D2.1 – Initial Visions, Scenarios and Use Cases

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1 Introduction

This deliverable documents the results of T2.1 Scenario Thinking and User-centered Design (UCD). The purpose of T2.1 is to create and refine vision scenarios described in the proposal that will be used during the elicitation of user requirements for the different use cases and stakeholders involved.

1.1 Scope

This document describes the approach and methodologies planned to use in order to combine user-centered design with an agile development process. Furthermore it includes all taken activities and their results in order to verify users' interest in the initial scenarios and specify the context of use. Based on the created artifacts, the results of the use case analysis for each mass-market application are presented and transferred to the initial requirement backlog, which is listed at the end of the document.

This deliverable is required in order to successfully complete milestone 1: First reference scenarios, use cases and key requirements available. An updated and final version of this document is planned for month 15 and 39.

1.2 Related documents

ID	Title	Reference	Version	Date
[RD.1]	Description of Action/ Grant Agreement			

2   Approach and Methodology

The overall methodology for GOEASY is already described in [RD.1] and the relevant scheme is reported in Appendix A. It combines the user-centered design process according to ISO 9241-210 [1] with an agile system development approach.

The UCD process, as depicted in Figure 1, is a framework that offers multiple methods that are built on close interaction and discussion with users. This ensures the best information and feedback gathering possible, from a human perspective. Hereby, the application of specific methods depends on the level of already gathered knowledge as well as on available resources. Furthermore, it is a framework that is not limited by specific interfaces or technologies, which enables flexible adaptation to different end users' needs and demands.

The UCD process is applied iteratively. This allows to adapt to changing user needs and requirements as well as to limitations and problems which may occur during the project development at any stage. Iterations can happen between any phases in the process, but are usually triggered after evaluation.
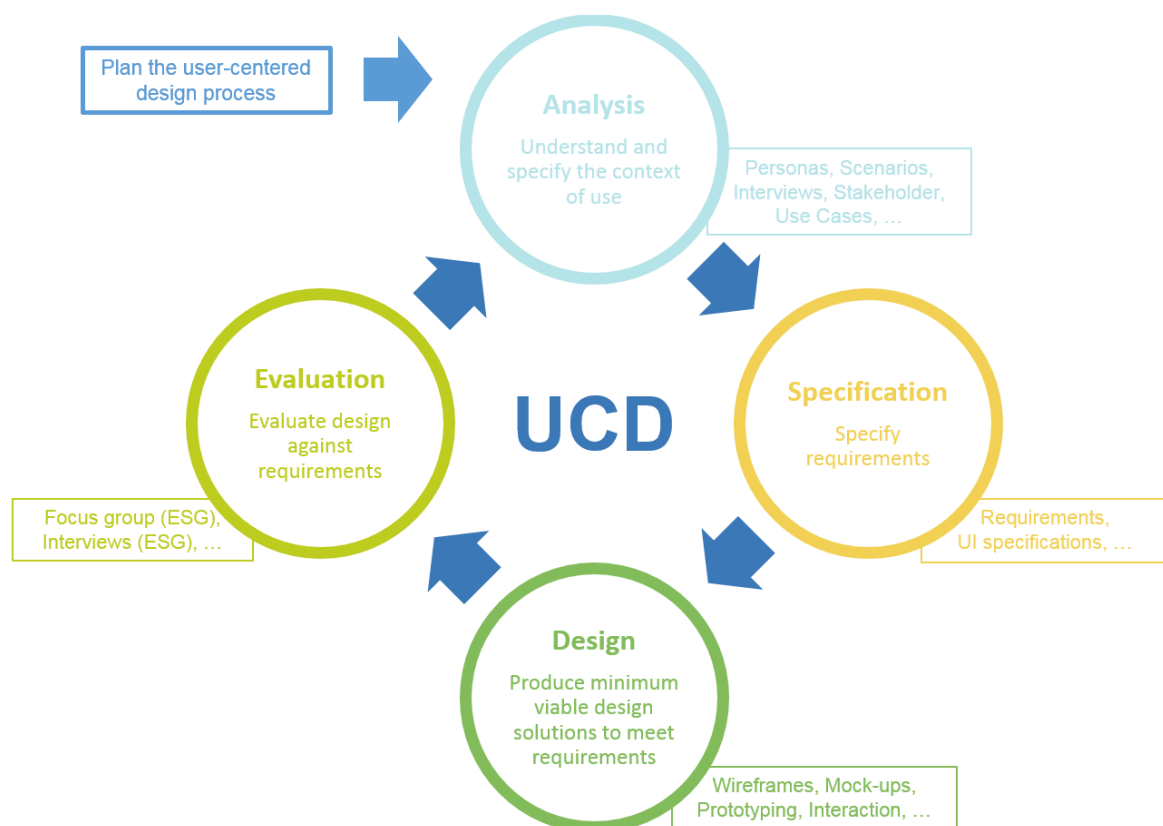

Figure 1 - The UCD process adapted from the ISO 9241-210 [1].

Applied in the GOEASY project (see Figure 2), in the first step the GOEASY vision and application scenarios will be analyzed in order to understand and further specify the context of use. This includes the need to identify and understand the stakeholders of the platform and of the two pilot applications. The information gathered during this analysis will result in artifacts, e.g. personas and scenarios. In a next step, relevant use cases will be defined based on this information. In the initial version of this deliverable, the use cases will remain on a high level, describing "a general requirement, idea or concept independently from a specific technical realization like an architectural solution" [2]. Use cases will get revised and refined during the project.

Use cases will be converted and linked to a user story that is stored to the requirements backlog. This conversion to user stories is required in order to feed the agile system development. Like the use cases, the user stories are initially on a high-level and are broken up into new, more detailed user stories during the specification, design and evaluation phases. While the requirements backlog as part of the user-centered

requirements analysis and system design keeps all user stories, it will get broken up into different product backlogs for the development itself. This step is required in order to manage the actual implementation of the individual applications. A user story can be moved to a product backlog as soon as the required level of details is reached. The distributed development teams will then be able to define the tasks required for a sprint.

Figure 2 shows activities accordingly to the described steps. As indicated by the arrow symbol above specific steps, those will accompany the development through the whole project in an iterative manner.
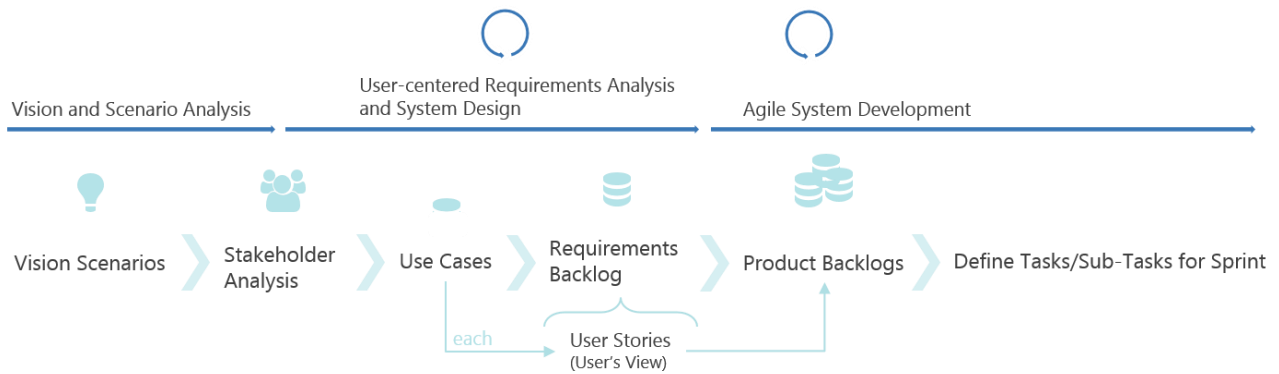

Figure 2 - GOEASY methodology broken up for WP2.

3   Specify the Context of Use

The following sections describe how the visions of the two different mass-market application scenarios (ApesMobility and AsthmaWatch) were discussed and further developed.

3.1   ApesMobility

ApesMobility is a mobile application working as an extension to the already existing social network greenApes[i]. As described in the definition of action [RD.1], various classes of users provided with a Galileo-enabled device join a city-scale game, where their "green" mobility behavior is automatically detected and evaluated, and they are "challenged" by the public authorities to improve their behavior.

In the case of ApesMobility, reward mechanisms will be addressed by providing 'private benefits' to winning users i.e. points (named BankoNuts in greenApes) that can be spent among commercial partners in cities, who are granting special discounts, offers and prizes, for citizens who choose zero or low carbon transportation modes, such as walking, biking, car-sharing, carpooling and public transportation. This rewarding system is based on two synergistic methods: (i) on the social feedback received for the sustainable behaviors of citizens, shared via greenApes and measured by the number of 'likes', comments and shares on social media; (ii) on 'certified points' i.e.: not self-reported by users but imported and automatically validated via GOEASY solutions to reward mobility actions.

Overall, the city (mobility providers, public authorities) will suggest mobility rewards depending on the specific needs of the city in specific periods, therefore evaluating the impact of the provided awards on the quality of mobility in the city.

3.1.1   Brainstorming

Brainstorming is a creativity technique applied in a group to generate many ideas in a minimum of time, without judging them [3]. The brainstorming session was conducted by FIT with an internal UCD expert group. Collected ideas were immediately recorded in a mind map (see Figure 3). Discussions with GAPES and the whole consortium at the KOM in Prague, where the initial vision and ideas were discussed, gave the starting point for the brainstorming. To understand more about greenApes' users, GAPES additionally provided information through a data analysis, e.g. to know categories users are most active in (see Figure 4). This information was presented to all participants of the brainstorming.

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[i] *https://www.greenapes.com/en/*
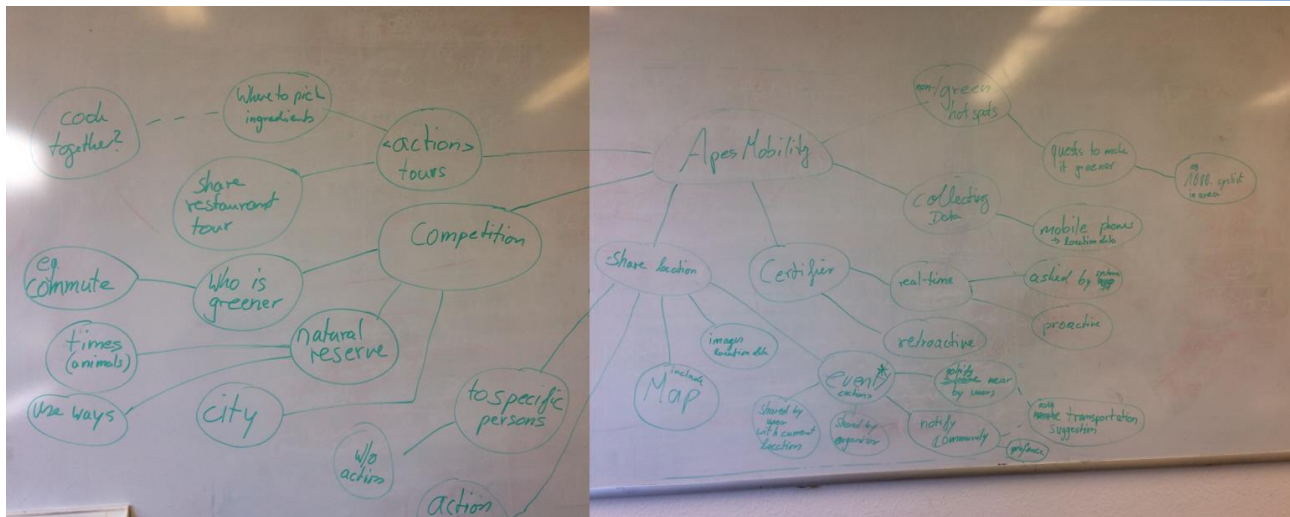
Figure 3 - Brainstorming results for ApesMobility.

In the purpose of the evaluation of the brainstorming, some ideas could be associated in order to belong to a bigger idea. Identified features, which were considered as relevant, are written down in scenarios and were presented to end users at a later time (see section 3.1.3).

The described brainstorming session focused on features that are directly related to ApesMobility and greenApes. The same expert group had another brainstorming for AsthmaWatch, which was held prior to this. The AsthmaWatch brainstorming also included discussions about use cases that are not directly related to a pilot application, as shown in section 3.2.1. A digitalized, readable mind map is attached to this document in Appendix D. Additionally the attached mind map is an updated version based on information gathered in later steps.

Figure 4 - Results of data analysis about users' behavior provided by GAPES.

3.1.2 Personas and Scenarios

Personas are user models, which help to understand users' goals, motivations, and how they think and behave [4]. Hence, "personas provide a […] holistic model of users and their contexts" [4] and help to focus on the potential user throughout the user-centered design process. The visualization was implemented by using the free online tool Xtensio[ii].

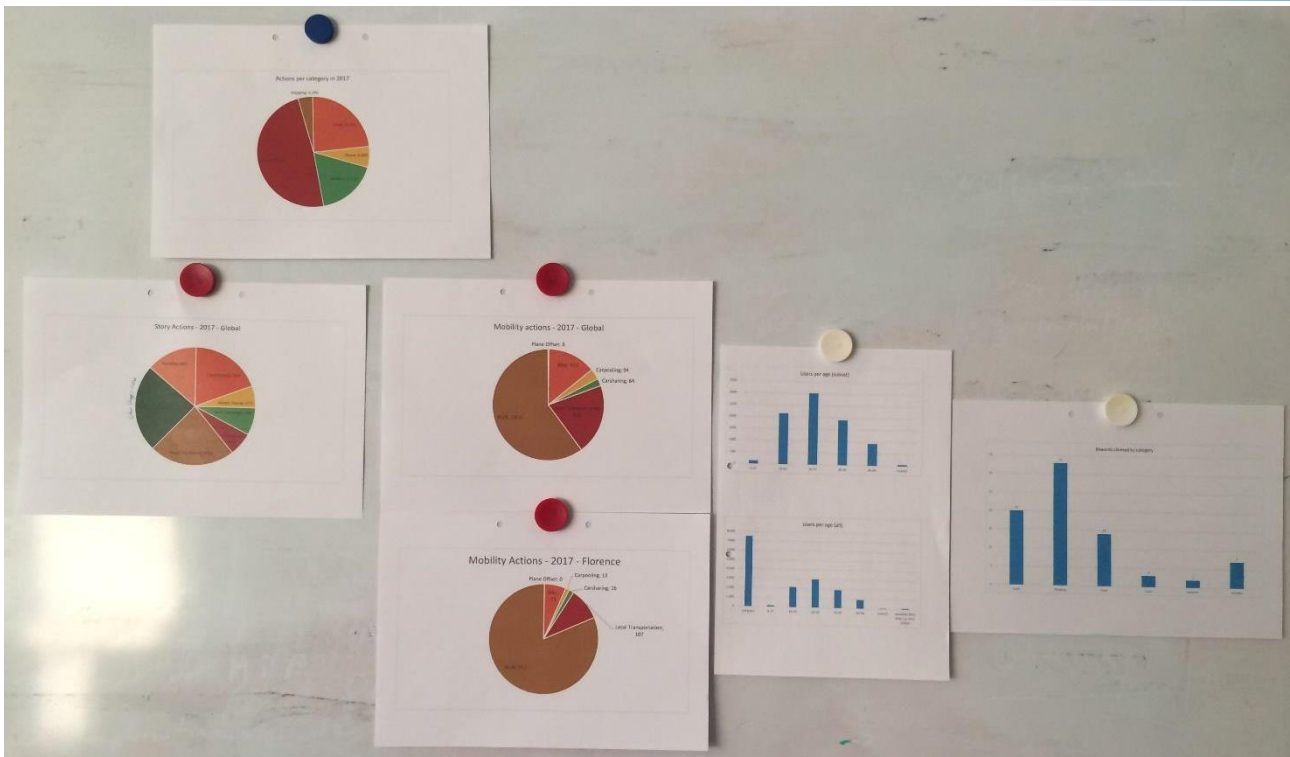For ApesMobility, two personas were modelled based on a user survey, previously conducted by GAPES, and the analyzed data that have already been used in the brainstorming session. Carolina (see Figure 5) is a 27 years old woman, who represents the user group of those who are highly committed to live more sustainable. Furthermore she is an active user in social networks, especially of greenApes. The second user group is represented by Eric (see Figure 6), 37 years old. He joined greenApes because of the rewarding system. But in the meanwhile, he likes the idea of the community, which actually sometimes accomplishes him to behave more sustainable.

Both user groups are considered equally in the further course.
With Carolina and Eric in mind, the gathered ideas of the brainstorming session were evaluated in order to write scenarios. Scenarios are a free form narrative that tells the existing practices as well as future visions of a product or system being developed [5]. Scenarios normally do not explain the details of the interaction or the system; they are purposefully left rough and vague in order to avoid users hanging onto details and overlooking the general issue of whether the vision expressed by the scenario fits in their world and fulfils their needs.
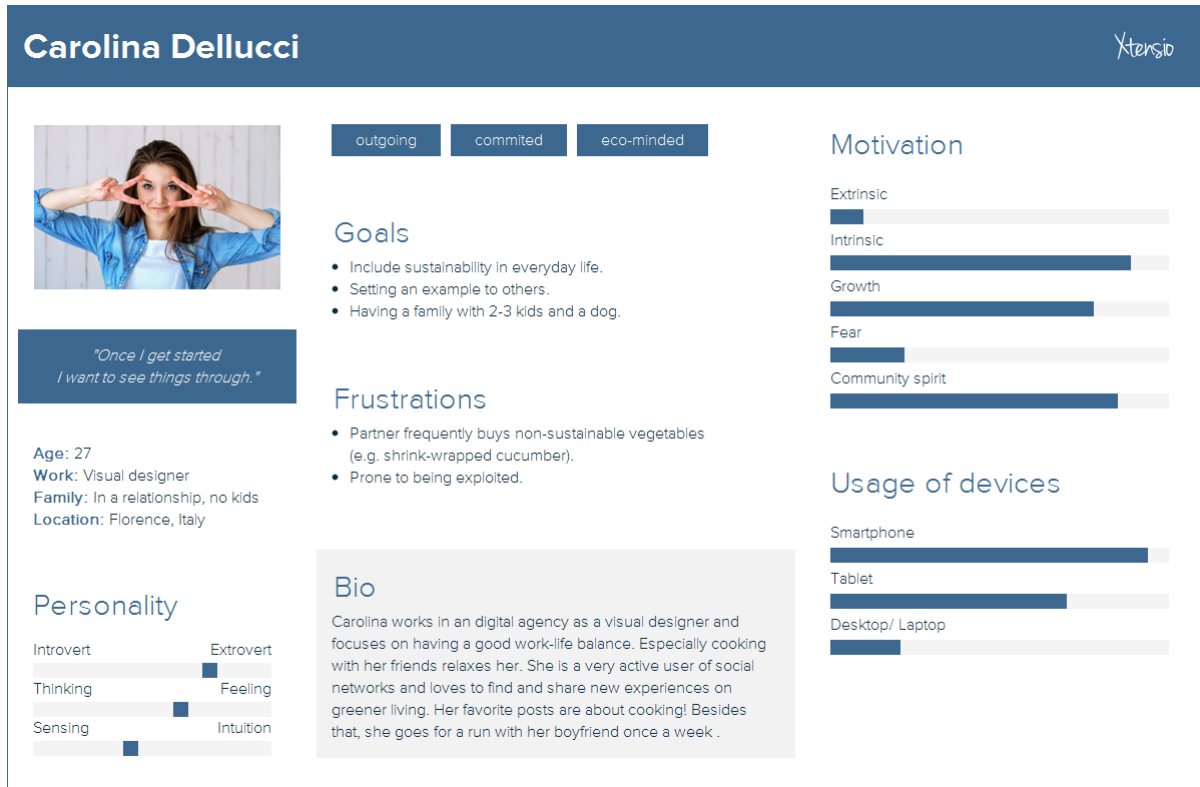

[ii] *https://xtensio.com/*

Carolina Dellucci

Xtensio

outgoing **commited** **eco-minded**

Goals
- Include sustainability in everyday life.
- Setting an example to others.
- Having a family with 2-3 kids and a dog.

Frustrations
- Partner frequently buys non-sustainable vegetables (e.g. shrink-wrapped cucumber).
- Prone to being exploited.

"Once I get started I want to see things through."

Age: 27
Work: Visual designer
Family: In a relationship, no kids
Location: Florence, Italy

Personality

Introvert	Extrovert
Thinking	Feeling
Sensing	Intuition

Bio
Carolina works in an digital agency as a visual designer and focuses on having a good work-life balance. Especially cooking with her friends relaxes her. She is a very active user of social networks and loves to find and share new experiences on greener living. Her favorite posts are about cooking! Besides that, she goes for a run with her boyfriend once a week .

Motivation
- Extrinsic
- Intrinsic
- Growth
- Fear
- Community spirit

Usage of devices
- Smartphone
- Tablet
- Desktop/ Laptop

Figure 5 - Carolina, a persona for ApesMobility.

Eric Ferri

Xtensio

social **relaxed** **thorough**

Goals
- Gain as many BankoNuts as possible with as little effort as possible.
- Gets motivated by mocking his pears with challenges (e.g. sports).
- Wants to tour Ireland with his band performing in pubs.

Frustrations
- Convenience sometimes prevents him from going the extra mile regarding sustainable behavior.
- Hates when his friends cheat when using apps.

"When I kid around with my friends I have the best time of my life."

Age: 37
Work: Bio engineer
Family: Single
Location: Florence

Personality

Introvert	Extrovert
Thinking	Feeling
Sensing	Intuition

Bio
Eric works as a bio engineer in an international company. He values the relaxed spirit in his team. He enjoys to perform with his folk band playing the cello. When he started to use greenApes his main reason was the reward system. In the meanwhile the community inspires him to at least sometimes consider green choices, e.g. using a cloth bag for shopping.

Motivation
- Extrinsic
- Intrinsic
- Growth
- Fear
- Community spirit

Usage of devices
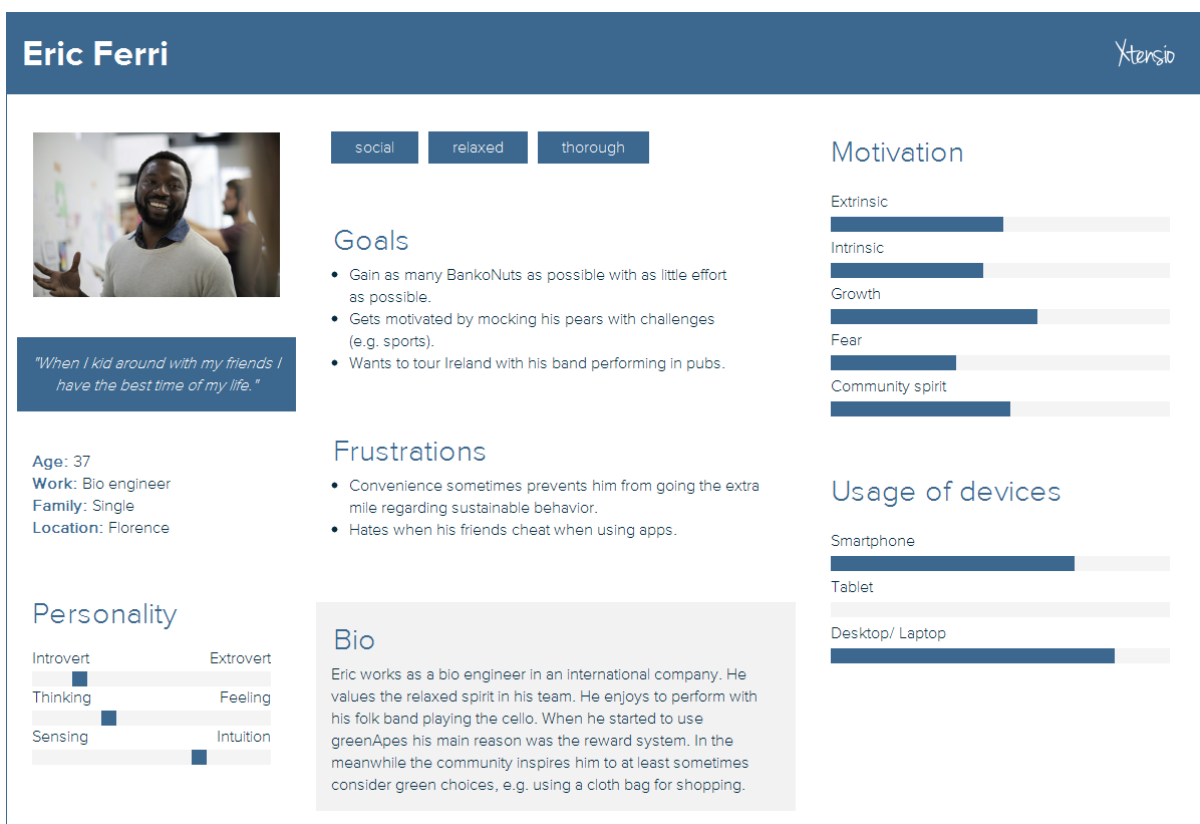- Smartphone
- Tablet
- Desktop/ Laptop

Figure 6 - Eric, a persona for ApesMobility.

Five scenarios were developed in order to describe how users could use ApesMobility in future.
At this time it is assumed, that from user's perspective most functions will be reached through the greenApes application. Scenarios are written from the user's perspective, hence ApesMobility isn't mentioned there. The current versions as described below will be used as the basis for the focus group described in the next section.

Carolina's shopping tour and cooking

Carolina loves to cook and always tries to consume green products. She knows some special (green) stores where she can find needed ingredients. Today she wants to buy all ingredients needed in order to cook her favorite meal. To help other users to cook by following her recipe, she will share locations where to find the required ingredients. Therefore, she switches on the location tracking function for greenApes to track all the stores along her shopping tour. Whenever she leaves a store she is asked by greenApes if she has bought something. If she has, she can enter the corresponding items. If greenApes does not recognize the store, she can manually add the store and the items to the shopping tour. At the end, she can share her recipe with other users, including the stores, where users can find specific ingredients.

This scenario was written based on the idea of creating and using <action> tours, which can be shared with other users for inspiration to playfully increase their motivation to behave more sustainable. <Action> refers to shareable actions in greenApes (see section 4.2).

Carolina's discovery: a Tetra Pak window farm

Carolina is on her way to buy ingredients for cooking when she discovers a cool green project: a Tetra Pak window farm. A citizen hung it out of a window and added a sign "Please water me :)". She starts greenApes on her smartphone and posts a picture including the specific location to tell other users about this project.

This scenario was written based on the idea of sharing a location for others, who then can check-in to this spot to get rewarded. ApesMobility would work as a certifier in this case.

Eric's evening with a friend

Eric is going to meet a friend at a (registered) green restaurant tonight. He will use his bike. Before he leaves the house, he switches on the location tracking for greenApes. Sitting in the restaurant, he takes a picture of the food and posts it. To earn more BankoNuts, he adds the restaurant's location to his post. greenApes tells him that his information was verified (he's not lying about his position) and thus he earns some extra BankoNuts. Back at home, he checks the log entries in greenApes. An entry was automatically created by greenApes, which detected that Eric used his bike to get to the restaurant and back home. Hence, he can confirm it to get extra BankoNuts.

This scenario was written based on multiple ideas: full control about location tracking, automatic mobility behavior detection, and certify a check-in to a specific location.

Eric wants to go for a run

Eric wants to go running now, but he knows that there is still a lot of traffic on his usual route. Hence, he starts greenApes' attributed route planner to check the current air quality on his route. He loads his common route and greenApes tells him that he should currently avoid running there. At the same time, greenApes also suggests him a similar route (of equal length) with better conditions as an alternative.

This scenario was written based on the idea of an attributed route planner, which originally came up in a discussion about AsthmaWatch. In the brainstorming (cf. section 3.1.1) it was adapted for ApesMobility. Beside the interest of running under good conditions regarding air pollution, it was expected that the social network can make use of this feature in order to improve the air quality in specific areas of a city.

Eric commutes to work

Eric commutes 20 kilometers in total every day. Depending on the weather, he takes either his bike or his car. Eric defined that location tracking is switched on automatically from Mon - Fri, from 7-9 am and from 4-6 pm to track his mobility. Besides earning BankoNuts, he can participate in challenges with others or himself, e.g. to be the greenest commuter or get XPs if he used his bike in more than 50% of the cases.

This scenario was written based on the idea of having challenges together with and competitions against other users. It aims to increase the motivation of users behaving more sustainable.

3.1.3 Focus Group

A focus group is a group discussion, applied for qualitative research [4]. Representative users of the product, as identified during a previously conducted user research, are chosen to join the discussion. The discussion is led by a moderator. The moderator is responsible for making the discussion constructive and to the right direction, e.g. by a prepared structured set of questions and choices [3], [4].

The focus group was held in Florence and audio recorded for later reference. GAPES organized a pleasant location in downtown, so it was easy for participants to come. To participate, users were required to be active in greenApes and to be able to discuss in English. Through the community manager of GAPES, six users of greenApes were invited to the discussion and promised to come. Three users actually participated. As a reward they got a greenApes mug, as shown in Figure 7. Pictures of the focus group are attached to this document in Appendix B.

Figure 7 - The mug of greenApes for participants of the focus group.

The goal of the focus group was to verify with end users whether they would use identified features described in the scenarios (cf. section 3.1.2) or not. Based on the given acceptance by users and further evaluation of the discussion, scenarios were prioritized as described in Table 1. The priority is required in order to start the use case analysis, described in section 4.

The focus group was led by FIT. Warm-up questions were followed by the introduction of a first scenario. Scenarios were subsequently introduced and the order was adopted to the comments and topics picked up during the discussion. Furthermore, each scenario was linked with an appropriate picture in order to better remember it. Those pictures are attached to this document in Appendix C.

Table 1 – Priority and comments for ApesMobility scenarios.

Scenario	Priority	Comments
Carolina's shopping tour and cooking	Low	- Users are not interested in sharing an <action> tour by their own - Liked the idea to use existing tours esp. in foreign cities - Liked the idea if it is implemented as a challenge
Carolina's discovery: a Tetra Pak window farm	High	- Users asked for option to decide who is going to see the shared location - Liked the idea, e.g. to get the fridge empty before going on vacation
Eric's evening with a friend	High	- Users really liked the idea that (mobility) actions can be certified, although e.g. the bike-sharing app they use to rent a bike, does not provide a connection to greenApes
Eric wants to go for a run	Low	- Special interest was mentioned for showing bike lanes - Users really liked the idea having a "healthy route planner"
Eric commutes to work	High	- Users really liked the idea of having challenges in order to reach goals *together* based on a challenge - Competitions against others were less liked - Users want to get notified about new challenges based on a topic in a specific area and/or close to them

In general, all scenarios were well accepted by the participants.   Also, a new idea was developed: interacting with a physical box. A physical box is placed somewhere in the city. It could be a box to exchange or give away goods or to educate the user. If a user, who has enabled location tracking, passes such a box, the box gives a signal (e.g. sound, light, open door) to the user.

Participants mentioned different opinions regarding controlling (switch on/off) the location tracking, which was mentioned in multiple scenarios. They confirmed, that they would like to get offered various options, e.g. periodic time frames when it switches on automatically or that it is always switched on.

The priority was defined in collaboration with GAPES to ensure that only scenarios are further developed that can be implemented by GAPES regarding its effort. Thus, scenarios prioritized with "low" aren't considered in the later use cases analysis (see section 4.2) anymore. However, those scenarios will be kept in mind in order to be further developed in a later R&D project or, if there is enough budget left within this project. Especially the idea of a "healthy route planner", which will be developed by AsthmaWatch in a slightly different way, could then get implemented.

3.2   AsthmaWatch

The risk for an asthma patient of having an asthma attack during the next 24 hours increases significantly if he has been in a polluted environment. Thus, it is important for asthma patients to know the current and predicted air pollution in an area he wants to be outdoor.

Today's solutions for pollution monitoring does not give enough precision or granularity to be useful for on-the-spot measurements and advice to the individual person on the move. The purpose of the AsthmaWatch use case is to develop a mobile pollution sensing approach using the high precision and anti-spoofing provided by the Galileo. People, bicycles, cars and public transport vehicles will be equipped with air pollution sensors and Galileo receivers, which reports current pollution levels to an air pollution cloud service.

In addition we will integrate existing pollution monitoring approaches such as the Copernicus system, the European Earth Observation system which uses satellites to provide predictions and forecasts of various aspects of the Earth climate and environmental. Also, already existing on-the-ground sensors (because of cost

normally only 5-10 such sensors exist in a large city) for pollution monitoring will be used to enhance the AsthmaWatch service. In this way a city can generate a dynamic "air pollution map" in the same way as Google maps are created, based on the sensor values and the precise Galileo position. On top of the air pollution cloud third party developers can create apps and services for the more than 70 million people in Europe that suffers from asthma and other lung related diseases. This will stimulate the growth of an eco-system around Galileo in the area of personal health.

3.2.1 Brainstorming

As already described in section 3.1.1, brainstorming is a creativity technique applied in a group to generate many ideas in a minimum of time, without judging them [3]. The brainstorming session was conducted by FIT with an internal UCD expert group. Collected ideas were immediately recorded in a mind map (see Figure 8). Discussions with CNet and the whole consortium at the KOM in Prague, where the initial vision and ideas were discussed, gave the starting point for the brainstorming.

This was the first brainstorming conducted by the UCD expert group for this project. Thereby ideas could be collected which aren't directly related to the vision of AsthmaWatch. In the purpose of the evaluation of the brainstorming, the mind map was restructured in order to exclude "out of scope" ideas. A digitalized, readable mind map is attached to this document in Appendix D.
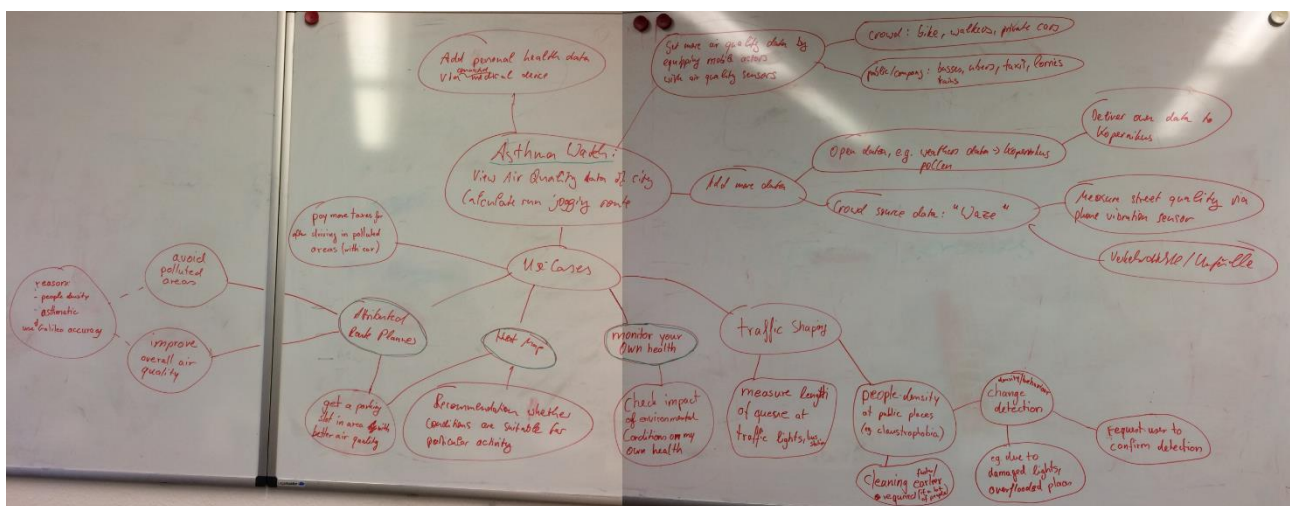

Figure 8 - Brainstorming results for AsthmaWatch.

3.2.2 Interviews

In order to know which features are really needed, potential end users were acquired for interviews. Two asthma patients have been interviewed in person on FIT's premises and one more via Skype. None of the interview partners have faced problems with a very high level of different pollution particles. Nevertheless, the conducted interviews helped to better understand the target group. The interview guideline is attached to this document in 0.

Also, none of the interview partners is using an app as a support tool. At least one of them has used a spirometer daily in the past and still uses it weekly in order to see changes of her lung capacity. This person didn't know that there are apps to document the measurements but might use them in future.

When asked what kind of functionalities they would like to have in the AsthmaWatch, two interview partners mentioned independently from each other an emergency button. If an asthma attack occurs, the user can activate the button in order to inform specific persons about the attack and that help is needed. Activating a button followed by an automatically trial to contact somebody and extended by sending the asthma patients accurate position, reduces the effort for the user immensely.

At the end, following ideas were explained: an overview of sensor data, a heat map for evaluated sensor data, an attributed route planner and the documentation of measurements with a connected spirometer. All ideas

were judged as useful. For the measurements, interview partners asked for a manual input and an export function, e.g. to take the data to their doctor.

Two of the participants face problems with pollen. Thus, they suggested to adapt the functionalities considering pollen data. This was also discussed at the KOM in Prague, but it was decided as out of scope for the current project.

3.2.3   Persona and Scenarios

As described in section 3.1.2, personas are user models that help to understand and focus on the user. One persona was modelled for the AsthmaWatch (see Figure 9) based on the gathered information in the brainstorming, interviews and further research about asthma. Melvin has allergic asthma (pollen) and faces problems in air-polluted areas. He loves running and due to practical reasons, he lives in the city of Stockholm.
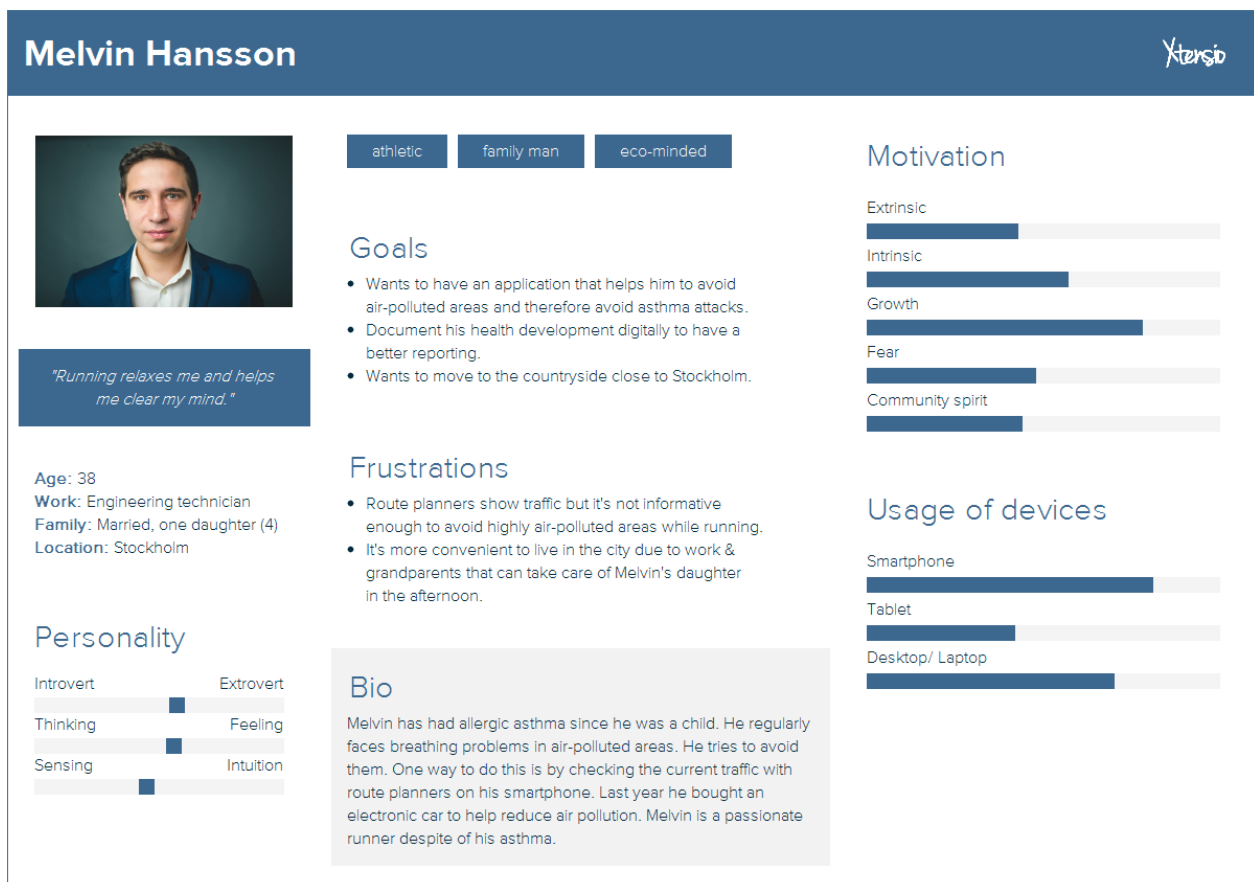
Figure 9 - Melvin, a persona for AsthmaWatch.

With Melvin in mind, relevant ideas were assembled in written scenarios:

Melvin plans his run
Melvin is ready to leave for a run. He has his reliever inhaler with him in case he gets an asthma attack. He wants to avoid air-polluted areas on his run. Hence, he starts AsthmaWatch and enters a start and end point. The application provides him different routes that are attributed by air pollution sensor data showing the conditions of each route. Based on this data, Melvin decides to go for the route that is best conditioned.

This scenario was written based on the idea of an attributed route planner. When a user plans an outdoor activity, the app shall tell him the conditions on his preferred route and shall tell him alternative routes in case the conditions are bad.

A heat map for air pollution

Melvin is going to meet a friend in the city in one hour. Last time he has been in downtown, he faced some breathing issues due to many cars around him. Hence, today he wants to check if he should ask his friend to meet in a different area. Melvin starts the AsthmaWatch application and opens a heat map, showing air-polluted areas of Stockholm. In the area they will meet, the heat map shows a slightly yellow cloud, which should be fine with him.

This scenario was written based on the idea of a heat map, a graphical representation to view the level of air pollution on a map. The map could be extended by suggestions on which outdoor activities are advisable.

Melvin monitors his health

Melvin checks his lung capacity daily. Hence, he starts AsthmaWatch to enter the data. After that, he checks the statistics to see the trend of his performance.

This scenario was written based on the idea, that user should be able to monitor their help in the app. It shall enable users to add measurement data (manual and by a connected device) and view the trend of historical data.

The emergency button

Melvin and his family are living at the third floor without an elevator. He is in a park next door, when he gets an asthma attack. However, he forgot his reliever inhaler in the apartment, which is too far away for him. He starts the AsthmaWatch application to alert his wife, who is at home. She gets notified about his accurate position, takes his inhaler and thanks to the exact position, she does not have to search for Melvin and can go to him straightforward.

This scenario was written based on the idea given by interview partners. They want to be able to inform specific persons if an asthma attack occurs, with as less interaction and effort as possible.

The written scenarios were evaluated by CNet in order to decide which scenarios will be considered in the use case analysis. For now, it is planned to implemented all scenarios. An evaluation with potential users will follow in the further course of the project. First attempts to get in touch with potential users are made. More will follow in order to ensure, that the acquired people match the target group (esp. facing problems with air pollution).

4   Use Case Analysis

The use case analysis was performed on the basis of the information and artifacts that were collected during the UCD process so far. The initial mind maps were restructured and refined accordingly during the process (see Appendix D). Thus, combined with the written scenarios, the mind maps were used to identify an initial set of use cases for the GOEASY project.

In the following sections, all identified use cases are listed in use case diagrams as shown in Figure 10. The use cases are separated for the two pilot applications ApesMobility and AsthmaWatch.
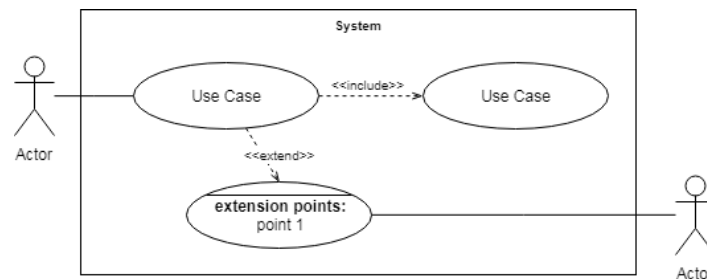

Figure 10 - Use case diagram template.

Furthermore, each use case is described following the structure as shown in Table 2. Use case descriptions and diagrams will be enhanced during the course of the project.

Table 2 – Use case description template.

Use Case ID Use Case Name	Internal ID for use case identification Use case name describes the targeted action
Version	Stage the use case has reached
Use Case Diagram(s)	References of related use case diagrams Figure 10
Involved Actors	Actors involved in the use case i.e. people or system(s) who/which directly interact with the system
Preconditions	Preconditions specify the conditions that must hold true before the scenario of the use case starts
Trigger	What triggers the execution of the use case
Brief Description	A brief description of the use case
Post-conditions	Post-conditions specify what must be achieved at the end of a successful use case

4.1   Identified Stakeholders and Relevant Actors

In software and systems engineering, a use case is a list of steps [6], typically defining interactions between the actors and the system in order to achieve a goal. The involved actors can be human or an external system. Usually use cases represent tasks or stakeholder goals. A stakeholder is a role played by a person, place or thing that has some sort of interest in the outcome of the processes and activities. Stakeholders are not to be confused with people, since stakeholders are not persons in an organization but rather roles that a person can have. In many cases, a person can be assigned with more than one role, while also a role can be associated with more than one person. As a result, a stakeholder is a role that a person, the environment, a place or a thing can have.

4.1.1   ApesMobility

ApesMobility has four relevant actors, which were already defined by the existing greenApes application. No further actors were identified during analysis for GOEASY. All stakeholders for ApesMobility are listed in Table 3, with the primary user highlighted in bold. Within the use case descriptions, these roles will be referred to as "actors" following the UML terminology, since they are interacting with a system.

Table 3 – Stakeholder listed for ApesMobility.

Stakeholder	Description
User (Citizen)	A person (citizen) or group interested in using the application in order to get rewarded and/or to get inspiration received by fellow users to adopt new sustainable behaviors.
Municipality	An urban or administrative department, which is the contracted partner for greenApes and in which region the application is launched. Its interest is establishing more sustainable behavior in its community. Furthermore, it is responsible for giving guidelines to which behaviors are more crucial for the area and starting challenges to engage citizens in more sustainable lifestyles.
Organization	A partner organization of greenApes, which has proven to be sustainable. An organization have a commercial interest and uses greenApes to get more attention and gain more customers. Partners can be e.g. restaurant, café, shop, e-commerce, cinemas or NGOs interested in the matter. Partners can reward users with prizes or discounts.
greenApes Srl SB	A company who developed the application, provides the technological infrastructure to run the application in municipalities and manages the community of the users.

4.1.2 AsthmaWatch

For the AsthmaWatch application three stakeholders have been identified during the analysis. They are listed in Table 4, with the primary user highlighted in bold. Within the use case descriptions, these roles will be referred to as "actors" following the UML terminology, since they are interacting with a system.

Table 4 – Stakeholder listed for AsthmaWatch.

Stakeholder	Description
Asthma patient	A person or group interested in using the application in order to prevent asthma attacks and get help in case of emergency.
Non-asthma patient	A person or group interested in doing outdoor activities (e.g. picnic, running), who mind doing it in an area with suitable conditions.
Municipality	An urban or administrative department, which is interested in

4.2 ApesMobility – Use cases

This section contains all identified relevant use cases for ApesMobility. Each use case is represented in a use case diagram and described in a table as indicated at the beginning of section 4.

It is important to know possible actions in greenApes in order to understand the use cases. Users can choose by default from 31 actions grouped in five categories. It is possible, that additional actions are provided for a period of time, e.g. for special events like the European mobility week in a city. Table 5 lists all standard actions and highlights the ones that can be certified by GOEASY in future, based on mobility behavior detection or a shared location.

Table 5 – List of sharable actions in greenApes.

Category	Actions
Stories	**I found a cool project**; I watched a cool green movie; **I joined a campaign**; I read something interesting; **I have a story to share**; Here's a tip or an idea; I have a question
Eating	**I found a cool green restaurant**; Here's a veg recipe; I didn't waste food; **I had a vegan meal; I had a vegetarian meal**; **I ate organic/local**

Moving	**I took the bus/ metro/ train**; I used carsharing; I offsetted my flight emissions**; I biked there**; **I walked there**; **I carpooled**
Housing	I creatively recycled; I purchased renewable energy; I repaired/ upcycled it; **I took care of special waste**; I saved energy; Quick shower to save water
Shopping	**I found a cool green store**; **2nd Hand products**; **Eco-labeled products**; Recycled products; I rented it; I resisted shopping temptation
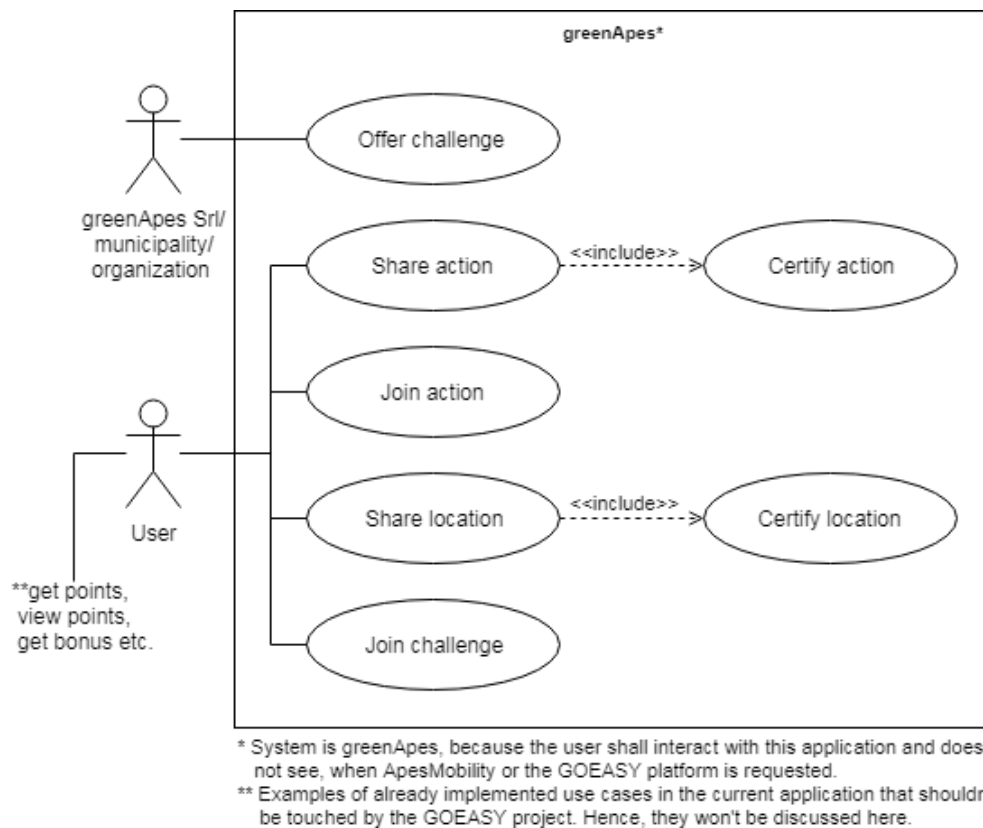
Figure 11 - ApesMobility use cases integrated in greenApes.

Table 6 – UC-APES-01: Share action.

Use Case ID	UC-APES-01
Use Case Name	Share action
Version	1.0
Use Case Diagram(s)	Figure 11
Involved Actors	User
Preconditions	- User is registered as greenApes user. - User is going to do, or is currently doing an action that can be shared by greenApes.
Trigger	There are two possible triggers: A user wants to share an action that can be certified by location tracking. Or, the system detects a mobility behavior that can be rewarded.

| Brief Description | This use case refers to all actions (cf. Table 5) that can be shared by users in order to earn points (BankoNuts[iii] and/or Experience Points, XP). This use case is already implemented in the current greenApes application, but will be extended by the mobility behavior detection. For example: a user is going to ride his bike and lets the system track his location. The systems detects the sustainable mobility behavior and certifies it in UC-APES-02.

If a mobility behavior is detected, the user gets asked by the system to share his action. If no detection happened, the user can share it as used.
Furthermore, the user has the possibility to decide to share his action with the system only (for certification) or also to the community, e.g. to motivate others. |
|---|---|
| Post-conditions | Action was shared with the system (and if desired with the community). |

Table 7 – UC-APES-02: Certify action.

Use Case ID Use Case Name	UC-APES-02 Certify action
Version	1.0
Use Case Diagram(s)	Figure 11
Involved Actors	System
Preconditions	User has enabled location tracking in ApesMobility.
Trigger	User shares an action and asks systems to certify it.
Brief Description	System can certify mobility behavior in order to reward a user for his sustainable behavior. It shall be able to detect a user riding his bike, using public transportation like bus/ metro/ train, is walking or is using carpooling.

The certification happens automatically by sharing specific actions or when a specific mobility behavior is detected by the system. |
| Post-conditions | A mobility behavior of a user is certified. |

Table 8 – UC-APES-03: Join action.

Use Case ID Use Case Name	UC-APES-03 Join action
Version	1.0
Use Case Diagram(s)	Figure 11
Involved Actors	User
Preconditions	Another user has shared an action and asks others to join.
Trigger	Somebody asks the community to join a shared action.
Brief Description	One aim of greenApes Srl SB is that users motivate other users to live (more) sustainable. One way to do it is by sharing activities, which is already given by the current greenApes application.
A user can subscribe to a specific topic either close to him or in a specific area and gets notified by the system if someone has shared a proper action. A user can join an action either by doing the same thing (i.e. "hey there, I'm using my bike too") or/ and physically joining the action, e.g. when a user asked to join collecting trash in a park.
Post-conditions	User successfully joined an action and shared it (with the system for certification and, if desired, with the community).

iii *virtual currency for rewards in greenApes*

Table 9 – UC-APES-04: Share location.

Use Case ID	UC-APES-04
Use Case Name	Share location
Version	1.0
Use Case Diagram(s)	Figure 11
Involved Actors	User
Preconditions	User is registered as greenApes user. User has enabled the location tracking in ApesMobility.
Trigger	There are two possible triggers: A user wants to share his location. Or, system realizes that the user is at a spot that is sustainable and asks the user to share his location ("check-in").
Brief Description	This use case is partly implemented in the current version of greenApes. When sharing specific actions (e.g. I found a cool project) users can add a position to this. But by now, greenApes does not check if it's true. With the location data certified by the system (see UC-APES-05) a user can earn additional points. Depending on the purpose, the user can decide to share his location only with the system (for certification) or also to the community (visible in a post).
Post-conditions	Location was shared with the system (and if desired with the community).

Table 10 – UC-APES-05: Certify location.

Use Case ID	UC-APES-05
Use Case Name	Certify location
Version	1.0
Use Case Diagram(s)	Figure 11
Involved Actors	System
Preconditions	User has enabled location tracking in ApesMobility.
Trigger	User shares his location and asks systems to certify it.
Brief Description	When a user shared a/ "checked-in" to a location, he can ask the system to certify his position in order to earn additional points.
Post-conditions	The position of a user is certified.

Table 11 – UC-APES-06: Generate/ offer challenge.

Use Case ID	UC-APES-06
Use Case Name	Offer challenge
Version	1.0
Use Case Diagram(s)	Figure 11
Involved Actors	greenApes Srl SB, municipalities, organizations
Preconditions	A campaign is planned.
Trigger	This use case is triggered as part of a campaign in order to motivate or educate users.
Brief Description	Offering challenges is a common way to motivate users doing something. This use case enables greenApes, municipalities or organizations to generate and offer challenges for users. The involved actors want to motivate users to behave in a certain way or to educate them about a sustainable topic.

	Example 1: greenApes wants to motivate users to use their bike for commuting to work. Thus, greenApes offers a challenge for users to reach a common goal, e.g. more than 100 users used their bike to go to work.
	Example 2: A city wants to educate its users in a sustainable topic, e.g. how to separate trash correctly. Hence, it created a tour with different "check-in" points across the city.
Post-conditions	The challenge is generated and shared with the users.

Table 12 – UC-APES-07: Join challenge.

Use Case ID	UC-APES-07
Use Case Name	Join challenge
Version	1.0
Use Case Diagram(s)	Figure 11
Involved Actors	User
Preconditions	Either greenApes, a municipality or an organization generated a challenge.
Trigger	A user discovered an interesting challenge he would like to join in order to get rewarded and/ or support the community reaching the goal.
	A user can subscribe to a specific topic either close to him or in a specific area and gets notified by the system if a new challenge gets available.
Brief Description	This use case enables users to join a challenge offered by the system.
Post-conditions	User joined a challenge and can share it (to community or system) in order to get rewarded.
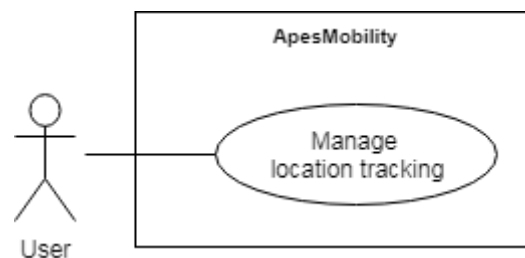
Figure 12 - ApesMobility use case for managing location tracking.

Table 13 – UC-APES-08: Manage location tracking.

Use Case ID	UC-APES-08
Use Case Name	Manage location tracking
Version	1.0
Use Case Diagram(s)	Figure 12
Involved Actors	User
Preconditions	Location for ApesMobility is enabled in the operating system.
Trigger	There are multiple possible triggers:
	- The need to save battery power.
	- The need to protect privacy.
	- The need to be tracked automatically for commuting regularly.
Brief Description	This use case enables the involved actor(s) to manage their location tracking. This includes to control start and end times of tracking and to delete entries.

	Deleting entries relates to data stored at greenApes. Anonymized and aggregated data (i.e. in GOEASY database) cannot be deleted.
Post-conditions	- User successfully set the tracking rules. - A selected entry/ selected entries are removed successfully.

4.3 AsthmaWatch – Use cases

This section contains all identified relevant use cases for AsthmaWatch. Each use case is represented in a use case diagram and described in a table as indicated at the beginning of section 4.

In the following use cases an asthma patient is referenced as "User". However, focusing on the primary user group does not exclude that also a non-asthma patient can make use of the use case.
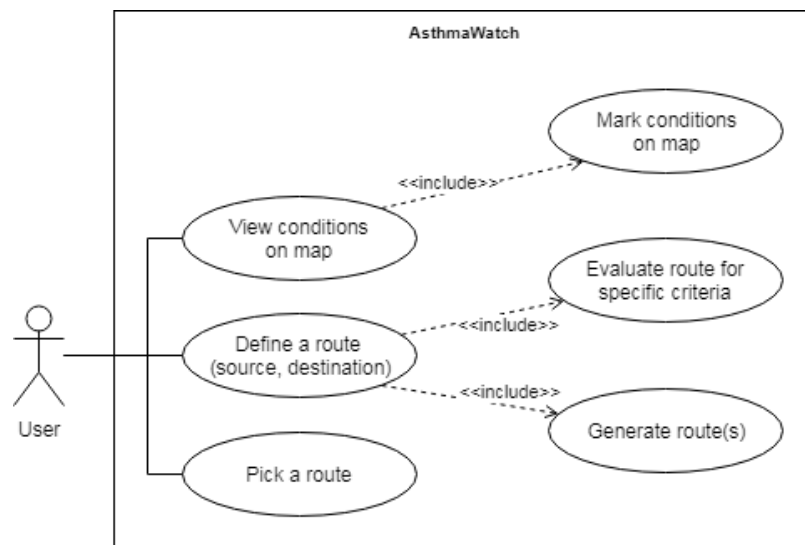
Figure 13 - AsthmaWatch use cases for pollution zones and routing.

All use cases shown in Figure 13 are related to air pollution. It is considered to extend air pollution by pollen, if sensor data comes available. This consideration was done based on the fact that many (non-)asthma patients react on pollen. Thus, more people could benefit from AsthmaWatch. It is not defined yet, if this extension will be implemented within this project.

Table 14 – UC-AW-01: Mark conditions on map.

Use Case ID	UC-AW-01
Use Case Name	Mark conditions on map
Version	1.0
Use Case Diagram(s)	Figure 13
Involved Actors	System
Preconditions	Air pollution sensor data is available.
Trigger	The need to mark areas based on the level of air pollution.
Brief Description	This use case will highlight conditions on a map, based on specific criteria, i.e. air pollution. Representing conditions can be done using a heat map, to make high pollution zones visible for the user. Users shall be able to add their personal rules for warnings.

Post-conditions	Conditions are displayed in a map.

Table 15 – UC-AW-02: View conditions on map.

Use Case ID	UC-AW-02
Use Case Name	View conditions on map
Version	1.0
Use Case Diagram(s)	Figure 13
Involved Actors	User
Preconditions	System marked and displays conditions in a map.
Trigger	The need to avoid high pollution zones.
Brief Description	This use case enables involved actor(s) to view a map that highlights different levels of e.g. air pollution based on sensor data. The involved actor(s) should be able to control the map in order to see more or less of a specific area (e.g. downtown of Stockholm).
Post-conditions	The involved actor(s) knows about the current pollution in a self-defined area and can derive proper actions.

Table 16 – UC-AW-03: Define a route (source, destination).

Use Case ID	UC-AW-03
Use Case Name	Define a route (source, destination)
Version	1.0
Use Case Diagram(s)	Figure 13
Involved Actors	User
Preconditions	-
Trigger	The need to avoid high pollution zones during outdoor activities.
Brief Description	This use case enables the user to avoid areas under specific conditions. He can define his preferred route by entering source and destination, which will be used by the system to find proper routes (UC-AW-04, UC-AW-05). This use case might be extended or split in the course of the project in order to enable the user to import a route from a third party app.
Post-conditions	System received user's input to find proper routes.

Table 17 – UC-AW-04: Evaluate route for pollution zones.

Use Case ID	UC-AW-04
Use Case Name	Evaluate route for specific criteria
Version	1.0
Use Case Diagram(s)	Figure 13
Involved Actors	System
Preconditions	- A route is generated (by user or system). - Sensor data is available.
Trigger	The user's need to avoid high pollution zones.
Brief Description	A defined route (entered by the user or alternative ones generated by the system) is evaluated based on the available air pollution sensor data. Conditions will be evaluated/ attributed along the route(s).

Post-conditions	Route is successfully attributed by its conditions.

Table 18 – UC-AW-05: Generate route(s).

Use Case ID	UC-AW-05
Use Case Name	Generate route(s)
Version	1.0
Use Case Diagram(s)	Figure 13
Involved Actors	System
Preconditions	User defined a route.
Trigger	The need to show evaluated route(s) to the user.
Brief Description	This use case enables the involved actor(s) to see his preferred route attributed by the evaluated sensor data (evaluated in UC-AW-04). Furthermore, this use case includes the generation of appropriate alternative route(s). Given levels of air pollution are visualized along the route(s).
Post-conditions	The conditions along user's preferred and generated alternative route(s) are successfully displayed.

Table 19 – UC-AW-06: Pick a route.

Use Case ID	UC-AW-06
Use Case Name	Pick a route
Version	1.0
Use Case Diagram(s)	Figure 13
Involved Actors	User
Preconditions	- User defined a route. - Sensor data is available and evaluated. - System generated routes and displays them to the user.
Trigger	The need to avoid high pollution zones.
Brief Description	This use case enables the involved actor(s) to choose between the previously evaluated and generated routes. The involved actor shall be able to decide if he wants to start the navigation within a third party app.
Post-conditions	The picked route is displayed with its conditions.
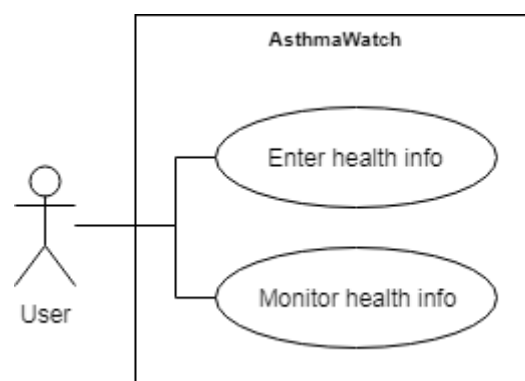
Figure 14 - AsthmaWatch use cases for health monitoring.

Table 20 – UC-AW-07: Enter health info.

Use Case ID	UC-AW-07
Use Case Name	Enter health info
Version	1.0
Use Case Diagram(s)	Figure 14
Involved Actors	User
Preconditions	Spirometer is connected. (optional)
Trigger	The user's need to keep track of health.
Brief Description	This use case enables the involved actor(s) to enter health information (related to his asthma) either manually or automatically by a connected device (e.g. spirometer).
Post-conditions	User successfully entered health information.

Table 21 – UC-AW-08: Monitor health info.

Use Case ID	UC-AW-08
Use Case Name	Monitor health info
Version	1.0
Use Case Diagram(s)	Figure 14
Involved Actors	User
Preconditions	User has entered some data previously.
Trigger	User wants to see the trend of his health data.
Brief Description	This use case enables the involved actor(s) to view how his health is right now and how it has been in a specific period of time.
Post-conditions	Health information is displayed to the user successfully.
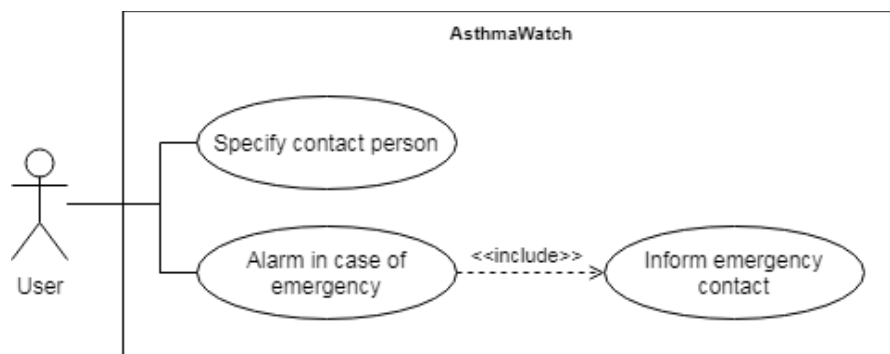
Figure 15 - AsthmaWatch use cases for emergency situations.

Table 22 – UC-AW-09: Specify contact person.

Use Case ID	UC-AW-09
Use Case Name	Specify contact person
Version	1.0
Use Case Diagram(s)	Figure 15
Involved Actors	User
Preconditions	User allowed AsthmaWatch to access the contact directory of the phone.
Trigger	The need to inform a specific person when an asthma attack occurs.

Brief Description	This use case enables the user to specify multiple persons that will be contacted subsequently in case of an asthma attack.
Post-conditions	One or multiple contact persons are successfully specified.

Table 23 – UC-AW-09: Alarm in case of emergency.

Use Case ID	UC-AW-10
Use Case Name	Alarm in case of emergency
Version	1.0
Use Case Diagram(s)	Figure 15
Involved Actors	User
Preconditions	Contact persons are specified.
Trigger	The need to contact specific persons in case an asthma attack occurs.
Brief Description	This use case enables the involved actor(s) to activate an alarm in case of an emergency, i.e. an asthma attack. The involved actor(s) just have to press/tap a button to contact a predefined person(s), see UC-AW-09. No further interaction is required to get in touch with a given contact person. The activation of an alarm can be done with a physical button (e.g. attached to a key ring) or a virtual button (e.g. inside the app or widget).
Post-conditions	User activate an alarm.

Table 24 - UC-AW-10: Contact emergency contact.

Use Case ID	UC-AW-11
Use Case Name	Inform emergency contact
Version	1.0
Use Case Diagram(s)	Figure 15
Involved Actors	System
Preconditions	- User has activated an alarm. - Person(s) to contact is specified.
Trigger	The need to inform a specific person when an asthma attack occurs.
Brief Description	When the user activates an alarm the system informs the specified emergency contact(s). Different means of communication shall be considered in order to ensure that a contact person has been reached.
Post-conditions	A declared person is aware of the emergency and of the position of the person/user in need.

4.4   GOEASY Platform

The GOEASY platform is envisioned to provide the technical and business foundations to enable a new generation of trusted and dependable mass-market Location-Based Services (LBS) and Applications for engaging, stimulating and rewarding citizens for more sustainable behaviors [RD.1]. ApesMobility and AsthmaWatch are two mass-market applications that will be realized by using GOEASY cloud services.

Relevant actors of the GOEASY platform are application developers. There is no need to implement a graphical user interface for the platform. Developers will access the functionalities by a set of APIs, initially referred in the DoA.

Requirements for the platform will be derived from the use cases and user stories defined for ApesMobility and AsthmaWatch. Those and further requirements will be identified and documented in the course of the project.

5   Initial Requirement Backlog

This section lists an initial set of requirements as required for milestone 1. The identified, high-level use cases are converted to user stories and stored to the requirements backlog represented in JIRA. Figure 16 shows an overview of all currently existing user stories, including the application and linked use case as custom labels. Also, a priority is assigned to each user stories. The user stories will be revised and refined while the project evolves, as mentioned in section 2.

A detailed view for each user story, exported from JIRA, is attached to this document in Appendix F.

Key	Summary	P	Labels ↑
GOEAS-20	As a user I want to have full control of the location tracking in order to protect my privacy.	⌃	ApesMobility ⇕ UC-APES-08 ⇕
GOEAS-10	As a citizen I want to get my activity certified to get additional rewards.	⌃	ApesMobility ⇕ UC-APES-02 ⇕
GOEAS-9	As a citizen I want to share my activity to motivate fellow citizens and/or get additionally rewarded.	⌃	ApesMobility ⇕ UC-APES-01 ⇕
GOEAS-15	As a citizen I want to join challenges to get motivated and to support the community.	↑	ApesMobility ⇕ UC-APES-07 ⇕
GOEAS-14	As an organization I want to offer challenges for users in order to familiarize them with sustainable topics.	↑	ApesMobility ⇕ UC-APES-06 ⇕
GOEAS-13	As a citizen I want to get my location certified to get additional rewards.	↑	ApesMobility ⇕ UC-APES-05 ⇕
GOEAS-12	As a citizen I want to share my location to inspire others and/or get additionally rewarded.	↑	ApesMobility ⇕ UC-APES-04 ⇕
GOEAS-11	As a citizen I want to join activities shared by others to get inspired for sustainable behavior.	↑	ApesMobility ⇕ UC-APES-03 ⇕
GOEAS-17	As a user I want to know the alternative routes based on a specific criteria in order to avoid an asthma attack.	⌃	AsthmaWatch ⇕ UC-AW-03 ⇕ UC-AW-04 ⇕ UC-AW-05 ⇕ UC-AW-06
GOEAS-16	As a user I want to know about the condition in an area to decide if I will go there or not.	⌃	AsthmaWatch ⇕ UC-AW-01 ⇕ UC-AW-02 ⇕
GOEAS-19	As a user I want to inform specific persons about an asthma attack in order to get immediate help.	⌄	AsthmaWatch ⇕ UC-AW-09 ⇕ UC-AW-10 ⇕ UC-AW-11 ⇕
GOEAS-18	As a user I want to keep track of my health in order to react in time one changes.	↑	AsthmaWatch ⇕ UC-AW-07 ⇕ UC-AW-08 ⇕

Figure 16 - Overview of requirements backlog.

6   Conclusions

The initial phase of the GOEASY project has focused on the specification of use cases, based on identified stakeholders and their verified interests. The task triggered the overall iterative user-centered design cycle in order to feed task T2.3, which will aim to achieve a systematic formalization of all relevant requirements. Furthermore, the activities documented in this deliverable provide a common foundation on which the remaining WP2 tasks and the associated technical work packages will be based on.

The specified use cases are the first iteration and will be revised and further refined in the updated version of this deliverable (D2.4, due in M15). Especially use cases and derived requirements for the GOEASY platform itself, will get worked out. Accordingly, the high-level user stories will be refined and dispensed to the appropriate product backlog.

Acronyms

Acronym	Explanation
API	Application Programming Interface
DoA	Description of Action
FIT	Fraunhofer Institute for Applied Information Technology
GAPES	greenApes Srl SB
KOM	Kick-off Meeting
UCD	User-centered Design
XP	Experience Point(s)

List of figures

List of tables

References

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Appendix A   The GOEASY methodology
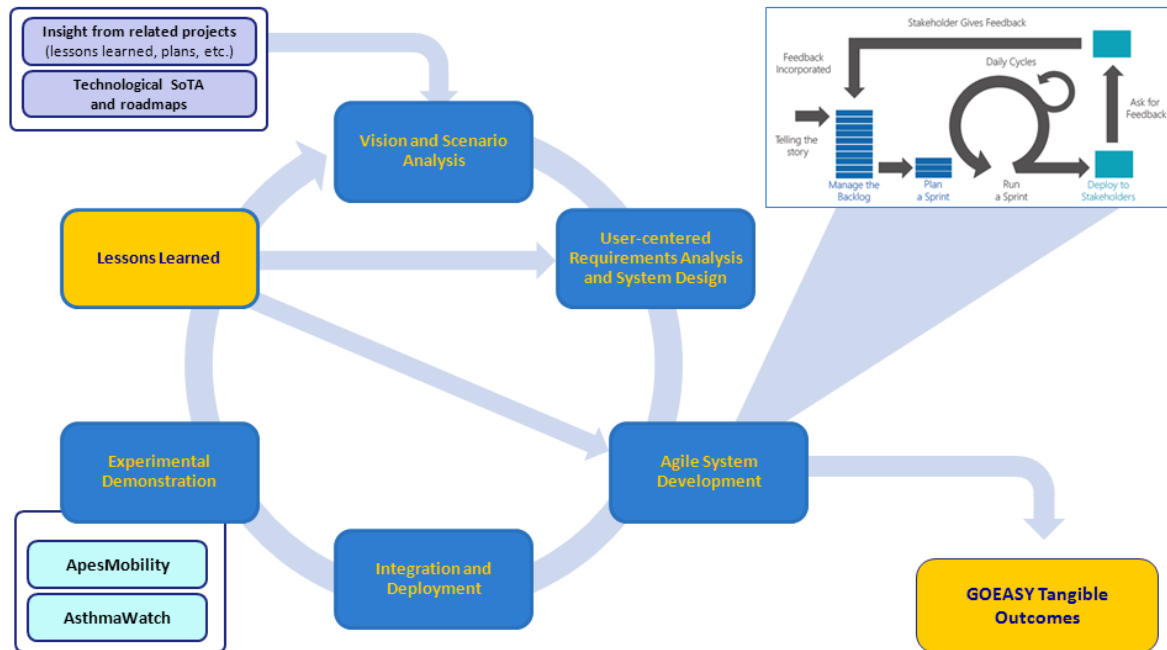
Appendix B   Pictures of focus group in Florence (ApesMobility)

Before the session: waiting for the participants.

During the session: GAPES organized everything needed for a comfortable atmosphere.

After the session: exchanging further experience with greenApes.

Appendix C   Material for focus group in Florence (ApesMobility)

Carolina's shopping tour and cooking

Carolina's discovery: a Tetra Pak window farm

https://i.pinimg.com/originals/1a/7e/3d/1a7e3d50e1574493b1c2613d3a373dc7.jpg

Eric's evening with a friend

Eric wants to go for a run

Eric commutes to work

Appendix D   Mind map showing all ideas collected in brainstorming sessions

Part 1: ApesMobility

GOEASY Scenarios

AsthmaWatch

ApesMobility

Scenario indepentend use cases

Collecting data

Use Cases

location data

mobile phones

(air pollution)

Certifier for mobility behavior

Share Location

<Action> tours

Attributed route planner*

Challenges

location check-in, e.g. restaurants

detection, e.g. riding bike, driving bus

Confirm when asked by the system

real time

proactive

retroactive

upload an image -> contains location data

related to action

without an action

to "buddy" - specific person

for event / <action>

// similar to pub tours

share restaurant tours

Where to pick ingredients for meal - Tour

Due to: people density, asthmatics; validated by Galileo's accuracy

Connected to calendar, get alerts when to leave and how to drive

Go for a walk/ run and get healthiest route

Competition / combined goals

Non-/Green hot spots

user with current location

organizer itself

shared by ...

near users

notify ...

Examples

make use of geofence

should include transportation suggestions

communities (group, follower)

Cook together

"Tetrapak-Community-Garten"

"Reste-Essen-Restaurants"

Swap Party

Collecting trash together

Show how many cyclists are around me for motivation

like booking.com -> somebody did X

like booking.com -> X people are doing Y at the moment

I'm open to meet. Share me in my activity

e.g. no bike parking slots left

e.g. use public transport system

cook together events

Avoid polluted areas

Improve overall air quality

do not go there at specific times (protect animals)

in natural reserve

stay on path

in cities

Who is greener?

use green(er) mobility > 50%

e.g. commute

e.g. cyclist #1000 in area X

quests to make area/myself greener

Part 2: AsthmaWatch

The following is a mind map diagram for AsthmaWatch:

AsthmaWatch

- **Collecting Data**
  - **Add personal health data**
    - via connected medical device
      - Spirometer
      - Peak-Flow-Meter
    - other medial devices ("manually", not connected)
    - Track position of measurement
  - **Get more air quality data by equipping mobile actors with air quality sensors**
    - Crowd: bike, walkers, private cars
    - Public/ company/ local: busses, bzzt, taxis, bin lorries, trains
  - **Add more data**
    - Get open data, e.g. weathers data from Copernicus, pollen
    - Deliver own data to Copernicus
    - Crowd source data: "Waze"
      - Measure street quality via phone vibration sensor (accelerometers)
      - Traffic data: density, accidents

- **Use Cases**
  - **Heat Map**
  - **Attributed route planner**
    - Recommendation wheter conditions are suitable for particular activity
    - Find a parking slot in an area with good/better air quality
    - Due to: people density, asthmatics; validated by Galileo's accuracy
  - **Monitor your own health**
    - Connected to calendar, get alerts when to leave and how to drive
    - Go for a walk/ run and get healthiest route
    - Check impact of environmental conditions on my own health
  - **Emergency button**

GOEASY Scenarios
- ApesMobility
- Application independent ideas
  - Avoid polluted areas
  - Improve overall air quality

Deliverable no.	D2.1
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Part 3: Application independent ideas

The diagram shows a mind map structure with the following elements:

- GOEASY Scenarios
  - AsthmaWatch
  - ApesMobility
  - Application independent ideas
    - Traffic shaping
      - pay more taxes for driving (car) in polluted areas often
      - measure length of queues e.g. at traffic lights (car, people), bus stations
      - people-density at public places (e.g. claustrophobia)
    - density/ behaviour change detection
      - people use different ways, like a path around something
      - cleaning faster/earlier required because many people have been there
      - e.g due to damaged lights, overflooded places
      - request user to confirm detection
    - Emergency cases
      - precise location to find people (runners, people in densely populated area)
      - reconstructing trajectories and conditions of severe accidents via an accurate position
    - drones
      - respect no fly zones

GOEASY – AsthmaWatch Interview #

☐ allergic asthma   ☐ non-allergic asthmamixed-type

Asthma since __ years (or just since childhood)

Age (optional): 18-25, 26-35, 36-45, 45-60, >60

Do you have asthma related effects/ restrictions in your everyday life?

Are there specific triggers (e.g. environmentally by house dust, pollen, fine particles)?

Do you currently use any tools that helps you related to asthma? (digital and non-digital)

Any app? (if yes: name, used functions, frequency)

Have you tried any supporting apps previously? If yes, but not anymore ❼ why not?
(app name, used functions, frequency)

Is there a function that you have always wanted for yourself or relatives?

Presentation of AsthmaWatch ideas:

1. Overview of sensor data
2. Heat Map for evaluated sensor data
3. Route planner
4. Connect a spirometer

ApesMobility

[GOEAS-9] *As a citizen I want to share my activity to motivate fellow citizens and/or get additionally rewarded.* Created: 12/Feb/18 Updated: 19/Feb/18	
Status:	Open
Project:	GOEASY
Component/s:	None
Affects Version/s:	None
Fix Version/s:	None

Type:	User Story	**Priority:**	Major
Reporter:	Yannick Bachteler	**Assignee:**	Unassigned
Resolution:	Unresolved	**Votes:**	0
Labels:	ApesMobility, UC-APES-01		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

This use case refers to all actions (cf. Table 6) that can be shared by users in order to earn points (BankoNuts[[1]|#_ftn1] and/or Experience Points, XP). This use case is already implemented in the current greenApes application, but will be extended by the mobility behavior detection. For example: a user is going to ride his bike and lets the system track his location. The systems detects the sustainable mobility behavior and certifies it in UC-APES-02.

If a mobility behavior is detected, the user gets asked by the system to share his action. If no detection happened,   the   user   can   share   it   as   used. Furthermore, the user has the possibility to decide to share his action with the system only (for certification) or also to the community, e.g. to motivate others.

[[1]|#ftnref1] _virtual currency for rewards in greenApes

[GOEAS-10] *As a citizen I want to get my activity certified to get additional rewards.* **Created: 12/Feb/18 Updated: 19/Feb/18**

Status:	Open
Project:	GOEASY
Component/s:	None
Affects Version/s:	None
Fix Version/s:	None

Type:	User Story	**Priority:**	Major
Reporter:	Yannick Bachteler	**Assignee:**	Unassigned
Resolution:	Unresolved	**Votes:**	0
Labels:	ApesMobility, UC-APES-02		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

System can certify mobility behavior in order to reward a user for his sustainable behavior. It shall be able to detect a user riding his bike, using public transportation like bus/ metro/ train, is walking or is using carpooling. The certification happens automatically by sharing specific actions or when a specific mobility behavior is detected by the system.

[GOEAS-11] *As a citizen I want to join activities shared by others to get inspired for sustainable behavio*r. **Created: 12/Feb/18 Updated: 19/Feb/18**

Status:	Open
Project:	GOEASY
Component/s:	None
Affects Version/s:	None
Fix Version/s:	None

Type:	User Story	**Priority:**	Medium
Reporter:	Yannick Bachteler	**Assignee:**	Unassigned
Resolution:	Unresolved	**Votes:**	0
Labels:	ApesMobility, UC-APES-03		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

One aim of greenApes Srl is that users motivate other users to live (more) sustainable. One way to do it is by sharing activities, which is already given by the current greenApes application.
A user can subscribe to a specific topic either close to him or in a specific area and gets notified by the system if someone has shared a proper action. A user can join an action either by doing the same thing (i.e. "hey there, I'm using my bike too") or/ and physically joining the action, e.g. when a user asked to join collecting trash in a park.

[GOEAS-12] *As a citizen I want to share my location to inspire others and/or get additionally rewarded.*
Created: 12/Feb/18 Updated: 19/Feb/18

Status:	Open
Project:	GOEASY
Component/s:	None
Affects Version/s:	None
Fix Version/s:	None

Type:	User Story	**Priority:**	Medium
Reporter:	Yannick Bachteler	**Assignee:**	Unassigned
Resolution:	Unresolved	**Votes:**	0
Labels:	ApesMobility, UC-APES-04		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

This use case is partly implemented in the current version of greenApes. When sharing specific actions (e.g. I found a cool project) users can add a position to this. But by now, greenApes does not check if it's true. With the location data certified by the system (see UC-APES-05) a user can earn additional points.
Depending on the purpose, the user can decide to share his location only with the system (for certification) or also to the community (visible in a post).

[GOEAS-13] *As a citizen I want to get my location certified to get additional rewards.* **Created: 12/Feb/18 Updated: 19/Feb/18**

Status:	Open
Project:	GOEASY
Component/s:	None
Affects Version/s:	None
Fix Version/s:	None

Type:	User Story	**Priority:**	Medium
Reporter:	Yannick Bachteler	**Assignee:**	Unassigned
Resolution:	Unresolved	**Votes:**	0
Labels:	ApesMobility, UC-APES-05		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

When a user shared a/ "checked-in" to a location, he can ask the system to certify his position in order to earn additional points.

[GOEAS-14] *As an organization I want to offer challenges for users in order to familiarize them with sustainable topics.* Created: 12/Feb/18 Updated: 19/Feb/18

Status:	Open
Project:	GOEASY
Component/s:	None
Affects Version/s:	None
Fix Version/s:	None

Type:	User Story	**Priority:**	Medium
Reporter:	Yannick Bachteler	**Assignee:**	Unassigned
Resolution:	Unresolved	**Votes:**	0
Labels:	ApesMobility, UC-APES-06		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

Offering challenges is a common way to motivate users doing something. This use case enables the greenApes, municipalities or organizations to generate and offer challenges for users. The involved actors want to motivate users to behave in a certain way or to educate them about a sustainable topic.
Example 1: greenApes wants to motivate users to use their bike for commuting to work. Thus, greenApes offers a challenge for users to reach a common goal, e.g. more than 100 users used their bike to go to work.
Example 2: A city wants to educate its users in a sustainable topic, e.g. how to separate trash correctly. Hence, it created a tour with different "check-in" points across the city.

[GOEAS-15] *As a citizen I want to join challenges to get motivated and to support the community.* Created: 12/Feb/18 Updated: 19/Feb/18

Status:	Open
Project:	GOEASY
Component/s:	None
Affects Version/s:	None
Fix Version/s:	None

Type:	User Story	**Priority:**	Medium
Reporter:	Yannick Bachteler	**Assignee:**	Unassigned
Resolution:	Unresolved	**Votes:**	0
Labels:	ApesMobility, UC-APES-07		

Remaining Estimate:	Not Specified
Time Spent:	Not Specified
Original Estimate:	Not Specified

<div style="background:#ccc;padding:4px;display:inline-block">Description</div>

This use case enables users to join a challenge offered by the system.
[GOEAS-20] *As a user I want to have full control of the location tracking in order to protect my privacy.*   **Created: 16/Feb/18 Updated: 19/Feb/18**

Status:	Open
Project:	GOEASY
Component/s:	None
Affects Version/s:	None
Fix Version/s:	None

Type:	User Story	Priority:	Major
Reporter:	Yannick Bachteler	Assignee:	Unassigned
Resolution:	Unresolved	Votes:	0
Labels:	ApesMobility, UC-APES-08		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

<div style="background:#ccc;padding:4px;display:inline-block">Description</div>

This use case enables the involved actor(s) to manage their location tracking. This includes to control start and end times of tracking and to delete entries.   Deleting entries relates to data stored at greenApes. Anonymized data (i.e. in GOASY database) cannot be deleted.

AsthmaWatch

[GOEAS-16] *As a user I want to know about the condition in an area to decide if I will go there or not.* Created: 13/Feb/18 Updated: 19/Feb/18	
Status:	Open
Project:	GOEASY
Component/s:	None
Affects Version/s:	None
Fix Version/s:	None

Type:	User Story	**Priority:**	Major
Reporter:	Yannick Bachteler	**Assignee:**	Unassigned
Resolution:	Unresolved	**Votes:**	0
Labels:	AsthmaWatch, UC-AW-01, UC-AW-02		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

UC-AW-01 (Mark conditions on map): This use case will highlight conditions on a map, based on specific criteria, i.e. air pollution. Representing conditions can be done using a heat map, to make high pollution zones visible for the user.

UC-AW-02 (View conditions on map): This use case enables involved actor(s) to view a map that highlights different levels of e.g. air pollution based on sensor data. The involved actor(s) should be able to control the map in order to see more or less of a specific area (e.g. downtown of Stockholm).

[GOEAS-17] *As a user I want to know the alternative routes based on a specific criteria in order to avoid an asthma attack.* **Created: 13/Feb/18 Updated: 19/Feb/18**

Status:	Open
Project:	GOEASY
Component/s:	None
Affects Version/s:	None
Fix Version/s:	None

Type:	User Story	**Priority:**	Major
Reporter:	Yannick Bachteler	**Assignee:**	Unassigned
Resolution:	Unresolved	**Votes:**	0
Labels:	AsthmaWatch, UC-AW-03, UC-AW-04, UC-AW-05, UC-AW-06		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

UC-AW-03 (Define a route): This use case enables the user to avoid areas under specific conditions. He can define his preferred route by entering source and destination, which will be used by the system to find proper routes (UC-AW-04, UC-AW-05).

UC-AW-04 (Evaluate route for specific criteria): A defined route (entered by the user or alternative ones generated by the system) is evaluated based on the available air pollution sensor data. Conditions will be evaluated/ attributed along the route(s).

UC-AW-05 (Generate route(s)): This use case enables the involved actor(s) to see his preferred route attributed by the evaluated sensor data (evaluated in UC-AW-04). Furthermore, this use case includes the generation of appropriate alternative route(s). Given levels of air pollution are visualized along the route(s).

UC-AW-06 (Pick a route): This use case enables the involved actor(s) to choose between the previously evaluated and generated routes.

[GOEAS-18] *As a user I want to keep track of my health in order to react in time one changes.* Created: 15/Feb/18 Updated: 19/Feb/18	
Status:	Open
Project:	GOEASY
Component/s:	None
Affects Version/s:	None
Fix Version/s:	None

Type:	User Story	**Priority:**	Medium
Reporter:	Yannick Bachteler	**Assignee:**	Unassigned
Resolution:	Unresolved	**Votes:**	0
Labels:	AsthmaWatch, UC-AW-07, UC-AW-08		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

UC-AW-07 (Enter health info): This use case enables the involved actor(s) to enter health information (related to his asthma) either manually or automatically by a connected device (e.g. spirometer).
UC-AW-08 (Monitor health info): This use case enables the involved actor(s) to view how his health is right now and how it has been in a specific period of time.

[GOEAS-19] *As a user I want to inform specific persons about an asthma attack in order to get immediate help.* Created: 15/Feb/18 Updated: 19/Feb/18	
Status:	Open
Project:	GOEASY
Component/s:	None
Affects Version/s:	None
Fix Version/s:	None

Type:	User Story	**Priority:**	Minor
Reporter:	Yannick Bachteler	**Assignee:**	Unassigned
Resolution:	Unresolved	**Votes:**	0
Labels:	AsthmaWatch, UC-AW-09, UC-AW-10, UC-AW-11		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Description

UC-AW-09 (Specify contact person): This use case enables the user to specify multiple persons that will be contacted subsequently in case of an asthma attack.
UC-AW-10 (Alarm in case of emergency): This use case enables the involved actor(s) to activate an alarm in case of an emergency, i.e. an asthma attack. The involved actor(s) just have to press/tap a button to contact a predefined person(s), see UC-AW-09.
No further interaction is required to get in touch with a given contact person.
The activation of an alarm can be done with a physical button (e.g. attached to a key ring) or a virtual button (e.g. inside the app or widget).
UC-AW-11 (Inform emergency contact): When the user activates an alarm the system informs the specified emergency contact(s).
Different means of communication shall be considered in order to ensure that a contact person has been reached.