

BLENDING

AMSTERDAM

REALITY

EXPLORE THE HISTORY OF THE CITY

RESEARCH DOCUMENT: BLENDING AMSTERDAM REALITY - FINAL VERSION 1.2 - 1 November 2012

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FOREWORD



It is our pleasure and honor to present the research documentation for Project **BLENDING AMSTERDAM REALITY**. This research document presents relevant information that we used to make the concept and build a final product prototype which connects to the users and the assigner. The prototype for this project is to be delivered at the end of January, 2013. The purposes of this research document are:

- to define the project scope
- to describe structure of the project
- to ensure that all research data and methods are managed and documented

This document is the result of a six-weeks long research in different areas. Beside our research data and insights, you can find the methods, techniques and visuals we used during the research phase.

The latest version of this document can also be downloaded from the project blog. Beside all up-to-date documentation, we also provide additional information information, short video clips, contact details and relevant links. A short summary of our project can also be found in the brochure for this project.

Website | medialab.hva.nl/project-gemeente-amsterdam
Blog | <http://medialab.hva.nl/gemeenteamsterdam>

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BLENDING
AMSTERDAM
REALITY

1

INTRODUCTION

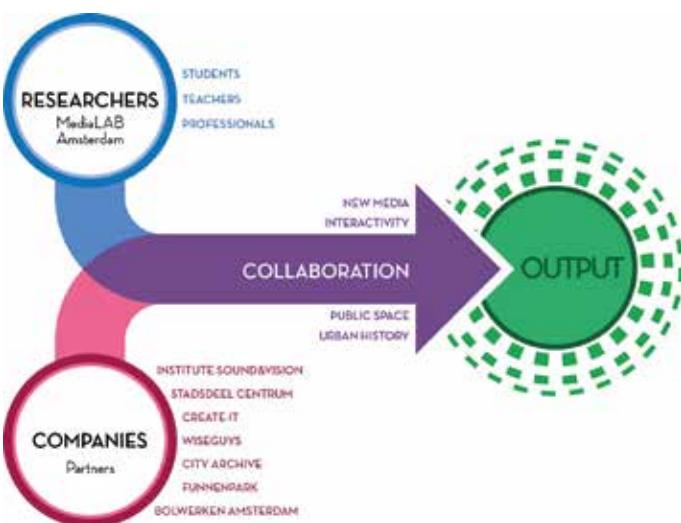
INTRODUCTION



1. Project Amsterdam Urban history



2. Old citymap, 1650.



3. Collaboration scheme.

Amsterdam has a lot of exceptional, crazy, beautiful and unexpected sights and history. This history is unknown to locals and visitors to Amsterdam. These many little-known gems are just waiting to be discovered. More than 65% of all tourists visit Amsterdam because of the city's history, culture and its canals (research ATCB, 2012). For example in the 16th Century, there was a city wall around Amsterdam which now stands demolished. Amsterdam is also home to a lot of famous artists, both national and international, a little-known fact.

The Gemeente Amsterdam wants to bring this knowledge to the wider public. Beside books and websites, an alternative literary guide to the city could be handy, perhaps in the form of a Smartphone application offering a new perspective on landscapes, buildings and objects. History can also be made tangible (or "touchable") by blending artifacts from history and reality with new media.

A multidisciplinary group of working students, professionals, teachers and other specialists in various fields, in collaboration with the Gemeente Amsterdam, Stadsdeel Centrum, Funenpark, Institute of Sound and Vision, City Archives, Wiseguys and Create-It put their heads together to answer the following question from the Gemeente Amsterdam :

How to combine a marker (landmark) in the public space (or better said a series of landmarks) and an interactive information carrier - using the Smartphone or other new medium or/ and a physical object with each other to use digital history information and current reality situation, which can be blen-



4. Rembrandt van Rijn, 1850.



5. Statue Anne Frank, 1980.



6. Unesco Logo

ded into an interactive medium.

The project Blending Amsterdam Reality (Urban Amsterdam History) could include a few different components, as suggested by Geemente.

The first could consist of an interactive Walk of Fame. Amsterdam is host to quite a few famous personalities. For example: Johan Cruijff, Mies Bouwman, Willem Drees, Eduard Douwes Dekker (Multatuli), Candy Dulfer, Freddy Heineken, Willem Holleeder, Patrick Kluivert, Spinoza, Gerard Reve, Max Tailleur and Carry Tefsen. Some of the famous people from Amsterdam who weren't actually born in the city, but have lived there during an important part in their lives are the famous 17th century painter Rembrandt van Rijn, jazz musician Nina Simone and author and Holocaust victim Anne Frank.

The second part, could be an interactive look at the past city wall and its gates around Amsterdam in the 16th century which can also be linked to the old buildings and canals in the old city center. Since 2010 Amsterdam is a UNESCO heritage city. It shows that the canals, a symbol of Amsterdam, are of great cultural and historical value. Not only the half-moon shaped canals of Amsterdam, but also the area around the canals is of great cultural significance.

It is important to make both visitors and locals feel like they are a part of the city, instead of keeping them passive by-standers (which is often the result when using books, brochures and web-pages). Information for visitors and locals is increasingly becoming about depth rather than breadth of experience. Technologies such as augmented reality (AR), gamifications and smart mobile

devices can transform the information into an experience. Come explore the history of the city though a different viewport to the past with Blending Amsterdam Reality.

PROJECT PARTNERS

MediaLAB Amsterdam

MediaLAB Amsterdam (from now on referred to as MediaLAB) is located at the Studio-HvA and is a part of Create-It which is a part of the University of Amsterdam Applied Sciences. MediaLAB creates innovative interactive media applications together with partners from the creative and education industries. The research projects focus on urban screens, locative media, data visualization, interactive TV, gaming, the future of publishing and e-learning. At their core, the focus of all research projects is the innovative character of the digital applications (MediaLAB, 2012). This project by MediaLAB Amsterdam is a part of the research group “Interactive Media in Public Space” and the results will be used in the project “SpaceSee” (Create-It- HvA). MediaLAB will be the spider in the web during this project.

The student experts are a mix of designers, programmers, social/digital media experts, researchers, copywriters and storytellers. In twenty weeks (one semester) the team develops a working prototype for a client in collaboration with them (MediaLAB, 2012).

WiseGuys

The artistic collective WiseGuys are three creative professionals in urban artistic projects : Marco Cops, Harold Schouten and Jerome Symons. WiseGuys are specialists in (master) plan development, conceptual realization of projects, technical research, consultancy and project management from start to end, matching artists / designers to clients and feedback between



7. MediaLAB Amsterdam Logo.



8. WiseGuys Logo.

client and artists (WiseGuys, 2012). Marco Cops, the contact person in this project, will be closely involved with Blending Amsterdam Reality. He will also have close contact with the Gemeente Amsterdam, Stadsdeel Centrum (Amsterdam Council), henceforth referred to as STD Centrum, which introduced and initiated this project.



9. Gemeente Amsterdam, Stadsdeel Centrum Logo

Gemeente Amsterdam Stadsdeel Centrum

The Department of Public Spaces (DRO - Ruimtelijke Ordening) of the Gemeente Amsterdam STD Centrum floated this project to create awareness about history in Amsterdam. The core function of the DRO is to ensure a coherent spatial development of cities and regions. DRO develops spatial visions and strategies for planning and designing urban area plans. The department advises the council on policy planning, public spaces and green areas. DRO works with the central city districts and partners in the region (Gemeente Amsterdam, 2012).



10. Toolkit Generic Work Process scheme.



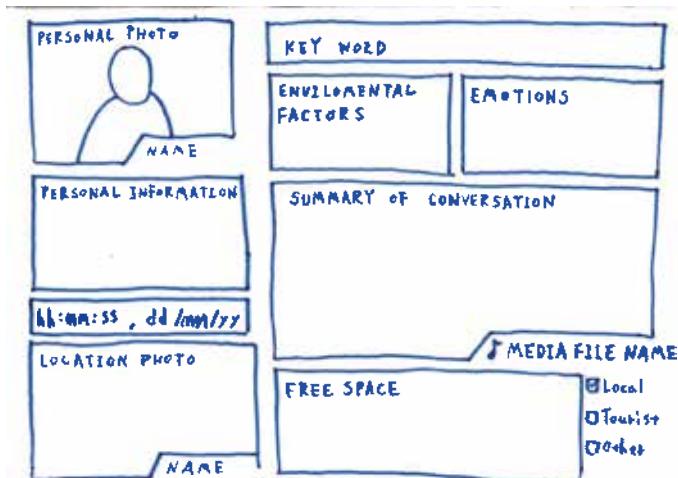
11. Working session at MediaLAB.

RESEARCH METHODS

We have adopted the methodology suggested by Bas Leurs for this project. This method of design consists of five phases (Research & analysis, Concept, Design, Develop and Implement), and we attempt to improve the outcome at each stage by iterating through the process of analyzing, creating, and testing. A wide range of tools and thought methodologies are introduced at each stage. The project in entirety being of 20 weeks, each of the five stages will be allotted 4 weeks each.



12. Brainstorm session. 11 September 2012.



13. Card sorting technique. Interview and observation cards.



14. Observation Bolwerken symbol. Location Max Euweplein

Brainstorming.

We use brainstorm techniques with mind mapping our ideas about the project. The Brainstorming in the research phase is with the goal of helping us to generate ideas and record what we know about the topics, which should lead to questions for further inquiry.

Individual in-depth interviews

We will have open interviews in the form of discussions with stakeholders. Individual interviews are ideal for learning exactly how each person feels about a topic or design, without being influenced by others.

Structured and non-structured interviews

We design a good combination of structured and non-structured interviews with the target audience, partners and other stakeholders. Conducting user interviews leads to a deeper and more complete understanding of the user.

Card Sorting technique

The card sorting technique is a very useful approach to understand what natural categories people have for the domain (Brinck, 2003: p.138). After an interview or other research we use the card sorting technique to visualize and clarify the research results.

Demographic Research of the audience target

Demographic research is a quantitative research method to map the behavior and characteristics of the end-user. It helps us get a clearer understanding of the end-user and to develop usable products for said end-user (Leurs, Toolkit V1, 2012).

Participant observation

We observe the target audience in the field. Though identifying with the culture of the

audience in depth is too time consuming to be possible, it might be interesting to observe how people use existing facilities and how they see historical buildings.



15. Printscreen#1 about timeline Facebook.

Desk research: literature, libraries, documentaries.

Surveys and questionnaires were used containing a short list of questions for the target audience. Survey research is a tactic for collecting quantitative information by asking participants a set of questions in specific order. Questions are administered to a sample of individuals, representative of a larger population. Surveys and questionnaires are used to collect demographic (fact-based) or psychographic (opinion-based) data to gain insight into the opinions and desires of the target audience. They can be used to collect large amounts of information from a wide population in a relatively short amount of time. This information is then analysed using qualitative research methods.



16. Printscreen#2 about timeline Facebook.

Timeline at Facebook

We made a Facebook page as the timeline form provides a useful way of depicting historical events over time in Amsterdam. To make the historical events related to the Wall and Canals more visual we added media like photos, videos or links to other sources to the timeline. This page can then easily be shared with the target audience. They can easily comment, like and share different events which adds another layer of interactivity. Another added benefit of creating a historical timeline is that all content can be edit by all group members and information can be added and removed very easily.



17. Photo meeting with assigner.



18. Lunch meeting with assigner.

MEETINGS

On the first day, 3rd of September, everybody introduced themselves with a short PechaKucha presentation. It was amazing to realize that the project would involve working with people from a lot of nationalities and different kind of backgrounds and disciplines. After an exciting first day getting acquainted with team mates followed a very busy first week with workshops, brainstorms and a lot of meetings. The first meeting with the assigner, Marco Cops, an Urban public space artist was an exciting one too with the primary goal of gathering information about the Gemeente Amsterdam and the project. We discussed the main question from the Gemeente Amsterdam, Stadsdeel Centrum and were happy to find our assigner very open, and gladly answered the questions we fired, enabling us to precisely clarify the scope of the project and discuss our planning for the coming weeks. Marco shall work on the project for 2 hours a week and also stay up to date with fortnightly meetings. On 19th October 2012 this research document along with insights was presented to Marco, followed by a sumptuous lunch together to talk about the next phase.

WORKSHOPS

The project involves a chance to participate in various workshops held by lecturers from the Hogeschool van Amsterdam and other Universities.

Here are some of the amazing workshops we participated in :

- Creative brainstorming by Charlie Mulholland (teacher University of Applied Sciences - Communication and Multimedia Design) .
- Research Design by Bas Leurs (Lecturer University of Applied Sciences) on the



19. Photo Workshop Bas Leurs.



20. Photo Workshop Bas Leurs.



21. Photo Paper prototyping.



22. Photo interview ACEMAG.

theme of User Needs and Design Research.

- Paper Prototyping by Frank Kloos 18 September 2012.
- PicNic festival.
- COSM workshop.
- Kersvers festifal
- Opening Studio-HvA
- Todaysart.
- Test a 2nd screen webApp for the NOS.
- Lunch meetings with Marco Cops.

INTERVIEWS

Alex from ACE did a interview on 15-10-2012 with us about the project after being intrigued with what the team was working on from morning till evening everyday. Following is an excerpt from the interview. The interview is in Dutch.

"Het gigantische foto- en video-archief van de stad bereikbaar maken voor alle Amsterdammers. Een van de ambitieuze projecten van Studio HvA-partner MediaLab Amsterdam. De goedlachse Annika Kuyper (pre-master UvA Media&Cultuur) werkt samen met Takuma Oami (Japan), Stefano Danna (Italië) en - om de wereldgroep compleet te maken - Ankit Daftry (India). Het multiculturele -, maar ook multidisciplinaire team werkt nauw samen met Gemeente Amsterdam en het Nederlands Instituut voor Beeld en Geluid. Daarnaast onderzoeken ze de mogelijkheden om het archief van het dit jaar 125 jarige theater Carré en het Stadsarchief er in te betrekken "We bereiden een presentatie aan de gemeente voor waarin we een 5-tal oplossingen voorstellen om dit mega-archief open te maken voor het grote publiek", zegt Annika die zich verontschuldigd voor het feit dat Stefano en Ankit er maandag pas weer zijn. "

The whole interview can be read at ACEMAG:
<http://acemag.nl/blending-amsterdam-reality/>

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STAKEHOLDERS

I amsterdam®

23. IAmsterdam logo.



24. ATCB logo.



25. EYE institute Building.



26. Building Carré.



27. Sound and Vision building.

STAKEHOLDERS

Project Blending Amsterdam Reality has the potential to impact a number of different groups of people, or companies each with different characteristics and needs. That is why a lot of different stakeholders are involved in this project. A stakeholder in our project is a person, group, organization, member or system who affects or can be affected by our project or has an interest in the project. We clusterize potential groups below:

MAIN STAKEHOLDERS

Gemeente Amsterdam, WiseGuys, ATCB, Institution of sound and vision, Create-IT, funenpark, Rob van Reijn, Unesco

OTHERS

Dienst monumenten, 400 years canals Amsterdam, UAR, IAmsterdam

UNIVERSITIES

With new Media, Design, Communication, IT or tourism studies

MEDIA

Newspapers, websites, science newsletters, local televisions

THEATERS

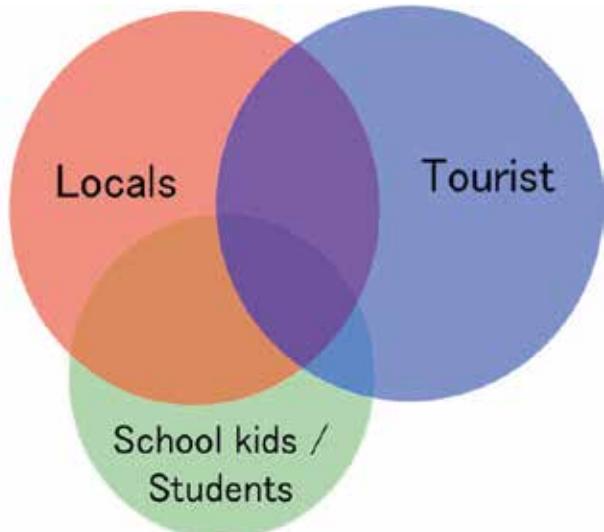
Carré and Leidsepleintheaters, Amsterdams Marnixnettem Theater, De Balie, Bellevue, Beurs van Berlage, Bimhuis, Boom Chicago, De Brakke Grond, Koninklijk Theater Carré, Concertgebouw, De Engelenbak, Felix Meritis, Heineken Music Hall, Hetveem Theater, Holland Casino, De Kleine Komedie, De Meervaart, De Melkweg, Paradiso

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3

AUDIENCE TARGET

AUDIENCE TARGET



28. Figure audience target.

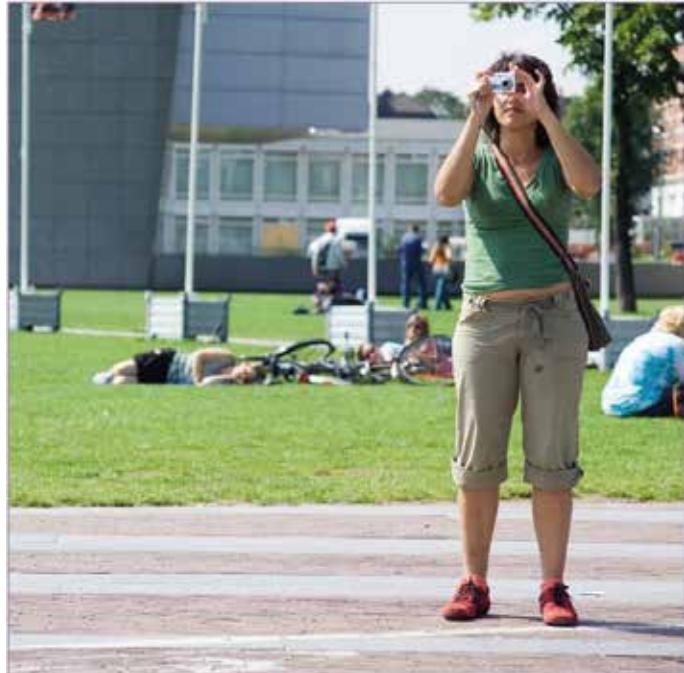
Different audiences have different motivations and demographics; they respond differently to different approaches and means of persuasion. Different audiences are reached by different tactics and different media. Different aspects of a project will be relevant and interesting to different audiences – local communities as opposed to tourists, for instance. Our goal was to research the audience and have a clear view of what the target audiences are and what they have, need and want related to this project.

Ours interviews show that high priority should be given to the following groups of audiences while designing the solution:

- Locals
- Tourists
- School kids and students

We use personas to make a description of the two most important audience targets. Personas are user models that are presented as example individual humans. They are not actual people, but are synthesized directly from observations of real people. Personas are archetypical users with specific goals and needs based on real market and design research (Leurs, Toolkit V1, 2012).

TARGET AUDIENCE AND NEW MEDIA
Rapid technological advancement means that the relationship between machines and humans is constantly evolving. Technology is and will remain one of the key drivers of the future, making a lot of things possible and connecting the world in hundreds of different ways. One of the local interviewees expressed surprise that books (eg. Lonely



29. Figure tourist public space.

Planet etc) were still in use to explore Amsterdam. He was very open to using a mobile application, the problem being that there was no reliable public Wi Fi service in the city. “But in 3 years technology will change everything to explore the city”, said the local. He hoped that he wouldn’t at least have to rely on books while on trips.

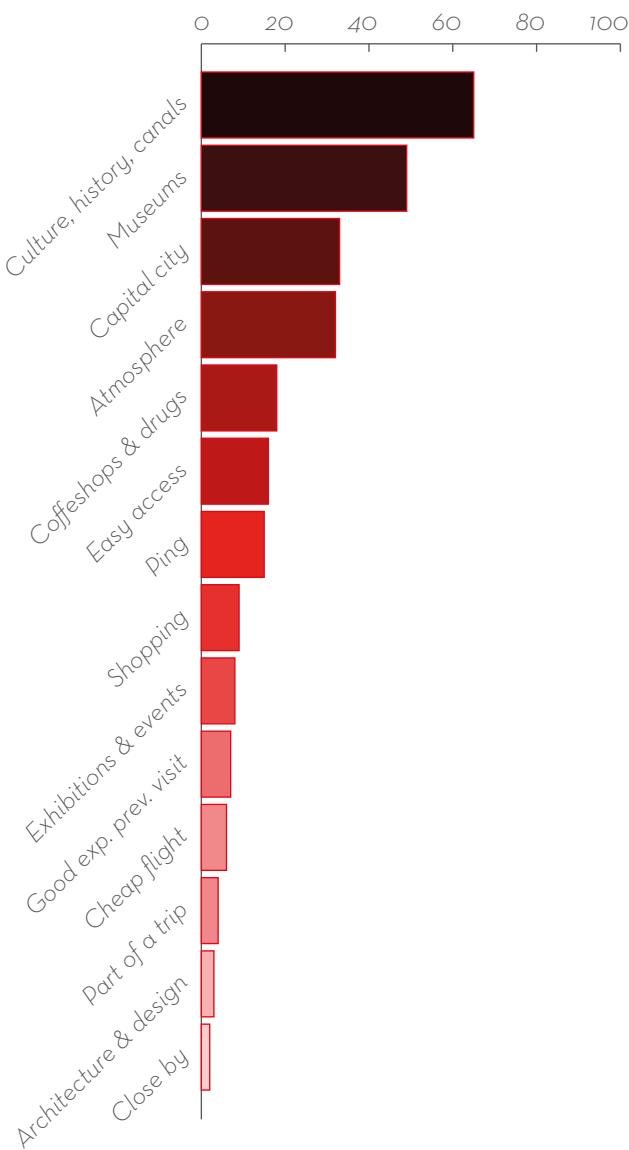
People already live life through the screen with which they ‘inquire, discuss, argue, shop, critique, fantasize, inform, search and seek’ (Tapscott, 2009 p.40), a noticeable shift from passivity to interaction. Linearity of the screens has now been replaced by adding multiple dimensions with audio and video, where interaction is important. In the not-too-distant future, haptic technologies can provide a real 3D holographic experience as if talking to a real person. Augmented Reality is a promising upcoming technology that allows devices to add dimensions to distribution channels. AR finds use today in applications like making reservations and looking up information. This medium has many benefits like convenience with user-friendly interfaces, up-to-date information and affordability to the end user. The use of devices sees a strong trend in moving from computers to mobile devices, and this can be used very favorably for tourism.

TOURISTS

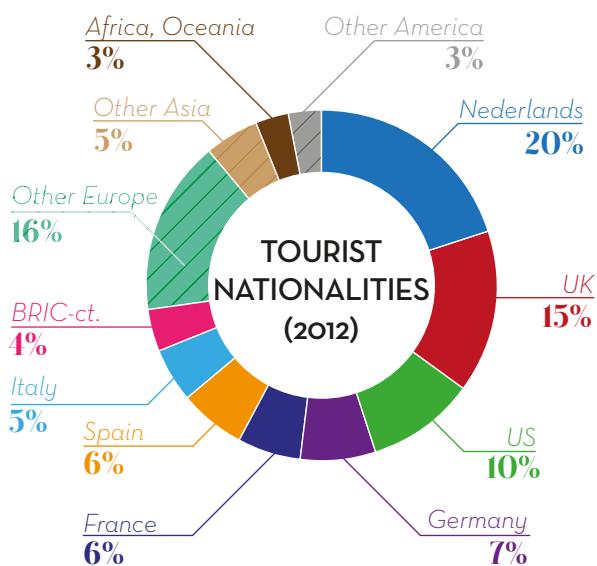
Our interviews show that tourists currently want to know basic information related to history of the city, for example: what building they were looking at and taking photos with famous people from Amsterdam in the virtual city theater.

DEMOGRAPHICAL AND GEOGRAPHICAL RESEARCH

A tourist is someone who travels from their environment to another, for less than one year. They travel either to another country



29a. Why people come to Amsterdam.



29b. Tourists nationalities in Amsterdam.

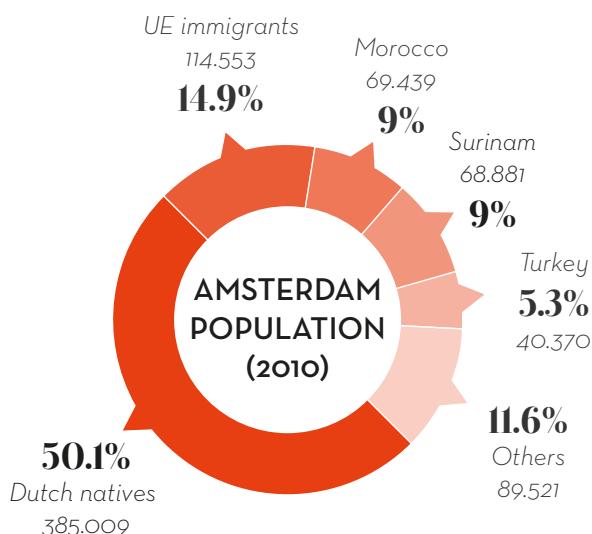
or place, for leisure, recreation, or business purposes.

All the tourists who visit the Netherlands also visit Amsterdam, and most of the tourists are from Europe, and the second biggest group is from the United States. The summer months June, July and August are most favored by tourists with the Museums and Old city being the main tourist attraction in Amsterdam. (ATCB) published a research June 2012 to the main reasons to visit Amsterdam. Half of the visitors came to Amsterdam to visit a particular museum, and 85% of them did indeed visit that museum. Amsterdam has tourists from a range of nationalities, which provides the city a stable base. Emerging markets and the U.S. give a positive impulse to the expenditures (ATCB, 2012).

However, the overall growth remains below the market growth registered in other European metropolises like Berlin, Copenhagen, Vienna, Lisbon, Paris, Prague and Barcelona.

SOME NUMBERS

Amsterdam registers 47 million visitors a year, 70% of which are actually tourists, both Dutch and international. Tourism provides 50,590 jobs in Amsterdam, and visitors give Amsterdam an average rating of 8.1 (out of 10) with visitors from UK and USA being the most satisfied. The Dutch themselves and Belgians and French are the most critical. Visitors are most satisfied with the atmosphere and public transport with dissatisfaction about parking spaces and high costs of almost everything (ATCB, 2012). Visitors from the Netherlands are the best sources of income for the museum and foreigners spend more money for food, accommodation and transport (ATCB, 2012). Since we wish our target audience to explore history through new media, it is important that they have a Smartphone or access



30. Local nationalities in Amsterdam

to another medium which can connect to the internet or can download apps.

LOCALS AMSTERDAMMERS

Ours interviews shows that locals prefer knowing about intimate details about the history of the city, like the who, what, why and when of historical buildings, and what changed over time.

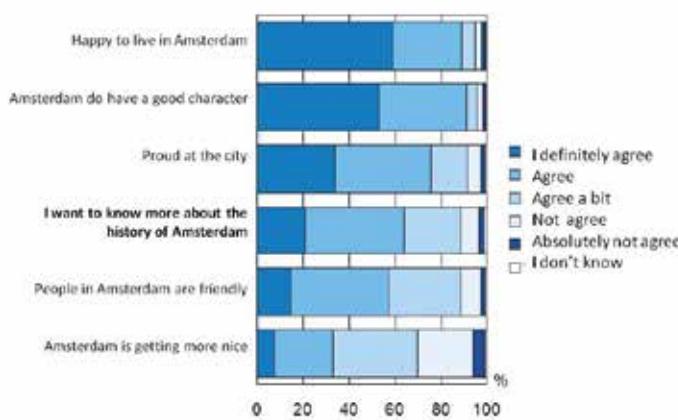
The ‘Amsterdamer’ is a local citizen of Amsterdam. Only 4 out of 10 citizens of Amsterdam are actually born in the city and towards the city center it is even less: 3 out of 10.

Amsterdam is home to 175 nationalities and each population group brings with it its own culture. This is reflected in the restaurants, shops and buildings. The population of Amsterdam has shown slow but steady growth for many years. On the 1st of January 2009 the city had 756,347 citizens which are just as many citizens as in 1975. The number is expected to grow to 8,27,000 in 2030. There are a lot of hidden dynamics behind the calm but steady growth.

DEMOGRAPHICAL AND GEOGRAPHICAL RESEARCH

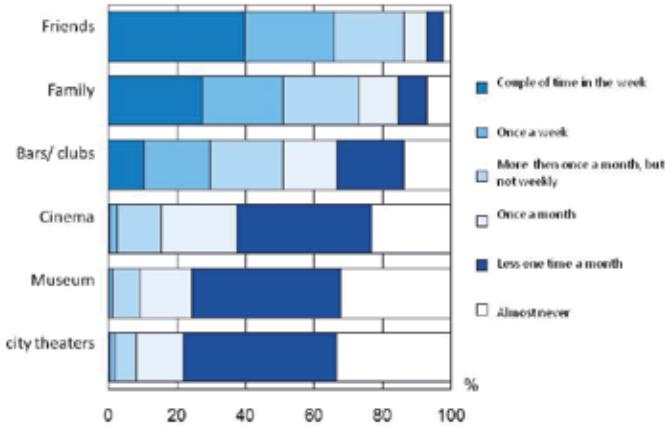
Nearly 7 out of 10 people who were born in Amsterdam, nowadays mostly live outside the city, in Diemen and Landsmeer and also a bit farther in Purmerend, Almere and Lelystad. Most people (60%) are not affiliated to any religious community. Amsterdam has a multicultural image with a lot of nationalities and almost 50% of the citizens are non-Dutch natives.

Most people commute by bicycle or public transport. Amsterdam is one of the most bicycle-friendly large cities in the world and is a centre of bicycle culture with good facilities for cyclists such as bike paths and



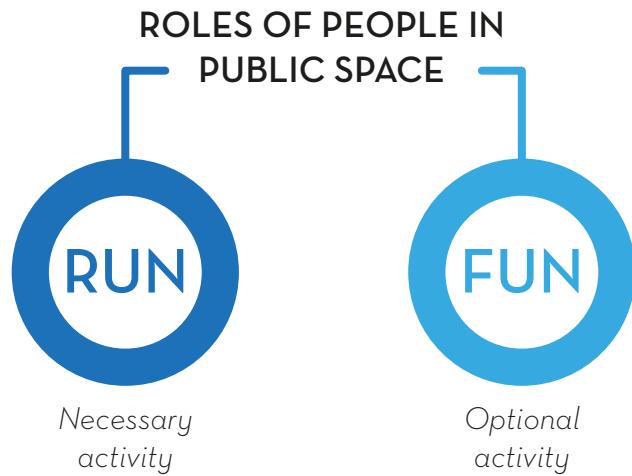
More than 60% of the Amsterdammers like to know more about the history of Amsterdam and less 10% don't have any historical interest in the city (Dienst Onderzoeken Statistiek (O+S) van de Gemeente Amsterdam).

31. Living in Amsterdam.



32. What to do in Amsterdam.

bike racks, and several guarded bike storage garages (*Fietsenstalling*) which can be used for a nominal fee. In 2006, there were about 4,65,000 bicycles in Amsterdam. Theft is widespread – in 2005, about 54,000 bicycles were stolen in Amsterdam. Bicycles are used by all socio-economic groups because of their convenience, Amsterdam's small size, the 400 km of bike paths, the flat terrain, and the arguable inconvenience of driving an automobile (O+S, 2011).

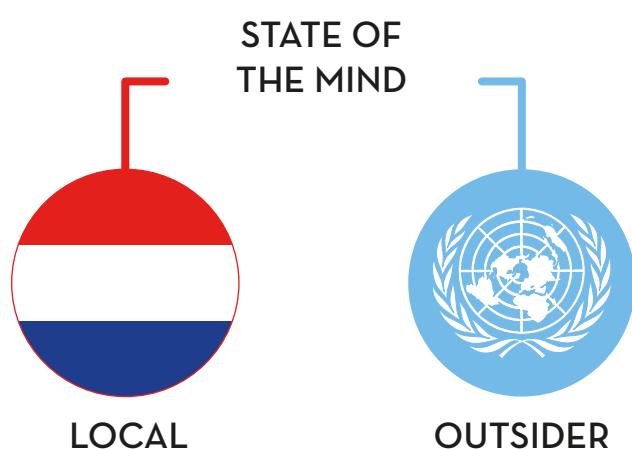


33. Run or Fun. Roles of people in public space.

SOME NUMBERS

Three quarters of the residents are proud of Amsterdam and almost 65 percent are happy to live in Amsterdam and think Amsterdam had a very good and positive character. Four out of ten Amsterdammers go at least once a month to the cinema, a quarter of them visit a museum monthly and one third never go to the museum or the theater.

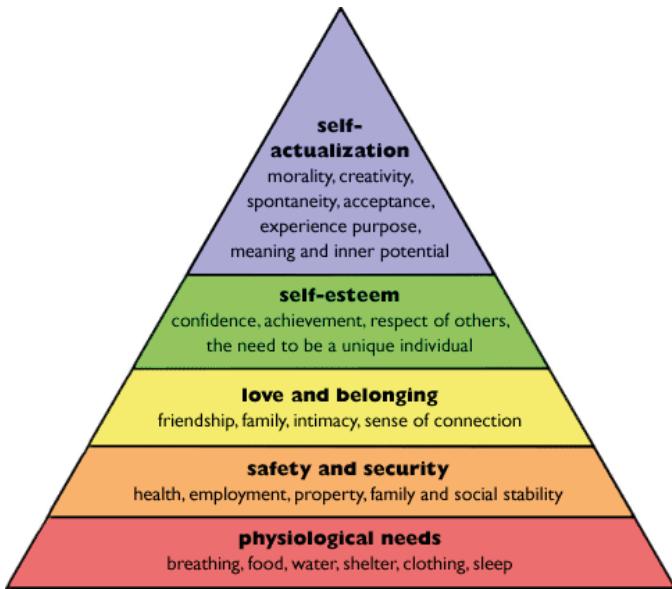
We can divide the locals in the city into two groups: People who RUN: in a hurry or on the way to somewhere and people who are having FUN: free from work and are doing something relaxing in the city (SpaceSee, 2011).



34. Local or Outsider. State of the mind.

Run connects to necessary activities such as commuting, buying, selling. All people from the interviews we conducted were on their way to someplace. The time they had for an interview was minimal and they showed little interest for taking the interview. Fun connects to optional or social activities, those which can be measured with a subjective lens.

Basically a tourist or visitor will have different needs than a worker or somebody who



35. The Common Pyramidal Representation of Maslow.

	Keywords
	Weather: cloudy temperature: 15°C Emotions
From: Hungary 3 people	
11:14 , 24 / 09 / 12	
	Media File Name
Dam	<input type="checkbox"/> Local <input checked="" type="checkbox"/> tourist <input type="checkbox"/> other
Not so interested.	

36. Tourists interview card 1

	Keywords
	Weather: cloudy temperature: 15°C Emotions
Sex: 3 male, 1 female From: Singapore	
10:45 , 24 / 09 / 12	
Location Photo	Media File Name
Dam	<input type="checkbox"/> Local <input checked="" type="checkbox"/> tourist <input type="checkbox"/> other
Taking picture is important for them.	

37. Tourists interview card 2

is heading somewhere in a Public Space. People organize themselves within space depending on the activities they need to do, and the available means to do them. People use public space in different ways, according to their needs and activities. In the book "Life between Buildings", Jan Gehl(1996) argues that through design it is possible to influence how many people use public spaces, and how long do individual activities last and which activity types can develop. He classifies in a greatly simplified way outdoor activities in public spaces into two categories:

Necessary activities: (RUN) Include those that are more or less compulsory - going to school or to work, shopping, waiting for a bus or a person, distributing mail, etc. Activities in which those involved are to a greater or lesser degree required to participate.

Optional activities: (FUN) Those pursuits that are participated in if there is a wish to do so and if time and place make it possible. These happen under favorable exterior conditions.

INTERVIEWS AND OBSERVATIONS

The international tourists interviewed are always in groups or pairs, whereas the Dutch people are sometimes alone, often for business or work.

We conducted 53 interviews and 3 observations. We used the card sorting technique and not only listened to what people answered, but tried to get suggestive statements and also see their emotions, especially when they are talking about experiences.

	<p>Keywords</p> <table border="1"> <tr> <td>Weather: cloudy temperature: 15°C</td> <td>Emotions</td> </tr> </table> <p>Just walking around They don't have information about Apps They like history It's second time to AMS</p> <p>Media File Name</p> <table border="1"> <tr> <td>Free space</td> <td> <input type="checkbox"/> Local <input checked="" type="checkbox"/> tourist <input type="checkbox"/> other </td> </tr> </table>	Weather: cloudy temperature: 15°C	Emotions	Free space	<input type="checkbox"/> Local <input checked="" type="checkbox"/> tourist <input type="checkbox"/> other
Weather: cloudy temperature: 15°C	Emotions				
Free space	<input type="checkbox"/> Local <input checked="" type="checkbox"/> tourist <input type="checkbox"/> other				
Sex: man From: Brasil 2 people Just arrive at today 10 : 42 , 24 / 09 / 12  Dam					

38. Tourists interview 3

	<p>Keywords</p> <table border="1"> <tr> <td>In front of his desk at room inside Some people talk with their friends around us</td> <td>Serious Kindness</td> </tr> </table> <p>Sex: male Student of HvA Living in AMS for 24 years</p> <p>19 : 11 , 27 / 09 / 12</p> <p>He has never saw interactive installation or event in the street of AMS. He saw only through his mobile phone and PC.(E.G. cinekit)</p> <p><input type="checkbox"/> Local</p>	In front of his desk at room inside Some people talk with their friends around us	Serious Kindness
In front of his desk at room inside Some people talk with their friends around us	Serious Kindness		
	<p>Media File Name</p>		

40. Locals interview card 2

	<p>Keywords: Amsterdam, history, walking, enthusiastic</p> <table border="1"> <tr> <td>Environmental Factor Sunny but cold</td> <td>Emotion: Enthusiastic</td> </tr> </table> <p>Summary of conversation:</p> <ul style="list-style-type: none"> *1. What do you know about the history of Amsterdam, you can write eg five keywords? *Acting - Anne Frank / Jews - Jordan riot - February strike - live on stilts *2. Do u know3 famous (historical) Amsterdam people? *Anne Frank - Andre Hazes - Carmiggelt *Did you know that Amsterdam in the 16th century city wall had? *Yes *3. Would you like to know more about the history of Amsterdam? Y / N / Bit *Yes *4. If yes, how would you like to know? Through museum, through a book, or take a walk? *Walk *5. Would you like it or like it to your phone to use with old photos and videos, so you can get a better idea of history? *ya *6. Do you have an app on your mobile phone installed on Amsterdam? Even if it is not historically related, example about theater or events. *No <p>Great initiative, Like to be informed about the project!!! Looking forward to it! <input type="checkbox"/> Local</p>	Environmental Factor Sunny but cold	Emotion: Enthusiastic
Environmental Factor Sunny but cold	Emotion: Enthusiastic		
Annemiek			
Personal Information: Dutch, married 3 childs Local for 54 years Lives in Amsterdam-East			
hh : mm , 02 / 10 / 2012			
			

39. Locals interview card 1

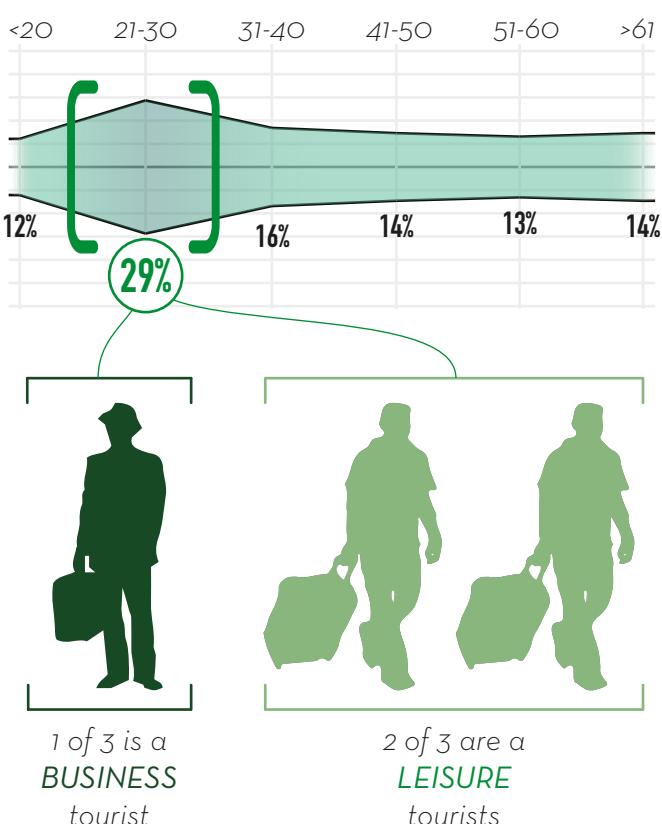
	<p>Keywords: Amsterdam, history</p> <table border="1"> <tr> <td>Environmental Factor Sunny at rooftop</td> <td>Emotion: A bit irritated because the questions are not good</td> </tr> </table> <p>Summary of conversation:</p> <ul style="list-style-type: none"> *1. What do you know about the history of Amsterdam, you can write five keywords? 1. Vake, Vamey, palace on the dam, spires, gold canal *2. Who is famous (historical) Amsterdam people? 2. Mees van gogh, Andre Hazes, Williams Vanessa (historically, more difficult) *3. Did you know that Amsterdam in the 16th century city wall had? 3. Yes *4. Would you like to know more about the history of Amsterdam? Y / N / Bit 4. augmented reality during a walk for example, or activities / events in the evening / at night or something *5. If yes or a little, how would you like to know? Through museum, through a book, or take a walk? 5. yes, but then I do have one that can do that; I have, but no tablet or something. Can do that with my phone! *6. Would you like it to use your phone with old photos and videos, so you can get a better idea of history? 6. I do that you call and SMSF on. (my old phone was a Nexus 6000, now a 88 8800, but have no internet bundle) *7. Do you have an app on your mobile phone installed on Amsterdam? Even if it is not historically related? None <p>There is thus assumed that everyone has such amorphophyte. I understand, but it is annoying, which people teach you mean? (where do you) do you think about it also think?</p> <p><input type="checkbox"/> Local</p>	Environmental Factor Sunny at rooftop	Emotion: A bit irritated because the questions are not good
Environmental Factor Sunny at rooftop	Emotion: A bit irritated because the questions are not good		

41. Locals interview card 3

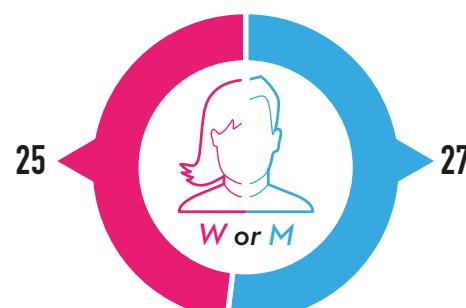
Only a small number of the Dutch people interviewed can use an Internet connection with their mobile phone.



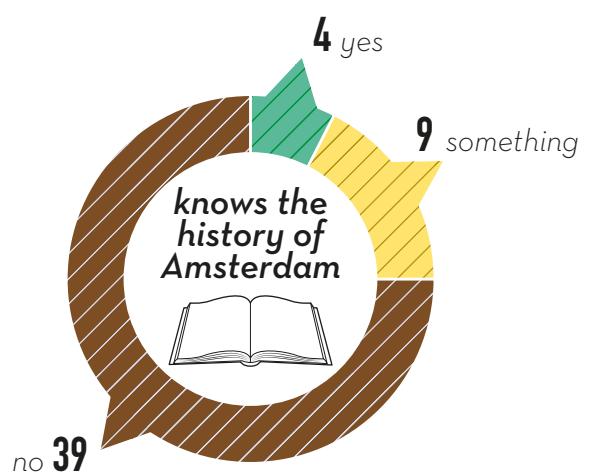
42. People interviewed.



43. Medium age of people interviewed



44. Sex of people interviewed.



45. Knowledge about history.

PERSONAS

We developed four personas. We describe four different users that help guide us to make decisions in the next phase. The persona's we make tell stories about users, so that we can understand the target audience better and what the user needs and wants. Personas are 'archetypal' users that act as 'stand-ins' for real users and help guide decisions about site aims, functionality and design. By designing a site to meet the needs of specific personas, the needs of wider groups of users with similar goals is met. We design the persona after our interviews and observations, so they partly reflect 'real' users. With the user personas we also introduce a customer journey. We introduce 4 personas in this report:

Local profile #1

Local profile #2

Tourist profile #3

Tourist profile #4

PERSONAS

Local profile # 1

picture



Name: Annemiek

Age: 56 (but feels still young ☺)

Location: Amsterdam - east

Jobtitle/Occupation: Director Opvoedpoli.

Technical comfort: HTC Desire, Iphone for work, Ipad, Ultrabook Asus, Computer Windows, Jotemnet at phone, (Vodafone)

Free space

Don't have app's about Amsterdam because don't know where to find. But now she know more about the Amsterdam app and history, she is definitely interested to use. Prefer to make a walk or even to a augmented reality tour from home or a cafe

Quick background story

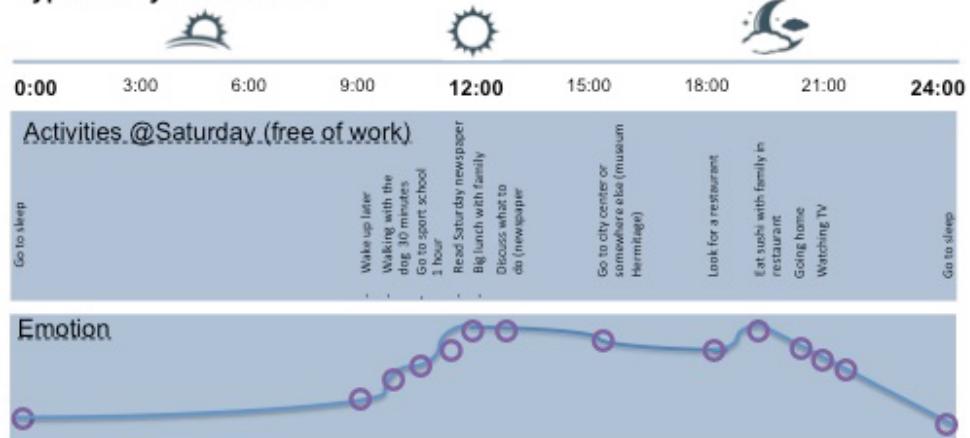
Did a Master study politicology, is married, 3 childs, and after studies and babies she starts a study again and became director of elementary school. Now a director of Opvoedpoli. Her daughters complain she always work too much and is late at home. Maybe that's true, but she also makes time free to: (1) good restaurants (2) cultural expositions or musea or theater, (3) (sun)holidays and other relaxing activities. She likes to to that the most with her children and husband. Its also very important to talk and do creative and cultural things with them. New media technologies are also very important, she always like to hear speakers about it and likes the science debate about new media and humans.

Device

- Smartphone
- Tablet
- iOS
- Android
- Other ()
- 3G connection

RUN or FUN

Typical day documented



Name: Annemiek

Goals

Goals are the things one wants to get done and the things one wants to see happen. Many goals are directly and indirectly activated in the Human-product relationship. We can differentiate between experience goals (how we want to feel), end goals (what we want or need to accomplish/ achieve) and life goals, which relate to our long-term desires. Motivations and self-image.

Experience goals

e.g. Have fun, Feel cool, Remain Focused, Feel smart, Feel in control...

Goals in life are different in different stages of life. But right now she already have a feeling everything is on the place. A nice family, nice work, enough money. Experience goals with this situation are:

- Feel smart
- Feel controlled
- Feel focus
- Feel organized
- Feel happy
- Feel satisfaction
- Feel close to family
- Feel surprise and experience new things

End goals

e.g. Clear my desk before leaving, Find problems proactively, Find quickly what I want, Only buy things based on reviews.

End goals in life are different in different stages of life as well. But right now try to let everything go. (Meer loslaten). Not to control everything, but also just let it flow:

- Have more time for family
- Have more time for cultural things
- Make ideas for renovation the house
- Want to read more books and watch movies
- Let the thing more flow
- Short terms: Want to help with Cinekid, want to have a holiday.

Life goals

e.g. Live the good life, Be attractive, Be popular, Be respected, Succeed in my ambitions to... Know everything of

- Enjoy life
- experience new things
- Succes in work
- Succes in family
- *Dream of life and live your dreams*

PERSONAS

Local profile # 2

picture



Name: Jasper

Age: 27, / born in AMsterdam

Location: Amsterdam - east

Job/title/occupation: Internship at CWI

Technical comfort: windows phone 7.8, windows laptop, Internet at phone and at home (T-mobile)

Have Multiple apps at my windows phone 7.8. I have the app with information about Amsterdam, and, some apps with appearances in the neighborhood, including Nokia Music.

Quick background story

- Motto: "The right tool for the job"
- Favorite quote: "First time you do something, it's science. It's engineering, second time... third time it's just being a technician." In a scientific context, doing something, I want to do something else." - CWI word. Still 118 minutes with an agile mind, TECQ
- Me and Software Engineering are in love. Before this study I took a couple of courses in totally different (exact) science subjects, like biology and chemistry, so I have a broader knowledge. In thesis area, then most other computer scientists. Main Forensic Science Bachelor was ok. Currently enjoying my internship @ CWI.
- Values: Openness and Honesty
- Dislikes: J.J., mobile/web development, yet another database app with a desktop form.
- Likes: Domain Specific Languages, writing server (like for GPS data), functional programming, complicated SQL (and normal QLGBUDJ), industrial automation
- Useful: Cluster computing (for ex. Big Data), neural Embedded Systems (not comfortable with C and memory management)

Device

Smartphone

Tablet

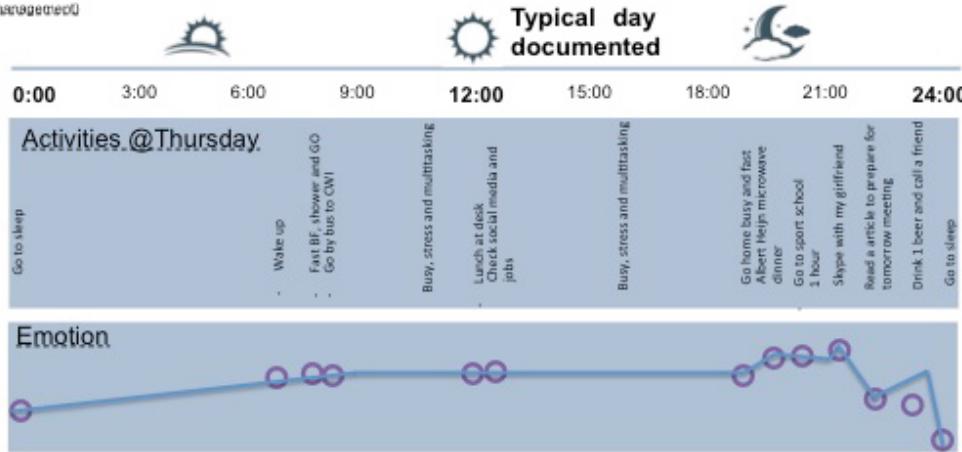
iOS

Android

Other ()

3G connection

RUN or FUN



Name: Annemiek

Goals

Goals are the things one wants to get done and the things one wants to see happen. Many goals are directly and indirectly activated in the Human-product relationship. We can differentiate between experience goals (how we want to feel), end goals (what we want or need to accomplish/achieve) and life goals, which relate to our long-term desires. Motivations and self-image.

Experience goals

e.g. Have fun, Feel cool, Remain Focused, Feel smart, Feel in control...

Good and enjoying career, I will work for that goal very hard.

I wanna feel the man who has money and can be an important person for a company in my field

Feel controlled

Have fun

End goals

e.g. Clear my desk before leaving, Find problems proactively, Find quickly what I want, Only buy things based on reviews.

- At the moment I don't mind that I don't have free time for cultural things. My goals now are making my career success.

Life goals

e.g. Live the good life, Be attractive, Be popular, Be respected, Succeed in my ambitions to... Know everything of

"The right tool for the job".

PERSONAS

Tourist profile # 1



Age: 25 / born in Deventer

Jobtitle/ occupation: working at elementary school and give workshops about creative thinking

Technical comfort: iPhone, windows laptop, Internet at phone and at home)

Quick background story

I am a Dutch citizen, I have been in Thailand, in Prague, in Barcelona, New York, London. But I haven't been in Amsterdam for more than 10 years. I'm going to spend time in Amsterdam with our oldest child (10 years old) and explain and show them the capital city of our country. Because the child's are very good friends, they are playing together and we also have some free time to talk and drink a beer.

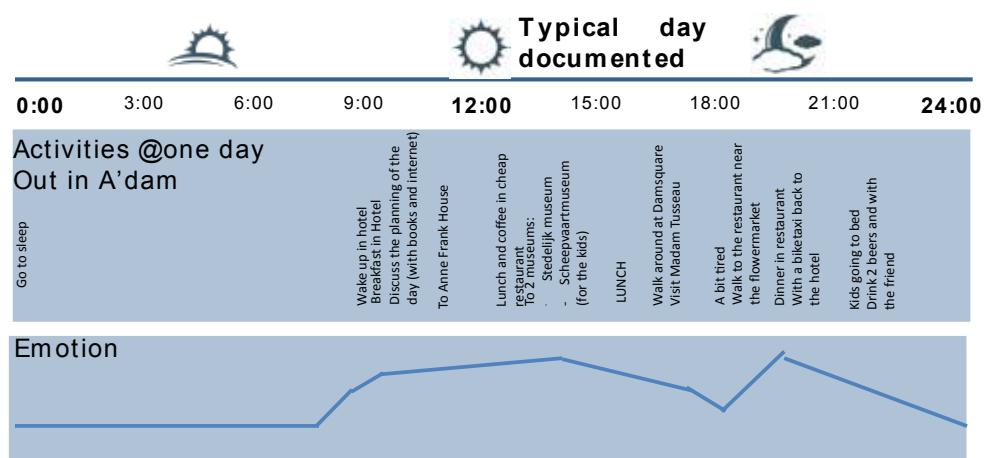
I'm not a typical career kind of person, but I have a lot of fun in teaching 3 days a week at a elementary school. The other 2 days I take care of my children.

I like to do more cultural things. But since the economical crisis I have to choose where I wanna go. That's also a reason we can go to Amsterdam. Before we could go a weekend to Barcelona, but now we have to see our money.

Anyway, I read something at internet about the city Amsterdam, and I was looking for interesting things to do with my child.

Device

- Smartphone
- Tablet
- iOS
- Android
- Other (
- 3G connection



Name: Patricia

Goals

Goals are the things one wants to get done and the things one wants to see happen. Many goals are directly and indirectly activated in the Human-product relationship. We can differentiate between experience goals (how we want to feel), end goals (what we want or need to accomplish/ achieve) and life goals, which relate to our long-term desires. Motivations and self-image.

Experience goals

e.g. Have fun, Feel cool, Remain Focused, Feel smart, Feel in control...

- Have fun
- Proud
- Feel good because give education to the kids.
- Feel cool
- Feel surprise and experience new things
- Feel happy because of free time with kids and best friend
- Feel interesting

End goals

e.g. Clear my desk before leaving, Find problems proactively, Find quickly what I want, Only buy things based on reviews.

- Visit museum, especially museums which are interesting for the kids
- Find the place to go next and have a well structured planning
- Want to know new activities I've never tried.
- Discover the multicultural life in the city
- Give some cultural and historical information to the kids

Life goals

e.g. Live the good life. Be attractive, Be popular, Be respected, Succeed in my ambitions to... Know everything of ...

- Want to show herself and the kids capital city
- Don't want to be conservative through whole of a life
- Can share stories back in hometown

PERSONAS

Tourist profile # 2



Name
John

Age 23

Location from London

Job title/ occupation Student

Free space

Technical comfort SmartPhone

Quick background story

John is a student of university and his study fields is information technology especially about interface between User and PC. His family is included into a middle class of British hierarchy and a family of five with the father and mother, two brother and him. He has a strong will to experience things he interested in and touch other cultures and traditions that are different from where he live in.

The reason for his holiday trip to the Netherlands is that one of his friends recommended Amsterdam. Before arrival, he did some research on Amsterdam on the internet.

He just arrived at Schiphol airport at this morning and have some destination he wants to go but his plan is not enough to spend most of the day. Two friends travel together with him.

Device

✓ Smartphone

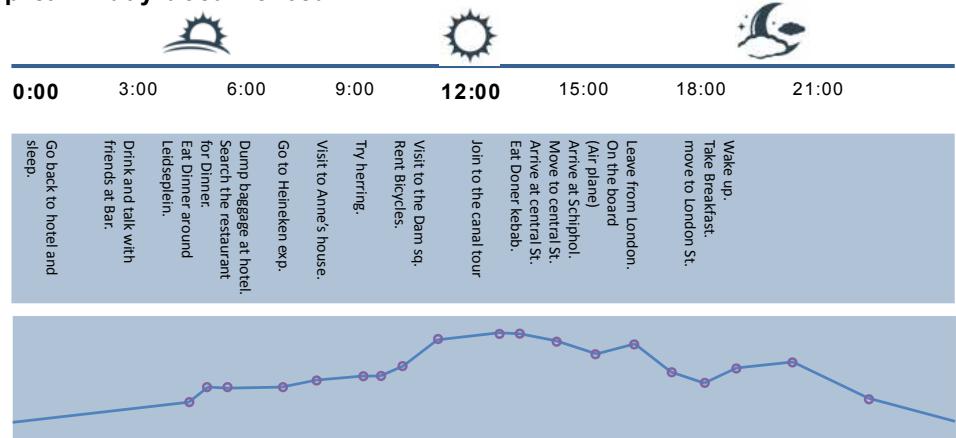
□ Tablet

□ iOS

✗ Android

□ 3G connection

Typical day documented



Name jbh

Goals

Goals are the things one wants to get done and the things one wants to see happen. Many goals are directly and indirectly activated in the Human-product relationship. We can differentiate between experience goals (how we want to feel), end goals (what we want or need to accomplish/ achieve) and life goals, which relate to our long-term desires. Motivations and self-image.

Experience goals

e.g. Have fun, Feel cool, Remain Focused, Feel smart, Feel in control...

- Have fun
- Feel cool
- Feel in control
- Feel surprise and experience new things
- Feel happy
- Feel delicious
- Feel interesting

End goals

e.g. Clear my desk before leaving. Find problems proactively, Find quickly what I want, Only buy things based on reviews.

- Eat good local foods
- Talk with people I meet on the trip
- Visit museum
- Find the place to go next
- Find Wi-Fi spot when I need
- Want to know new activities I've never tried.
- Experience the same life as the local people

Life goals

e.g. Live the good life. Be attractive, Be popular, Be respected, Succeed in my ambitions to... Know everything of ...

- Want to know other way of life and then choose a suitable one
- Don't want to be conservative through whole of a life
- Success in business

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4

BEST

PRACTICES

BEST PRACTICES

It isn't always necessary to reinvent the wheel. We studied existing solutions and picked out strengths and approaches from the best of them. There are more than a 100 apps for travelling, and 52 apps for Amsterdam alone, and also 10 apps which incorporate augmented reality. We made a selection most relevant to our project and focused on 3 major mobile apps based on category : (1) Augmented reality based (2) GPS based and (3) history based. We also tested Augmented Reality city viewers and public screens with interaction with the users. This is a list of our possible inspirations:

- **(1)LAYAR** - Augmented reality app for mobile devices with use of GPS and digital content.
- **(2)TRIPADVISOR CITY GUIDE AMSTERDAM** - Offline guide book with GPS.
- **(3)HISTORYPIN** - User generated archive of historical photos and recollections.
- AMSTERDAM 1572 - Pictures of Amsterdam in the year 1572 (Award winning)
- UAR AMSTERDAM - Urban Augmented Reality with historical photo's, designings, 3D model.
- WIKITUDE - Augmented reality working together with all content at Wikipedia.
- GOOGLE GOOGLES - Augmented reality working together with all content at Google.
- UIT - APP - All events and upcoming festivals at Amsterdam.
- VISITORY - Guide book for virtual destination.
- AMSTERDAM THE MAP - Detailed offline tourist map of Amsterdam with GPS and 3D drawings.
- AMSTERDAM OFFLINE MAPS - High detail, high quality big map of Amsterdam.
- ETIPS - Augmented reality with GPS and tour guides.
- TRIPOSO TRAVEL GUIDE - OFFLINE - Dynamic travel magazine.
- CELEBRATION 400 YEARS CANALS APP - How the canals were started to built 400 years ago.
- TILBURG AR PILLARS - City pilars with 360° AR movies and photos from the past of the city Tilburg.
- WALK OF FAME - Pillars at the Walk of fame in Berlin with AR famous people in Berlin.

(All sources can be found in the literature).



OS WORK

iOS

5.0 or later



ANDROID



STRENGTHS

- There is a lot of content for Layar. (E.G. looking for places user wants, display tweets with location data, and playing AR games)
- User generated content
- Can add content to a lot of places, including city map on tram station



USEFULNESS ●●●●○
FUNCTIONING ●●●○○
CLEARNESS ●●●●○



free

DESCRIPTION

The browser makes use of accelerometer, camera, compass and GPS. These are used together to identify the user's location and field of view. From the geographical position, the various forms of data are laid over the camera view like inserting an additional layer.



TECHNICAL REQUIREMENT

A wifi or 3G internet connection is required.

Works local to user position and needs complete access to Internet.

The app can access the images from the camera at any time

WEAKNESSES

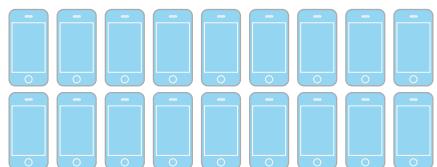


- Needs some kind of print media
- Relies on Internet (slow ?)
- Can we download entire Layar beforehand ?
- Problems while uninstalling (android devices)



DOWNLOADS

25 million people





OS WORK

iOS

4.3 or later



2.2 or later

ANDROID



PRICE

free



STRENGTHS

- The map is loaded quickly by using Google Map App
- User can upload photos they took and compare past and now.
- Onion Skin shooting mode
- With a shake brings up a random content from anywhere in the world



historypin
from we are what we do



TECHNICAL REQUIREMENT

a wifi or 3G internet connection is required.

The app localised the user position and needs the complete access to internet. Also control the vibration for the shake mode

WEAKNESSES



- There isn't a pinpoint photography for every major landmark



DOWNLOADS

50.000 people



historypin





OS WORK

iOS

4.0 or later



ANDROID



STRENGTHS

- Map can be used in offline mode
No data roaming charges
- GPS can guide you to your next destination
- Self-guided tours in the city, to explore neighborhoods, famous landmarks and hidden gems.



free

DESCRIPTION

City Guide from TripAdvisor, with restaurants, attractions, hotels, metro stations, shopping and nightlife places. Everything is stored in the mobile phone, after an initial download



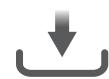
TECHNICAL REQUIREMENT

a wifi or 3G internet connection is required for the initial download and for updates. The app localised the user position with GPS.

WEAKNESSES



- Good indications for metro stations, but not for trams and bus



DOWNLOADS

100.000 people



WALK OF FAME



46. Walk of fame Berlin 1 AR at Potsdamerplatz



47. Walk of fame Berlin 2 AR pillar



48. Walk of fame Berlin 3 photo AR

Berlin Walk of Fame

Viewer installations about famous artists in Berlin.

You don't have to travel all the way to Hollywood to see some stars, because Berlin got its very own version of the Walk of Fame.

Located in the middle of the Potsdamer Platz is Berlin's newest tourist attraction. The boulevard features German celebrities such as Marlene Dietrich, Romy Schneider or Michael Ballhaus. The first forty brass stars were embedded in the ground over the last few weeks, while organizers say up to 150 can be laid there.



STRENGTHS

- Centre of Berlin, lot of tourists
- A lot of colours and opvallend
- A new experience for tourists
- Take a picture of yourself with the celebrity



WEAKNESSES

- No information is given
- Temporary and not reusable
- Quality of the AR is not so good
- No possibility to send e-mail



PRICE

Free

SCREENS



49. City theater Ngage media 1



50. City theater Ngage media 2



51. City theater Ngage media 3

Create an alternative experience for users of the Leidseplein. Using the screen as a portal to an alternative experience of the Leidseplein. By visualising local knowledge, tourists are given an alternative to the big commercial venues. Building upon different kind of existing services the screen visualises, through for example a map, real-time tips and questions.



Give tourists the opportunity to experience “the real Amsterdam”. In this way the local companies are supported through their users, and are given a medium (the screen) to reach the tourists.



No special technology is required, as this service builds on top of existing projects, mashing them to be visualized on an urban screen.

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5

TECHNICAL POSSIBILITIES

TECHNICAL POSSIBILITIES

In this chapter we research the technical possibilities available for this project. We start with some electronically aspects in physical computing (the product). After that we explain about mobile devices, augmented reality and GPS futures. In the last part we explain something about media platforms and interaction.

WHITE LABEL APP

One of the requirements of the Gemeente is a media platform which can be used for more projects, re-usable. We found out that it's called a *White Label*. It is a re-usable platform or application which can be used for other cities, projects, places or other content. White label apps are the category for apps which is developed with consideration for compatibility with other contents. So it must be enough flexible to use with other cities, projects, places or other contents.

PHYSICAL COMPUTING (THE PRODUCT)

Arduino

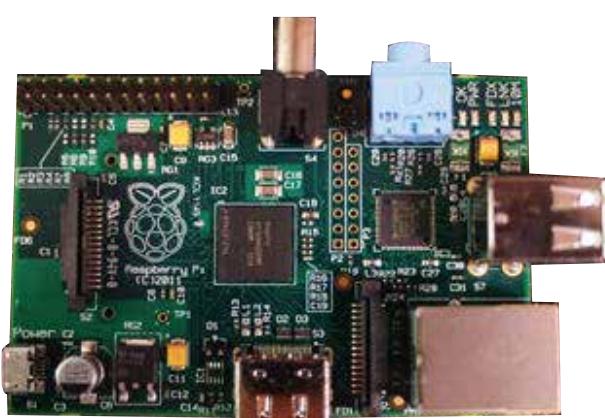
Arduino is an open-source electronics prototyping platform based on flexible, easy-to-use hardware and software. It's intended for artists, designers, hobbyists, and anyone interested in creating interactive objects or environments. USE: Make interaction between physical world and digital information. ACTION: Detect environment behavior and control not only images but also real objects, for example actuators, LEDs, and speakers.



52. Arduino.

Raspberry pi

The Raspberry Pi is a credit-card sized computer that plugs into your TV and a keyboard. It's a capable little PC which can be used for many of the things that your desktop PC does, like spreadsheets, word-processing and games. It also plays high-definition video. The Linux OS works on this board and give user better machine power than Arduino. USE: Make interaction between physical world and digital information. ACTION: Detect environment behavior and control real objects as well as Arduino. In addition, it has HDMI video output.



53. Raspberry Pi.



54. WiFi logo.

WIFI – INTERNET – HOTSPOTS

WiFi spot is also a dominant tool to detect user location. Google employs this method to collect location data of users. On the other end of the spectrum, it is also possible to offer information based on location by making Wi Fi routers into local file servers. The PirateBox, a self-contained mobile communication and file sharing device is good example of this approach. People can build their own PirateBox under \$30 and simply switch them on to transform any space into a free and open communications and file sharing network.

CAMERA

There are a lot of historical images from the city archives and almost all smartphones have cameras, so these can be combined to show the change of a particular place / location with the lapse of the time. As an example, two photos, taken in the same place but at different times, can give a feeling of being familiar with history to the user.

KINECT



55. Kinect.

Until the Kinect was released, equipped with depth measurement feature, the camera was an expensive device and used to be applied mainly in academic research. But now thanks to Kinect, it is quite cheap and easy to capture not only image but also field depth at the same time. In addition, the Kinect can easily capture motion and detect varied body motion without particular marker suits or trackers. The Kinect, is also open in the sense that it allows the data structure to be analyzed and open-source drivers can be developed by users. Following Kinect, quite a few competing technologies arose. For example The LEAP, a gesture detection device, to be released in February 2013 surpasses Kinect in speed of detecting motion and resolution.

AUGMENTED REALITY

To understand the current situation of Augmented Reality Technologies we have conducted a web research. For each step of the research method, a visualization has been made, in order to create an overview that is easy to read for both our team and the different stakeholders. Furthermore a literature research has been done. This has helped the team



56. Augmented reality at mobile device.

to better understand the current academical debate about Augmented Reality Techniques and their implications.

Augmented Reality (AR) is a live, direct or indirect, view of a physical, real-world environment whose elements are augmented by computer-generated sensory input such as sound, video, graphics or GPS data.



57. Tablet.

IPAD / TABLET / MOBILE PHONE

Nowadays the smartphone and tablet are in use amongst all factions of society, so it can be said that almost everyone has highly capable devices powered by camera, GPS, over 16GB memory, and Internet connection. And because these are not public property but personal belongings, there is lesser probability of it being destroyed by people.

In the last few years smartphone apps have arisen as a new tool for helping travelers create experiences. Taking into consideration the potential impact of the smartphones and mobile applications, it is important to analyze the usage of smartphone applications in tourism. This dissertation analyses the already existing mobile applications on the tourism market, clarifies which type of consumers uses these applications during their travel process and predicts some future trends for these new mobile services. There are several different user groups who use smartphones in a variety of different ways, from business users to media junkies. The literature review shows that the main customers are youngsters, who use these applications especially to plan their travel during the information phase. But smartphone applications can be used not only to support tourists' information processing activities such as connection and navigation in the tourism consumption stage, but also the activities in the pre-consumption and post-consumption stages. A survey in Madrid (Spain) and Nuremberg (Germany) was conducted for this dissertation showing the main differences and similarities in using smartphone applications for tourism activities. The usage of smartphones in Germany is even more frequent than in Spain and the main used device is the iPhone from Apple. Furthermore, German as well as Spanish travellers focus their usage mainly on the information stage



58. Smartphones.



59. GPS.

than on the booking process, as the majority of mobile applications are purely informative such as maps or tourist travel guides. Usage is also limited by challenges such as expensive roaming charges and poor Internet connectivity. Tourism companies should therefore focus on aspects like secure and efficient mobile services that give tourists the feeling of being accompanied with a reliable and personal travel guide during their trip. Only by improving these aspects, smartphone applications will have good growth on the tourism market (Torun, 2011).

GPS

Another way to detect user's location is GPS. Almost all smartphones and tablets now have GPS capabilities and it is available even when devices lose their internet connection, which means they can be used in conjunction with maps cached offline.

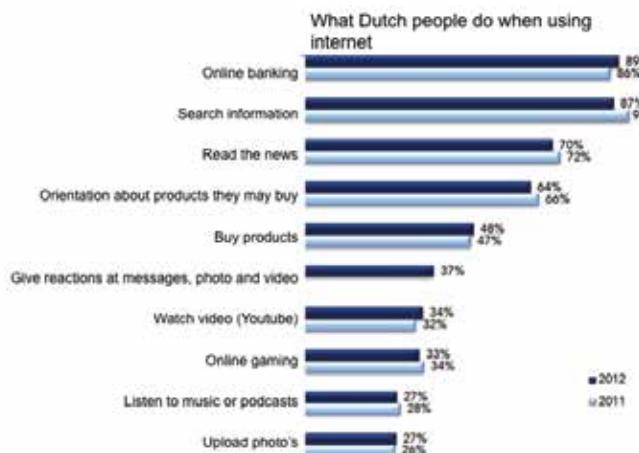
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6

INTERNET CONNECTIONS

INTERNET CONNECTION

The Internet is one of the main factors connected with our solution. Usage could provide a lot of opportunities and at the same time problems. This factor therefore deserves a deeper study as below.



60. Users of mobile internet

MOBILE PHONE WITH 3G CONNECTION

The statistics from interviews indicate that only 12% of people can use the 3G connection on the street and the remaining 88% try to find Wi Fi spots so as to be able to use internet because they don't have a 3G connection. This indicates that developing apps that require significant use of the internet will exclude a majority of the people.

WI FI SPOTS IN AMSTERDAM

There are about 40 free Wi Fi spot inside the ring and almost of them are hosted by major food chains, for examples, Bagel & Beans, Burger King and McDonald's. These shops call these Wi Fi spots as "free Wi Fi spot" but the Wi Fi spot is generally inside the store and the service is provided provided a purchase is made. On the other hand, accessible Wi Fi spots are missing around Centraal Station although almost tourists' trips start from this place, as well as places like Dam square, Nieuwmarkt and Anne Frankhuis, which are popular tourist spots but don't have any public Wi Fi spots.

WI FI SPOT IN HOTEL

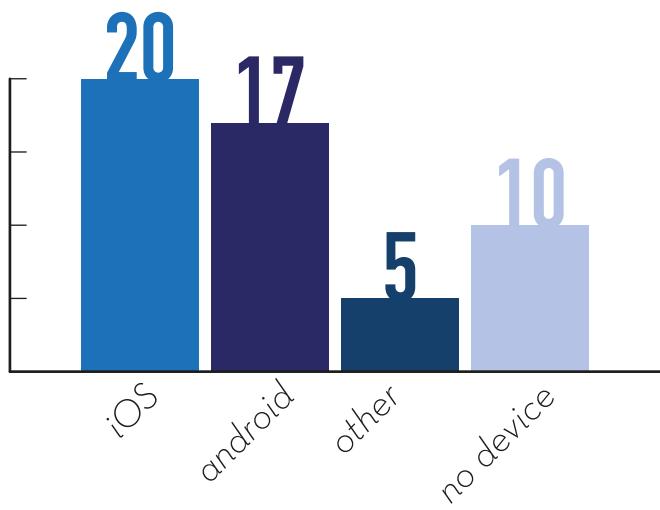
A remarkable observation is that almost all tourists said that they used Wi Fi spots of their hotels, which suggests that these spots can be good environments to make an interaction point with tourists. Delivering our solution here can help take the solution to larger audience.

APPLIED WI FI SPOT

WiFi hotspot is also a dominant tool that can be used to detect user's location and deliver relevant content, employed by Google as well. PirateBox, a self-contained mobile communication and file sharing device is a WiFi based local filer server, that can be built under \$30 and can transform any space into a free and open communications and file sharing network, can be used.

PROBLEMS

To summarise, the problems related to internet connection are : there are no Wi Fi spots around



61. Kind of smartphone use



62. When use mobile devices.

some very popular tourist spots, many “free Wi Fi spots” are not free, and nearly 100% of international tourists don’t have access to WiFi. A research "What's happening online" by Ruigrok | NetPanel 2012 said: The Internet has become indispensable in today's society. Almost everyone now has a PC or laptop with an Internet connection. The smartphone (58% of the Dutch people between 15 and 65 years have one) is increasingly being used to access the Internet.

Of all smartphone users six of ten people access internet on their smartphone several times a day. Mobile internet is more frequently used by young people than older people (70% of 35 years used it several times a day vs. 40% of people over 65 years).

The research of Ruigrok also shows that the use of the smartphone at home is greater than outdoors. Both the smartphone and tablet are widely used for looking up information and reading news. The tablet is more popular to view photos or videos, and for the purchase of products.

It appears that women tend to seek information on their tablet, while men use their smartphone more. Also a quarter of the smartphone and almost half the tablet are used for playing games. Interestingly this is seen more often in women than men.

Only a small part of the Dutch people interviewed can use internet connection with mobile phone.



63. 3G connections

WI-FI MAP

In this map it can be noticed that there is a dearth of free wi-fi spots in some of the most popular places in the city. The complete overview is available online at: wifi-amsterdam.nl



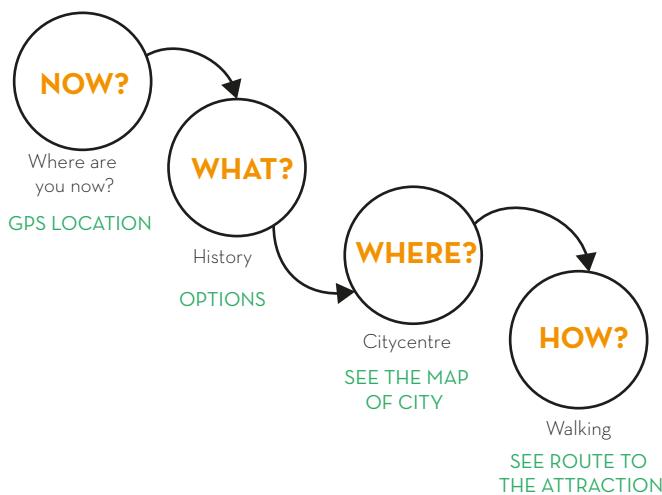
64. Map of WiFi spots in Amsterdam.

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7

DESIGN
& EXPERIENCE

DESIGN AND EXPERIENCE



65. Interaction trigger - Now? What? Where? How?

INTERACTION

Tourists usually request precise and tailored information while exploring a destination. They need accurate information about accommodation, restaurants and tourist attractions, amongst others, in order to make the most of their experience. Location based information is especially important.

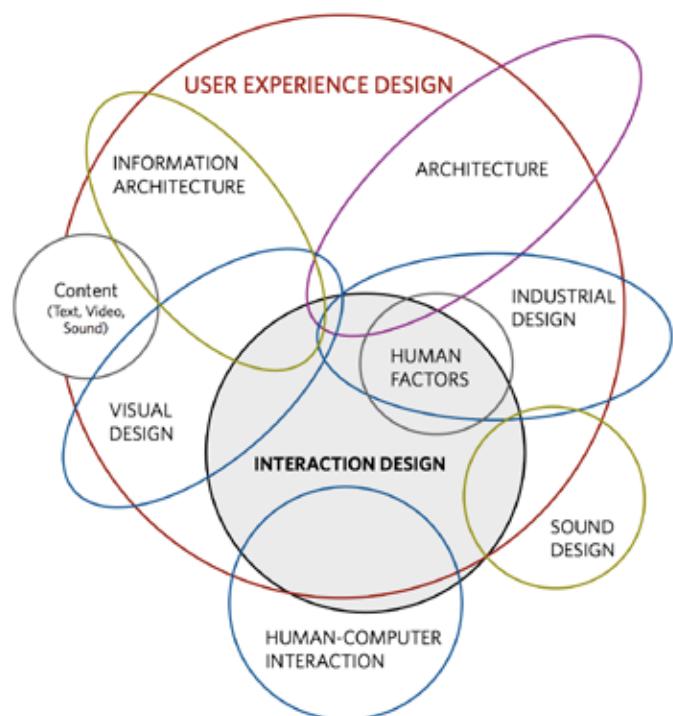
Mobile Augmented Reality (AR) can help tourists in the process of obtaining such information in a very simple way. Many platforms already exist for tourist information based on AR, which allow users to browse information and multimedia content about a city on their own mobile devices. Not only does the platform handle location-based information and user preferences, but it also takes advantage of computer vision technologies, so as to determine the tourist resource the user is interested in. Interaction with the city is an important component in providing tourists with an experience.

WHAT IS AN USER (TOURIST)-EXPERIENCE?

"User experience design is a subset of the field of experience design that pertains to the creation of the architecture and interaction models that impact a user's perception of a device or system. The scope of the field is directed at affecting all aspects of the user's interaction with the product: how it is perceived, learned, and used" (Wikipedia).

Based on this definition, then, user experience is the characterization of what a user feels while using any product, this can extend from a car to a mobile phone to a magazine or a child's toy. Most commonly, however the specific term 'user experience' is applied to that of software, web applications and digital devices whereas the more general user-product experiences are referred to as 'experience design.'

The diagram presents the correlation of different fields in an user experience (Paluch,2006). One important element of an experience is interactivity. In the context of our project and the communication between tourists and the local government in Amsterdam, interactivity refers to the artifact's interactive behavior as experienced



66. Interaction design. Paluch 2006



67. Fields of interaction design



68. Fields of interaction design

by the human user. An artifact's interactivity is best perceived through use. A bystander can imagine how it would be like to use an artifact by watching others use it, but it is only through actual use that its interactivity is fully experienced and "felt". This is due to the kinesthetic nature of the interactive experience. It is similar to the difference between watching someone drive a car and actually driving it. It is only through the driving that you can experience and "feel" how this car differs from others. New Media academic Vincent Maher defines interactivity as "the relation constituted by a symbolic interface between its referential, objective functionality and the subject."

Interactivity is a medium which merges digital media with a combination of text, illustrations, motion graphics and sound. Interactivity takes place when the user has to act on information, all of which is organized in a computerized form for the user to make decisions and interact with the tool within the environment. It occurs when the user feeds in an input and is presented with an output, a two way transfer of information between the user and the digital device. HCI as it is called short for Human Computer Interaction is the core of user centred design. In traditional form of media the users do not have a two way transfer of information, as there is no mode of user input nor is there any method by which the user can give any inputs or action, it is a voiceless medium generally where information is given out in the form of a message, whereas interactive media pushes itself in order to interact with the user and due to this characteristic this media form needs to be intuitive and properly designed for the user to understand how to use and interact with the device or tool. User centred design is a very vital aspect of interactive media, as the user makes decisions and interacts with this media and selects what to see or hear (Desai, 2011).

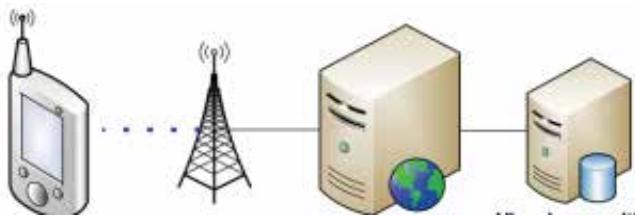
The three core characteristics which are connected to user centred design:

1. Utility: Using a product to achieve a particular goal or to complete a certain type of task.
2. Usability: this depends on the quality and the effectiveness of the interface design, whether it is designed well enough to support and help the user fulfill their goals.

3. Likeability: is directly connected to utility and usability, if the interface is badly designed it fails to fulfill the user's needs and hence it does not live up to the user's expectations, if the interface runs low on quality in terms of efficiency than the user would (*Desai, 2011*).

Guidelines for user interface design summarize a good practice and provide useful high and low level guidance on the design of usable interfaces. We also explored some designs from the Urban Interventions in the world.

MOBILE CLIENT-SERVER PLATFORM



69. Platform scheme of functions.

The Blending Amsterdam Reality platform can be based on a mobile client-server architecture. The system is composed of several module, namely :

- Mobile application to visualize and interact with the multimedia content (including the 3D visualization engine OR Augmented Reality possibilities);
- The content server, which manages users and multimedia content; and the visual recognition engine to determine the localization of the user. This section provides details about all those modules.
- Additionally, the platform also needs a digital compass, accelerometers and a GPS antenna. The two platforms that best meet all these needs are iPhone OS and Android.

The GPS module is built into the terminal and helps in the triangulation of phone masts. Taking into account context-based data and user profiles, the Urban history application queries the content server for multimedia items that have been location-tagged (categorized by latitude, longitude and altitude data). When the appropriate contents are retrieved, the AR view is composed with the real-time images captured from the camera of the mobile device and the digital information (menus and POIs) overlaid. There are two possible modes to handle augmentation: 2D and 3D modes. The 2D mode shows multimedia content from PointsOf Interest (POI) enriching the real images captured by the camera. This mode is very suitable to discover interesting places nearby. The 3D mode has both the content and the user interface in 3D.



70. Platform required.

Therefore, this mode is more favorable to an enriched and leisure-oriented experience. All of those POI representations would be completely static, if it was not due to information that is acquired through the sensors, namely the digital compass and the accelerometers. Thanks to those sensor readings, the information shown on the screen is dynamically positioned on the screen at the right coordinates (Marimon, 2010).

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8

HISTORICAL LOCATIONS

HISTORY

SUMMARY

From its humble beginnings as a 13th century fishing village on a river bed to its current role as a major hub for business, tourism and culture, Amsterdam has had a strong tradition as a centre of culture and commerce.

RESOURCEFUL BEGINNINGS

When the last millennium was still quite young, a handful of adventurers came floating down the river Amstel in hollowed-out logs. Out of the marshlands and swamps surrounding the Amstel River, a structure of dams and dikes were forged - the first of which is marked by the Dam square at the heart of the city today. These canny 'Aemstelle-damers' began exacting toll money from the passing beer and herring traders of the roaring Eastern Sea Trade of the Baltics. They quickly became expert boat builders and brewers; attracting more inquisitiveness to the emerging town. In 1275, Count Floris of Holland formalised these activities by granting special toll privileges to the merchant town and in 1300 the town got its first charter.

TRADE

The right to free passage proved to be crucial for the economic development of Amsterdam. Free passage meant that traders could operate cheaply. In particular, beer and herring proved popular commodities. For example, in 1323 Amsteldam owned the exclusive right to import beer from Hamburg. Then trade in herring grew rapidly after the invention of herring curing - the technique of removing the fish's intestines directly after catching in order to keep it fresh longer. This allowed fishermen to catch more fish and thus make more profit.

GOLDEN AGE

By the end of the 15th century, the development of the city was rapid. After the Spaniards conquered Antwerp, many rich Jews fled to Amsterdam. The money they brought with them was used to organise trips to India, which proved a huge commercial success. Then in 1602, the Dutch East India Company was founded. Amsterdam had a majority share in this company, which was to become the first multinational in the world. The result was a period of unprecedented boom and prosperity,

causing the 17th century to become known as the 'Golden Age'. During the period, the city underwent two massive urban expansions, and for the first time it was not only keeping functionality, but also beauty in mind. The results were the canals and the Jordaan. The art scene was also flourishing at this time. In the first half of the 17th century, the number of artists rose enormously and there was an explosion of art and art dealers in Amsterdam. In thirty years, Amsterdam became a thriving cultural city, leaving a legacy of Rembrandt van Rijn, Johannes Vermeer and Jan Steen.

At the end of the 16th century, Amsterdam developed very rapidly and the port-city soon ran out of space within the medieval confines of the Singel. A vast project, for defence and urban growth, was carried out in the 16th and 17th centuries. The new line of defence based on a new boundary canal, the Singelgracht, designed by Daniel Stalpaert, extended the city outwards by around 800m. The Singel was then transformed into an inland port (1601-1603). The positioning between the latter and the Singelgracht opened up space for a new urban area that still had to be drained and backfilled.

INDUSTRIALISATION

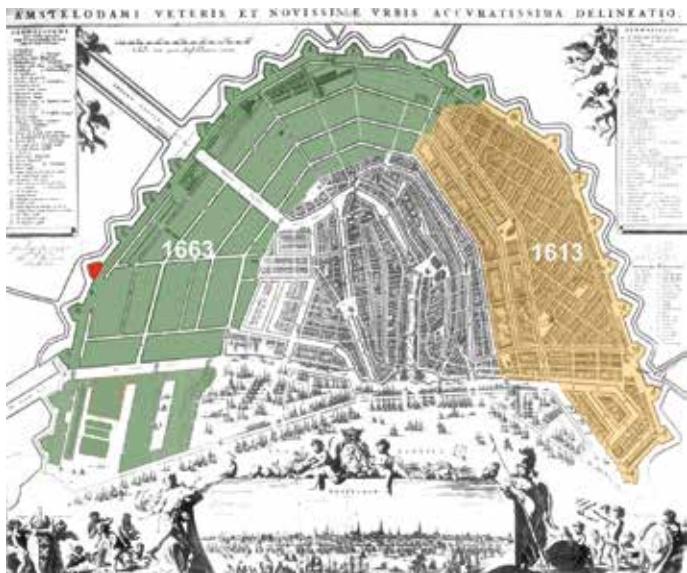
At the end of the 17th century, the Amsterdam economy finally came to a standstill, resulting in a period of decline and increasing poverty. But with the construction of the North Sea Canal (1876), Amsterdam finally had a direct connection to the sea. From that moment on steamships became part of everyday life in Amsterdam's port. It was a turning point for the city. Thanks to trade with the Dutch East Indies (Indonesia), Amsterdam acquired an important position in the world trade of spices. The diamond trade with South Africa also began to evolve at this point. That new period of prosperity is reflected in the construction of monumental, architectural masterpieces. In 1889 the Central Station was completed. A few years later, the Concertgebouw, Theatre Carré and Hotel Amerikaan followed. The end of the 18th century and the beginning of the 19th century saw the prosperity of the city and its port decline. Wars against France and England undermined its maritime trade. The renewal of the port would come in the 19th century as a result of the creation of canals - the North Holland canal in 1825, followed by the direct connection with the North Sea in 1876. Its traffic is

still, however, less than that of Rotterdam, close to the mouths of the Rhine and the Meuse. In the 20th century Amsterdam became an important administrative and financial centre. It shares the role of political capital of the Kingdom of The Netherlands with The Hague. In World War II around 100,000 Amsterdam Jews were deported, the majority of whom lived in the canal districts. The material damage caused by the war was relatively minor. Retail shops and growing tourism are reflected in the city's changes in the second half of the 20th century (Unesco 2012).

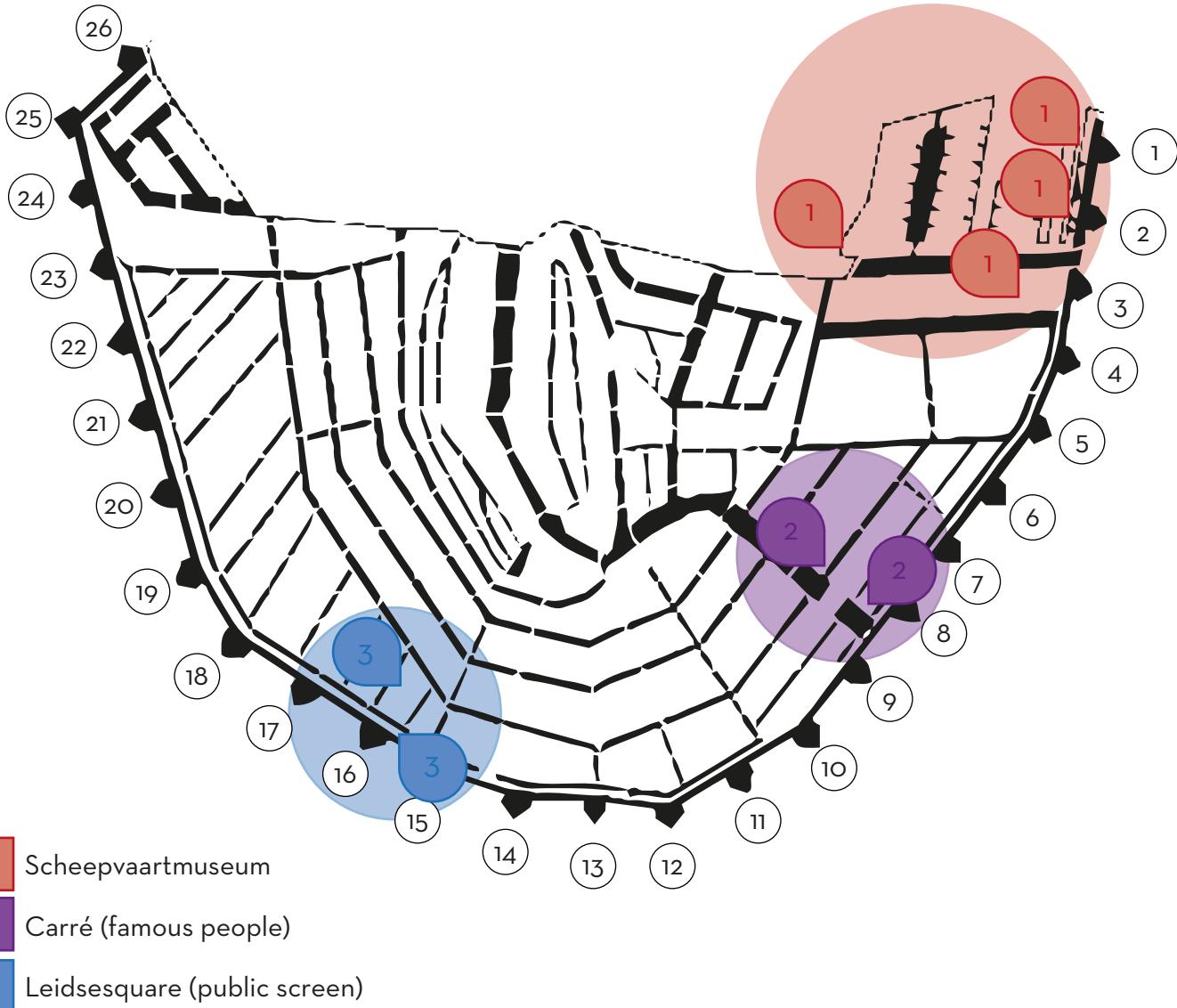
CITYWALL & BOLWERKEN

At first, there was just a small citywall. The central part is the city before (around 1538) the construction of the semi-circular ring of canals. It is bordered by the IJ, the Singel in the west, and the Kloveniersburgwal/Gelderse Kade in the east. The waterway in the middle has been known as the Damrak since the 19th century.

In 1663 Amsterdam was quite enclosed by a five meter high city wall. During the urban expansion of 1610-1613 (Third Expansions) the construction of the city walls began. The wall was first in the western part of the Singel canal. After construction of the second part (1660) the rampart was eight kilometers long and was in the shape of a horseshoe around the city, till the IJ. The wall served as a defense against enemies, and was surrounded by a sixty meter wide moat - the Singel - and had 8 ports and 26 bastions. A bastion is a pentagonal expansion of the city wall. There were heavy guns, 7,000 pounds and heavier, adorned with weapons and names of mayors from that time. Every stronghold also had a name, like the mills on almost every bulwark. Initially these were of wood, so that in times of war they could quickly be broken. Later, the mills were made of stone. The construction of the city wall was a huge construction project for that time and went on for nearly two centuries mode. But in the 19th century, the walls and bastions lost their military function. Due to the expansion of the city they were demolished them one by one and with them disappeared the mills.



71. Old citywall map.



72. Map of bolwerks.



73. Bolwerk Zeeburg.

1. BOLWERK ZEEBURG

The first bolwerk is at Zeeburg. It owes its name to a fortification at the mouth of the River "het IJ". It was built against an attack by the Spaniards on the Zuiderzee. The construction was completed in 1649, but since the peace treaty with Spain was signed the year before, there was no artillery to stand. The Funen (now Funenpark) was an inhospitable, dimly lit corner of the city, an ideal hunting ground for smugglers. There lived only millers and their servants. The excise duties were abolished in 1866. On the stronghold stood the mill "The Sun" from 1716. This was used as a snuff and dyeing mill, as a flour mill and later asloodwitmolen. In 1856, the windmill Sun moved to Vlijhuizen, where it burned down in 1945.

During excavations in May 2000 the stronghold of Zeeburg was found, so most of the area has been preserved. The adjacent side wall number 3 as well

as 15 meters around it were uncovered. On display was the masonry of the 1.80 m thick shield wall and vaults inside. Under these vaults were compartments of 1.50 meters besides the orange red brick stone which were also incorporated in the tip. The massive wall remains of the ramparts at Zeeburg still remain: the site did not have to be rebuilt.

2. BOLWERK FUNEN

The last two strongholds were on an island named "Keereweer" or "Funen". It was called "keereweer" because it is the last part of the citywall: you could not go further and had to return. The name also refers to the island of Funen. Michiel de Ruyter in 1658 was conquered by Sweden. Stronghold Jaap Hannes was the only stronghold without mill. The name probably comes from an innkeeper, who around 1500 conducted trade there. Outside the wall was a large swampy area, where narrow slots divided the reed islands. This area had a palisade of stakes, to counter smuggling.



74. Bolwerk Oetewall.

A bit scary story is the history of the Funenpark since 1804. When the Pest epidemic killed many people, Funenpark was turned into a cemetery. This cemetery was also used for criminals and other unaccepted elements of society. The cemetery was on low-lying land, and the groundwater sometimes drove the chests from their fresh graves causing a terrible smell. In 1864 the cemetery closed down but bones were uncovered in 2002 during the construction of the Funenpark district.

In 1788 the wall collapsed and in October 1810 Jan Timmer got the assignment to demolish the wall. In 2001, remnants of an oblique side (face) were excavated and archaeologists found the masonry of a shield wall with underlying vaults.

4. OETEWAAL

The area around this bolwerk/citywall was once the village Oetewaal or Outewaal, before the urbanization that started in 1658. The Oetewalerweg was renamed in 1878 to Linnaeusstraat. Next to the bolwerk was a windmill 'Oetewaal mill de Ruyter'. In 1726 the height of the mill was increased by 7 meters because it didn't catch enough wind. In 1863 De Ruyter mill was broken and demolished. The Orange Nassau Barracks now stand at this spot.



75. Bolwerk Muiden.

5. MUIDER

Bolwerk Muiden was excavated- like the strongholds Weesp and Diemen - between 1805 and 1808. Cavalry barracks were erected in 1865 at the site of Muiden stronghold and a riding school was added in 1874. Flour Mill Dog, which gave way to the barracks, was fairly new. Its predecessor, "The Three Princes" burned down in 1843 after lightning struck.

There were five main gates in the 17th-century fortifications: Muiderpoort, Haarlemmerpoort, Leidsepoort, Utrechtsepoort, Weesperpoort. The gate next to the bolwerk was built in 1770, after the old port from 1663 in 1769 had collapsed due to problems with the foundation. The gate was, in an architectural sense, the first major city building of the 18th century. On October 9, 1811 Emperor Napoleon rode through the gates into the city in a carriage drawn by eight white horses. For the occasion, there was a special triumphal arch at the gate.

8. BOLWERK OOSTERBLOKHUIS AND WINDMILL DE BUL

Across the street from the Amstel stronghold was Bolwerk EasternBlokhuis with windmill The Bul. Around 1850 the ground was made ready for the construction of a garden. The Society Sociability got a license to build an association building 'Apollo'. A few years later physician and entrepreneur Samuel Sarphati bought the building to construct a posh hotel: the Amstel Hotel. Professor Tulpstraat was allotted a part of the stronghold Eastern Blokhuis for the restoration of houses in July 2005. This exposed the stronghold and almost 8 meters of wall. Archaeological research yielded many new details about the construction of the wooden piles under the city wall. The foundation consisted of a wooden floor (at 1.44 m · NAP), resting on a framework of kespen (crossbars). On the outside of the piles was a wall of wooden planks into the ground, with a tongue and groove firmly linked. The wooden piling prevented the soil between piles from washing away (the wall stood directly on the canal) and nor could the boards absorb bullets.

14. SCHINKEL AND WINDMILL ROOMOLEN

The Schinkel was a river between the Overtoom New and Old. The flow of this river was till the a



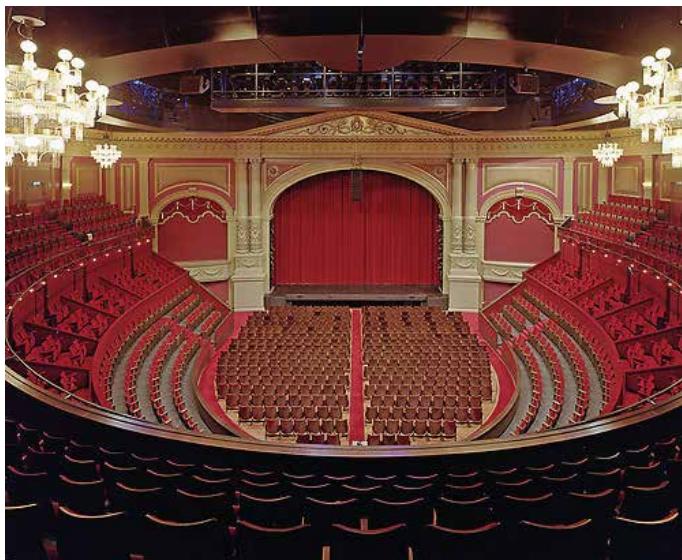
76. Windmill detail.



77. Bolwerk Schinkel.



78. Carré 1



79. Carré 2

height between the knee and foot, hence the name. Cream Olen got its name from a brewery and at the foot of the mill was the Red Village, named after the red tiles. During heavy thunderstorms Cream Olen burned in 1813, but was rebuilt. It was only for a short time, since around 1844 Cream Olen and the houses had to make way for the construction of a prison. Now this place houses the cultural center De Balie at Leidsesquare and Holland Casino.

CARREE/ CARRÉ

Koninklijk Theater Carré is a Theatre in Amsterdam and is located at the Amstel. It was originally called Circus Carré and is built in the neo-Renaissance style. Although the Carré hall still breaths the atmosphere of history, an ultramodern theatre is hidden behind the scenes. The magic of Carré is present in all corners of the famous theatre at the Amstel, from the deepest basements to the ridge of the stage tower.

1887 - 1892 Carré was inaugurated on 3 december 1887 (125 year ago) by circus Director Oscar Carré when still known as Circus Carré. Already from 1879 the Royal Dutch Circus gave Oscar Carré a spot on the Amstel for winter performances in a temporary wooden building with stone façade. The 'Steenen Circus of Carré' or as the new Carré building was called, was initially only in use for circus performances in the winter months.

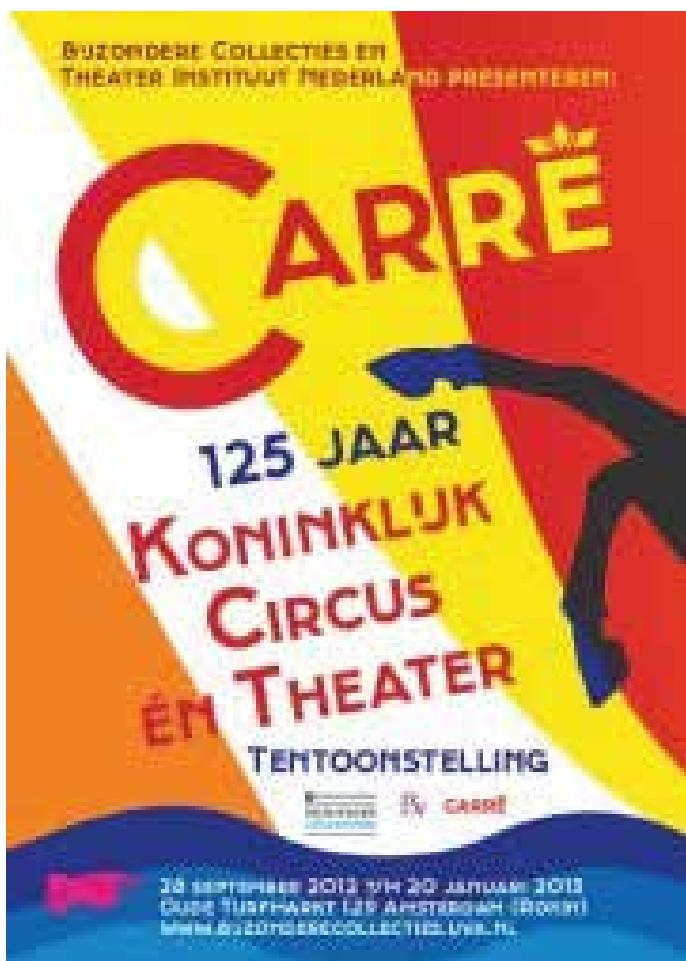
1893 - 1906 From 1893 Carré, during the period that the circus was on tour, was used by theatre producer Frits van Haarlem, who brought there successful variety performances . Carré then changed into a theater for all kinds of public entertainment.

1911 In 1911 after the death of Oscar Carré was the last presentation of the Koninklijk Nederlandsch Circus Oscar Carré on the Amstel.

1907 - 1928 From 1907 to 1928 Henri ter Hall was the main crowd puller in Carré. The name was changed in 1920 to Theater Carré. However, at that time the



80. Carré 3



81. Carré 4

theatre appeared constantly on the verge of bankruptcy. Specially the period under the Directorship of Herman Heijermans, who tried in vain to pull in big audiences using his own - the Flying Dutchman or The Big Bet(1924)-was notorious.

1928 - 1945 In the 1930s the Carré turned the tide under the leadership of the new Director Alex Wunnink and his Assistant Louis Dekker. The renewed success of the theatre was primarily due to clever programming with popular Dutch magazine companies such as those of Louis Bouwmeester Jr. with his Bouwmeester Revue and the national Revue of Bob Peters were interspersed with international performances of Italian opera, operetta and vaudeville. At that time was the (inter) national reputation of theatre Carré as confirmed by regular performances by top stars as:

LOU BANDY - His real name was Louis Ferdinand Dieben (1890 - 1959) better known by his pseudonym Lou Bandy, was a Dutch singer and entertainer in the period between the two World Wars and was one of the most popular artists of the Netherlands. Among his most famous songs include: Who has sugar in the pea done?, Search the sun, Pour joy in life and Louise sit on your nails to bite.

BUZIAU - His full name was Johannes Franciscus Buziau (1877 - 1958), a Dutch comedian and cabaret artist. Buziau was born into a family of musicians. With the outbreak of the First World War he spent more time in the Netherlands, where he was the attraction for the First Dutch Revue Companion of Henri ter Hall. From 1928 to 1942 he held the same role for the Architect Revue. In the summer of 1942 Buziau, like many other popular Dutch artists, he was detained by the Germans in the hostage camp in Haaren. He was soon released but was never seen in theaters again.

LOUIS DAVIDS - His real name was David Simon (1883 - 1939) better known as Louis David, he was a Dutch cabaret and revue artist and is known as one of the greatest names of Dutch cabaret. Louis David was born in Rotterdam but moved to Amsterdam. In Amsterdam David was close with the theater director Frits van Haarlem of Carré and set up a revue English model; Louis' name was thus created. David was a popular performer of the Amsterdam Jordaan repertoire.

JOSEPHINE BAKER - Her stage name was Freda Josephine McDonald (1906 - 1975) and was an American-French dancer, singer and actress. She performed in Europe , South America, and in Paris for the first time in 1925. During this time she also appeared almost naked on the stage and became famous because of her erotic dancing.

SARA SCUDERI - She (1906 -1987) was an Italian opera singer. She sang widely in Italy and Europe (most notably in the Netherlands), having had a seven-year contract at La Scala, "where she received high praise for her interpretations of the most well-known operas". Sara Scuderi sang in the most important theatres of the day, both in Italy and abroad, particularly in Amsterdam, where she signed a seven-year contract and was a major star. She toured several times with La Scala to Brazil and Argentina, where she sang Tosca with Giuseppe Lugo. She retired from the stage at the end of the 1940s. Scuderi died in 1987.

GROCK - CLOWN GROCK (1880-1959), born as Charles Adrien Wettach, was a Swiss clown, composer and musician. Called "the king of clowns" and "the greatest of Europe's clowns", Grock was once the most highly paid entertainer in the world.

AFTER 1945

After the Second World War Wunnink was succeeded by his son Karel Wunnink. Louis Dekker remained all these years the man who made the artistic policy of the theatre. Under their direction experienced and new phenomena such as the musical (*Porgy and Bess*, 1956) and the One Man Show (*Toon Hermans*, 1963) made their Dutch première in the Carré.

Poetry lovers were attracted to the Carré thanks to Simon Vinkenoog in 1966. At the end of the 1960s there was some time when demolition of the theatre was imminent. Artists came into action and the municipality of Amsterdam eventually revoked permission for demolition. In 1977 the municipality bought the piece of land. By granting the Koninklijk Theater Carré, and adding Royal to the name at the centenary in 1987 changed the status of Carré. It was felt by many as one of the main theatres of reaffirmed Netherlands. Between 2003 and 2004 the theatre was almost entirely rebuilt and renova-



82. Josephine Baker



83. Fratellini.

ted from within by the same architects. The steel arches of the roof construction since the renovation designed and manufactured by Gustave Eiffel.

Carré, the most famous theatre in the Netherlands is celebrating its 125th anniversary this year.

CITY THEATER LEIDSEPLEIN, AMSTERDAM

The area where the city theater is located is one of the most culturally active places of Amsterdam. The Leidseplein is a very diverse area. Not only is it a cultural centre, but it is also a transport hub where tram lines 1, 2, 5, 7 and 10 meet. Also very visible are the taxis, that are situated along the Kleine Gartmanplantsoen. Actually the Leidseplein area is a big bridge, crossing the Lijnbaansgracht. The square itself is very small in comparison to the neighborhood. The people who live in the area are younger than average, with most people between 25-30. The City Theater itself was built in 1935, designed by Jan Wils, the architect of the Olympic Stadium in Amsterdam. In the 60s the brick facade was replaced with a big ugly metal plating. Only recently the City Theater has been reopened after a renovation to bring it back to its original state. The location of the screen is exactly where the old movie posters used to hang. Around the Leidseplein many cultural and touristic venues can be found.



84. City Theater.

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CONCLUSIONS & INSIGHTS

CONCLUSIONS and INSIGHTS

- History and culture are strong factors that attract tourists.
- Though tourists are attracted to museums, they are favored more by locals.
- The city wall played an important role in shaping the city and there are stories which are attached to it, but it is now demolished and therefore not many people are aware of it. It would be great to add light to these and add a dimension to the tourism in the city.
- There are a lot of famous personalities that can be highlighted and are not really very much in the limelight right now .
- People would love to know more about places, but unintrusively i.e they would like to explore, instead of content being pushed to them.
- Locals and tourists have different needs, but technology available is very similar.
- Technology must be involved since it helps reach a wider audience.
- People already use screens a lot, so screens are an option, but are relatively low tech and interactions are limited.
- A disruptive solution can change the way people behave to a large extent, and has already been used before in experiments in public space.
- Internet is used in the planning stages of trips, but mobile internet becomes unavailable later owing to tourists not being in their home environment.
- People, if they use internet while at public places, generally use it to visit websites and using apps is not very common unless they fetch planning related information.
- A lot of people are not aware of the existence of apps about Amsterdam.
- Smartphones are very common, and public wifi is very highly desirable. People would love to find more information and use apps if public wifi is available.
- Walking around is a very common activity from tourists, maybe the solution can use this, and involve some kind of treasure hunt / interactive walk.
- People can be broadly classified into two groups based on their need at the moment, which is run and fun. The fun category is the one to be targeted, since the run category has very little inclination towards discovering content.
- Going to pubs is also one of the top things done

by people

- Augmented reality is a very strong and interesting solution as it has the qualities of keeping people engaged, the fun element, and has a deeper connect since it adds more emotional value and binds physical and digital worlds together more strongly.
- GPS is not very accurate and reliable without a data connection but can still be used gracefully.
- Colors and lighting have been used by various industries to manipulate behaviour. It can also be used to change perceptions, like how people see things and feel, without any change in their environment.
- Colors, light and vision are strongly related to feelings and can be used subtly. Sound can become annoying after a while, and you can also become deaf to repeated sounds so you won't even know they happen. Smells work subtly but need to be used with the right context or they will just confuse you.
- We really want to focus on "experience" which is what people will remember, instead of what they can see.
- People like information and would love to go exploring but it must not be pushed onto them, just offered subtly or it becomes annoying.

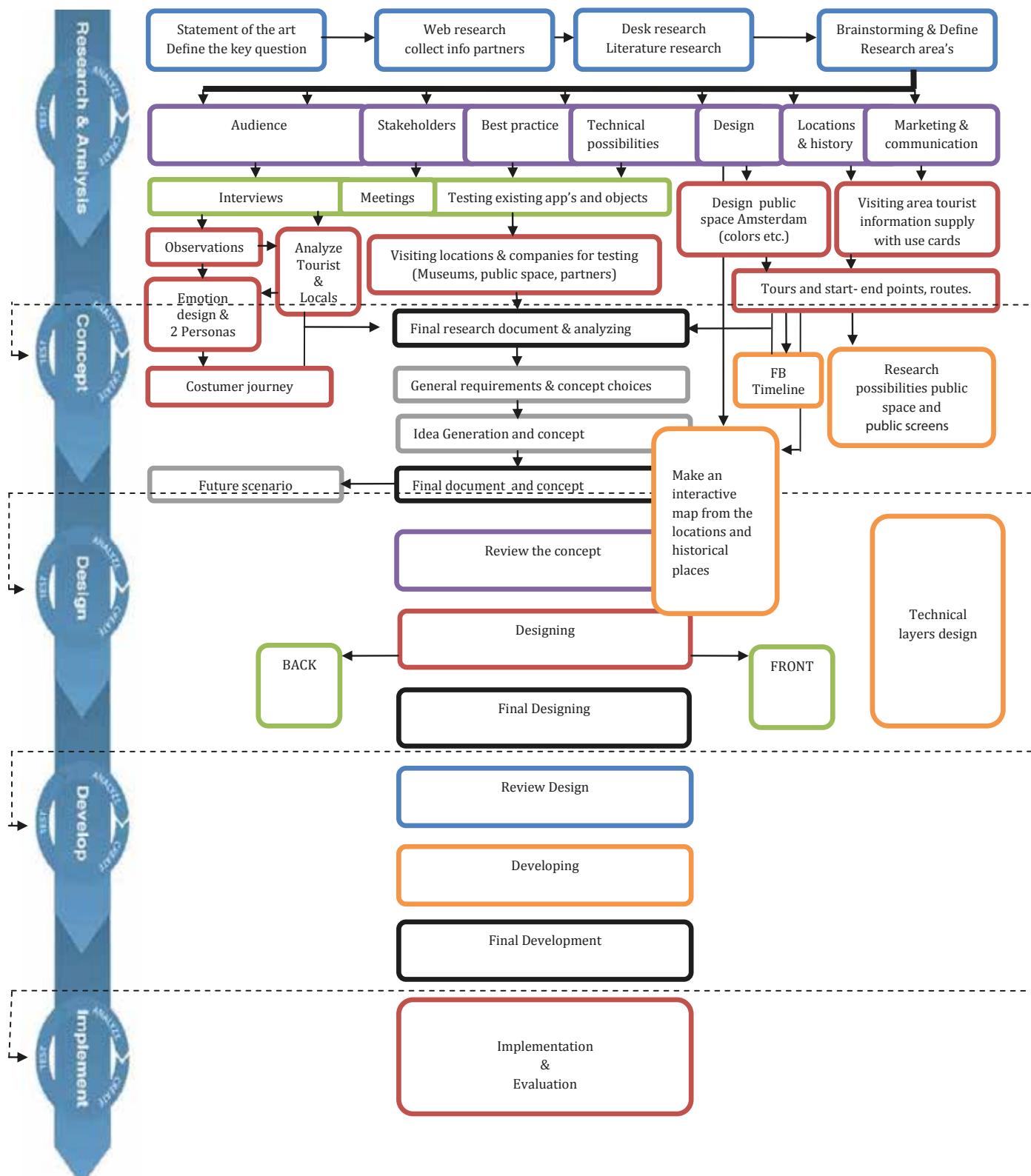
BLENDING
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ATTACHMENTS

ATTACHMENTS

PROJECT OVERVIEW



ANNE FRANK COLLAGE



FAMOUS AMSTERDAMMERS COLLAGE



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