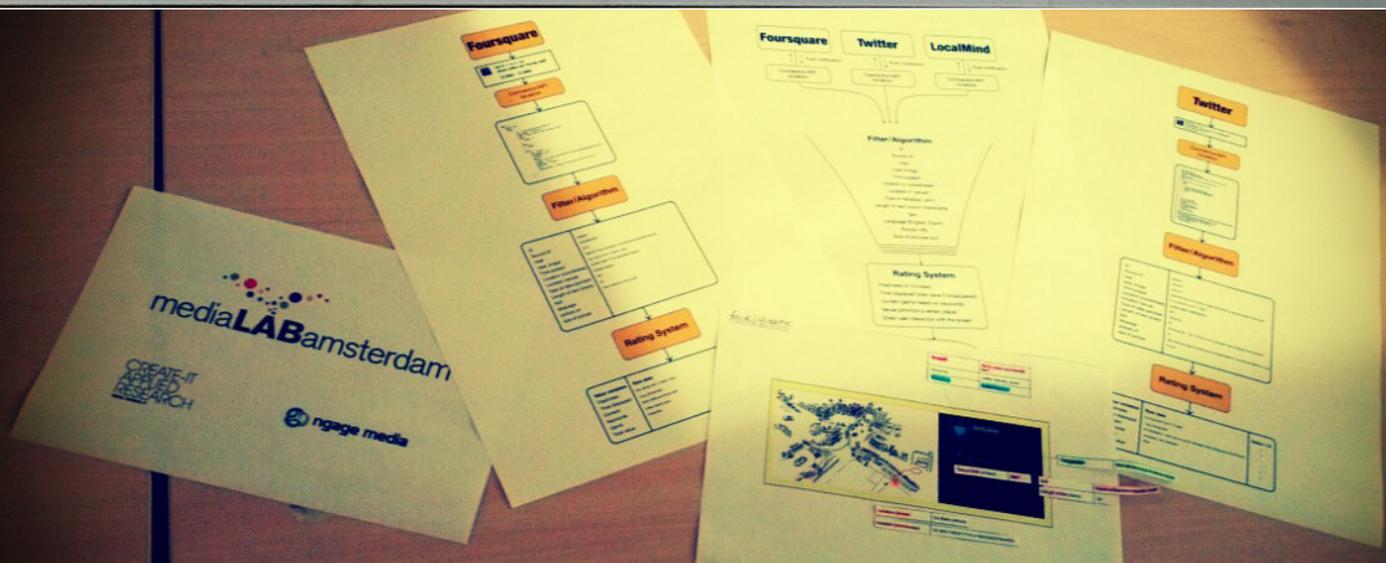


# CITY THEATER

## INTERACTIVE URBAN SCREENS

DESIGN DOCUMENT



# Interactive Urban Screens

MediaLAB Amsterdam  
Create-IT Applied Research

Design Document

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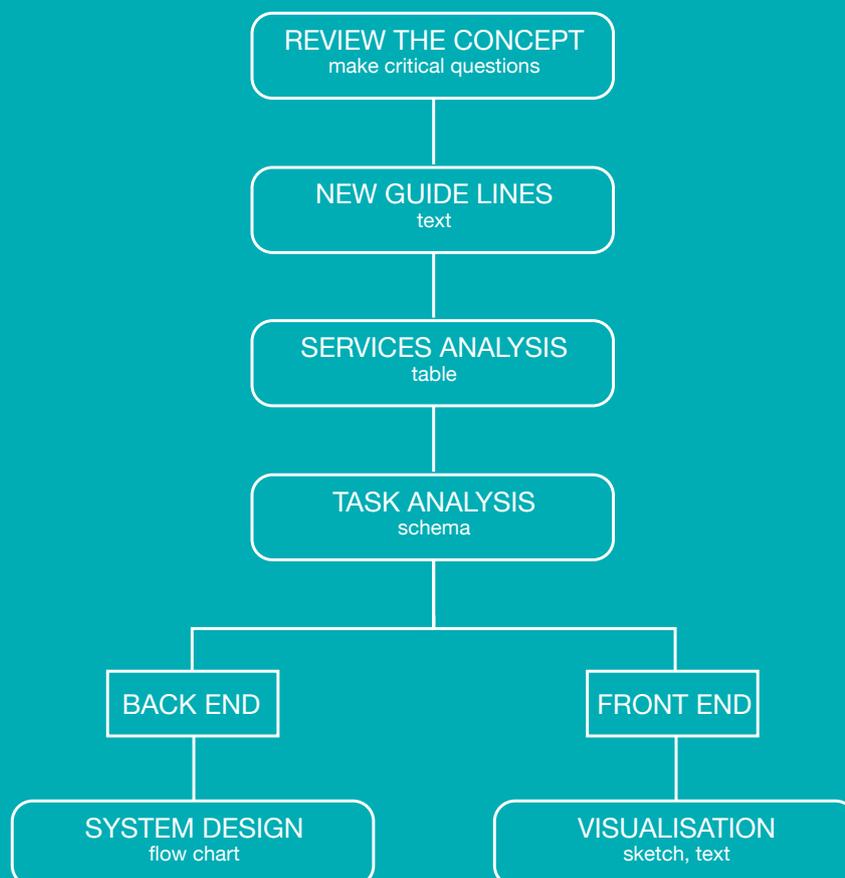
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e. [interactivescreen@gmail.com](mailto:interactivescreen@gmail.com)  
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## Design phase

After the concept phase, the chosen concept has to be defined in detail. The aim of the design phase is to analyse and develop the concept. Defining the concept and designing all parts that will compose the final product, will help the team in testing and understanding the product. In this document we will explain the method used, and where necessary, the readers will be supported by visual explanation or results.

# RESEARCH METHOD



DESIGN PHASE

Method & Results

This phase requires a detailed description and analysis of the concept, in order to test it before we start the product phase. Thus requires a clear definition of all parts that have to be analysed and which techniques we want to apply. The goal of the design phase is to have a very detail structured project, that has been tested thoroughly.

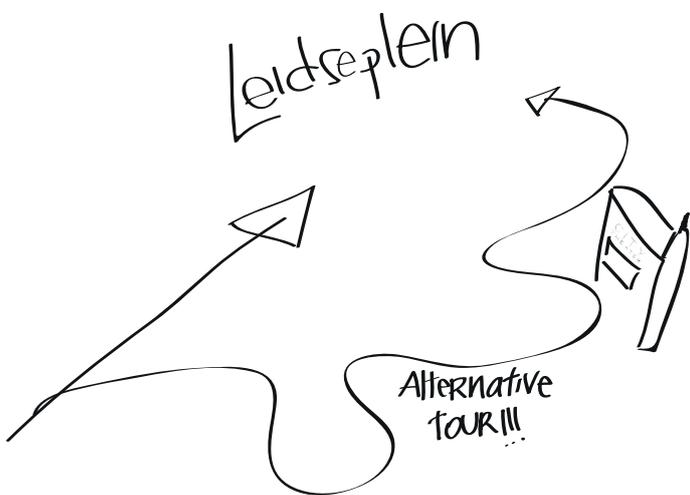
Concept review

In order to review the chosen concept we made critical questions. These critical questions helped us in understanding the important aspects of the concept, and confirm the necessity of each aspect. In this way we were left with a clear view of what our concept stands for.

Critical questions

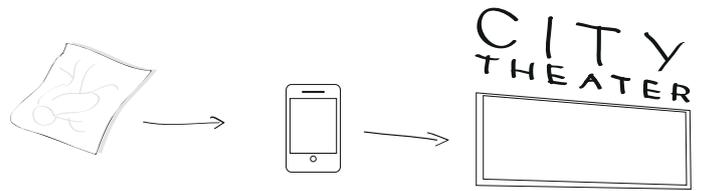
What?

The first critical question we asked ourselves was 'what?'. What is the concept? It is an alternative guide of the Leidseplein area where local knowledge about the area is shown. It is a new way to experience the Leidseplein.



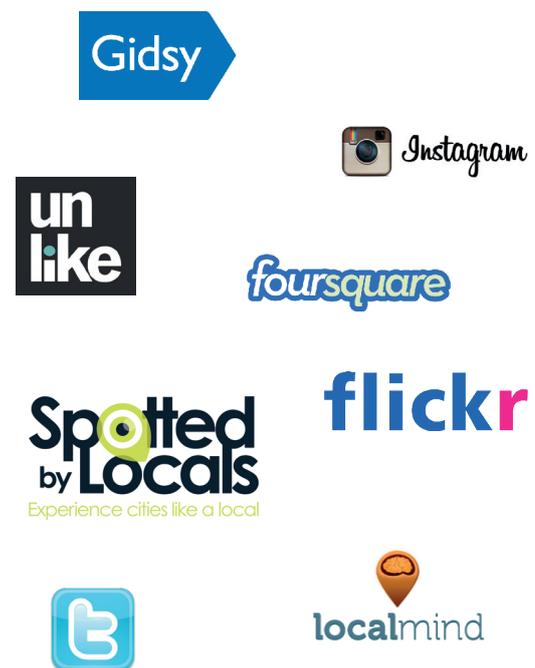
Why?

Why is the screen the solution? At first, a traditional map does not update in real-time in your hand. A smartphone does, however this is not accessible for all, especially for tourists. The City Theater screen can reach more people at the same, it is very accessible, but it also updates in real-time, just like a smartphone. In addition, the position and dimensions of the screen, can facilitate in creating a new meeting point, where people can start their tour.



How?

As we defined in the concept phase, we want to use services that share local knowledge. With the 'how' question, we tried to define this information. For that reason, in an early stage, we divided the data in pictures, text and geographic location. In order to compare the different sources of data, and pick the most useful ones, we made an analysis. We looked at the sources, the kind of content and the platform it came from. In order to choose the best platforms for our concept, we evaluated each platform with different parameters.



Find the analysis of the services in the appendix.

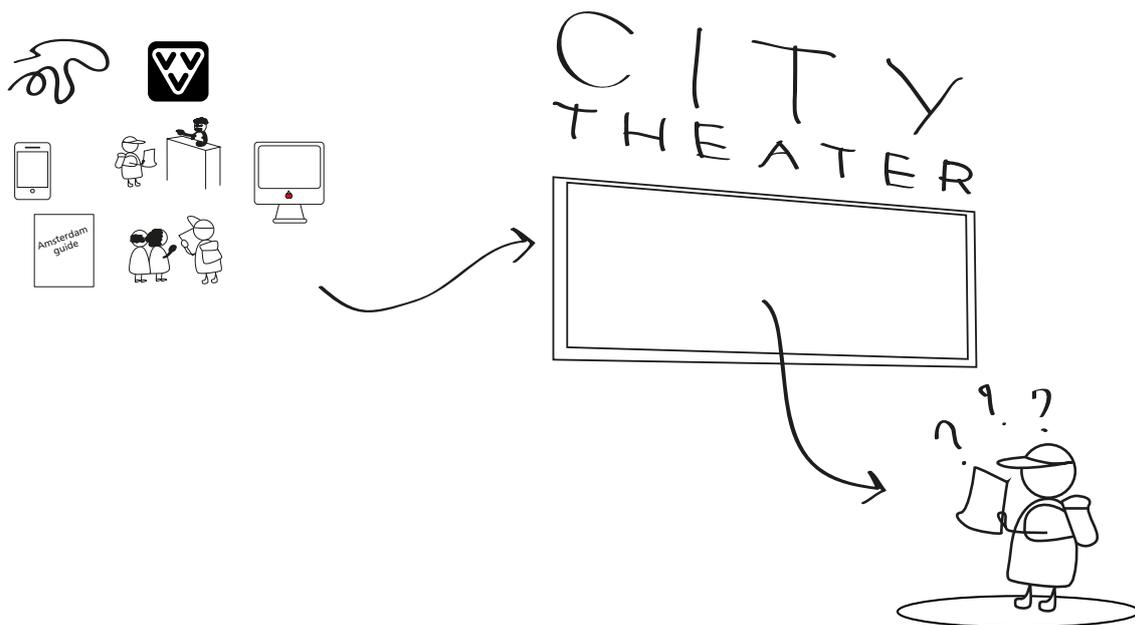
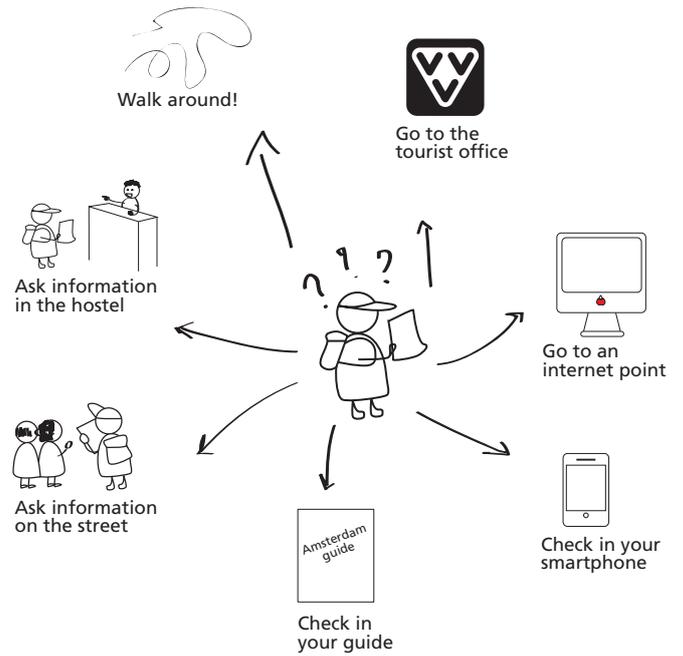
Task Analysis

“Task analysis analyses what a user is required to do in terms of actions and/or cognitive processes to achieve a task. A detailed task analysis can be conducted to understand the current system and the information flows within it.”

(UsabilityNet. 2006. <http://www.usabilitynet.org/tools/taskanalysis.htm>)

We used this method to explore the current situation that exists for a user to achieve the task: reach good quality and real-time information. In the schema on the right side, we summarized the different actions a user has to undertake in order to achieve the task. In this case the user was a tourist. The task helps to achieve the main goal of our concept, to have an alternative experience of the Leidseplein. We judged each action in terms of time consuming, and quality of information. The results of this can be found in the appendix.

The results of the task analysis of the current situation, showed us several issues with the actions. This gave us the confirmation that our concept can be the solution. We think this, because, as shown in the schema below, all the information can be shown through the screen. Confirming again the assumption that it will create a new meeting point in front of the screen.



### Interaction

As defined in the research phase, we wanted the concept to be as accessible as possible. This means that everybody can have access, without any device necessary. We will describe the different levels of interaction that are possible.

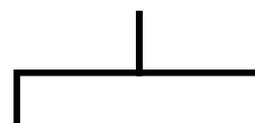
#### Passive interaction

This interaction means that the user does not influence the content of the screen, but just gathers the information, and decides to follow the tip.

#### Active interaction

This level of interaction is divided in two. At first there is active aware interaction. Here the user understands the purpose of this initiative, and has access to a device and leaves a tip at the service. In this way, the user is aware that he or she is influencing the screen, and is willing to share his knowledge.

The second form of active interaction includes users of the services that are not aware of this initiative. This means they leave a tip at a venue, we recognize it and visualize it, but the user doesn't know this. From a privacy perspective, this raises no concerns, as all the data used is public.



Intentional

Unintentional

Design division

Our assigner asked for a product that can be used in many different locations. In order to fulfil this demand, we needed to design an application that is extremely flexible. At the same time, the research taught us, that the graphic design has to fit location specific requirements in terms of usability, legal restrictions, position in public space, architecture etc.

For that reason we decided to divide the application into two distinct parts: a very flexible back-end, and a tailor-made front-end. In the next section we will further describe how this has been developed.

Back-end

The back-end consists of 4 parts. As seen in the schema on the right, the top part is where the local knowledge is gathered from the services. This is done through using the API of the services. In order to get relevant information, we only gather data from a certain radius around the Leidseplein. The services used can be expanded or replaced, this gives the back-end its flexibility.

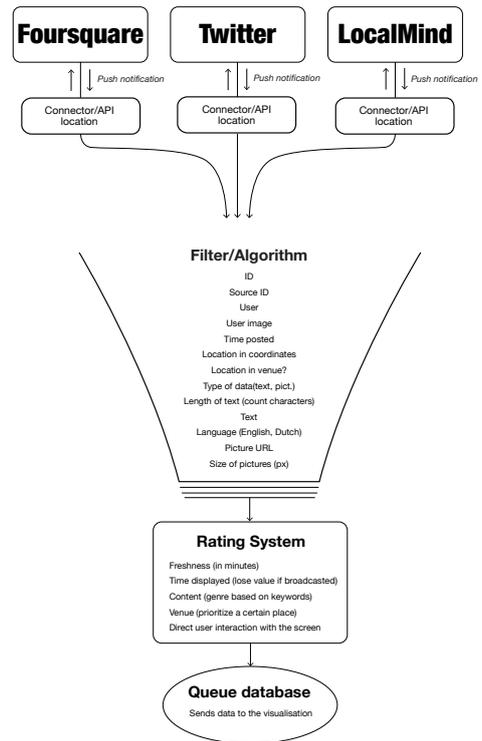
The second part is a filter. From the different API's the data looks dissimilar. This filter normalizes the data, so it has the same elements.

The next step is a rating system. In this system the data is judged by certain parameters. At first the data is ordered on time posted. This means we only want to show the most recent tips. We also take into account if a message has been displayed on the screen, to avoid repetition. The third point started as content filter for each tweet. We checked each tweet for certain keywords, to define the genre of the tweet. In this case, a venue did not have a fixed genre. Together with prioritizing venues and direct user interaction, this proved to be too complicated for the first prototype.

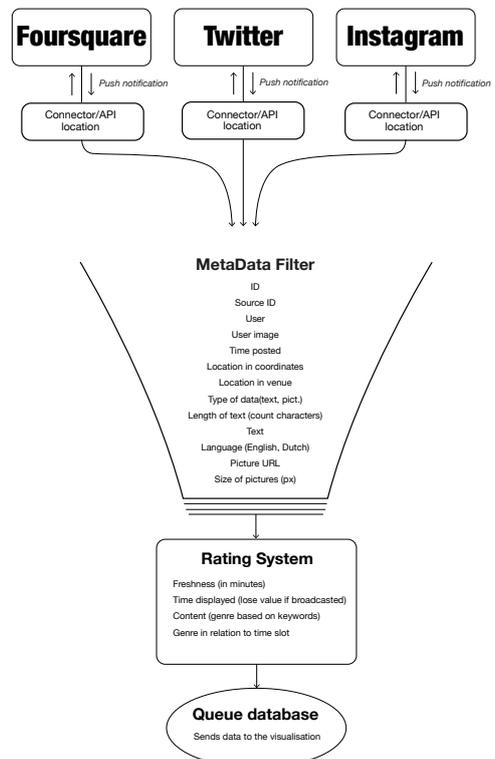
The final part of the back-end is a queue with all the rated tweets and tips, ready to be visualized.

For the final version of the first prototype we decided upon 15 venues that we gave a fixed genre. This means we only need to find out to which venue a tweet belongs. This is done by searching for certain keywords that we defined for each venue. In order to gather more relevant data, we define keywords from the agenda of a few venues. This gives us the possibility to collect tweets from a certain event. We believe that the best way to display the information is to divide the day in time slots, and visualize relevant genres in a certain time slot. For example, in the morning the screen would display tweets from coffee bars and exhibitions. More information about the venues can be found in the appendix.

version 1



version2



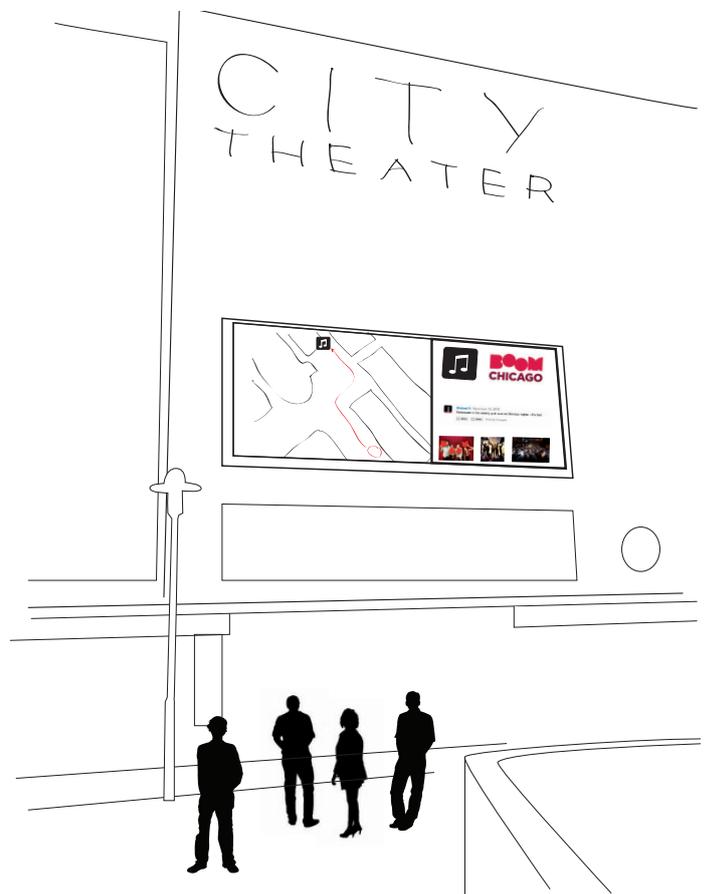
Front-end

For the visualisation we tried out different options as can be seen on this page. For each tryout we defined the basic outlines of the visualisation, what we show on the screen and why we chose the visualisation. The written results of this can be read in the appendix.

We chose the style seen at the right bottom. A map on the bottom, and a panel with the tip and info on the right. This division gave us the option to clearly visualise a venue location, and also give enough information in the panel for the user.

In the following paragraphs we will discuss the design steps we took that brought us to a final design. This was a very long and complicated process, where we worked together with HOAX Design from Utrecht.

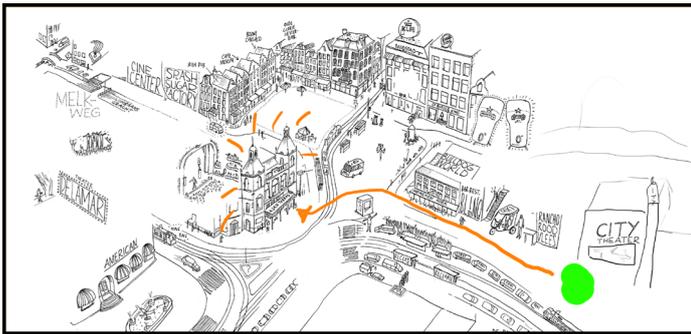
From the research phase a few design guidelines became clear. A style has to be developed that matches the style of the City Theater. We decided for this to show the municipality that an urban screen can actually improve the aesthetics of the public space.



Map Design

For the map design we tried out many different options. This was done to find out what type of map works the best on this screen.

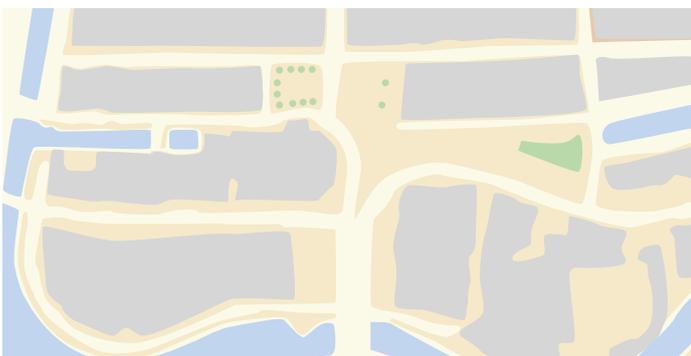
We looked at three sorts of maps. At first hand drawn maps. Because they are made by hand, it gave the feeling that the information also came from people. Unfortunately the screen cannot handle the thin lines because of the LED technique. These type of maps would work great on a high resolution lcd screen.



The next type of map we tried out was a 3d map. These were mainly good for recognising the surrounding, especially if you are not familiar with the area. In the end we decided not to use 3d maps because they had too much information on there. Many different shapes and colours could confuse the users, instead of help them.



The traditional 2d map was the last try. People are already used to work with this sort of interface. In order to have a good understanding of the area we rotated the map so it has the same point of view that you have when you look at the screen.

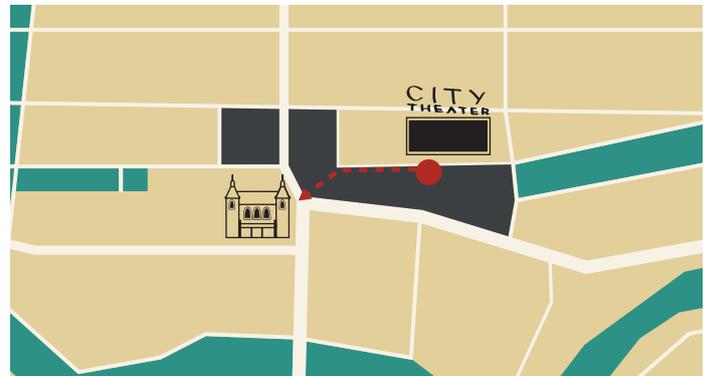


Where the normal map are very rich in detail and mainly used for navigation, our map needed to be simplified. This was for two reasons, at first the screen cannot handle too much detail. Second, the map is there to support the content that is shown in the panel.

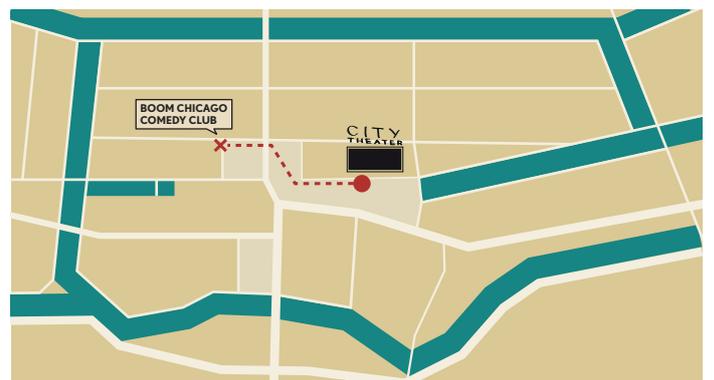
In order to simplify it we decided for colour scheme with just four colours. Also we worked on the style of the map, where we chose for straight lines, sharp angles and no buildings.



To highlight the venue that is described in the message, we explored different possibilities. At first we tried to draw the facade of a venue. This only worked on a few venues that had a very recognisable facade. Therefore we decided to use the speech bubble from the panel as a style for the landmark. In addition we decided to show the screen of the City Theater with the name above it. Also we marked the route, with a dot as starting point, a dashed line as route and a cross at the venue.



The main colour used in the map was chosen according to the style of the facade. We did several try-outs using colour palettes inspired by the Art Deco period, which led to the choice of colours as seen in the final map design below.



## Panel Design

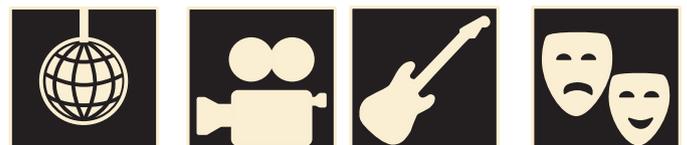
On the right side of the screen we situated a panel. This panel shows the local knowledge. The panel displays all the information that is available in the database. This means it displays the venue name, its genre, the message, the time the message was posted, the user name and avatar, and the source logo.

The genre we decided to visualise using an icon. The design of the icons required a lot of choices on style, but also a lot of testing on the screen.

For the venue name, message and user name we needed to decide on a font that was beautiful and readable. We chose a font, just like the colours, that fits with the facade of the City Theater. The font, Nobel, is a font that originates from the same time period as the building. With the font we did many tests on the screen for readability. This included different combinations of size, bold or regular and colour. From these tests we defined that the font is only readably from 25 points and upwards, when working in the virtual resolution of 1632\*608. Also too much contrast between text and background decreases the readability of the font.

In defining the style of the panel, we made a choice about the type of logo of the source used. It is important for the user to recognise where the message comes from. A difficulty we encountered while implementing the source logos in the panel, was the different guidelines each source has for displaying their logo.

On the right side you can see the final panel design. On the left top you can see the genre icon, with the name of the venue next to it. This was chosen so that the user understands what type of venue the message is about. The middle part of the panel is occupied by a speech bubble. This bubble displays the message, the source of the message and the time it was posted. The reason why the speech bubble is the biggest element of the panel is because it is the most important aspect of the entire concept. Also the maximum amount of characters a message should fit in the bubble. For foursquare this is 200 characters. The bottom part of the panel shows the user name and the avatar. The design of the speech bubble makes it clear that this person is saying it.



### Conclusion

During the design phase we learned the fundamental steps of designing an application for an urban screen. With this knowledge we can set up a few guidelines.

At first it is very important to be able to test on the real screen. In addition, something like an urban screen simulator, that can imitate the screen technology and resolution could be very helpful and offer direct feedback. It is also good to understand the technique that drives the screen. In our case, this led to the production of a flash animation, that can easily be included in the content loop. In order to have a very good product in the end, it is of vital importance that a developer can be included in the process from the beginning. A complicated concept can be very hard to explain to someone who is not aware of the process.

With our design, and the concept in general, we think we have shown that an urban screen can be both aesthetically pleasing and useful at the same time.

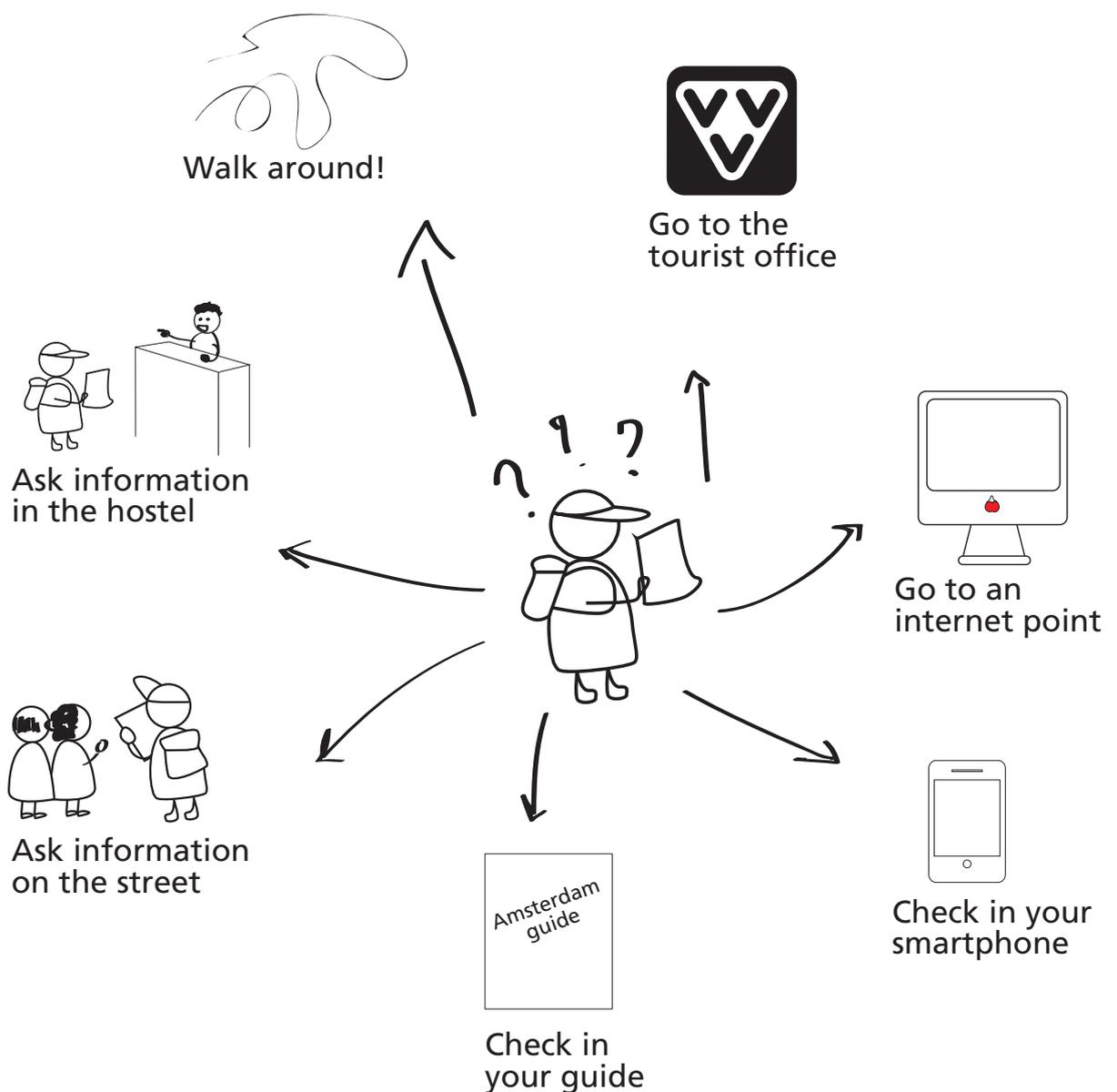


# Task analysis current situation

task: reach good quality and real time information

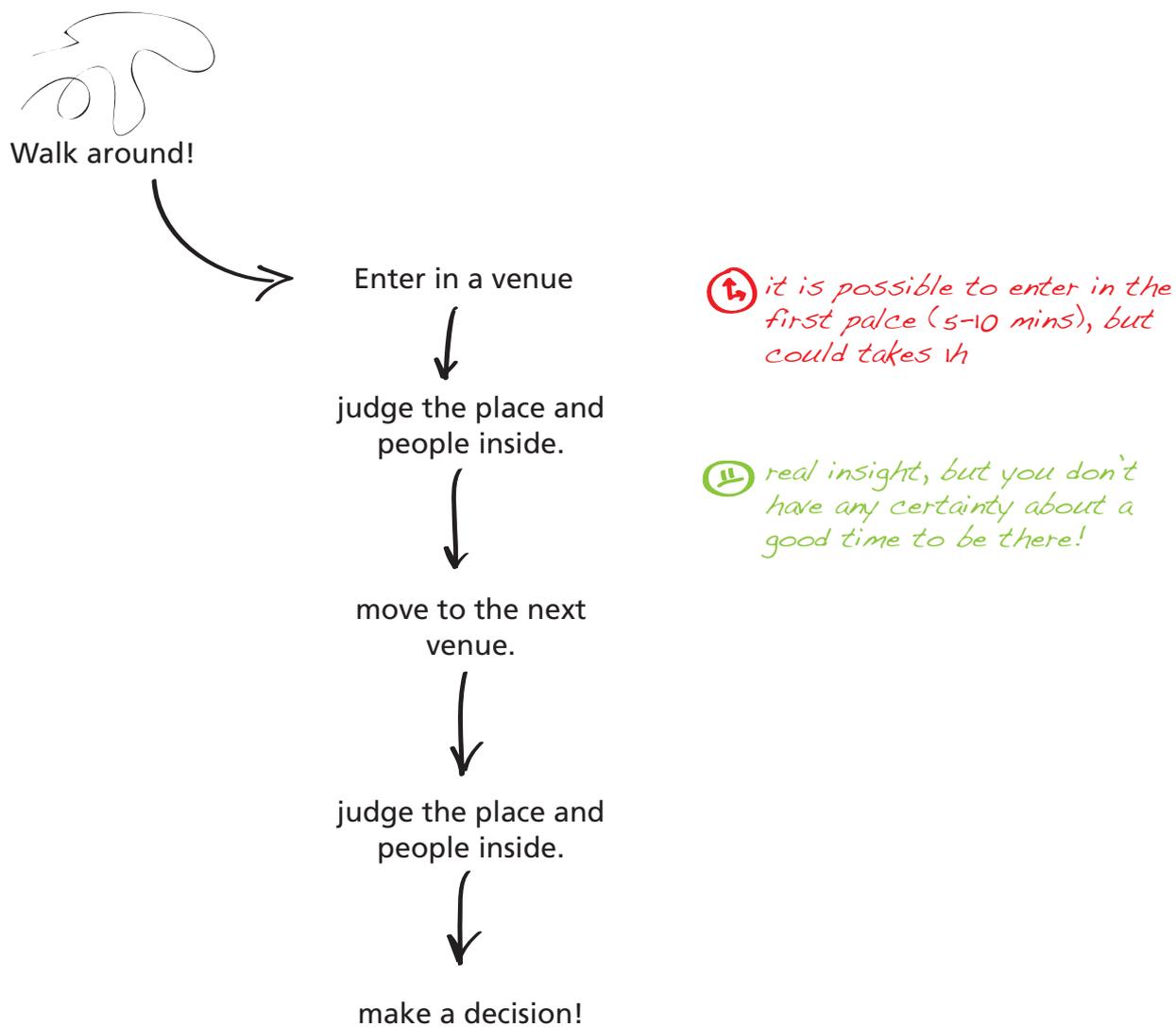
goal: alternative experience of Leidseplein

How to know what's going on at Leidseplein?



# Task analysis current situation

## Actions analysis



⌚ time for find information

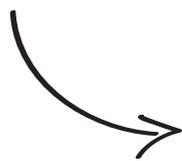
😊 Quality of suggestion

# Task analysis current situation

## Actions analysis



Go to the  
tourist office



ask information

 5 mins



mark on a map



 very general suggestion

collect different  
information

paper (flyer,  
brochoures)

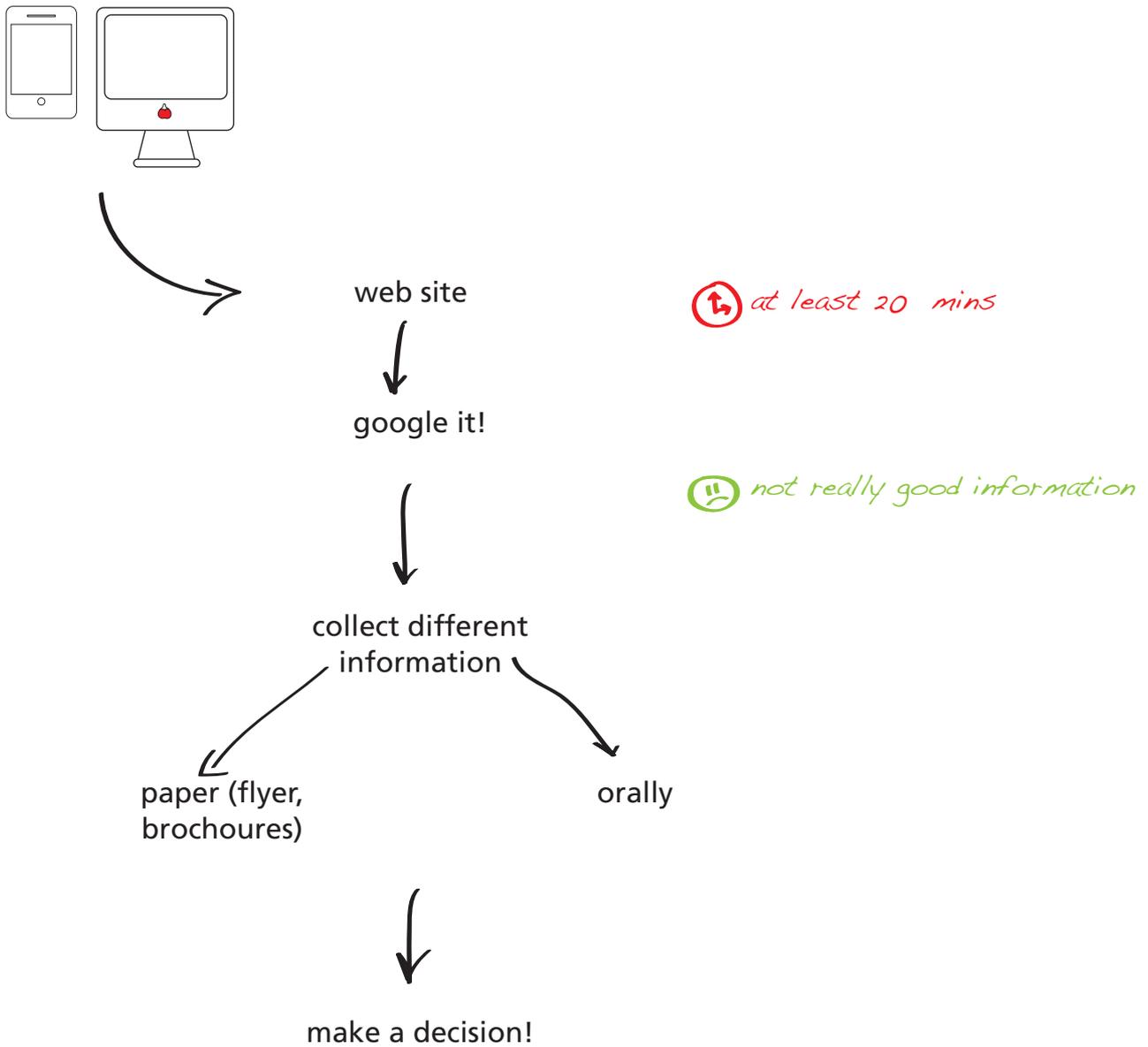
orally



make a decision!

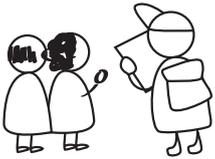
# Task analysis current situation

## Actions analysis

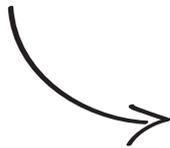


# Task analysis current situation

## Actions analysis



Ask information  
on the street



look around if  
there is someone  
suitable to ask  
information

⌚ it is difficult to evaluate a  
correct time



if he/she answer

😊 it is depend if you are lucky



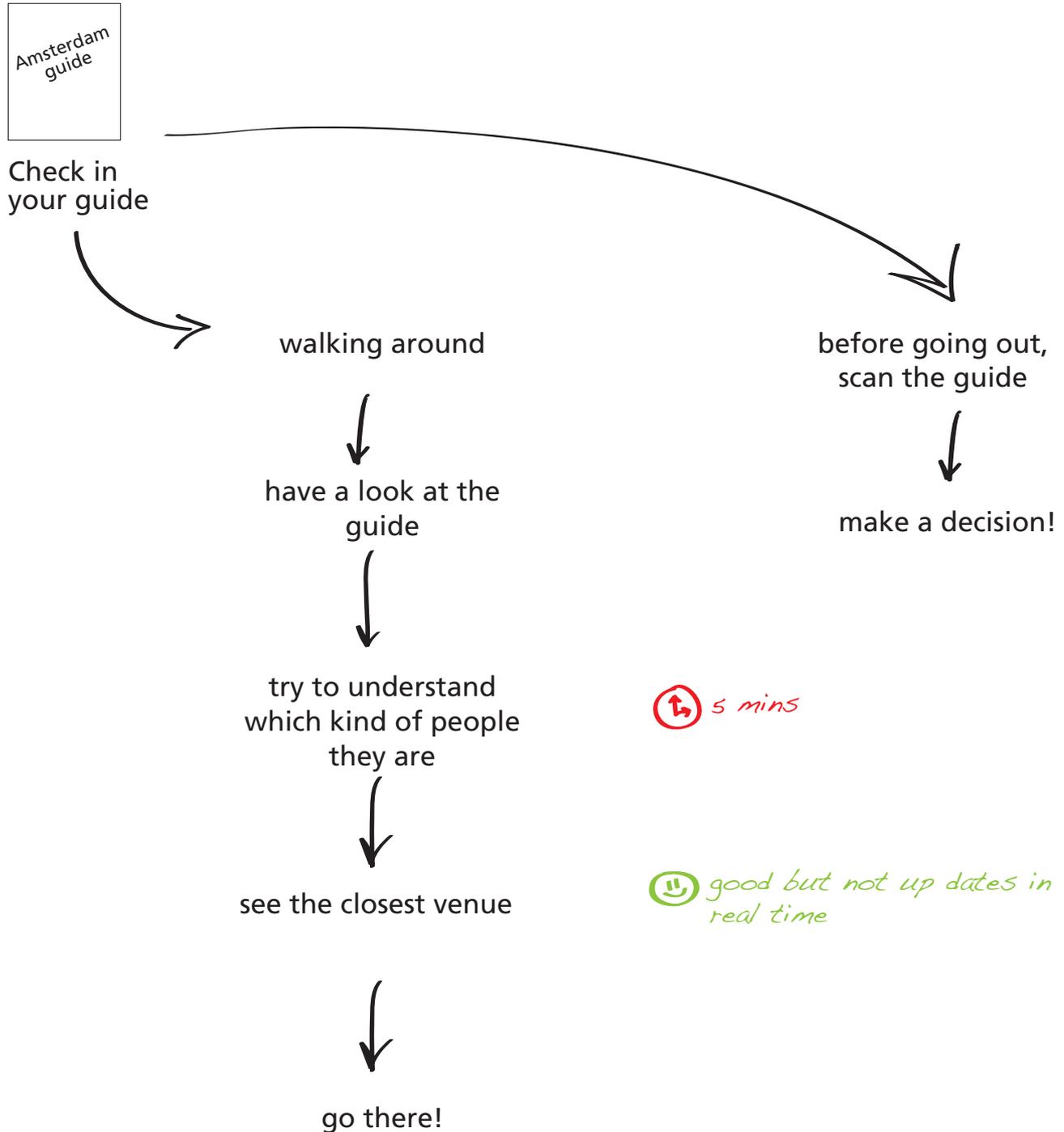
judge their suggestion



make a decision!

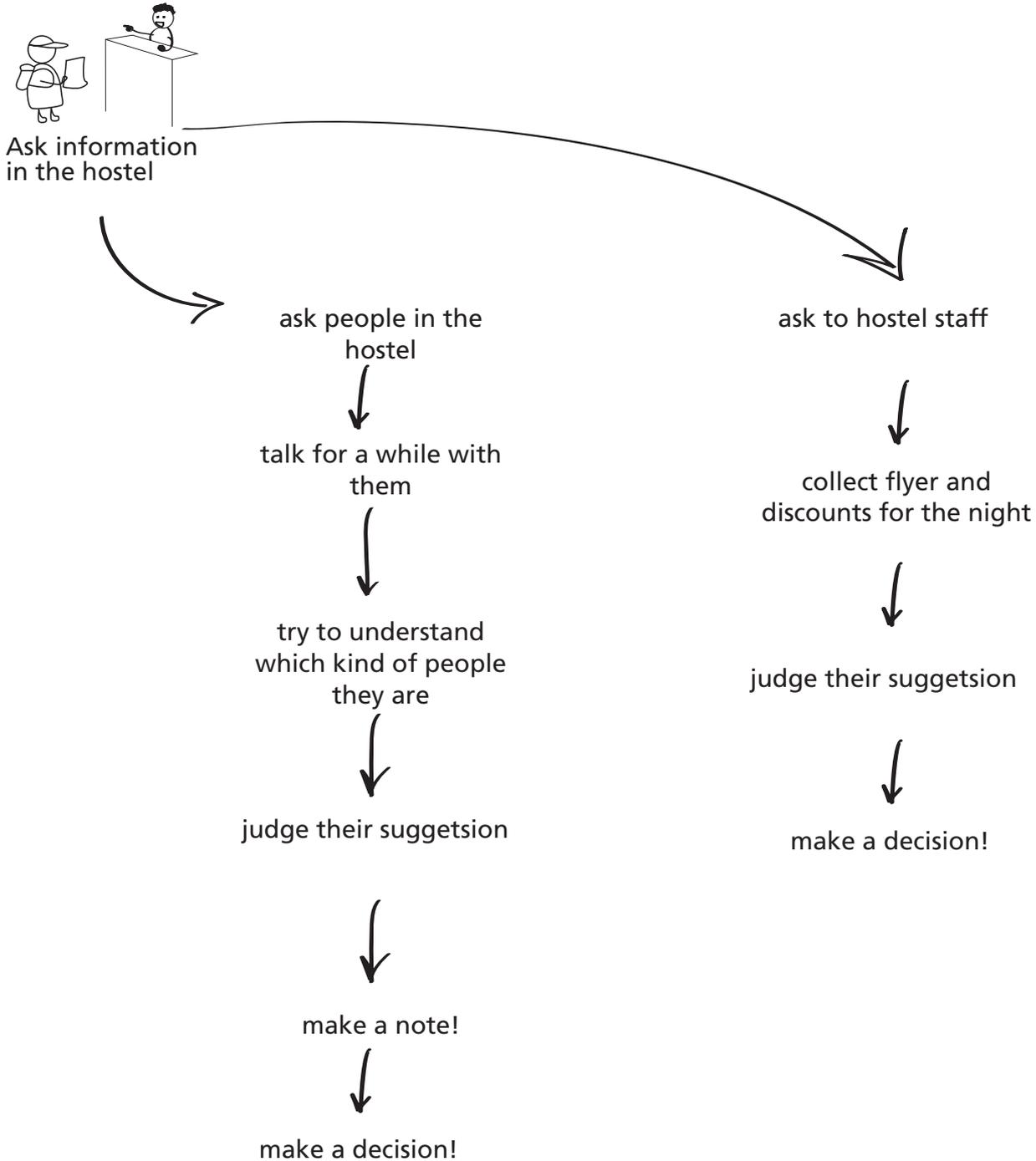
# Task analysis current situation

## Actions analysis



# Task analysis current situation

## Actions analysis



⌚ 15 mins

⌚ 5-10 mins

☺ direct feedback from people that already went there, but could be a touristic place

☺ quite good suggestion

## Venues, Keywords, Genres and ID

Venue	4SQ Venue ID	Genre	Keywords Twitter
Pathé City	4cc841113c40a35da7a3732e	cinema	-none- just Foursquare
De Balie Cultural Venue	4a26ff63f964a520677f1fe3	bar	debalie "de balie" @debalie
Boom Chicago Comedy Club	4a26ffc6f964a520ed801fe3	theater	boom chicago boomchicago @boomchicago
Chicago Social Club	4d5d5310935e60fcbfd13ec0	club	chicago social club @socialclub1923
Jimmy Woo	4a2705dbf964a5201b891fe3	club	jimmy woo @jimmywoo jimmywoo
Cinecenter	4a6a0ed2f964a52081cc1fe3	cinema	cinecenter
The Stadsschouwburg Theatre,	4a27db94f964a5209e941fe3	theater	stadsschouwburg amsterdam ssba
the DeLaMar Theatre	4ce56893dfaef04d7cf36d83	theater	delamar delamar theater delamartheater exclude: ulrica_delamar
Club Paradiso	4a27db90f964a5208e941fe3	live music	paradiso @paradisoadam possibly exclude: pizzeria, cinema
Melkweg	4a2703c8f964a52066851fe3	live music	melkweg
Sugar Factory	4a27db92f964a52095941fe3	club	"sugar factory" @sugar_factory
Comedy Café	4a26ff94f964a52037801fe3	coffee tea	"comedy café" @comedycafe_adam
Café Americain	4a26ffb5f964a520b2801fe3	food	cafe americain
Whiskycfé L&B	4a270037f964a520b4821fe3	bar	"whiskycfé L&B" (or use only foursquare data)
Cafe Reijnders	4a26ff7ff964a520e37f1fe3	bar	"café reijnders"

## Day division of genres

Programming

from 7 a.m to 10 a.m

food

cultural venue

from 10 a.m to 2 p.m

food

cultural venue

coffee tea

from 2 p.m to 5 p.m

theater

live music

coffee tea

cultural venue

from 5 p.m to 9 p.m

food

bar

live music

from 9 p.m 12 p.m

live music

bar

club

from 12 p.m

club

food

bar

## Concept Visualization



## Concept 1

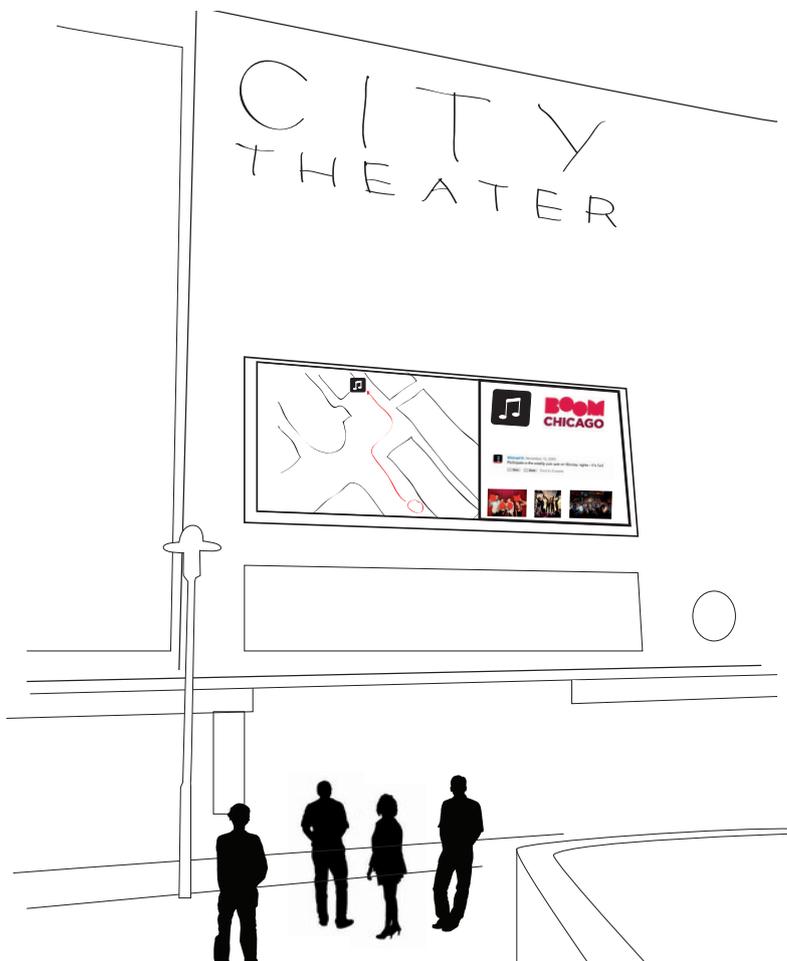
In this concept we only make use of big icons and logos.

What's on the screen?

- On the left there is a big icon, with it's meaning below it.
- In the top middle there is the name/logo of the venue.
- In the middle there is user generated content.
- In the middle bottom there is the logo and name of the used service.
- On the right there is an arrow with heading and distance with the adress below it.
- Also a little map could be shown instead of the arrow.

Why this visualisation?

- Easy to recognise content.



## Concept 2

In this concept the idea is to get inspiration from Foursquare maps.

What's on the screen?

- on the right side a map with icons of the different venues. The map is in continuous movement and zoom on a specific venue to give information.

-on the right side there are the information:

1. icon of the venue
2. name of the venue with one line of description
3. tips from a social network
4. pictures of the venue (real time is preferable)

Why this visualisation?

- Build on an existing map (VVV)
- Easy to see route.
- Linking a map with real time information.



### Concept 3

In this concept the idea is to collaborate with the dutch artist Jan Rothuizen.

What's on the screen?

- an interactive map that zooms in on the venue and shows tips from local expert.

Why this map?

1. It represents the overview of the area and in comparison of google and four square maps, it is not a top view and this allows people to easily recognise buildings.

2. This style could better match with the style of the City Theater (good looking)

3. It draws by dutch artist (local culture)

4. It is interactive

5. Hand drawing gives more an idea that it comes from human.

All the visualisation concepts can be used together. This means that for concept 1 for example, a map can also be displayed in full screen, followed by this visualisation.

Map prerequisites.

- Users should understand that the information on the screen is user generated.
  - they can also do it!
- It needs to be clear that it offers an alternative guide.

Task: Obtain real-time and high quality information

Goal: Alternative experience of the Leidseplein.