

# Share Portugal - Participatory Platform

José Cândido, Nuno Nunes, Valentina Nisi  
jose.pedro.martins.candido@tecnico.ulisboa.pt, nunojnunes@tecnico.ulisboa.pt,  
valentinanisi@gmail.com

Instituto Superior Técnico, Lisboa, Portugal

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## Abstract

Nowadays, technology impacts almost every economic activity, and tourism is a major sector which emerges from mobility as a form of capital. In more and more countries, tourism is becoming one of the most important sources of revenue, which in return becomes also one of the larger investment areas. Furthermore, more and more people are not just interested in visiting new places and getting to know new cultures. Travelers place a greater emphasis on having new experiences, feeling that they are an important part of their destination, and on having very close and authentic contact with their hosts. Based on these two ideas, we have designed and deployed the Share Portugal platform, aiming at harnessing the participatory potential and the crowdsourcing power of web technologies. The fundamental and base concept of Share Portugal is based on allowing local inhabitants of a specific location to share their profiles and preferences about what activities to do and which sightseeings to spot in such location, while visitors can rely on authentic and reliable information provided by locals, and even use the platform to initiate dialogues with them and deepen their relationship.

**Keywords:** Tourism, Participatory Platforms, Crowdsourcing, Sharing Portugal

## 1. Introduction

Web platforms have a growing impact on economic activities, such as tourism, which emerge from mobility as a form of capital. However, it is not always possible to shorten the distance between tourists and locals and establish points of dialogue that will bring benefits to both parties. Thus, we proposed to develop of a new participatory platform that solves some of these issues.

In order to fulfil our goals, we created a platform where hosts present themselves through a visualisation of their household (a room inside their house), in which they can personalize both the rooms look and certain personal items inside it, according to their own taste and preferences. This living room displays some of the residents interests and activities personalised by them, with the aim of providing tourists some local information about their city.

When tourists enter the Share Portugal platform they are presented with a 2D visualisation of the city, with several of its iconic buildings that present clickable windows which in turn will lead them to enter the locals' living room (of the registered hosts). Through this, tourists are invited to navigate the buildings of the street presented in 2D, exploring all living rooms in search for one (or many) that may spark their interest and motivate them to explore the real city. For example, if the tourist is

passionate about photography and the host's living room is decorated to convey an interest in photography, the tourist will probably have a greater affinity to activities presented by this host.

In fact, besides being able to create and promote activities in the city, hosts can personalize their rooms according to their own interests, in order to better illustrate their personality and highlight elements of their lives that can suggest possible affinities with visitors. In addition, the tourist can also contact the hosts via email and, eventually, participate in activities that they are proposing, such as going to a concert together, meet in a bar or join a workshops, for instance.

The process of designed evolved through several stages, following a research by design approach [14], where users are involved to validate ideas and prototypes until the reaching of the final and satisfactory stage. Therefore, we present in Section 2 the results of the research done to some of the literature related to this thesis context followed by its discussion. Then in Section 3, the detailed description of the implementation process will be described. The evaluation process is available in Section 4 including all the results and conclusions from Usability Tests performed to validate our work. The paper ends up with the main conclusions regarding all the work done, the results achieved and suggestions for

future research, in Section 5.

## 2. Related Work

Many inquiries have been conducted on facilitating the life of tourists during their travels, as well as providing them with new experiences in conjunction with local people. The challenge and focus of this thesis project is to build a platform to support a direct way to create empathy and emotions between these two communities.

### 2.1. Crowdsourcing In Tourism

When we talk about Crowdsourcing, we refer to an online community where members participate for a wide range of purposes including fun, enjoyment, and amusement [5, 7]. In this way members can build relationships with others without geographical restrictions. Digital technologies already impact the tourism sector and in particular the concept of Crowdsourcing or sharing is benefitting immensely the tourism industry. Digital tools and online travel communities can play a role in bridging the gap between locals and tourists [6, 7].

Compared to traditional tourism, this type of tourism involves a special kind of consumption known as emotional tourism [1]. We refer to Emotional Tourism when the travel experiences are not strictly limited to sensory touchable items but provide various emotions linked to the closeness achieved with another human being. Despite the ritual of visiting must-see sights and tourist attractions, this kind of tourist consider their mode of travel as an experience of learning and self-discovery [12, 13].

The mission of Crowdsourcing, in the field of tourism, is connect people and places, to create educational values about the importance of the places visited, to increase collective awareness, to spread tolerance and to facilitate cultural understanding. Consequently, its meaning allows its practitioners to share experiences, origins and values, either on the side of tourists who are more likely to, for example, visit attractions and places not listed on conventional tourist maps in their search for new experiences, or on the side of the locals that make their land known while also making tourists aware of the importance of responsible tourism.

### 2.2. Role of Tourist and Local

An important part of a tourists landscape are the activities of locals. In this sense, locals everyday work in tourism as their mundane practices and routines become a central part of the experiential landscape for tourism. The role of locals in touristic places is not transparent to the locals themselves because they can be quite unaware of their role as part of the tourist place and of their performance of a particular cultural system. Thus, locals are, in

first, performers of authentic practices that tourists come to consume [2].

Tourists also interact with networks of local people, from those specifically involved in delivering tourist services to the more fleeting interactions with locals whose everyday lives are regularly lived in the locations the tourists are visiting. On the other hand, locals interact with tourists, by either being directly involved in the tourism industry, or by simply meeting them. In doing so, locals become (usually consciously) enrolled as peripheral commodities or cultural subjects that provide the human-cultural furniture of a place. Tourists place-making is driven by interactions with the locale and with locals during the course of the tourists visit, and this is done through the mechanism of networking [10].

While tourists exist effectively and necessarily on the outside of local practices, tourism also thrives on a fantasy of becoming local or of revealing some authentic quality of a place that originates in local, un-staged practices [11]. Such meetings occur in what Bruner terms the tourist borderzone the hectic, transitional and dynamic zone of interactions between insiders and outsiders [4]. Bruner argues that this zone is a place of creative negotiations, where identities such as the uninformed visitor and the skilled, knowledgeable local are continuously made and unmade. The meeting can be a vehicle for reflective identifications on the part of the local community, those who are looked upon. However, the visiting tourist is not a powerless subject. The tourist can discover or unearth the local, retaining the power to define what is worthy to gaze upon or with which to interact.

While tourists do not gain membership of local communities, since their time being there is so short and since interaction opportunities are often constrained, a number of intense, usually brief, instances of engagement do take place.

These feed into tourist fantasies of local cultures, of becoming local, and on actual engagements or meetings, and play a critical role in the tourists making of place.

### 2.3. Summary of Tourism Communication Platforms

For us, it was important to start by studying some theoretical concepts about tourism-related Crowdsourcing in order to have a wider spectrum of knowledge at the time of analyzing the features of the applications that were explored.

In order to better define our goal, we analyzed several applications that relate to the question to be addressed to better understand their strengths, weaknesses and to identify the niche we aim to fulfil. In Fig. 1 we have an overview of all the platforms and websites we have analyzed. By analyzing

the various platforms, a series of characteristics emerged as being common among them. Not all of the platforms incorporate all of the characteristics, but somehow are the five important features for connecting tourists with locals emerged from the analysis of the revised platforms. In Fig. 1, we pointed out the characteristics that each platforms holds in comparison with the others. Below we describe in details the five identified features.

- (a) Direct chat between participants
- (b) Questions and Comments (in blog style)
- (c) Questions and comments organized by subject
- (d) Possibility to direct the question to a certain participant based on their profile
- (e) User is rewarded for the time spent in participating

Studied Approaches	(a)	(b)	(c)	(d)	(e)
Há-Vita	✓	X	✓	✓	X
Loqal	X	✓	X	X	X
SnapCity	✓	X	X	✓	✓
Vayable	✓	X	✓	✓	✓
Cool Cousin	✓	✓	X	✓	✓
Local Travel Movement	X	✓	✓	X	X
Spotted by Locals	X	✓	✓	✓	✓
Urban Buddy	✓	X	X	X	X

Figure 1: Platforms studied and their characteristics

By analyzing the table above, we can see that no platform provides either all or the same set of features - each one has their own focus, with its own set of functionalities, targeted at creating a better experience for the user.

Although all of these features have the same end purpose - to facilitate the communication between users of these platforms -, having all of them wouldn't make sense, because it could cause a somewhat redundant experience. Instead, each platform focuses on a specific combination, according to their users' needs.

In the ambit of the development of Share Portugal, we have studied and analyzed in detail the presented features, to find out if their implementation could improve the experience of our users. To do this, we implemented each feature on our platform and tested the performance by conducting user tests. Users gave us feedback, which we then analyzed, changed the feature accordingly, and then redo more user testing.

We concluded that users found the possibility to address the questions of tourists through their profile a huge plus on their experience, as it allows a more intimate and personal connection between tourists and hosts, in a way that both entities can enjoy the experience.

### 3. Share Portugal System

This work began with previous context research, aiming at understanding what had already been done in the field of participatory platforms and Crowdsourcing applied to tourism, and to realize where our window of opportunity would be to take a different approach from what had been made so far. Taking into account the related work presented in chapter 2 we identified several initial concrete requirements that we expect our solution to tackle:

- **Bringing Tourists Closer to Locals** - From literature, the first identified trend in tourism is that visitors to new cities are becoming more interested in the people who live there, in their routines, habits and culture, rather than just visiting the most touristic places or experiencing the standard the sight seeings tours that cities have to offer. An opportunity for the Share Portugal platform was to highlight the importance of the relationship between tourists and local people. More than the standard activities that cities offer, tourists want to build empathy and establish relationships with the hosts, based on what they like and their personality.
- **Involve Tourists With Cities by Promoting New Experiences** - Another issue identified through the related work analysis is the importance of creating new experiences for tourists, especially making them feel that they are important for the city and its development and connect them to the local people so they can feel part of the city fabric. These types of feelings can differentiate among travel experiences, making them unique and memorable.

#### 3.1. The Metaphor

As we wanted to build an interactive and immersive platform, our first concern was to create a metaphor that could simply represent all the information and ideas that we want to convey, but at the same time creating a strong visual impact on the users, while maintaining the opportunity to create immersive and intimate interactions.

The information and messages were intended to be communicated visually rather than through abundance of text. In addition, as noted earlier, we wanted focus on hosts, what they like and their different personalities.

With all of this in mind, our first interface iteration had a photo of the hosts available on their profile. As people are the most important part of the platform their faces where a good initial hint for tourists to recognise whether they empathised (or not) with the local person through their expression, for example.

The second issue to tackle was to find a way for local people to show their interests and some aspects of their personalities. To achieve this, we decided to represent them through a place in their household where they spend a good part of their lives, possibly their living room. Usually, the way we decorate our home, the colors, the elements, or even the posters we choose to have on our space, are very related to our interests and who we are. In addition, when we invite someone to our home, we have some degree of confidence with the visitor, and usually we want the guest to feel comfortable. Given this, the living room should be highly customisable by each of the locals, according to what defines them, while keeping in mind that some of the elements should be related to the activities offered by the hosts.

Finally, in order to connect the hosts and the locals in their living room spaces, we needed a higher level container, where all hosts living spaces could be showcased. This took the form of the façade of buildings, in which the living rooms were contained. The chosen buildings to feature on the interface are iconic buildings of the hosting city. This would represent the home page of the platform. Each window of these buildings would consist of the pictures of each local registered on the platform and it would be possible to visit their living rooms. Moreover, through showcasing the iconic buildings of the city, the tourist is invited to explore the city, find the various iconic buildings and the various elements that characterise the location they are visiting. Our design choices were geared towards providing a highly interactive site, immersive, and able to convey the personality and preferences of each hosts as well as the architectural characteristics of their city of origin.

### 3.2. Low Fidelity Prototyping (LFP)

Before carrying out the validation study we had to develop the low fi prototype in order to test our initial ideas. We opted for paper prototyping techniques as users don't feel intimidated by low fi paper prototypes, even if they are not technology savvy. These kind of prototypes are very useful to uncover major issues in the very initial phases of the project, or to test features in a rapid way at any stage of the project.

Tourists and hosts performed the validation of the prototypes in order to find the best way to provide a good experience of using and exposing the intended information.

### 3.3. The Sketches

#### Explore the City

As we can see in Fig. 2, the home page is composed of several iconic buildings of the cities introduced in the platform, and also by characteristic elements of it (for example, the Portuguese sidewalk).

In our case, since we always had the Ha-Vita platform as a starting point, for our case study we used the city of Funchal to illustrate our platform.

Navigation along the city is made through a horizontal scroll bar where in every moment just a small part of the whole city is focused.

Another feature we found interesting during the conception of this prototype was the possibility of tourists to also have a perspective of how the city is during the night. Again, this feature would make the environment more realistic, immersive, and give more insight according to the time at which the user visits the city.



Figure 2: Sketch of the Low Fidelity Prototype - The home page

#### The Living Room

As for the living rooms, as we can see in Fig. 3, we established we wanted to have several components that fulfilled many roles to convey the characteristics of each local.

So, our initial idea was that the leftmost part the room (zone A) had decorative elements customised by the hosts according to their personal taste; in the zone to the right (zone B) some personal information would be shown about the local, as well as the activities that they provided; finally, in the area where the computer is located (zone C) it would be possible for the tourists to get in touch with the local person.

The virtual room also made possible the customisation of some elements, the colors of the bedroom wall and some furniture could be completely customisable.

### 3.4. Validation

After sketching the various concepts we had in mind, we had a good starting point for doing some user testing in order to realize if the subliminal messages we wanted to pass were successful and if the application had the usability and immersiveness it required.

This validation was done informally where we asked users to give feedback about the experience by thinking aloud.

Some interesting suggestions were presented, namely regarding the navigation of the city and the

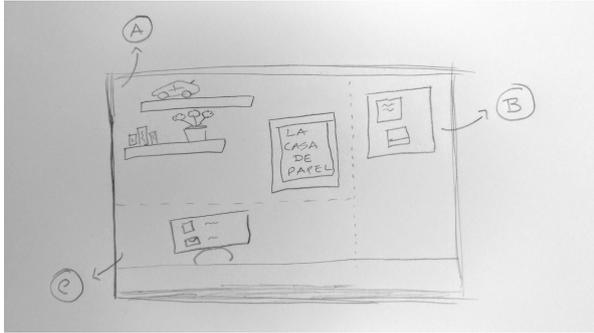


Figure 3: Low Fidelity Prototype - The living room area

feature of the day advancing to night as the exploration of the city progresses.

All issues raised during this validation were noted and implemented in the following iterations of the prototype. In this section we will present the feedback received during the validation of the first low fidelity prototypes.

### 3.5. High Fidelity Prototyping (HFP)

As our platform would have a very strong visual component, we felt the need to create high fidelity prototypes to validate all our ideas. Many of the issues and problems raised by users in low-fidelity prototyping tests were rethought in these new prototypes so that they could be tested again.

These new prototypes already contain more variables to take into account in the tests with the users, mainly because we already introduce color and elements closer to what the final design will be.

### 3.6. Previous Problems

Taking into account the suggestions and the low fidelity prototypes that were created in the first validation with users, for this second validation, in cases where a decision was unclear, we decided to test the two forms, now in high fidelity, in order to understand the advantages and problems of each one, and in which the users felt more comfortable to use.

For this, we used the technique A/B testing, with five tourists and five locals, where we presented two different ways for accomplishing a task and the users explained which one they preferred and why.

#### Exploring the City

The high-fidelity prototypes of the two possibilities of navigation by the city previously explained are shown in Fig. 4 and Fig. 5.

When we tested these two possibilities, most of the users claimed that the horizontal scroll bar was more intuitive and made them feel more like discovering of the city, rather than having a wider view of the city panorama. In addition, they found that visually, with the slider, the platform became



Figure 4: High Fidelity Prototype - The slider navigation



Figure 5: High Fidelity Prototype - The horizontal scroll bar navigation

more appealing and cleaner.

#### Day to Night

In Fig. 6 and Fig. 7 we can see the high fidelity prototypes of the suggestions raised in the previous validation on the question of changing the city view between day and night.



Figure 6: High Fidelity Prototype - Clock-shaped button



Figure 7: High Fidelity Prototype - Regular toggle button

Here we tested both possibilities with the users, and it was clear that they preferred the option of a

toggle button that allowed them to switch between day and night view, instead of a clock, since they reported that it was simpler and more intuitive and that they felt more control.

### The Living Room

In order to make the platform even more robust and appealing, and to overcome the problem raised by the freedom of choice of elements in the living room, we further iterated on the prototype, and refined the living room aspect and functionalities based on the feedback of the users.

Our major problem here was finding a middle ground between giving freedom for the host to customize the room as much as possible, and restricting the variety of elements and options that the platform would offer, because it was also important for us to maintain some levels of consistency to keep the platform cohesive.

To solve this problem, and since we couldn't find an optimal solution, we compromised on having two types of personalities, one linked to new technologies and the modern world, and one more traditional one.

Thus, locals will be able to choose between a living room with objects and decorations related to new technologies such as computers and a setup resembling an office, and a second one with more conservative decorations, such as books and old furniture.

In Fig. 8 we can see the two types of room above mentioned.



Figure 8: High Fidelity Prototype - Second iteration of living rooms

The costumisation feature of the wall and the furniture color of the room was kept.

In this way, we achieved some balance between the elements that the application would have to maintain constant and the freedom of the user to decorate the living room in their own way. Additionally, the interface looks more cohesive and consistent.

### 3.7. Architecture

Our platform was developed following a layered architecture because not only supports the incremental development of systems, but also is changeable so an equivalent layer can replace another one. Moreover, when some layer is changed or updated, only the adjacent layer is affected [8]. Also, every

layer of the Share Portugal application can be used individually with other similar applications or can be easily changed without compromising the other layers.

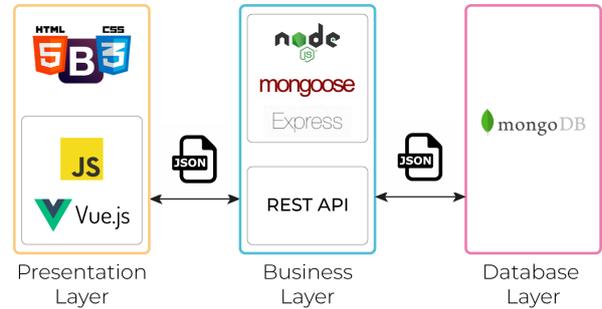


Figure 9: Share Portugal Architecture

The three main layers that compose our system are the Presentation, the Business and the Database Layer, as can be seen in Fig. 9.

The front-end will be a single-page application that requests data to the back-end and displays it using some visualisation techniques. The communication between both sides is made through a web Application Programming Interface (API) with standard Hypertext Transfer Protocol (HTTP) requests. The API defines a set of paths, accessible through these HTTP requests in order to exchange data in the JavaScript Object Notation (JSON) format. Therefore, the back-end is responsible for handling requests incoming from the front-end, which may involve data processing and delivering it in a known format, such as JSON. After a certain user interaction with the application on the front-end, a corresponding data request will be sent to the back-end. Once the response from the back-end reaches the front-end, it will manipulate the data to form the visualisations, corresponding to the user request. This kind of architecture is flexible enough to be scalable if new features or methods need to be added later. The separation between data processing logic on the back-end and visualisation or application logic on the front-end facilitates the project organisation and future work.

### 3.8. Functional Prototype

Given the requirements and tasks that we intend to respond with our application, we split our platform into several smaller sections. As our final work will be a single page application, we decided to separately develop the main page, the tourist-side living rooms and the living rooms on the side of the locals, incorporating everything later.

The technologies used at this stage of development were then: Vue.js, an open-source JavaScript framework for building user interfaces and single-

page applications which uses HyperText Markup Language (HTML) for the pages construction, Cascading Style Sheets (CSS) for its styling and JavaScript for overall interactivity across the page. In addition to these technologies, we often used Adobe Illustrator to make some adjustments to the SVG files we had available from the various visual elements presented.

### 3.8.1 Explore the City

We decided to start developing the home page, where the exploration of the city would happen. We choose to start with that part of the application because it is the starting point to build all the other tasks of the platform.

Following the latest validated prototypes, we split the page into three main features: navigating the city where the buildings moved through the horizontal scroll bar, loading and positioning the photographs of the local people on the windows of the buildings and finally the change between the view of the city by day and by night.

#### Horizontal Scroll Bar

The main idea of the horizontal scroll bar is to give the user the feeling of navigation throughout the city, as if the city scrolls along the screen. To be easier to explain, the method used to create this effect can be analysed on the Fig. 10.



Figure 10: Horizontal Scroll Bar

#### Photographs of the Locals

The photographs of the locals registered in our application appear on the windows of the city's buildings. When users visit the platform and they want to enter inside the living room of a host, they should click on their respective photo.

As the photograph of the hosts is the first impression that tourists will have of the person, it was important that it was of an acceptable size and format for this purpose. Thus, during the design of the buildings, one of the requirements we imposed was the style of the windows of the buildings, that should be square and have a generous size.

Therefore, our first task was to create and position divisions for each of the windows. Since we want that, when the buildings move, the various windows follow this movement, we used the z-index property of the CSS to position these divisions in a layer above the "All City" division, as shown in the Fig. 11. Additionally, this placement of the windows on an upper layer is also important to make the windows clickable.



Figure 11: Windows filled with images of registered hosts

#### Day to Night

As explained earlier, for the city change between day and night views, we have chosen to put a button that toggles between these two states.



Figure 12: Toggle button that switches between day and night view

As we have all the final arts of the buildings and background either in the day version and in the night version, the easiest way to make this change was to make a function that toggles between the image files loaded by the desired state. So, when the button is active to be in the day view, we load the respective day images, and when it is active the night mode we load the respective images at night in CSS background-image propriety.



Figure 13: Views by day and night

### 3.8.2 Locals Living Rooms

With the home page ready, where the exploration of the city happens, we decided to move to the implementation of the living rooms of the hosts.

Following the latest validated prototypes, we split the living room into three main issues: the personal information menu, where users introduce some important personal information; the room customisation area, where hosts can visually customise their room; and the create activity menu, where locals can create their activities and enter information about them.

### Personal Information

The area of Personal Information is where the host should enter some personal information that will be important for the view of the room on the tourist side. It is in this section that the local defines the photo desired to appear in the buildings window, name, email address and a short biography where it's made a presentation about he/she.

For the local to enter this information, we created a menu that receives these values by the user, as shown in the Fig. 14



Figure 14: New user Personal Information menu

### Room Customisation

The Room Customisation section is where the host is invited to customise the living room according to their likes, interests and personality.

Among this customisation, hosts will be able to choose some things, including the type of living room they prefer, the color of the wall, the colors of the wall pattern, and the image they want to have on a wall poster, as presented in Fig. 15.



Figure 15: Room customization - Items that can be customized

### Create Activity

As explained earlier, an important feature of our application is the possibility of local people to create activities where tourists can participate, like a workshop, for instance.



Figure 16: Create Activity Menu

## 4. Evaluation

After finishing the last cycle of development, a set of users tested the Share Portugal application in order to gather quantitative and qualitative usability metrics to ensure that our usability meet users' needs. The evaluation consisted of usability tests with users, in order to evaluate the system regarding interactivity and usability. This evaluation aimed to test the Share Portugal from the perspective of tourists and local residents, so two different tests were performed, one for each user group.

### 4.1. Usability Tests

When the final version of the platform was completed, a group of fifteen tourists and fifteen locals tested the system, Share Portugal. This evaluation was done to assess the pros and cons of the final prototype and to check that a standard was upheld, process known as summative evaluation [9]. Users are presented with a list of tasks, and their performance was evaluated through quantitative measures: the time it takes the user to do the task, the number of errors made (if any), and the level of satisfaction while doing such tasks.

The evaluation degrees were as follows: a preparation stage where all necessary materials were designed and created; the actual testing following a well-defined protocol; and, after, the analysis and discussion of the gathered results was done.

### 4.2. Protocol

Before the tests were carried out, preparation was needed to ensure that everyone followed the same protocol. For this, it was necessary to develop a test script with the order and description of everything users had to do, and questionnaires to be filled out by them.

As a requirement for the evaluation process, it was established that it should be done with at least

30 users (fifteen tourists and fifteen locals). We used a sampling technique called Convenience Sampling, which means that our users were selected because of their convenient accessibility and proximity to us, not being made any restrictions on the basis gender or educational background.

Although, as we established that all subjects should have the same conditions of evaluation, we used a controlled and typical use context environment and also the same tools to perform the tests.

All our tests pursued the following order:

1. A profiling survey was used to collect key demographic information about our users, such as gender, the range of age, education, and origin country.
2. A contextualisation about what is Share Portugal and the current evaluation goals was given to users. This consisted on following a prepared script to ensure that we did not forget to explain anything, and to ensure every user knew the same.
3. A set of five questions was made. To answer to each question, the user had to perform the corresponding task in our system, always highlighting that what was being tested was the Share Portugal system, rather the participants, to give more confidence and comfort to explore the system. We asked them to inform us when they were ready to do the task so that we could collect the time duration and number of errors made.
4. A debriefing about the previous stage.
5. Another survey, now to understand their level of satisfaction while doing the tasks. For this we used the System Usability Scale (SUS) - a simple, ten-item scale giving a global view of subjective assessments of usability [3] about the user experience with Share Portugal. We followed the guidelines established by Brooke [3]: each question had a degree of disagreement or agreement, with a range from Strongly Disagree (1) to Strongly Agree (5) respectively, from which the user could choose. Users were asked to answer each question with their true opinion, but we recommend them to not think too much about it, and if undecided to pick the middle score of the presented scale.
6. We offered some chocolates to thank everyone for their participation.

#### 4.3. Discussion

From the results of the usability tests, we can conclude that Share Portugal has a good acceptance

and usability rate. This indicates that both travellers and locals found it easy and enjoyable to use the system, and consequently, we can assume that the main goal of Share Portugal was fulfilled - to have an easy-to-use system that facilitate contact between them.

Furthermore, many reported that the decoration of the locals living rooms had a major impact while creating empathy between both entities, making them feel more comfortable to start a conversation when in comparison with a simple chat platform between locals and tourists. We can infer from the study that the visual style and aesthetics of the interface were important in supporting pleasurable interaction and the customization of the ambients gave a sense of different personality to the rooms, giving the visitors a major sense of intimacy with the hosts, compare to less aesthetically rich means of interaction (such as chat, QA or comment based interaction ). Additionally, tourists reported that the way the navigation of the city interface is designed, showcasing iconic buildings of the visited city, made them familiarise with the city itself. This can be considered an important finding and a promoting feature of the Share Portugal home page. Presenting abstracted feature of the architectural layout of the city being visited, gradually familiarizes visitors with the city. In Share Portugal this is done before taking the visitors inside the locals home, in the interior of their households. This gradual familiarization could be also seen as a desirable feature for such systems.

Finally, hosts reported they felt a closer relationship with tourists from the very beginning of their task of costumization of their living room. In fact, while customizing their home interiors for them, hosts were thinking about visitors and felt they were getting to know them by showcasing the various elements of the room. Such customization task becomes an ice breaker and successfully creates empathy by establishing a sense of closeness with tourists.

This result, somehow highlights how hosts, can benefit from feeling empowered in welcoming and proposing suggestions to visitors to their city, overcoming the distance and separation that can occur when encountering strangers, and in particular with some overwhelmed European touristic cities. By giving locals the opportunities to shape the touristic path of the visitors to their city we create opportunities for positive interactions, and sense of empowerment of the locals.

## 5. Conclusions and Future Work

Technology impacts many economic activities, including tourism that emerges from mobility as a form of capital. Travellers are giving more and more

importance to the experiences they have when visiting a country, they like to have close and authentic contact with the locals, in a way that they could experience more of the culture of each country.

Share Portugal is a participatory platform that its main objective is to shorten the distance between the travellers and locals, allowing closer contact between both. This platform, on one hand, opens the possibilities for tourists to gain new experiences in the cities they are visiting, making them feel part of the fabric of the city; and on the other hand, allows hosts a sense of agency and empowerment in present their own city and activities to travellers. Through the development phase, an iterative and incremental approach was followed in order to understand and adapt the prototypes in the most useful way possible. After the requirements analysis and validation, some low fidelity prototypes have been outlined before reaching the functional prototype. Share Portugal has been structured following a layered architecture where exists a separation between the data, the server, and the presentation, and where each of these layers can be used and upgraded independently.

After the functional prototype had been finished, we started the evaluation of Share Portugal, performing Usability Tests with fifteen tourists and fifteen locals. The duration that each user took to do each of the fifteen questions was recorded, as the number of errors and the satisfaction grade. From the analysis of the results of the SUS score, we can conclude that our system has a good acceptance and usability by the users.

Regarding future work, we think that scaling our system for more cities beyond Funchal, capital of Madeira upon which the first prototype has been modeled. It should be noted that the system is fully prepared for this functionality, we just need to produce the visual design for the new cities.

On the side of the residents of the city, Share Portugal could have more customisation in the living room and more design elements for locals to express their tastes in a way that more encompassing of the richness of the hosts interests and of the city offerings. This functionality would be easy to implement we would have to scale the existing elements and add others that could make sense to exist. Possibly users focused groups and probing would inform the choice of further customizable elements to include in the living room.

Many features can be added to Share Portugal, since the architecture allows reusing the layers and also easily integrates new features, extending its usefulness.

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