always accurately reflect the functionalities of the mobile application.
- Aesthetics: The visual language is inconsistent throughout the mobile application and does not improve the user experience because some of the elements employed are devoid of meaning and functionality.
- System Errors: Technical and developmental problems that prevent users from achieving their tasks.

Recommendations

This section of the report contains recommendations to improve the overall usability of the IO mobile application based on the problems identified in the previous section of the report. The urgency to implement the recommendation was established depending on the impact the problem had on the ability of users to achieve their goals through IO. It should be noted that the low urgency recommendations related to system errors will probably be addressed either way in new versions of the applications as they can be due to bug issues instead of design problems.

High Urgency:

- Reorganize the information architecture to improve and facilitate the flow of action to perform the tasks.
- Rearrange hierarchy of the elements/information within layouts to facilitate how users read and navigate between the screens.

Medium Urgency:

- Improve the affordances and intuitiveness of visual elements to enable them to suggest and support interactions.
- Ensure cohesiveness of the use of terminology and language throughout different sections of the application to prevent misunderstanding and user errors.

Low Urgency:

- Make sure that visual elements are consistent and convey the tone of voice and values of IO.
- Improve development of application to eliminate all system errors that might prevent users from completing tasks.

Conclusion

The methodology adopted for this study was followed keeping in mind potential bias that might affect the handling of the data, ensuring that the findings are as objective and straightforward as can be given the restrictions the study had to maneuver. The data collected from heuristics evaluation and usability testing was triangulated to highlight problematic areas across the IO mobile application interface. These results were processed with findings from the previous steps of the study methodology while simultaneously acknowledging the limitations of the study and the external restrictions confining IO.

The data compiled throughout this study and its interpretation lead the team members to believe that users face severe problems caused by poor content organization and navigation while working with the IO mobile applications. These obstacles, combined with other less severe problems, hinder users from successfully completing what they have set out to do.

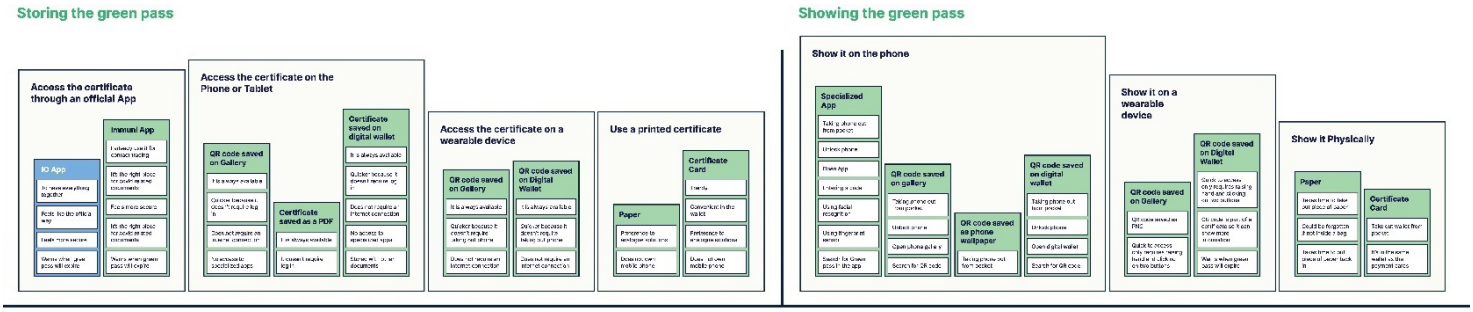
The group administrating this study highly recommends the implementation of the High and Medium Urgency recommendations. Low Urgency recommendations should be addressed when resources allow for it.

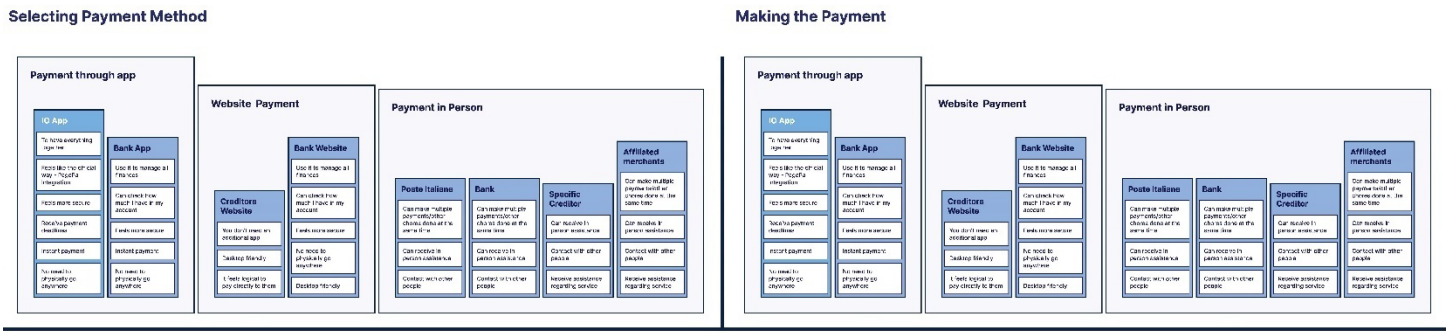
Appendix

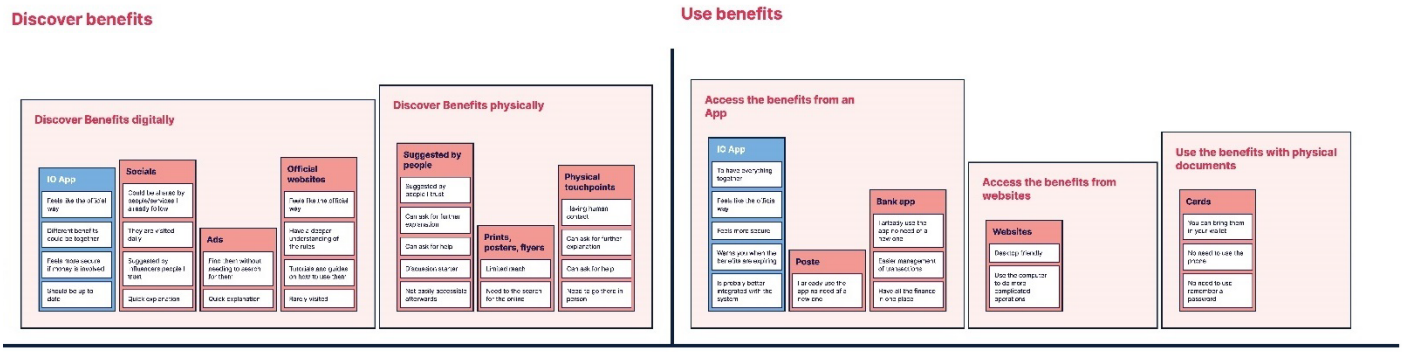
The following appendix contains the l ecology map, mental model diagrams, information architecture map, results of the heuristics evaluation table, and the data gathered during the usability testing that were referenced in the report.

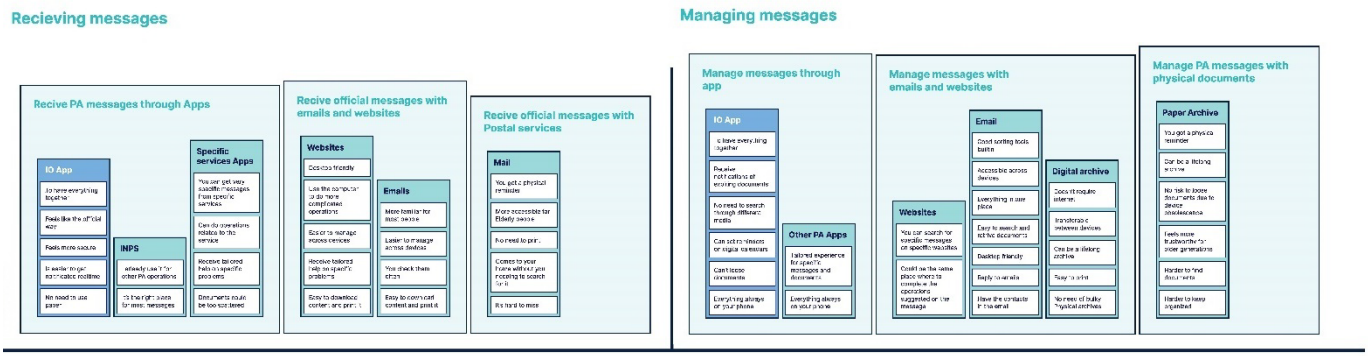
Mental Model Diagrams

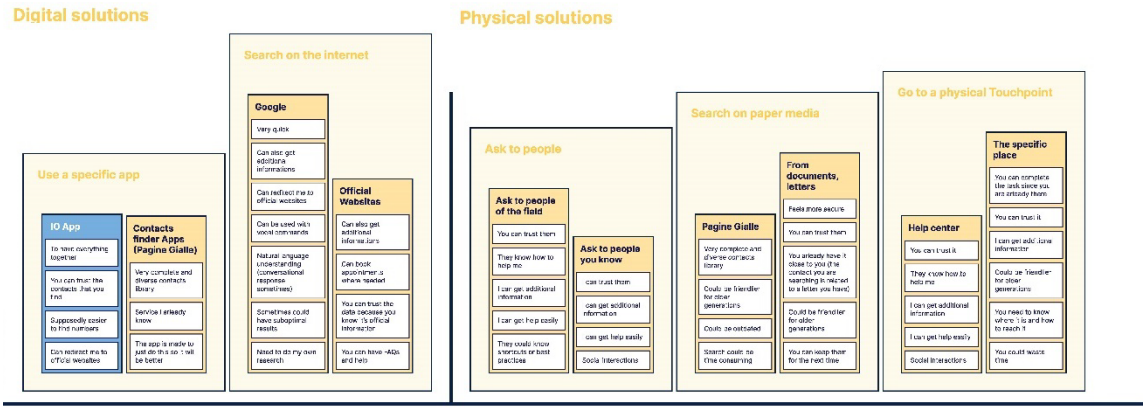
The following five mental model diagrams were developed to understand alternative solutions potential users could use instead of IO to complete the five tasks outlined in the study. These diagrams revealed advantages that other channels have over IO however some of these advantages can be offered by IO despite all the legal and administrative restrictions imposed on the mobile application.








Recieving messages
Recive PA messages through Apps
IO App
INPS
Specific services Apps
Recive official messages with emails and websites
Websites
Emails
Recive official messages with Postal services
Mail
Managing messages
Manage messages through app
IO App
Other PA Apps
Manage messages with emails and websites
Email
Websites
Digital archive
Manage PA messages with physical documents
Paper Archive


Digital solutions
Use a specific app
IO App
Contacts finder Apps (Pagine Gialle)
Search on the internet
Google
Official Websites
Physical solutions
Ask to people
Ask to people of the field
Ask to people you know
Search on paper media
Pegine Gialle
From documents, letters
Go to a physical Touchpoint
Help center
The specific place

Heuristics Evaluation Tables

The following table include Jakob Nielsen's '10 Usability Heuristics for User Interface Design' that were used to evaluate the interface of IO. The table on the succeeding pages highlight problems based on these heuristics and rank the severity of the violation from a scale of one to five that is based on impact, frequency and persistence.

Jakob's Ten Usability Heuristics	Heuristic Number
Visibility of System Status	1
Match between System and Real World	2
User Control and Freedom	3
Consistency and Standards	4
Error Prevention	5
Recognition rather than Recall	6
Flexibility and Efficiency of Use	7
Aesthetic Minimalist Design	8
Recognize, Diagnose, and Recover from Errors	9
Help and Documentation	10

Task 1: Showing Green Pass - Problem Description	Severity	Violated Heuristic	Redesign Suggestion
There is no home page in the app which is different than what users are used to. The user should not have to search through messages to find the green pass.	4	4	Add a homepage instead of landing on the messages.
The certificate notification is buried down when new messages appear Users can see the old green pass that has expired (and any other old documents) that can be unnecessary and lead to errors.	3	5-8	Separate up-to-date documents and older/expired ones in different sections.
Users should not have to waste time accessing the green pass, especially that it is not confidential information. It should be accessed quickly and efficiently.	4	7	Have the QR code only of the green pass available on the main screen and in case users need additional information, they can access it.
Going to the Covid-19 certification page makes the navbar disappear making it harder to navigate.	2	3-4	Always have the navbar available.
Users can't swipe back; they have to click the back button	2	4	Allow users to swipe back with the gesture they are used to without having to click the back button.
Help section for the green pass is not specific and not helpful. It is too generic and does not assist the user a green pass problem, but in a problem specific for the app.	3	10	Provide support for the user regarding the green pass, explain what it is or how it can be used, or give a link to an official green pass website-support.
The flow of actions when opening a service from a message and going back is disorienting and not intuitive	4	3-4	Every time you leave the page it should reset it.
Holding on a message will enable the user to select more than one and archive them, this feature is not mentioned or hinted anywhere	2	6	Having an edit button that will hint this feature.

Task 2: Paying PagoPA Notice - Problem Description	Severity	Violated Heuristic	Redesign Suggestion
The user may press on “services” because paying with the app may be intended as a service of the app.	4	2	Change information architecture of application or changing the label in the bottom bar as “payments” instead of “wallet”
The digital wallet, going from analog to digital. Calling it a wallet, adding all your cards in an app. Can pay some public service bills with QR code, but it has limited functions so it has no ability to compete with apple wallet for example. Can’t pick which card to pay with from wallet.	3	7	A total overview off all you bills and taxes, as a user you do not need to add them manualy your self, in this wallet you can expect to have controll and overview so the suer feel save.
You add both bonus cards, credit cards and giftcards in the same wallet. Getting discounts in the same area that you pay your bills weaken the credibility of the app. The areas are seperated with a blue paper card.z	2	4	Separate the payment from the discounts, put them into the sevrice where you can use the %, or create a new area that could be activety or social stuff.
This layout is confusing and suggests that users have to click on which cards they want to use for that payment.	2	2	Change layout of elements in the page and make the pay notice button more prominent to indicate to the user it is what has to be clicked to make the payment.
Difference in the terminology used throughout the app which can be confusing for the user	2	4	Make sure that even if some elements are translated there is no discrepancies between the documents.
I have a smile inside my wallet. Could create a good vibe, but the coherence between the system and the visual identity weakens the credibility	3	8	Clear identity and communication to the all users, young adults and older people
I need to add my card manually, if I will have my whole wallet online it is time demanding, add expire date, card number, name and so on every time.	2	7	Able to scan your card so the user do not need to add every single card manually
Users should not have the option to check for previous transactions if they have not made any. This crowds the page and has no value since the information given is not helpful	2	8	Only make option available to users that have previously made transactions.
Users should not have the option to check for previous transactions if they have not made any. This crowds the page and has no value since the information given is not helpful	2	1	A simple animation of a bar running across the screen back and forth to let the user know the scanning is happening.

Task 3: Accessing Discounts - Problem Description	Severity	Violated Heuristic	Redesign Suggestion
There is no home page in the app which is different than what users are accustomed to. Users are initially shown messages that may be related to discounts and as a result users think they can find discounts in messages	5	4	Add a homepage instead of landing on the messages and change structure of content of the application.
Some bonus appears in the wallet even if they are expired	3	8	Make clearer which benefits are expired.
The benefits page has a new visual identity, not connected to the app.	1	4	Create a consistent and universal graphic layout.
You have to go inside All the operators tab to search for a service adding an additional step.	3	7	Add a search bar in the benefits page.

Task 4: Managing Messages - Problem Description	Severity	Violated Heuristic	Redesign Suggestion
Inbox, expiring and archived messages have different page. Not connected, the user change page, not filtering. So you jump between screens, hard to remember the previous information	2	6	Add a homepage instead of landing on the messages
When users search for something (green pass for example) they don't find results because the app uses different lables/terminology	2	2	When users search for something (green pass for example) they don't find results because the app uses different labels/terminology
When users set a reminder and then try to cancel it they are greeted with a prompt that greys out all of the screen	4	3	When users set a reminder and then try to cancel it they are greeted with a prompt that greys out all of the screen

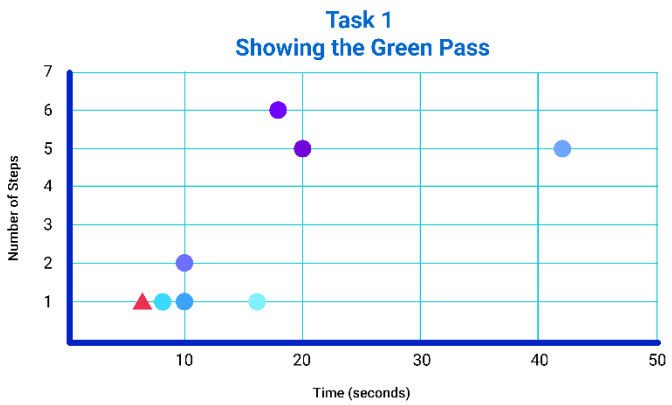
Task 5: Finding & Contacting a service- Problem Description	Severity	Violated Heuristic	Redesign Suggestion
The overview and category makes it hard for the user to find the service they are looking for.	3	4	The overview and category makes it hard for the user to find the service they are looking for. You are able to search, that helps a little for the user.
National and local service, what is the difference and why should the user see everything on the screen	3	7	National and local service, what is the difference and why should i have everything available for me so i have to scroll down for getting the right information
Once you are inside a service you lose the menu bar so you are not able to go in another category	4	3	Once you are inside a service you lose the menu bar so you are not able to go in an other category
When searching for a service if the field is empty it will tell you to complete the field, but you will not be able to do anything until you click on the little “annulla” button	4	3	When searching for a service if the field is empty it will tell you to compile the field, but you will not be able to do anything until you click on the little “annulla” button
In other sections of the app users could slide between divisions (like in messages) here users can only go from National to Local -or vice versa- by clicking)	2	4	In other sections of the app users could slide between divisions (like in messages) here users can only go from National to Local (or vice versa) by clicking)
User’s can’t search between National results but they can search between Local results.	3	4	Users can’t search between National results but they can search between Local results.
Search results only cover titles but does not include other tags of services	2	7	Search results only cover titles but does not include other tags of services
Blue tags look clickable because in other parts of the app blue elements are buttons or clickable elements	2	4	Blue tags look clickable because in other parts of the app blue elements are buttons or clickable elements

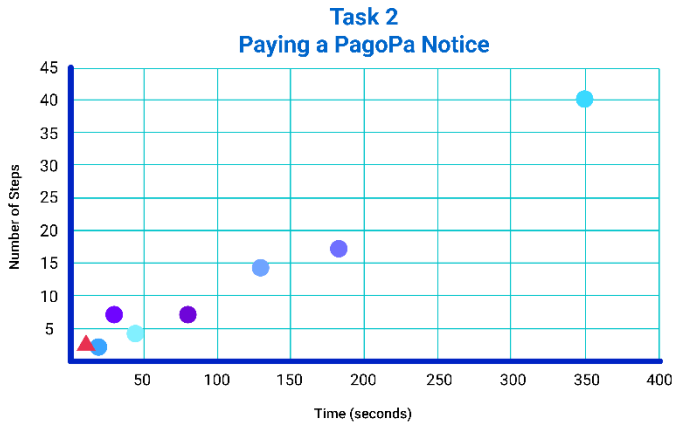
Usability Test Participant Overview

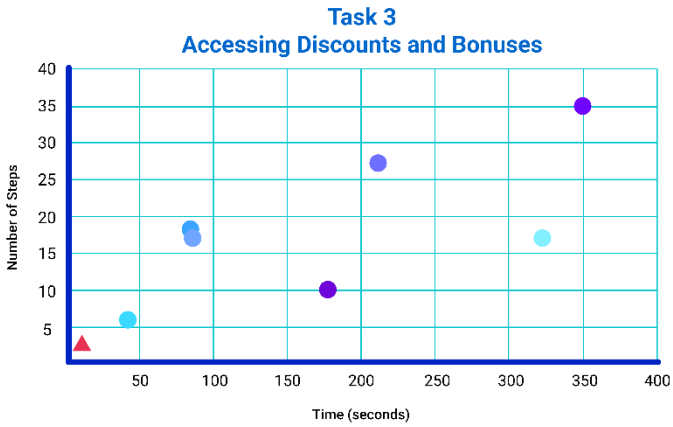
User	Cristina	Alessandro	Robin	Clara	Sara	Hazal	Amanda
What experience do you have with public service in Italy?	average	average	average	experienced	low	low	average
Do you deal with documents and public administration often? how often?	Sometimes; finance and taxes	Sometimes,	Yes - but not that often	Yes - often	Yes - Often	Yes - Often	Yes, but not that often
Do you know what IO is?	Yes	Yes	Yes	Yes	No	Yes	No
Have you used IO before?	yes. because of the discounts;	No	Yes, for green pass	yes, to access all PA stuff on the same account	No	No	No
Do you use digital solutions for public services tasks or do you do everything in person?	Home banking services not dedicated apps	I use many, such as Immuni, PosteID	Sometimes in presence and INPS website	Home banking	Poste Italiane	No	digital
Task completed successfully:	4/5	4/5	5/5	4/5	4/5	4/5	3/5

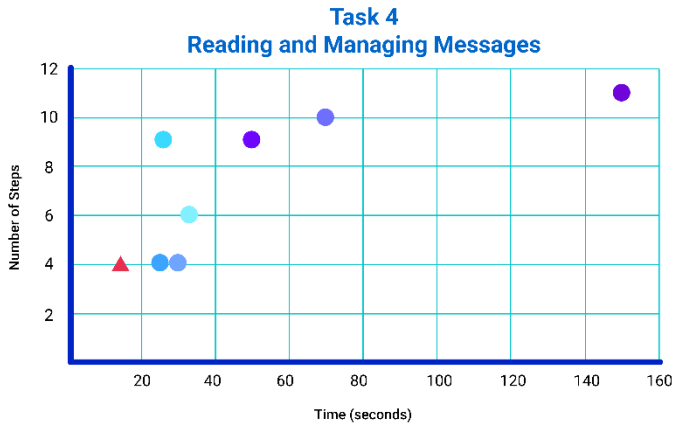
Metrics Related to Completing Tasks

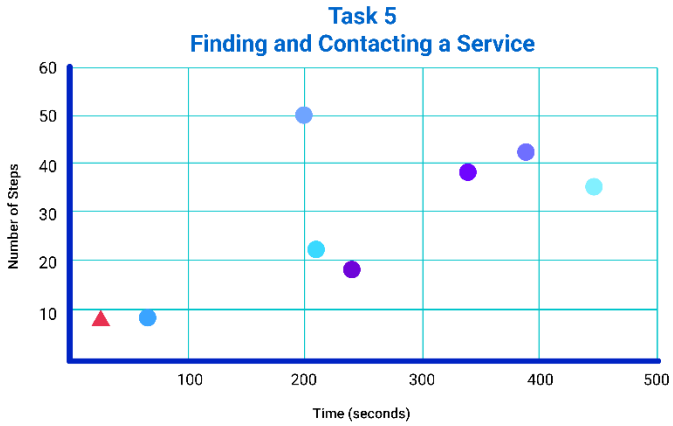
As explained in the report, due to the small number of participants the charts represented on this and the two following page do not represent statistically valid data however these charts serve as a visualization that testifies to the difficulties participants faced while completing tasks. These measurements led to some hints that were taken into consideration while coming up for the recommendations given at the end of the report.



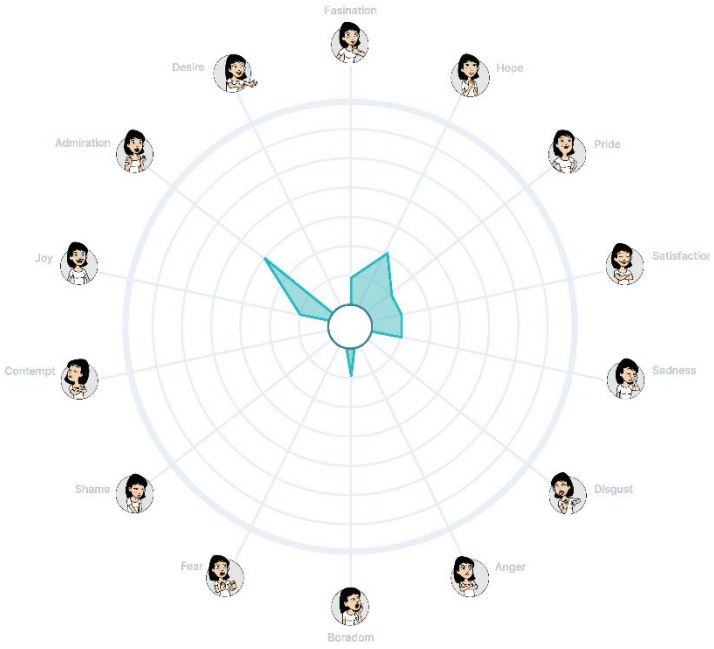




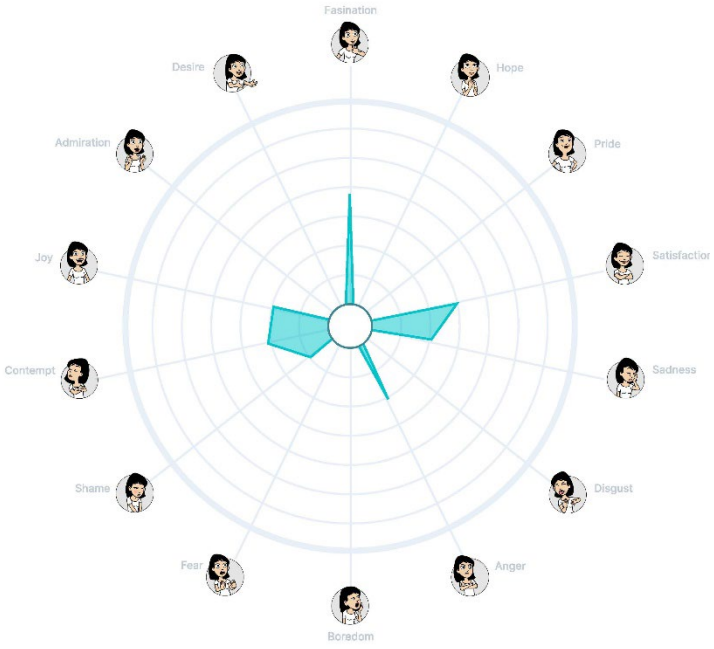




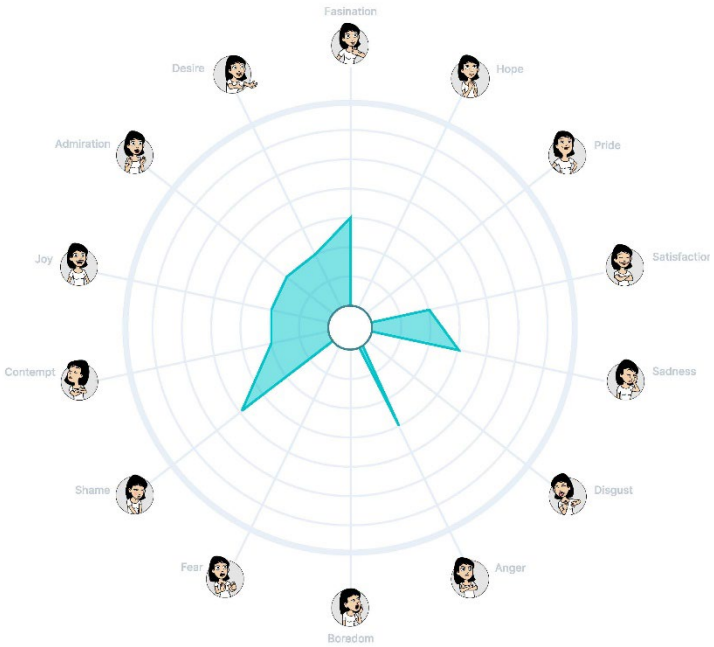
Task 1
Showing the Green Pass



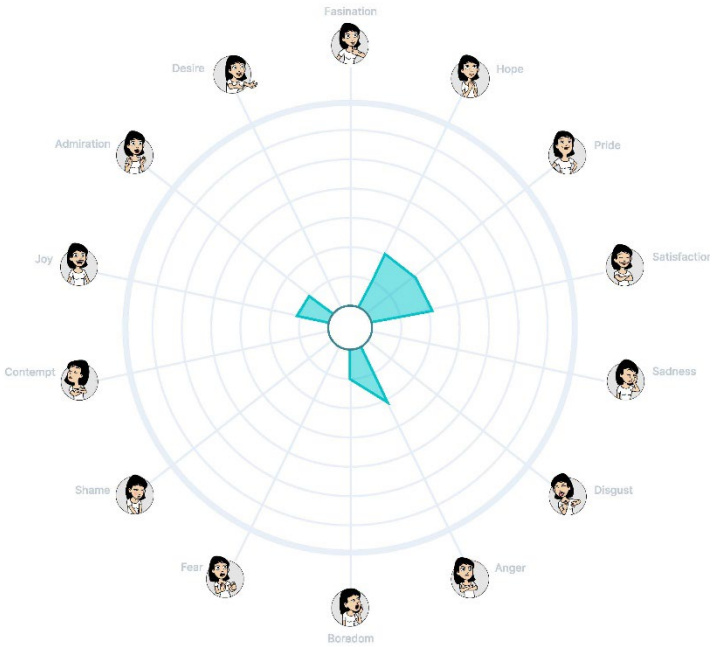
Task 2
Paying a PagoPa Notice



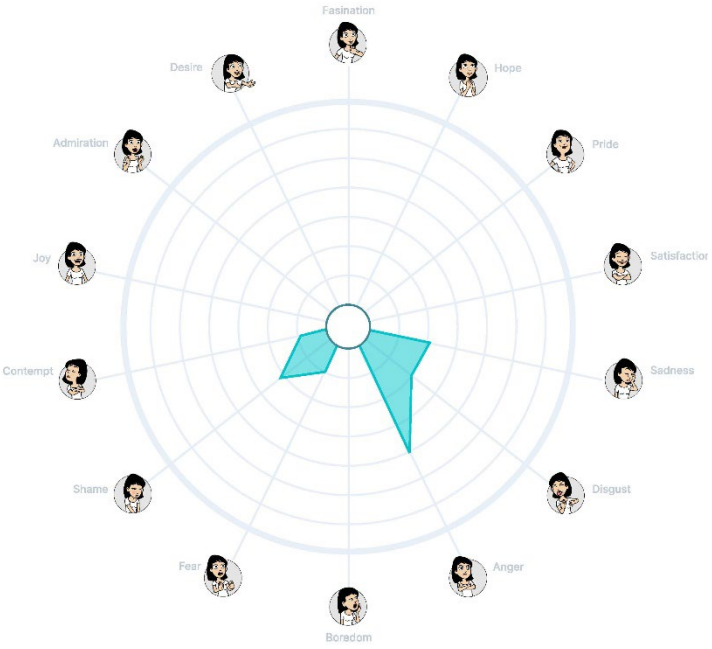
Task 3
Accessing Discounts and Bonuses



Task 4
Reading and Managing Messages



Task 5
Finding and Contacting a Service



Post-Usability Test Survey

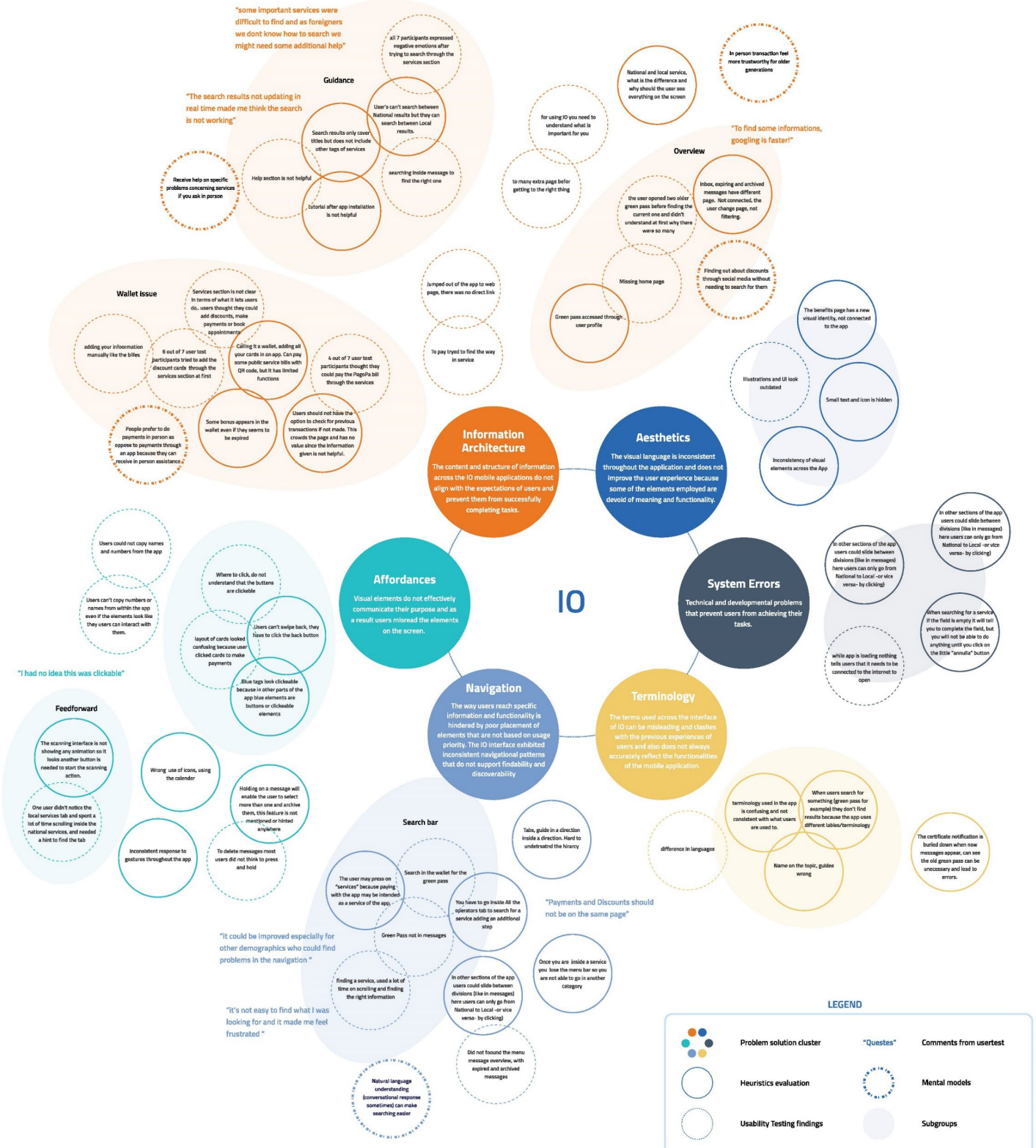
The table attached in the following pages contains the answers that participants shared after having completed five scenarios of use through the IO mobile application.

User	Cristina	Alessandro	Robin	Clara	Sara	Hazal	Amanda
Did the app meet your expectations ?	Yes it did: have access to different services through an only channel	Yes, it shows information concerning bureaucracy in Italy, despite some info which is missing	Yes and no, it could be improved especially for other demographics who could find problems in the navigation	Yes	no. because some important services were difficult to find and as foreigners we don't know how to search we might need some additional help.	not really... I'm not fully disappointed but it is not user friendly at all... it is difficult to navigate	I though it was something that could help you with the service, not just an overview. More like having category, like health care and then you could click on it
Do you see yourself using IO? for what? How often?	I think i'll download it, to access different discounts, bonus, but also information concerning Comune di Milano (es. residenza doc)	The process to access it's too macchinoso. I sense they should work to make it more easy and fast. Eg. Cannot copy a number directly from the app	Yes, once you understand how to use it, it seems quite easy but the learning curve is too strict especially based on its purpose- once a week	Yes, for everything that could be done in it three times a month	yes I would try. for what? for the green pass and the carta giovani How often? the green pass every time (mostly) but the other not as much	probably not	Maybe for paying the bill if i where an Italian
What did you like the most about this product?	Exploiting it on different level, from bollette to information + I like to do burocratic tasks online (I work during the day and i have no time to do it in presence)	To pay with PagoPa, to me it's easy. The discounts are easily shown	the style seems quite simple and good	It seems quite new compared to most systems(INPS)	that I can show my green pass instantly so I dont have to search for it in my gallery. only. I doubt i will remember to use the carta giovani	the wallet is decent because the layout of the screen is the simplet and not crowded	Feels like you are close to the public service

What did you like the least?(did any parts cause frustration?)	It's quite slow in some parts... I struggled to find the exact information i was looking for eg. numero ufficio anagrafe	The part with messages is clear. Also the greenpass is fine. Frustration: When elements are missing or disappearing (es. QR code). / If i'm on a rush I must insert every time the password to access...	some processes are cumbersome, and the labeling a bit misleading and not comprehensible	Navigation, homescreen missing, hamburger menu missing, wasnt too standard	no homepage, it's not compatible with all devices (couldnt copy on iphone... might not work on iphone 6 also,.. might not be compatible on older phones.... searching through the services was really frustrating	the services section is not well structured at all, especially the local section, it it too long should be shorter and more compartmentalized	there where parts I felt frustrated and lost. Was not sure have to navigate to the right information. Felt a bit overload
Do you think is there a better way to preformed the actions you did, like paying a bill or showing the Green Pass?	To do it faster i'd google it (eg. anagrafe)	If a purchase requires PagoPa, I don't think I'd pass through IO, but i'd use immediately PagoPa...	Having a global search in the app would've help a lot navigating around, but for the main task the app is better than doing stuff in presence	Once you know how to use the app it would work well	paying a bill might have been confusing because I thought it was in the services at first... for the bill you can pay it in the services and the option directly use the cards from the wallet and have a top up option, have a different layout/division for the services it was not clear	the location of the green pass (in the message) does not make sense, it should be in the profile or in a different part of the app	For the phone number I would use google
Did you find the aesthetics of the application appropriate to its purpose? Why?	Some features are tricky (es. I'm used to swipe to hide/delete a message)	Very basic. Despite beeing appropriate, some icon is tricky. I'd look for better labelings... (i don't find them intuitive - many graphics have no sense)	I think so	Yes it was quite good	yes... it looks governemental...	yes but it is a bit basic... appropriate because it has to be simple but it looks a bit old and outdated.	chaotic, if it where more simple and clear i would gain more trust with IO.

Will the IO effectively help you organize and achieve your public service tasks? what features is it lacking? Why?	Yes it will help. It is missing a list of numbers and contacts so that you donìt have to go inside the single pages. If it wants to compete with google is mandatory.	The part concerning bonus is interesting and unique, differently from collecting digital cards... for that there already many other ways/App. If bollette came directly to IO it would be great!	I think so but some features are still missing like work related task that are on INPS or specific places	Yes	I don't know yet... I still what I can do with the app... there should be a clear tutorial. what features is it lacking? homepage, tutorial that is effective that tells me what I can do/what it offers. the things that I can do should be more categorized specially the services.. more division in the app.	I didn't use it enough to answer this question	maybe for the bill and documents i get from the public service. I like mail, or prefer it
Was it intuitive to perform the specific tasks you've done? why not or what was in the way?	Yes and no. Quite intuitive but not for first users. I think my experience and my office job helped to find stuff. The more you are old the less you want to waste time	To find some informations, googling is faster!	Not always, the organization of the menu and the search part	some of them yes others werent easy to find due to weird naming	no, I had to try to see what the action would do... I didnt know the card was clickeable for example...	yes. the most that was intuitive was the wallet section. why not or what was in the way? intuituve yes but do you find what you are looking for no.	if IO where automatic and not that i have to scann the QR code. Thenl still ned the mail or the post to be able to get it payed
Some thoughts you want to add? something to add?	Everything is improvable	When you're eligible to a specific doc you should just have it, without any effort. ... If it's all linked to the public administration it would be nice to have my ISEE certification and others directly	No answer	No answer	just get a home screen please. a lot of text in Italian even if the app is in English.	just make it more user friendly specially in this age where people dont have patience, everyone wants things very quickly the app was too frustrating.	if they had a main page, easy to search and i like the idea of collecting all the information on one page if it's done in a proper way

Data Triangulation Map



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