Design in the Anthropocene
Phase 2: Testing Report

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1. Problem Statement

The worsening state of the climate and increasingly severe environmental damage is a complex problem exacerbated by numerous of factors. Some activities such as household waste management, environmentally-conscious purchasing decisions and the support of corporations which seek to shift to sustainable production remain in the hands of independent individuals. Research conducted by CDP Worldwide in 2017, revealed that just 100 companies are responsible for 71% of global carbon emissions (Griffin, 2017). Nevertheless, individual action is not a lost cause The power to stop climate change lies in the purchasing and lifestyle decisions that consumers make. Traditionally, researchers were under the impression that there was a gap between public and expert perceptions of climate change risk, but the growing rates of awareness indicate that this gap may be decreasing.

Nevertheless, citizens of most Western countries lack first person interaction with direct effects of climate change. This disconnect consequently poses a barrier to the engagement of the public in climate change adaptation and mitigation efforts (Weber 2011). Moreover, Americans that believe climate change will primarily affect people from distant countries are less likely to support adaptation policies (Singh et al. 2017). This lack of personal experience, in turn, results in individuals seeing no direct connection between their actions and climate change. Specifically, this is translated to feelings of powerlessness and inability to help.

Moreover, a salient psychological impact of climate change is the mental distress in response to media coverage (Berry et al., 2008; Doherty & Clayton, 2011; Fritze, Blashki, Burke & Wiseman, 2008; Reser et al., 2011). A large proportion of academic publications on the topic specifically addressed distress response in the context of climate change, revealing that 24% of respondents were experiencing discomfort each time they see or read media coverage on the impacts and consequences of climate change (Reser et al. 2012). The overall desensitisation developed by people as a distress mitigation mechanism complicates the landscape in which information sources function. These findings are specifically significant to the design brief, as the information must be presented in a comfortable and trustworthy format to ensure successful uptake.

While the overarching problem the team is tasked with tackling remains the population's broad contribution to fighting climate change, the explicit focus of this project is: individual action. Instead of targeting particular behaviour, the team seeks to provide the audience with the knowledge and incentive they need to take the initiative and build their journey towards a more sustainable future. Through several techniques identified in the previously conducted research enquiry, the team generated a number of product concepts which appeals to a general, Australian audience.

In this report, the team will carry over the previously generated concepts and assess them through extensive usability testing, described in detail in Section 2 of this report. At each stage of the process, the team will apply user feedback and eliminate unsuccessful concepts according to findings. Once enough evidence is gathered to make an informed selection, the team will iterate and develop the chosen solution into a prototype of medium fidelity and resolution. At the conclusion of the project, the final prototype will be presented and the implementation plan discussed.

(Figure 1 - Plastic Polution Example

2. Approach

The team undertook the project in a semi-structured, iterative format, with developmental and testing methodologies being implemented with data informing the subsequent collection. The evaluation and development process embraced the agile methodology, using a combination of Scrum and Kanban techniques. Figure 2.1 gives an overview of the development and testing process. As a result of previously conducted concept generation and evaluation sessions (Appendix 1), the team began this stage of the project with 4 strong concepts.

The overall project resembles that of the double diamond - a design process model popularized by the British Design Council in 2005. At the commencement of stage 2, as documented by this report, the broad approach was supported by the wide range of concepts generated as a response to the research probe conducted earlier. As each concept underwent rigorous testing, the team honed in on one especially effective design. The elected design is then developed and expanded to accommodate a broad range of features, refined and polished.
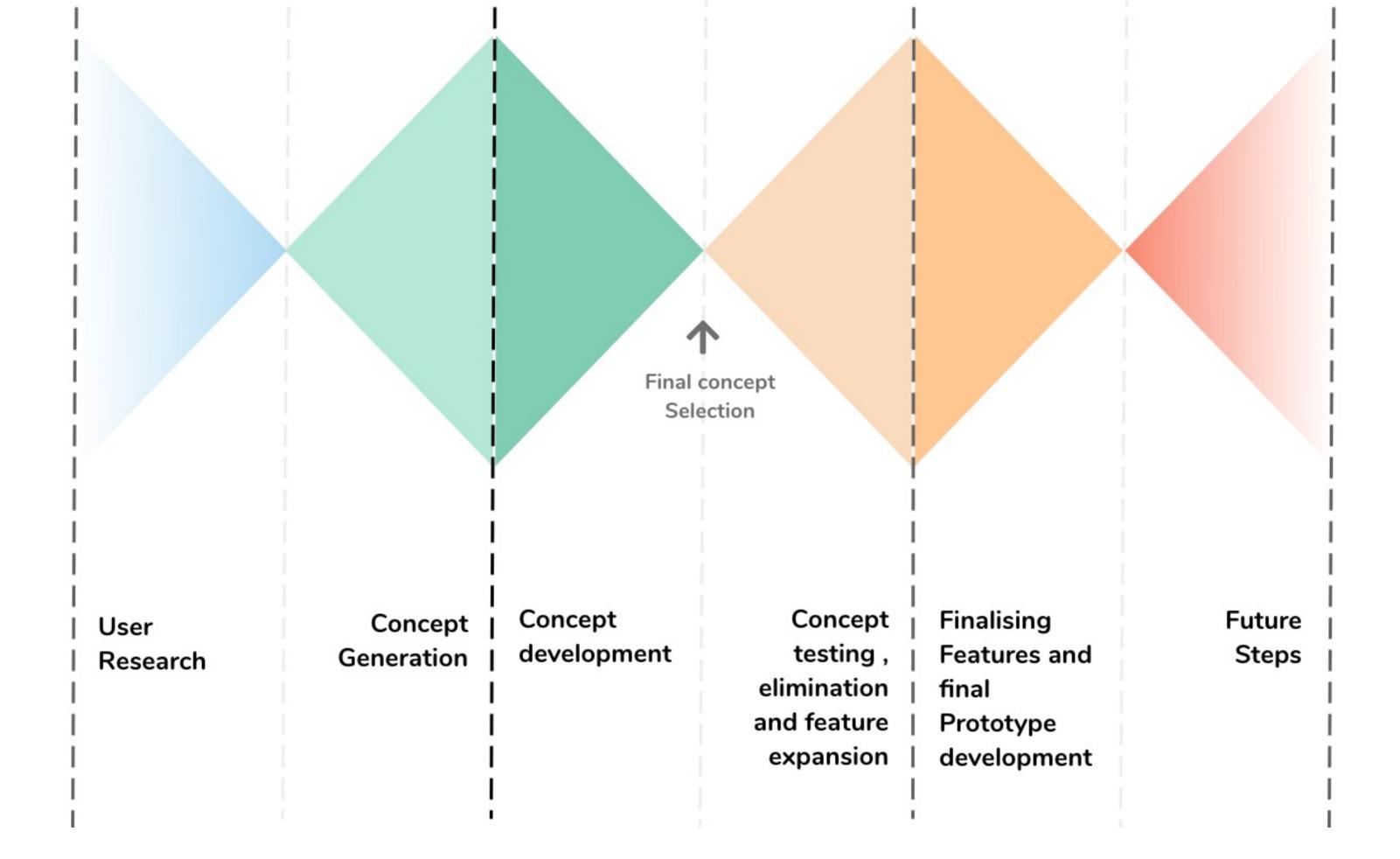

Figure 2.1 - The Concept Development Process

2. Approach (Continued)

2.1 Process Overview

Throughout the evaluation process, 5 users were selected for each testing round. The choice of 5 users stems from the cost-benefit analysis of user testing, which provides the optimal ratio around 3 or 5 users, depending on the style of testing (Nielsen & Landauer, 1993). According to the equation, up to 85% of usability issues can be uncovered with just 5 participants - any further testing is far less efficient, and will largely present the same information . These users were selected through both convenience and purposive sampling. While not always representative, nonprobability sampling methodologies were used widely throughout the project to remain within temporal and budgetary limitations of the project (Vehovar, Toepoel & Steinmetz, n.d.).

Due to its objective nature, participants' verbal feedback was discussed after each session and documented in a prioritisation matrix. The matrix served as a breakpoint for each iteration during which the team could consider the issues identified, and prioritise amendments to the product based on time and resources available. This structured, objective approach helped the team to achieve collaborative consensus while satisfying the increasingly tight deadlines and limited resources (Gibbons, 2018).

Figure 2.1.1 shows an overview of the testing and development process discussed in this report. Phase 1 was centred on concept evaluation utilising "elevator pitching" to judge the audience's initial response to the concept range. In accordance with the feedback gathered, one concept was eliminated. As part of Phase 2, the team performed empathy building exercises, captured through personas and future state journey maps. Task flows were developed through wireframing and a basic interface for each concept was sketched out. Phase 3 focused on elaborating on the remaining 3 concepts. Using concepts sketches as a basic paper prototype, rapid concept testing took place. The testing was largely conducted under the think-aloud protocol, guided by a set of abstract tasks. One more concept was eliminated due to the lack of user engagement and feasibility concerns.

The sketches were translated into digital prototypes and the final concept selection was made following a review of cumulative concept feedback. As part of Phase 4, the team returned to the paper medium to increase prototype resolution, expand the feature range, and gather insights on its effectiveness. The second set of paper prototypes, inclusive of any needed changes, were amalgamated with existing digital screens to create a higher-resolution prototype, and test the navigation structure with users. The mid-fidelity digital prototype was put through a final round of usability testing in preparation for presentation, and an implementation plan was drafted.

The Concept Development

Number of concept Involved in sub-phase: ●

Phase 1 : Concept Evaluation	Phase 2 : Concept Development Aim: Developing a low fidelity, test-ready prototype.			
Concept Evaluation ●●●●	**Empathy Building** ●●●	**Development Of Task Flows** ●●●	**Preliminary Interface** ●●●	**Translation Into Visual Format** ●●●
Intention: To ensure the feasibility of our proposed designs	**Intention:** Identify required features, build empathy for users	**Intention:** Back-end processes development and user task flows, creating a skeletal structure around which screens and navigation can be built.	**Intention:** Mapping out navigational features and approximate content placement, rapidly.	**Intention:** Integration and overlay of sketches into previously constructed flowcharts
Method: Concept Pitching	**Method:** Future State Journey Mapping, Adapted Service Blueprint	**Method:** Flowcharts	**Method:** Sketching	**Method:** Wireflows
Analysis: - Informal discussion, feedback matrix (4L's)	**Analysis:** - Informal discussion, to assist the team in building empathy for the user, and develop an understanding of necessary design considerations to complete the scenario	**Analysis:** - Internal assessment of the navigational structure	**Analysis:** - Internal Assessment of Information architecture and layout	**Analysis:** - Informal Discussion, around the preliminary designs in a visual format
Participants: 5 Participants were selected from the Target Audience	**Participants:** Internal Assessment no participants	**Participants:** Internal Assessment no participants	**Participants:** Internal Assessment no participants	**Participants:** Internal Assessment no participants
Outcome: - The retrospective framework lent itself terrifically to capturing critique in a structured format. -Based on the template, the feedback was combined and synthesised -Feature suggestions and constructive critique -Concept 3 - "Ruler of the Planet", the concept was discarded after this round, following the negative reception.	**Outcome:** - Insight into the necessary touchpoints and usage situations for each user. - Structured set of interactions to facilitate in the prototype building a preliminary set of design considerations. - Define the functionality and feature range based on the touchpoints and engineer them into a single application by flowcharting.	**Outcome:** - Visualised navigation models allowing the team to identify dead ends and overly convoluted pathways early in the process - Identification of feature clusters which may later be transformed into key screens	**Outcome:** - Efficient way to propose, refine, communicate and critique - Creation of a visual skin to the feature list defined earlier - Begin defining the information architecture by sketching potential layouts for main flowchart data clusters.	**Outcome:** - Created a basis upon which the first prototype was built - A paper rendering of the potential screens accompanied by a diagram representing navigational flows.

Figure 2.1.1 - The Concept Development Process Breakdown

The Concept Development Process (Continued)

Number of concept Involved
in sub-phase: ●

Phase 3 : Concept Refinement
Aim: Test and iterate on the prototype.

Phase 4 : Concept Expansion
Aim: Amplify prototype resolution

Phase 5 : Future Steps

Rapid Prototyping
●●●

Intention: Gathering usability data cheaply and quickly in the early stages of the process

Method: Paper Prototyping

Analysis:
- Usability testing: Abstract Tasks, Feedback matrix

Participants: 5 Participants were selected from the Target Audience

Outcome:
- Testing both the effectiveness of the navigational flows, and the intuitivity of the information architecture
- Concept Elimination: The team re-grouped and discussed future steps for each concept. Concept 1, also known as "Digitised Futures" exhibited several weaknesses in comparison to the other two concepts in the paper-based prototyping round.
- This testing round served as a "validation stage", to verify the team's progress and confirm the applicability of the solutions to the research outcomes. With little changes needed this round, the team felt confident in proceeding to the next level of fidelity - digital wireframing.

Transition To Digital Form
●●

Intention: Translating the next iteration of physical paper prototypes into a digital format

Method: Wireframes

Analysis:
-Informal Discussion

Participants: Internal Assessment no participants

Outcome:
- Digital prototypes ease the cognitive load required to process the transitions between screens in a paper prototype, allowing the team to get a better picture of the true cognitive load caused by navigational flows and information architecture.
- Using Adobe XD, the team found iteration and version control much easier, as opposed to keeping track of several dozen sheets of paper

Expert User Consultation
●●

Intention: Usability testing with expert users to create a higher efficiency error-checking process.

Method: Digital prototypes: Low fidelity

Analysis:
-Usability testing on Expert users: Abstracts Tasks, Think Aloud
- Feedback Matrix Converted into a prioritisation Matrix

Participants: 5 Expert Participants

Outcome:
- Testing with expert users creates a higher efficiency error-checking process, as these users are far more sensitive to broken conventions, inconsistencies and features which are likely to cause user error.
- The outcome of testing and evaluation revealed that there is a need to take this platform outside of the bank app context. Additional forms such as an internal application and browser extension should be tested.
-This structured, objective approach helped the team to achieve collaborative consensus while satisfying the increasingly tight deadlines and limited resources

Accessibility Testing
●

Intention: Experimenting with colour, and assessing accessibility to create a coherent brand guide, to be applied to prototypes.

Method: Existing Online Accessibility tools

Analysis:
-Internal discussion
-WebAim accessibility checker

Participants: Internal Assessment no participants

Outcome:
- Resulted in a brand guide that was applied into our prototype to increase the fidelity.

Extending Platform Context
●

Intention: Applying the previously designed and iterated structure to the environment of a standalone application.

Method: Paper Prototypes

Analysis:
-Usability testing on general Audience: Abstracts Tasks, Think Aloud
- Feedback Matrix Converted into a prioritisation Matrix

Participants: 5 Participants were selected from the Target Audience

Outcome:
- Redesign of structural changes, repositioning of the elements, and an evolved information architecture to match the new context of a webpage.

Feature Range Expansion
●

Intention: Integrating the new functionality into the format of a browser extension.

Method: Paper Prototypes Features Extension

Analysis:
-Usability testing on General audience: Abstracts Tasks, Think Aloud
- Feedback Matrix Converted into a prioritisation Matrix

Participants: 5 Participants were selected from the Target Audience

Outcome:
-Integrating the new functionality into the format of a browser extension.

Interface Validation
●

Intention: Usability testing with a general audience to ensure the applicability of the concept to all level of competency, to identify possible usability problems within the concept Expansion

Method: Digital prototypes: Low fidelity

Analysis:
-Usability testing on General audience: Abstracts Tasks, Think Aloud
- Feedback Matrix Converted into a prioritisation Matrix

Participants: 5 Participants were selected from the Target Audience

Outcome:
- Adjusted some high-contrast elements to lower the visual impact to increase consistency with surrounding elements;
- Added extra information to transaction details (dates of transaction);
- Expanded on the information presented in the metrics section;
- Improved the readability (increased font size, adjusted contrast).

High Fidelity Prototyping
●

Intention: Refine the interface, create a prototype representative of the final product

Method: Digital Prototypes: Mid Fidelity and High Fidelity

Analysis:
-Usability testing on General audience: Abstracts Tasks, Think Aloud
- Feedback Matrix Converted into a prioritisation Matrix
- Heuristic Evaluation

Participants: 5 Participants were selected from the Target Audience

Outcome:
- A high fidelity high resolution prototype, ready for presentation to key stakeholder

Figure 2.1.2 - The Concept Development Process Breakdown (Continued)

4

2. Approach (Continued)

2.2 Concept Description

Contains the descriptions and representative renders of the concepts generated as part of the previous stage of the project.

Concept 1: Digitised Futures

Digitised Futures addresses the disconnect people experience between their lifestyles and their direct impact on the climate. Users are prompted to fill out a quiz, which assesses their individual lifestyle and its impact on the climate. Based on the results, a virtual reality world is generated around the user, representing the future where everybody followed the user's lifestyle. Users would be able to explore the simulation by walking around. By virtually immersing them in the world, the solution aims to facilitate self-reflection, and a consideration of their individual impact.

Currently, similar existing simulations rely on the format of objective data visualisation to communicate similar ideas, but the resulting solutions fail to immerse the user in the results. The proposed solution seeks to change that by taking an artistic approach to data.
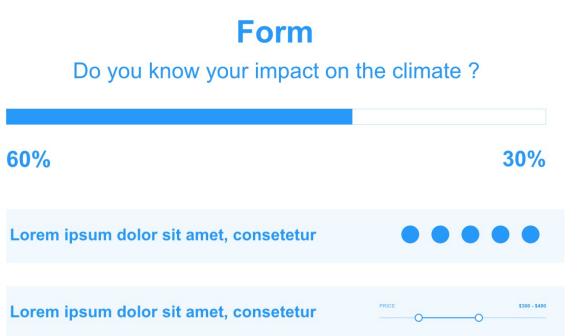
Figure 2.2.1 - Digitised Futures - Concept Art

Figure 2.2.2 - Digitised Futures - Concept Art

Concept 2: Susi

As an integration into an existing online banking service, the user is given a virtual world that they are responsible for caring for. The virtual world's health responds to the user's spending behaviors, which are analysed with regard to sustainability of the business they support. Depending on the business's environmental impact (waste created, resources consumed, emissions produced) the planet's appearance and statistics would change.

This actively encourages accountability for spending habits, by building a direct connection between the purchases and their relative carbon footprint. Each purchase is rated according to existing sustainability guidelines, and scores are available to the customers, allowing them to make better choices. While there are existing solutions that follow a similar route, none rely on real time purchasing data, but rather work off the self-entered information. This requires additional commitment, and can become bothersome. By eliminating the manual logging process, we ensure accurate input and continued data entry.
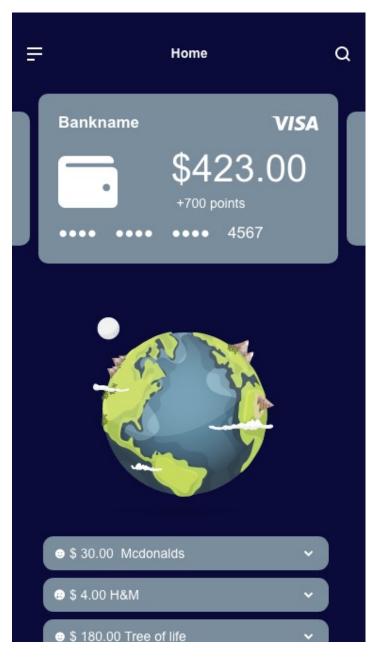
Figure 2.2.3 - Susi - Concept Art

2. Approach (Continued)
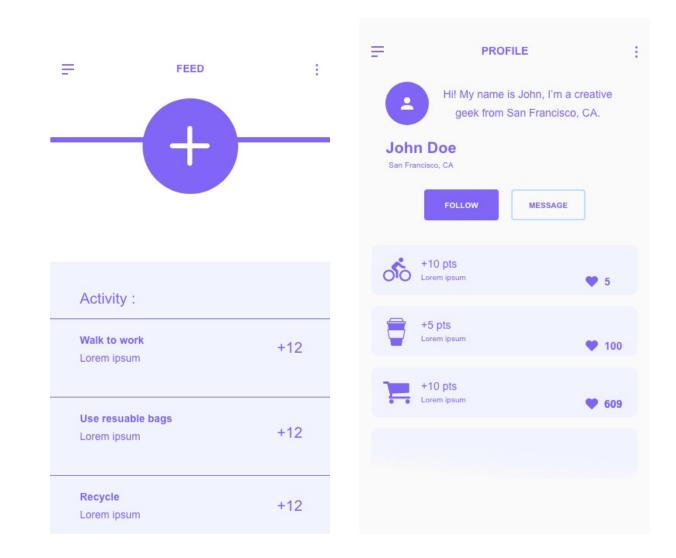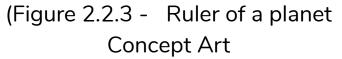
2.2 Concept Description

Concept 3: Ruler of a Planet

A "create your own story" game, Ruler of a Planet is a fictional take on representing the impact of large and small scale decisions on the health of the planet. The virtual "pet" planet thrives and suffers depending on what decisions are made. Some decisions will be formatted to be straightforward, with a "good" and "bad" outcome, while others will have players weighing up the benefits of either option.

The solution's key strategy lies in leveraging the mobile game genre as a way to access a wide, receptive audience without the need for costly external advertising. The information within the game will be truly accurate and representative, but drip-fed to the user through bright graphics and engaging game mechanics.

(Figure 2.2.3 -   Ruler of a planet Concept Art
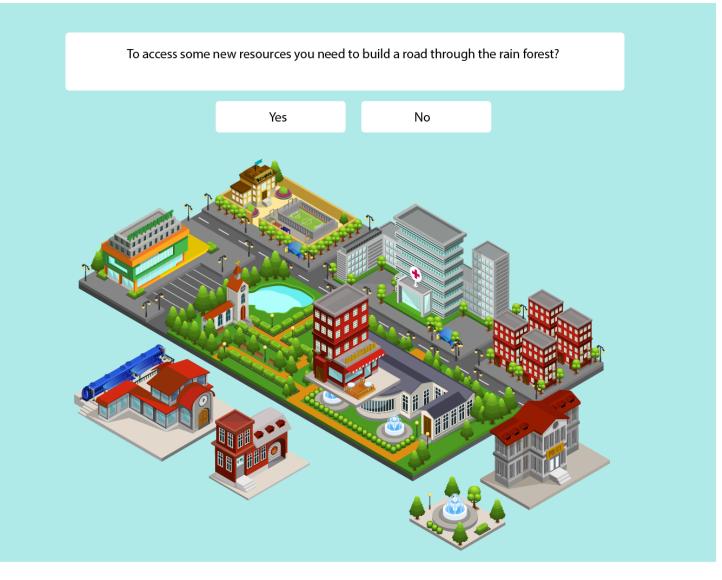
Concept 4: Eco Habit

The concept takes shape as a social networking platform which encourages behavioral uptake of climate-friendly activities. The app takes user input, gathering data on the daily tasks they perform in an effort to lead a more sustainable lifestyle. Users can also view friends' progress and interact with each other through commenting on each others' efforts.

The app maintains incentive through gamification features, using the leaderboard which works on a point based system, with higher point rewards for more impactful tasks. This concept seeks to break the inaction limbo by engaging the community and encouraging competition, thus providing motivation and facilitating habit building. By establishing usage patterns within the daily lives of users, the solution will have greater repercussions, even after the user leaves the platform. While this has never been attempted in the context of climate change, this strategy has been hugely successful in categories such as fitness or self-improvement (all fitness trackers are accompanied by an app of this nature). Additionally, it harnesses the social desirability bias, by placing the users in a community of similar minded individuals all working for a greater cause.

The next section will discuss the processes, findings and outcomes of each project sub-phase in greater detail.

(Figure 2.2.4 - Eco Habit Concept Art)

3. Methods and Findings

This section of the report discusses each testing methodology in detail, including the aim, process and outcome of each iteration.

3.1 Phase 1: Concept Evaluation

To ensure the feasibility of our proposed designs, a feedback session with five randomly selected members of the target audience was run. After hearing a verbal pitch of each concept, they were asked to communicate their feedback in a 4L's matrix (Figure 3.1.1) (Atlassian, 2020). The retrospective framework lent itself to capturing critique in a structured format. Based on the template, the feedback was combined and synthesised, while maintaining the 4L's structure.

It was quickly evident that while 3 of the 4 concepts performed well with the users, there was very little positive feedback about the 4th. Formerly known as Concept 3 - "Ruler of the Planet", the concept was discarded at the conclusion of this round, following the negative reception. The users highlighted it's lack of real-world impact, and similarity to existing solutions on the market. This feedback clearly highlighted it's weakness against the design criteria derived from the research enquiry. The process left three concepts, all of which maintain the potential for further growth and success in the future project stages.

In contrast, the team received fantastic feedback on the remaining 3 concepts, along with feature suggestions and constructive critique. Figures 3.1.2, 3.1.3 and 3.1.4 summarise the general sentiments expressed by the participants in response to each concept. As a result of this feedback session, the remaining 3 concepts were selected to proceed into the prototyping process.

Figure 3.1.1 - 4'Ls Feedback Matrix

Concept 1: Digitised Futures

User Indentfied Benefits

- ➕ Users appreciated the novelty of VR. It piqued their interest and enticed them to use it.
- ➕ Users loved the combination of data entry and VR, as it helped them see their impact clearly and understand the direct connection to my actions
- ➕ Users felt that it would show them whether their efforts are meaningful.
- ➕ All testing participants enjoyed seeing their present impact. They found it both exciting and confronting

Questions and Comments

- 💡 All users were aware that the solution relies on the initial shock factor to enact change.
- 💡 The average Australian consumes 6 times more than the average global citizen, and this is a great opportunity to highlight that.

User Indentfied Drawbacks

- ➖ The form-filling process is a de-motivator. The process is too boring and tedious
- ➖ Users felt that there was a disconnect between initial surveys and the visualisation. To them, it lacked the narrative experience
- ➖ Multiple users pointed out the lack of barriers to lying, no actionable goals or educational material.
- ➖ Needs more actionable outcomes.
- ➖ Participants seem to seek experience learning instead. It may be more effective to immerse them into a narrative where they are faced with certain decisions. It will help them achieve better
- ➖ Social media integration may be a positive addition, users liked the possibility of seeing their friends' worlds.

Figure 3.1.2 - Concept 1: Digitised Futures - General Sentiments

Concept 2: Susi

User Indentfied Benefits

+ Users liked the bank account integration, as they couldn't see themselves committing to manually inputting information into the app.

+ Users felt more connected with a personified, living being, as opposed to the abstract concept of harmful consequences.

+ Users loved that it integrated seamlessly into their existing

Questions and Comments

💡 Can a compromise be established between manual data entry and bank account integration without invading personal security?

💡 Users stated that they enjoyed direct consequences for their actions. To them, it's never been more clear - how their purchases impact sustainability.

User Indentfied Drawbacks

– Users expressed concerns about their privacy and third-party handling of bank data.

– Game strategy and orientation.

– More severe consequences, that replicate real life - e.g. animals dying or ecosystems being destroyed.

Figure 3.1.3 - Concept 2: Susi - General Sentiments

Concept 3: Eco Habit

User Indentfied Benefits

+ The element of competition and collaboration seemed to be a hit with most participants - they found it highly motivating and infections. It was referred to as a "collaborative way to be better".

+ Although the app lacks clear educational material, users enjoyed the idea of learning by example.

+ The tendency of these platforms to create a culture will translate to wider usage and impact.

+ The possibility of getting family or community involved appealed to the users.

+ Users believed that the solution encourages accountability and community effort, as they know what the right thing is, and they are so sick of hearing about it.

+ Users believe that being peer pressured to do it provides the incentive to get started.

Questions and Comments

💡 It may not work for different people (some people don't use social media, or engage with competitive environments).

User Indentfied Drawbacks

– User input is subject to bias/lying.

– Effort of importing data manually can discourage people.

– Multiple users pointed out the lack of barriers to lying, no actionable goals or educational material.

– Some users were concerned that they may be subjected to judgement from their higher educated friends. They longed for a like-minded community that matched their level.

– Participants asked for the team culture integration into the solution, and suggested the use of collaboration based achievements.

– Participants longed for some form of habit building encouragement, like streaks, where participants have to individually or collectively use it regularly.

– There is a need for a matchmaking system to build homogenous communities - harsh competition can be a de-motivator.

Figure 3.1.4 - Concept 4: Eco Habit - General Sentiments

3.2 Phase 2 : Concept Development (Continued)

3.2.2 Development of Task Flows

Intention: Back-end processes development and user task flows, creating a skeletal structure around which screens and navigation can be built.

Method: Flowcharts

Analysis: Internal assessment of the navigational structure

Once the list of essential features was identified, the approximate data flows were sketched out in the form of a flow chart. Flowcharts are used to describe both back-end processes, and user task flows, creating a skeletal structure around which screens and navigation can be built. An added benefit of flowcharts lies in the visualised navigation model - allowing the team to identify dead ends and overly convoluted pathways early in the process. Finally, the digital and editable nature of the wireframes allows for easy manipulation and version control, as well as a visual reference for the team to negotiate modifications in.

The flowcharts facilitated the creation of the first iteration of the information architecture: the team's expertise and knowledge of existing navigation patterns aided in quickly constructing an intuitive data structure. It further enabled the identification of feature clusters which may later be transformed into main screens - such as a home page or a hamburger menu. No user testing was performed at this stage due to the complicated and technical nature of flowcharts. The cognitive load created in the interpretation of such text-heavy models affects immersion and productivity during user testing (Mazza, 2017). Additionally, the isolated nature of individual features lacks the page context — an aspect which strongly impacts the user experience (Laubheimer, 2016). Figure 3.2.2 shows an example of the flowchart built to represent Concept 2.
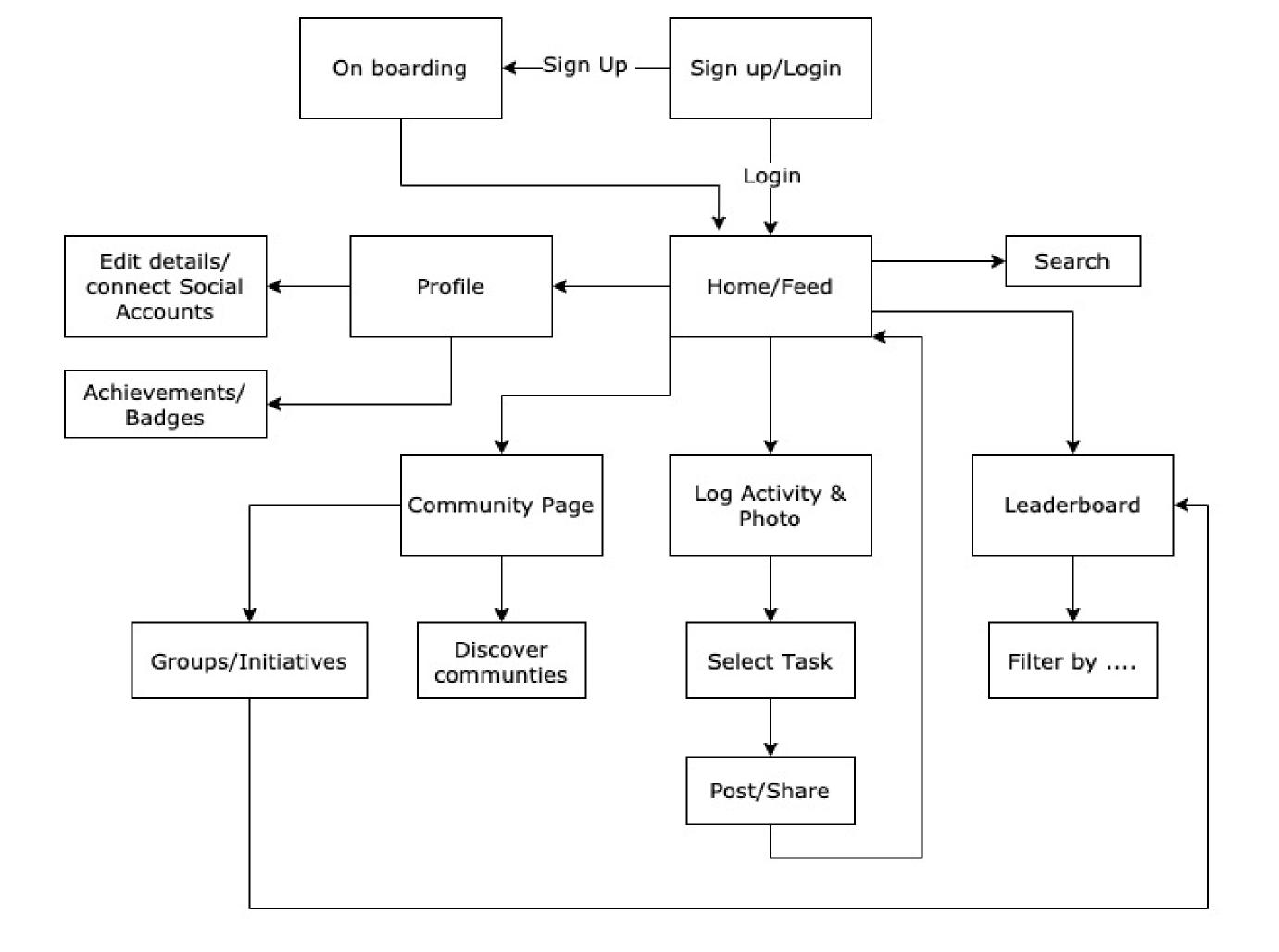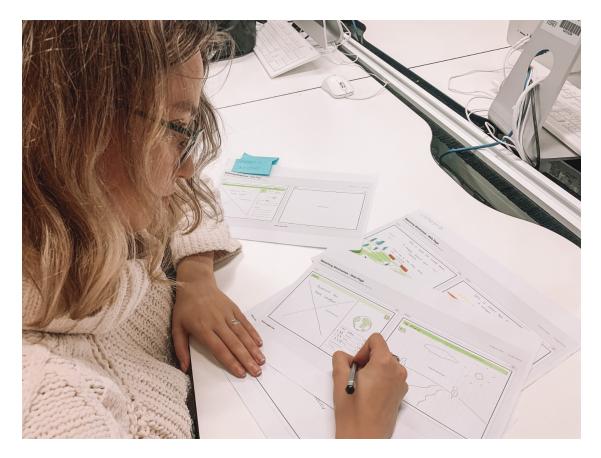
Figure 3.2.2 - Example of Flowchart

3.2 Phase 2 : Concept Development (Continued)

3.2.3 Preliminary Interface
Intention: Mapping out navigational features and approximate content placement, rapidly.
Method: Sketching
Analysis: Internal Assessment of Information architecture and layout

Using the previously identified feature clusters, the team began sketching out the first set of screens. The sketch resolution was relatively low - the objective being to map out navigational features and approximate content placement. Sketches are a cheap, efficient way to propose, refine, communicate and critique ideas in a "tangible" format in the exploratory stages of design (Rojas, 2020). Placeholder text and images were used to reduce temporal investment - the main aim of the exercise was to create a visual skin to the feature list defined earlier. Figure 3.2.3.2 illustrates sketched screens.

(Figure 3.2.3.1 - Sketching Process)

Figure 3.2.3.2 - Digitised Futures - Sketches

3.2 Phase 2 : Concept Development

This project stage is dedicated to translating concept statements into early low-fidelity prototypes of the products.

3.2.1 Empathy Building

Intention: Identify required features, build empathy for users
Method: Future State Journey Mapping, Adapted Service Blueprint
Analysis: Informal discussion, to assist the team in building empathy for the user, and develop an understanding of necessary deisgn considerations to complete the scenario

Before beginning to map out the various screens and features of each concept, the team synthesized all research insights into a set of future state journey maps. Journey maps reveal opportunities to address customers' pain points, alleviate fragmentation, and, ultimately, create a better experience for users (Gibbons, 2020).

The most common characteristics and beliefs were synthesised into two distinct personas (3.2.1.1, 3.2.1.2), which, in turn, were tracked through the use cases highlighted in the future state journey maps. Personas are a proven tool for empathy-building within the design environment and help the team understand users' needs, experiences, behaviours and goals (Friis Dam and Siang, 2020). The speculative nature of the resulting journey maps was an excellent instrument for identifying the necessary touchpoints and usage situations for each user and gave the team a structured set of interactions to facilitate in the prototype. Additionally, it gave the team an early idea of the potential attitudes and emotions surrounding each step of the process, building an introductory set of design considerations.

Each concept's place in a participant's journey was discussed, and a usage narrative was built around it. To further assist the team in identifying key features, a service blueprint was built into one of journey map layers. Visualizing how users will interact with the application can make it easy to understand and remember which features are necessary for the user to complete the scenario (Krause, 2018). Additionally, it ensures that the team can identify the context in which the feature will be experienced. Further, quotes and sentiments from the preliminary research report were mapped across the journey, to assist the team in building empathy for the users. The journey maps were built collaboratively to ensure that the resulting story is an amalgamation of the entire team's understanding of the research outcomes. Figure 3.2.1.3 shows an example of the journey maps constructed in this development round. The remaining 2 journey maps can be found in Appendix 3.

Figure 3.2.1.1 - Persona One

3.2 Phase 2 : Concept Development (Continued)

Timothy Edge

Age : 21   **Occupation :** Student

Motivation

Free Time

Education Level

Archetype:

Timothy is a student currently studying Commerce at University. He wants to help reduce his impact on the climate but doesn't know what he can do. He is very busy with University, and balancing a full-time job, becasue of this he doesn't have the time to educate himself. He wants to learn what small things he can do.

Attitudes:

Timothy knows that climate change is a problem, but doesn't know what impact my lifestyle has. He has seen climate change on social media, but its always what's wrong, or these unlrealistic goals he can't do. He want to help but i don't know where to start. He doesn't pay attention to where he invests his money into. Recently he had needed to choose a super fund, he chooses to go where his parents

Needs :

He needs to be provided realistic task that will motivate him. He wants to know more he can do, but doent want to have to put effort into learning. He wants to feel inspired and responsible for my actions and get satisfaction from doing the right thing.

Frustrations :

He get frustarted when he see's climate change on social media and how bad it is. He wants to help because it makes him feel bad. Sometimes he gets frustrated that the government and bussinessses aren't doing more.

Goals :

He wants to be inspired on what small actions he can take, and want to feel satisfaction from doing the right thing. He wants to feel like he is making a difference.

"I want to my play role, but i dont really know what realistic steps i can take"

Figure 3.2.1.2 - Persona Two

Digitised Futures: Journey Map
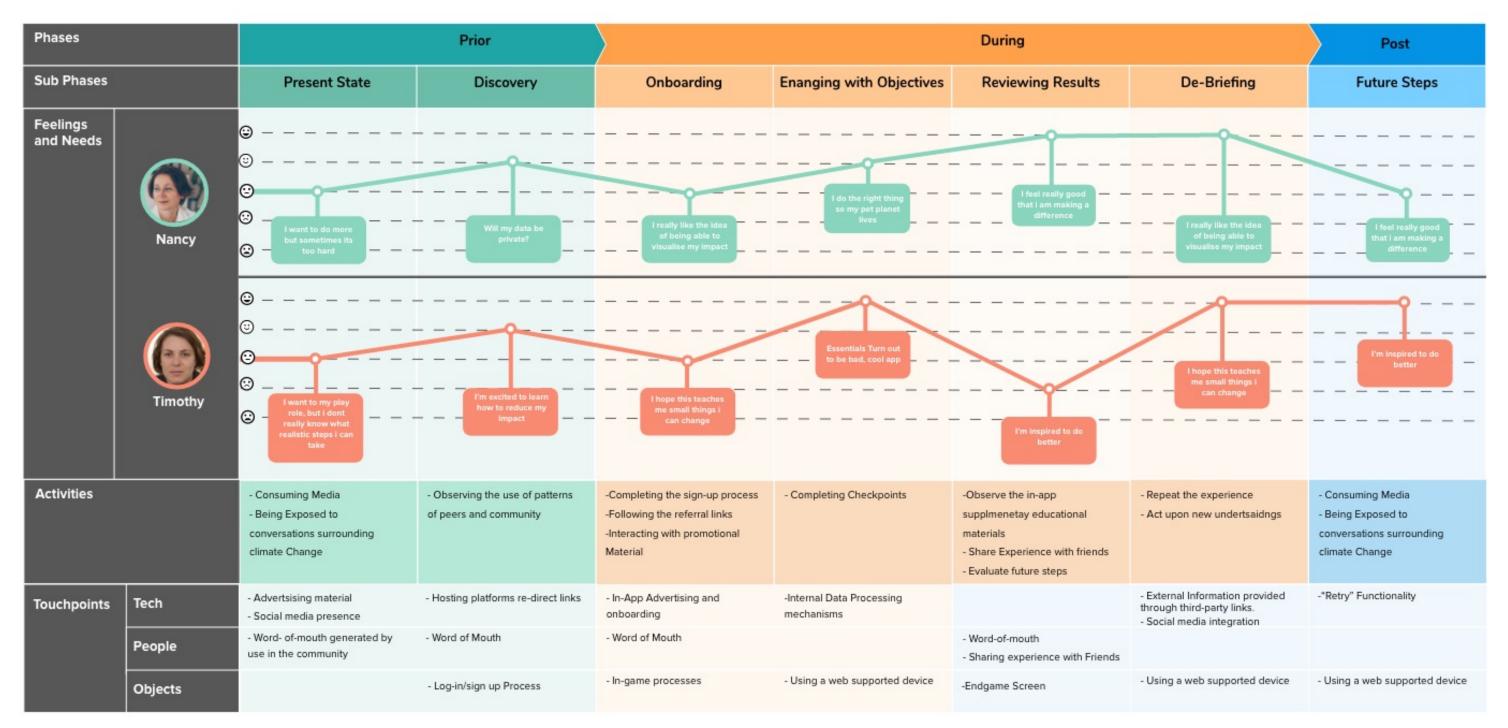
Figure 3.2.1.3 - 1 of 3 Future State Journey Map

3.2 Phase 2 : Concept Development (Continued)

3.2.4 Translation Into Visual Format

Intention: Integration and overlay of sketches into previously constructed flowcharts
Method: Wireflows
Analysis: Informal Discussion, around the preliminary design's in a visual format

The integration and overlay of sketches into previously constructed flowcharts resulted in wireflows - a tool that can be used to represent a preliminary design in a visual format (Laubheimer, 2016). The resulting wireflow was the basis upon which the first prototype was built - a paper rendering of the potential screens accompanied by a diagram representing navigational flows. Figure 3.2.4 illustrates one of three wireflows.
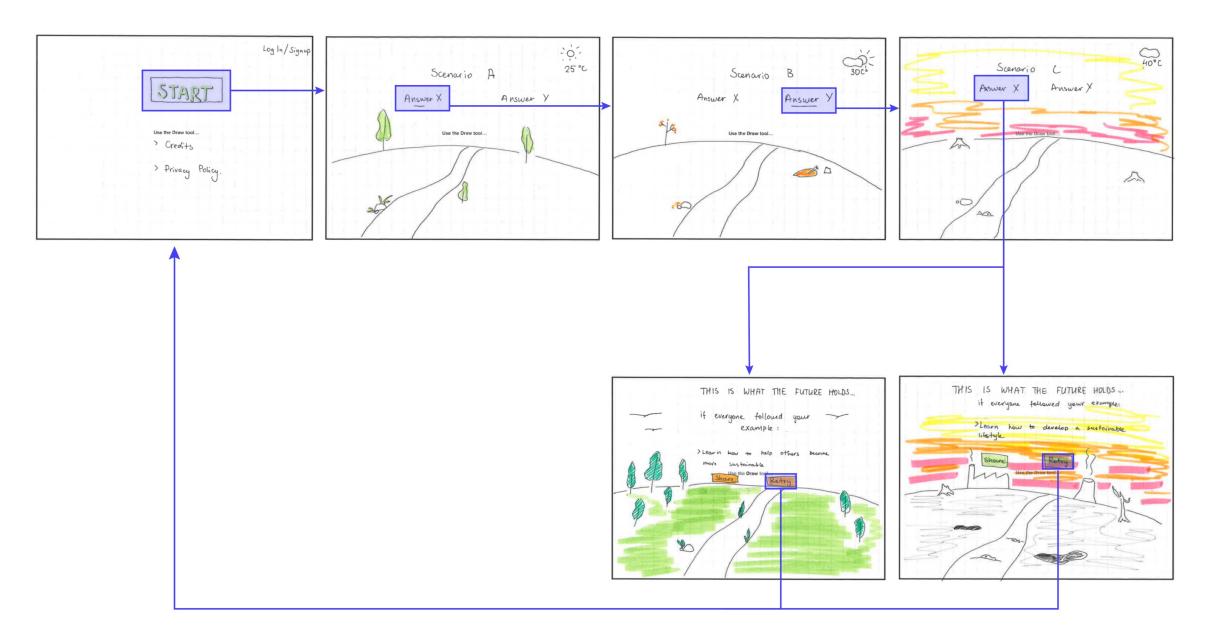
Figure 3.2.4 - Digitised Futures - Wireflow

3.3 Phase 3 : Concept Refinement

This testing stage is dedicated to low-fidelity prototyping, with an aim to gather user feedback and eliminate unsuccessful concepts.

3.3.1 Rapid Concept Building

Intention: Gathering usability data cheaply and quickly in the early stages of the process
Method: Paper Prototyping
Analysis: Usability testing: Abstract Tasks, Feedback matrix

Twenty years of usability engineering experience uniformly indicates that the biggest improvements in user experience come from gathering usability data as early as possible in a design project (Nielsen, 2009). Consequently, paper prototypes were selected for their ability to cheaply and quickly gather user feedback in the early stages of the process (Nielsen, 2009). During the testing process the generated screens were managed through the wireflow. A small amount of colour was used in each set of screens for contextual highlighting, but the colour remained consistent across the entire application to exclude the possibility of it bearing unexpected associations. Figure 3.3.1.1 shows an example of a screen represented by a paper prototype.

By identifying a set of user goals derived from our flowcharts, the team brainstormed the key actions, tasks and inquiries the user will be able to perform through the platform. The utilization of the task oriented interface evaluation model in combination with think-aloud walkthroughs targeted the user's ability to interpret the need stated in the task sentence, and map it to the information contained within the paper prototype. This tested both the effectiveness of the navigational flows, and the intuitivity of the information architecture. The sample size of 5 participants was maintained. Task list and full session transcript can be found in Appendix 7.

3.3 Phase 3 : Concept Refinement (Continued)
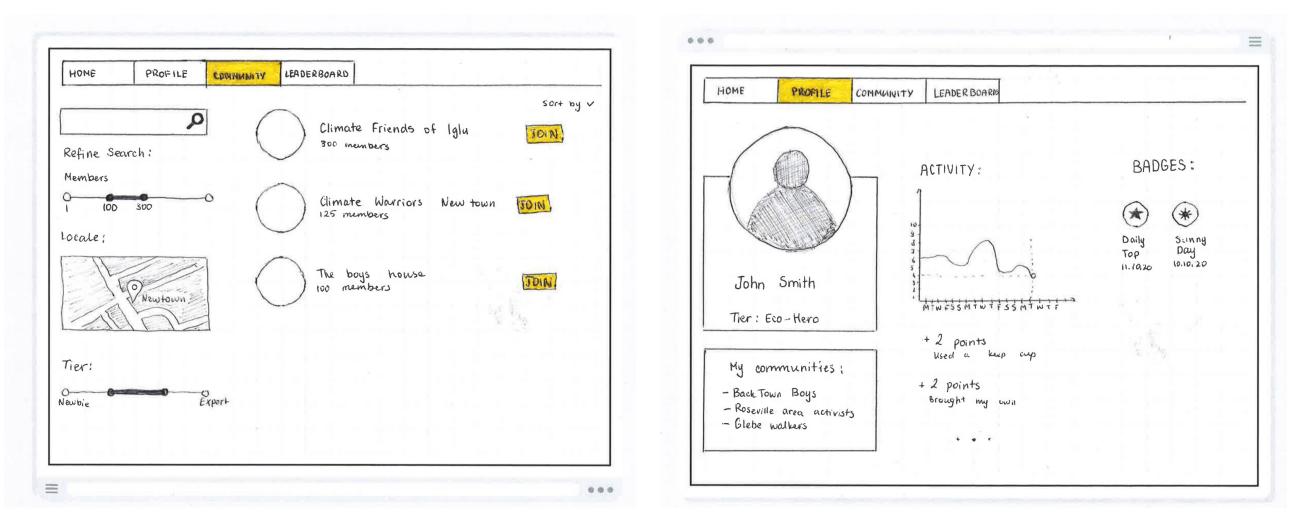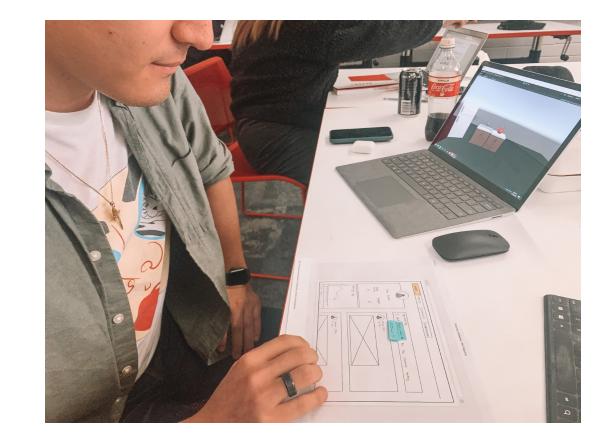
Figure 3.3.1.1 - EcoHabit - Paper Prototype

After the participants performed all requested tasks for a given concept, they were given a debriefing and asked to provide any additional feedback relating to the concept or the structure. They were offered a simple framework, similar to the 4 L's matrix, which separated the feedback into 4 key sections - "Likes", "Dislikes", "Suggestions" and "Questions". Figures 3.3.1.2, 3.3.1.3 and 3.3.1.4 summarise the general sentiments expressed by the participants in response to each concept.
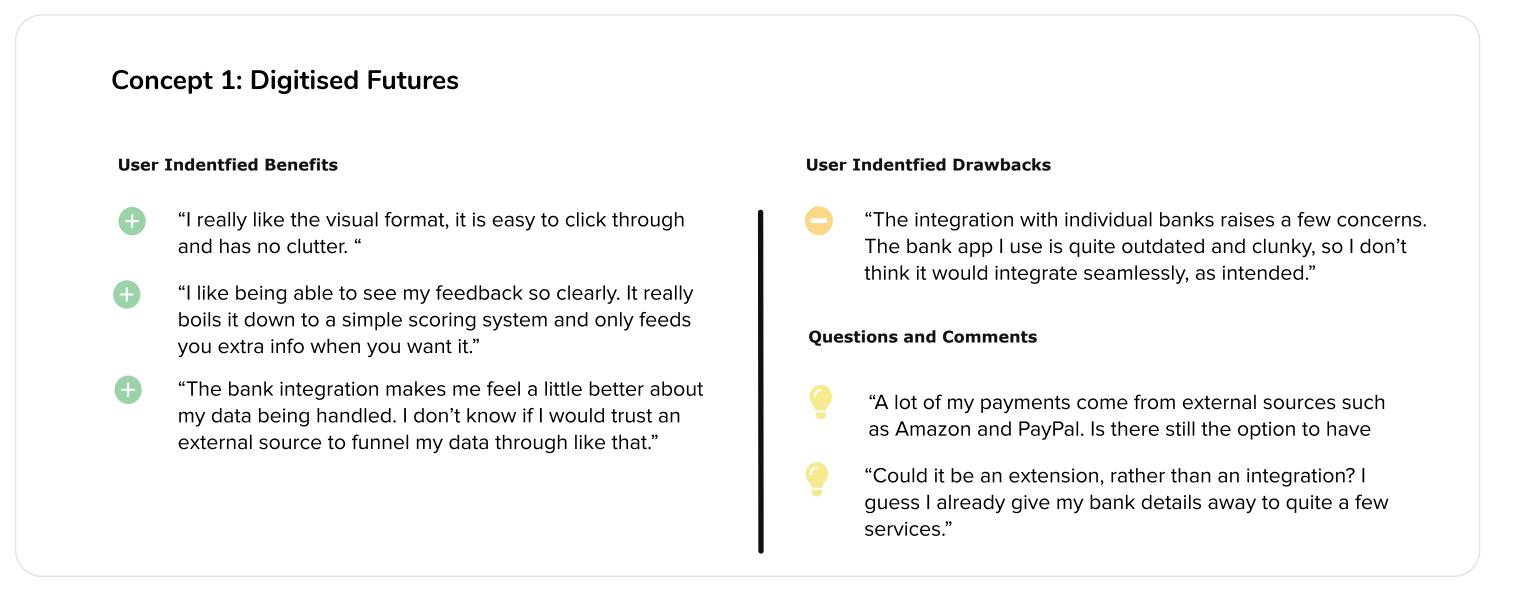
At the conclusion of this prototyping round, the team re-grouped and discussed future steps for each concept. Concept 1, also known as "Digitised Futures" exhibited several weaknesses in comparison to the other two concepts in the paper-based prototyping round. While the prototype itself had no significant usability issues, it was clear that the participants' response to the solution was far more muted, and many did not see the experience as continuous. These observations undermined the solution with regards to the usability criteria and design objectives, placing the concept far behind the other two.

(Figure 3.3.1.2 - Paper Prototype Testing Example)

Additionally, the team discussed a comparison of the resources required to further prototype the concept, which drew attention to the significant temporal and financial investment. The experience heavily relies on it's Virtual Reality form, and future prototypes would require VR equipment, which the team has limited access to. This also undermined the users' ability to access the final solution, as the audience would be required to purchase their own VR equipment to participate in the experience. Hence, the team made the decision to exclude this prototype from future rounds and allocate the remaining resources to testing and developing the remaining pair of concepts. Figures X, X and X show an abstraction of user insights extracted from this testing round (some statements have been edited for clarity).

Concept 1: Digitised Futures

User Indentfied Benefits

+ "I really like the visual format, it is easy to click through and has no clutter. "

+ "I like being able to see my feedback so clearly. It really boils it down to a simple scoring system and only feeds you extra info when you want it."

+ "The bank integration makes me feel a little better about my data being handled. I don't know if I would trust an external source to funnel my data through like that."

User Indentfied Drawbacks

− "The integration with individual banks raises a few concerns. The bank app I use is quite outdated and clunky, so I don't think it would integrate seamlessly, as intended."

Questions and Comments

💡 "A lot of my payments come from external sources such as Amazon and PayPal. Is there still the option to have

💡 "Could it be an extension, rather than an integration? I guess I already give my bank details away to quite a few services."

Figure 3.3.1.2 - Concept 1: Digitised Futures General Sentiments

Concept 2: Susi

User Indentfied Benefits

➕ "I liked the novelty of it, and the positive reinforcement. I felt validated and the validation would probably encourage me to maintain my habits. At least for some time, I think."

➕ "I like how it is more of a reflection of what you do, rather than an instruction manual, like most things are."

➕ "I like that fact you turned a boring experience into an interesting one, filling out a form is deathly uninteresting at its core."

➕ "I liked the immersion of VR, the self-reflective nature of it. The direct implication of your choices, and the visualisation of the planet suffering seem like an effective way to tell the story."

User Indentfied Drawbacks

➖ "The judging system is strange. I would question the judgement behind each decision as the effects seem extremely exaggerated."

➖ "The neutral state is very bleak and grey, it feels like you start on a negative note."

➖ "The drastic changes feel very exaggerated. There is no way me using a dryer causes the entirety of global

Questions and Comments

💡 "The verbal data entry feels like it might be a pain. Is there a way to get around it by getting me to pick from a few options instead?"

💡 "What was happening in the back end? Why did my decisions affect the world in such ways?"

💡 "What long term effect was this supposed to have?"

💡 "Adding animals would be a nice touch, I think. I am very attached to animals usually and it would make the whole experience more heavy-hitting."

💡 "It feels like the sociability of it is missing. Is there a way to maybe add the combined effort of everyone?"

(Figure 3.3.1.3 - Concept 2: Susi general sentiments)

Concept 3: Eco Habit

User Indentfied Benefits

➕ "I liked the social aspect of it, social pressure and a loop to keep returning back to the app."

➕ "It's going to be hard to consistently log, I will definitely forget to do it."

➕ "I can see myself being really competitive, with my friends. That's the very fun of it."

➕ "I used to have this step race with my friends, it's in me to lie about stuff - I'd always be tempted to enter a few fake ones."

➕ "Similar to existing social networks, e.g. facebook. Fairly straightforward."

➕ "I found it exceptionally easy to navigate, other than the leaderboard -> community -> leaderboard, it was all good."

User Indentfied Drawbacks

➖ "The tiers system is a little strange. How are you going to assign point values to certain things? It feels like a very subjective territory."

➖ "It feels like another burden, another streak. The excitement of doing it with your friends will wear off eventually.

➖ "With so many tasks available, it's overwhelming. Maybe with goals it might be easier, but setting goals is another layer of effort that most people probably won't have."

Questions and Comments

💡 "Would favourites functionality be possible? How would you go about suggesting tasks to me?"

💡 "Individual profile/friend interaction would be nice."

💡 "The interaction between friends seems low. What else could we be doing besides looking at each other's progress?"

(Figure 3.3.1.4 - Concept 4: Eco Habit general sentiments)

3.3 Phase 3 : Concept Refinement (Continued)

3.3.2 Transition To Digital Form
Intention: Translating the next iteration of physical paper prototypes into a digital format
Method: Wireframes
Analysis: Informal Discussion

Once the effectiveness of the navigation structures within concepts 2 and 3 were confirmed and the required changes implemented, the team began translating the next iteration of physical paper prototypes, into a digital format. Using Adobe XD, the team quickly built a wireframe style screen set for each concept. While the existing prototypes lacked detail, the translation into a digital format was a crucial step in the development process.
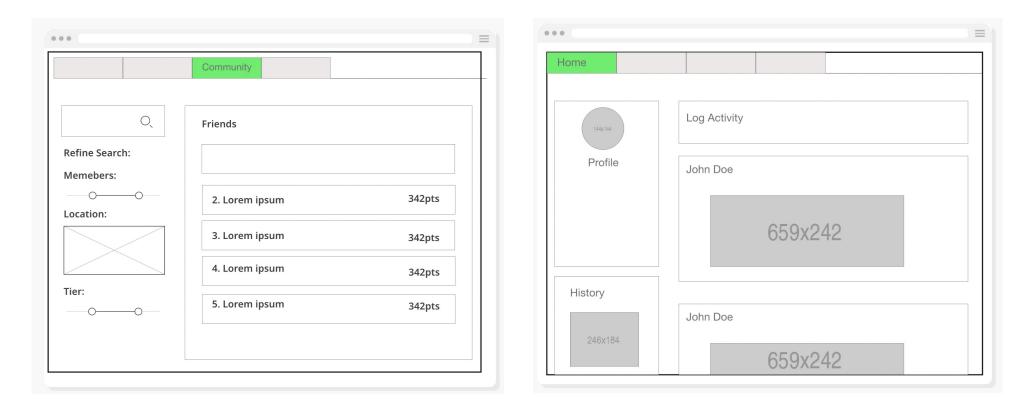
Figure 3.3.2 - EcoHabit - Digital Wireframes

3.3.3 Expert User Consultation
Intention: Usability testing with expert users to create a higher efficiency error-checking process.
Method: Digital prototypes: Low fidelity
Analysis: Usability testing on Expert users: Abstracts Tasks, Think Aloud, Feedback Matrix Converted into a prioritisation Matrix

Due to the circumstances within which the project takes place, the team had very limited access to in-person testing. The process of presenting a user with a prototype over teleconferencing software becomes much easier in the digital space. Further, digital prototypes ease the cognitive load required to process the transitions between screens in a paper prototype, allowing the team to get a better picture of the true cognitive load caused by navigational flows and information architecture. Finally, due to the streamlined iteration process built into tools such as Adobe XD, the team found iteration and version control much easier, as opposed to keeping track of several dozen sheets of paper. Figure X shows an example of a transition from paper to a digital prototype.Figure X shows an example of a transition from paper to a digital prototype.

Transition from paper to a digital prototype.
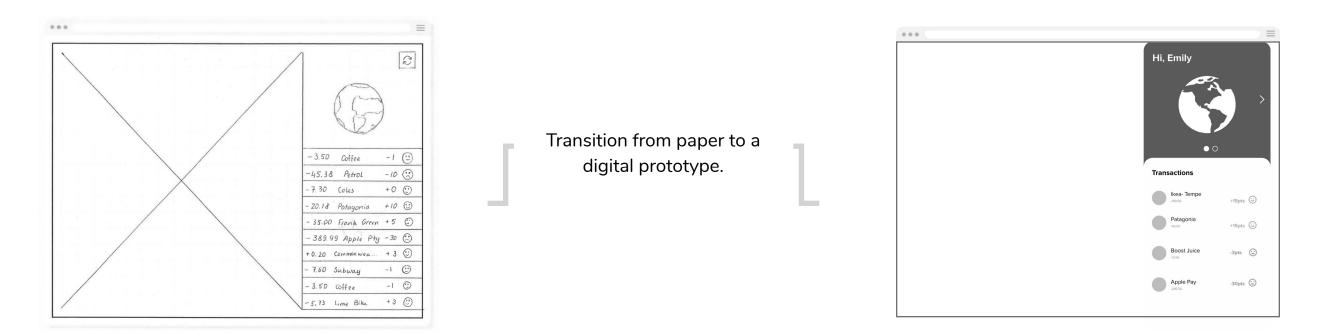
Figure 3.3.3.1 - Example of a transition from paper sketches to a digital prototype

The team took a different approach to the user testing process during this round. A scheduled meeting with fellow members of the cohort granted the team access to a set of expert users and fellow designers. Testing with expert users creates a higher efficiency error-checking process, as these users are far more sensitive to broken conventions, inconsistencies and features which are likely to cause user error. Their involvement in design also provides the ability to troubleshoot more effectively, with testers volunteering their knowledge and experience in the design space to provide suggestions and insights. Finally, they have had high exposure to low-fidelity and low-resolution prototypes and are able to read them with ease. The sample size of 5 participants was maintained. Task list and full session transcript can be found in Appendix 9.

# 3.3 Phase 3 : Concept Refinement (Continued)
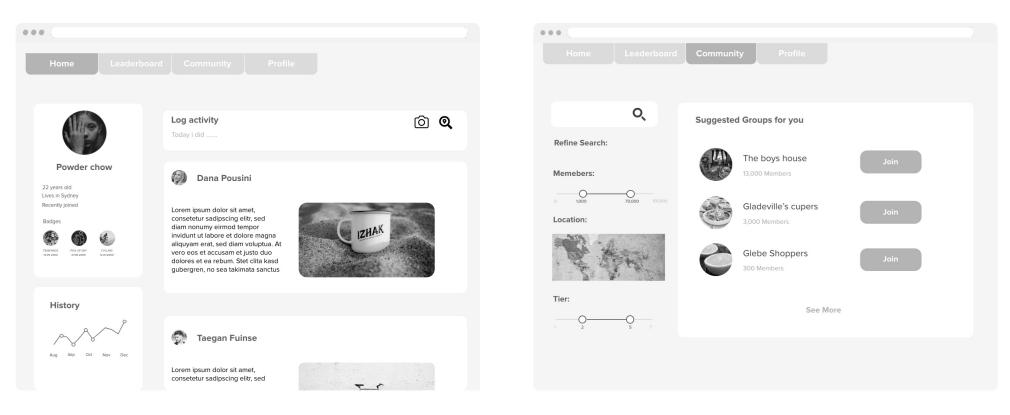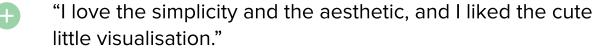
Figure 3.3.3.2 - EcoHabit - Extracts of Low Fidelity Digital Prototype

The feedback was documented within 4 key sections - "Likes", "Dislikes", "Suggestions" and "Questions". The actionable feedback was then transferred into a "Prioritisation matrix" (IBM, 2017), pictured in Figure 3.3.2.4, 3.3.2.5. This structured, objective approach helped the team to achieve collaborative consensus while satisfying the increasingly tight deadlines and limited resources (Gibbons, 2018). Figures 3.3.1.2, 3.3.1.3 and 3.3.1.4 summarise the general sentiments expressed by the participants in response to each concept.

At the conclusion of the testing round, the team discussed the cumulative pool of concept feedback that has been gradually collected over the previous testing rounds. While the sentiments regarding potential uptake and overall engagement has been great, one of the solutions was beginning to show it's weaknesses. "EcoHabit" has been failing to meet some of the finer design criteria, such as the need for continued accountability and convenience of use. Additionally, in a competitive landscape of social networks, a novel and introspective solution such as this has a higher chance of failure. "Susi", the bank-integrated sustainable purchase tracker, stands out amongst the competitive landscape, especially so in it's convenient nature. At this point in the process, the team elected to discard "EcoHabit" and reroute all available resources towards developing "Susi".

Concept 1: Susi

User Indentfied Benefits

+ "I love the simplicity and the aesthetic, and I liked the cute little visualisation."

+ "I like how it's built in. I don't like giving my bank details away to other services, and this add-on flows with my current bank interface."

+ "I love the visualisation of the globe. It really adds to me wanting to use it."

+ "The navigation is consistent with other apps ive been using so it is familiar and easy to use."

Questions and Comments

💡 "The points seem confusing. Could I use them for rewards/discounts? Maybe this is something to be addressed in the onboarding."

💡 "Calculating the value of different products from different companies may be difficult. Certain products may be better than others."

💡 "A chrome extension to tell me about purchases before I make them would be a super helpful addition."

Figure 3.3.2.3 - Concept 2: Susi - General Sentiments

Concept 2: Eco Habit

User Indentfied Benefits

+ "I love the competitive aspect, and the similarity of the app to other social networks. I found it really easy to use because of how similar it is to facebook and such."

+ "This feels like social media made for ethical consumerism. I feel like I will meet like minded people, and avoid all the frustrating climate change deniers. It's like a little safe space."

Questions and Comments

💡 "People have different goals or things they want to do. Maybe setting up an action plan specific to their overall goal could be done during onboarding."

💡 "It reminds me of a fitness app!"

Figure 3.3.2.4 - Concept 4: Eco Habit - General Sentiments

Concept 1: Susi Prioritisation Matrix

High

Do Next

"I exclusively bank on mobile, so the desktop environment is an eyesore."

"When I see a planet, to me it's an inanimate object. Until I saw little animals in the close-up, I

"I don't see a purpose for the full screen planet view. It would be more productive to have it zoomed in already."

Do Now

"I'd need more info on the graph. It's currently quite confusing what the graph is tracking. Is it my money or my points?"

Do Never

Do Last

"I know this is a prototype, but the arrows are different heights in the carousel. It just annoyed me."

Low

Importance

Low   Urgency   High

Figure 3.3.2.4 - Concept 2: Susi Prioritisation Matrix

Concept 2: Eco Habit Prioritisation Matrix

High

Do Next

Do Now

"Lying, or tricking the system is so easy. I would be too tempted to do it. Especially if I was trying to compete with my friends."

Do Never

"I like the idea of competing, but seeing every time your friends do something is really cumbersome. Just too much information."

Do Last

"I feel like I wouldn't want to download yet another app. There are already too many apps and social media networks in my life.

Low

Importance

Low   Urgency   High

Figure 3.3.2.5 - Concept 4: Eco Habit Prioritisation Matrix

The key changes to Concept 2: "Susi" were as follows:
- Aligned the placement of all navigation arrows, as some were inconsistent.
- Added additional labels and filtering options to the graph (located in the metrics section)
- Incorporated animals and facial features virtual planet representation to encourage empathy
- Developed and applied a style guide to the entire application

18

Browser Extension

(Figure 3.4.3.1 - Artifact of Browser Extension Low-Fidelity

Susi Expansion
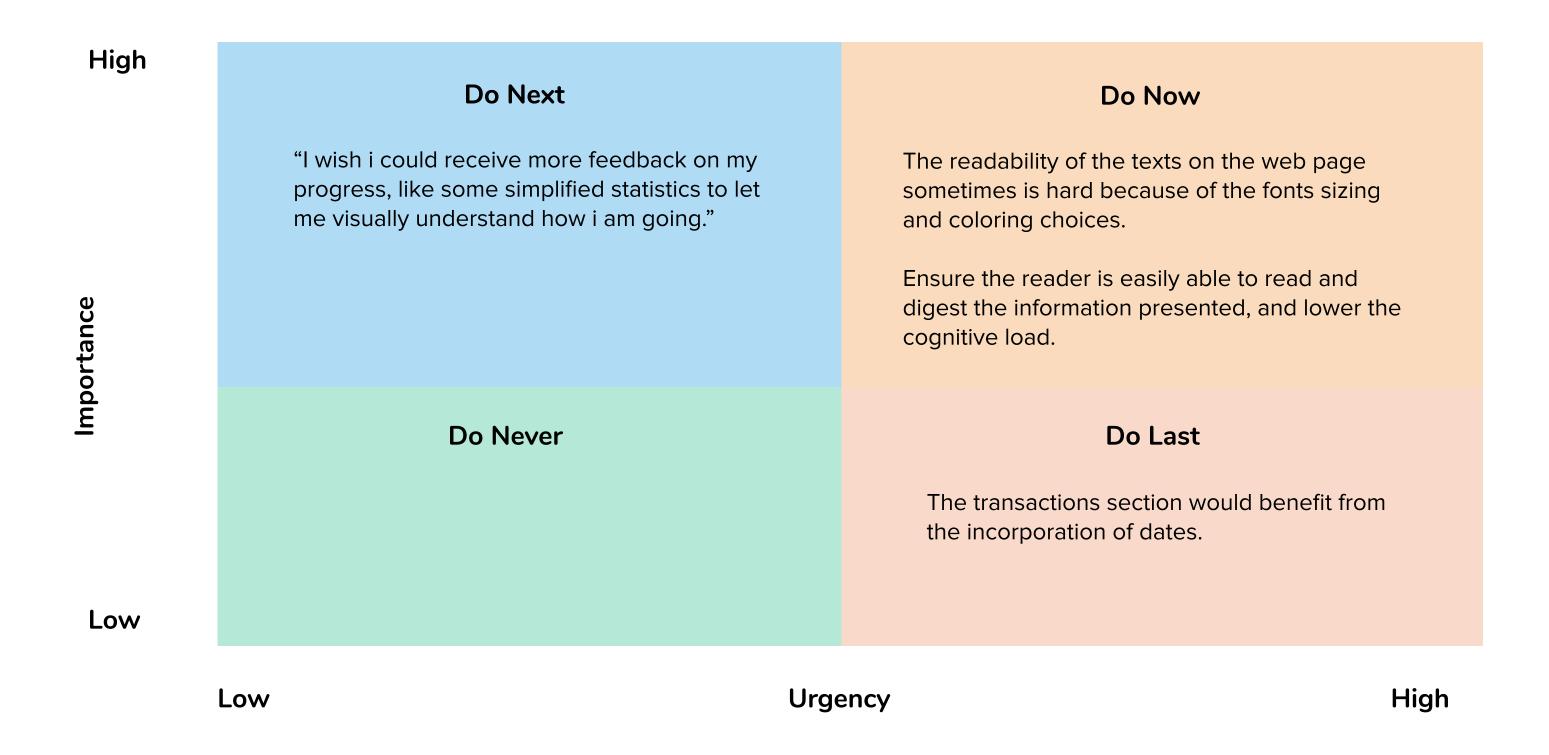
User Indentfied Benefits

➕ "I really like the layout and spacing, it makes the information really easy to digest and understand."

➕ "I like the incorporation of multiple cards because it ensures I am able to track my purchase behaviour on a whole."

➕ "I like how you have included the ability to search the transaction because I know sometimes it can be time consuming to search through all my transactions."

Questions and Comments

💡 "The points seem confusing. Could I use them for rewards/discounts? Maybe this is something to be addressed in the onboarding."

💡 "Calculating the value of different products from different companies may be difficult. Certain products may be better than others."

💡 "A chrome extension to tell me about purchases before I make them would be a super helpful addition."

Susi Expansion Prioritisation Matrix

	Low — Urgency — High
High **Do Next** "I wish i could receive more feedback on my progress, like some simplified statistics to let me visually understand how i am going."	**Do Now** The readability of the texts on the web page sometimes is hard because of the fonts sizing and coloring choices. Ensure the reader is easily able to read and digest the information presented, and lower the cognitive load.
Do Never	**Do Last** The transactions section would benefit from the incorporation of dates.

Importance (High / Low)

Urgency (Low / High)

25

3.3 Phase 3 : Concept Refinement (Continued)

3.3.4 Accessbility Testing
Intention: Experimenting with colour, and assesing accessibility to create a cohrent brand guide, to be applied to prototypes.
Method: Existing Online Accessbility tools
Analysis: Internal dicussion, WebAim accessibility checker
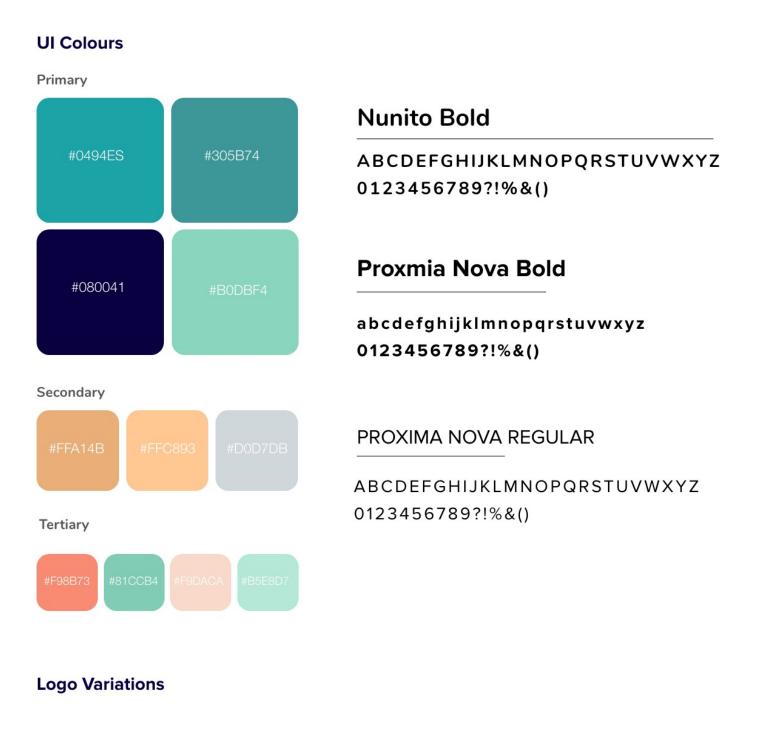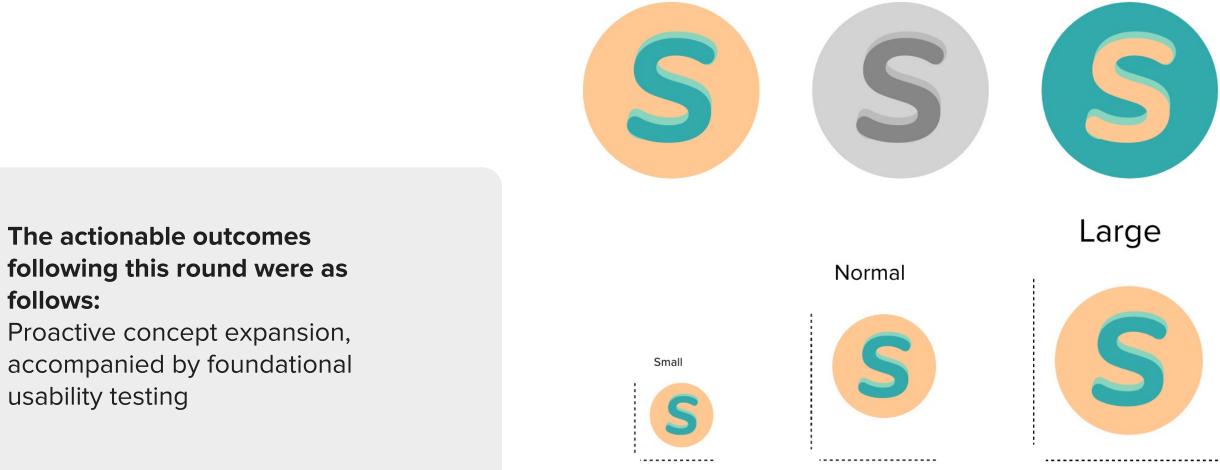
After implementing the changes from the previous round, the team began experimenting with colour. Several colour pallets were compiled, and a minimal brand guideline was built around it. Once the team was content with the colour scheme, the colours were processed through the WebAim accessibility checker (accessed at https://webaim.org/resources/contrastchecker) to ensure all typography and colour combinations met the WebAim accessibility requirements. Some colours were adjusted in brightness, but most elements remained consistent. Accessibility is an often overlooked design consideration, which is especially crucial when designing for a broad audience.

The resulting brand guideline (right) was applied across the entire prototype.

The actionable outcomes following this round were as follows:
Proactive concept expansion, accompanied by foundational usability testing

UI Colours

Primary

#0494ES	#305B74
#080041	#B0DBF4

Secondary

| #FFA14B | #FFC893 | #D0D7DB |

Tertiary

| #F98B73 | #81CCB4 | #F9DACA | #B5E8D7 |

Nunito Bold

ABCDEFGHIJKLMNOPQRSTUVWXYZ
0123456789?!%&()

Proxmia Nova Bold

abcdefghijklmnopqrstuvwxyz
0123456789?!%&()

PROXIMA NOVA REGULAR

ABCDEFGHIJKLMNOPQRSTUVWXYZ
0123456789?!%&()

Logo Variations

Large

Normal

Small

3.4 Phase 4 : Concept Expansion

This stage of the design process focuses on the development of the elected concept, along with expanding its use into a greater context.

3.4.1 Extending Platform Context
Intention: Applying the previously designed and iterated structure to the environment of a standalone application.
Method: Paper Prototyping
Analysis: Usability testing on general Audience: Abstracts Tasks, Think Aloud, Feedback Matrix Converted into a prioritisation Matrix

3.4 Phase 4 : Concept Expansion (Continued)
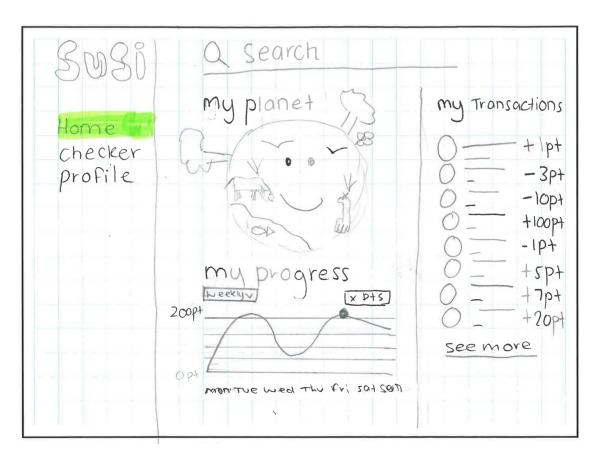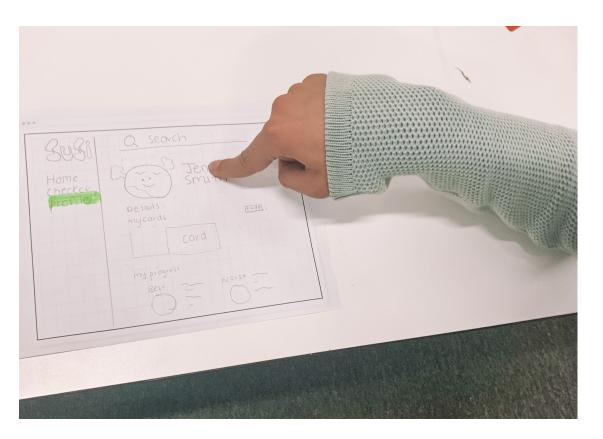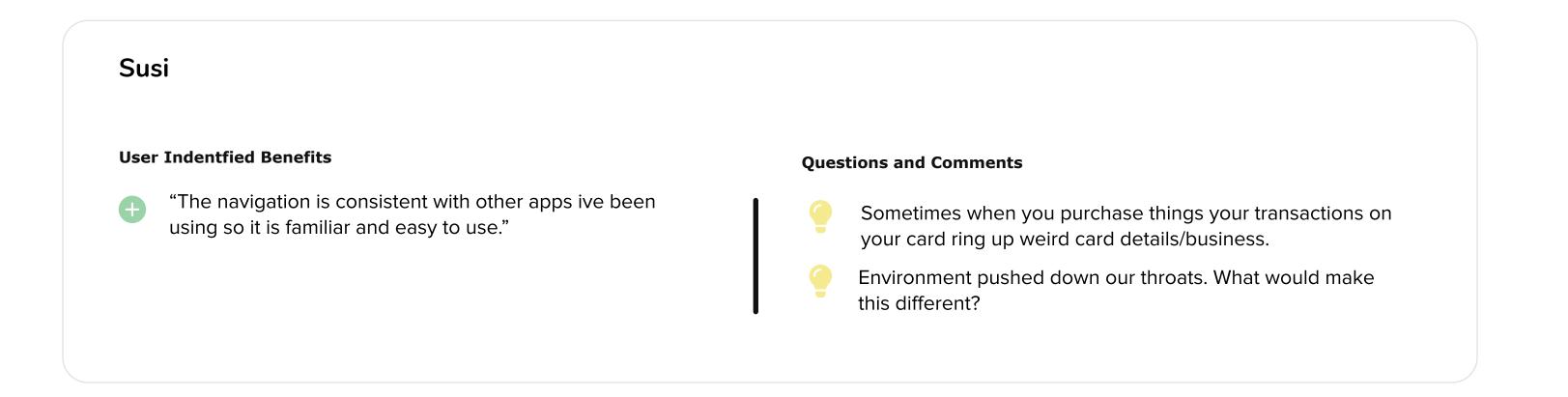
Figure 3.4.1.1 - Paper Prototype of Standalone app

Figure 3.4.1.2 - Testing Paper Prototype of Standalone app

At the conclusion of the previous round, the team identified an acute need for the extension of the "Susi" platform beyond the online banking integration. A combination of feasibility issues such as project timelines, app hosting differences informed this decision. As a result, the team began applying the previously designed and iterated structure to the environment of a standalone application.

The mobile layout did not require major changes, as the space dedicated to the side bar perfectly matched the resolution of a mobile screen. The team proactively increased contrast and font size to ensure readability on mobiles with lower resolution displays. The integration of the platform into a desktop environment required far more drastic changes. The process began with sketching out the layout of the platform for a full-width desktop screen resolution. The additional space called for structural changes, repositioning of the elements, and an evolved information architecture. The change in screen space meant that less screens were needed to represent the full range of features previously contained within the sidebar. The drastic shift in information placement called for a new foundation of user testing.

The process was speed up by the applicability of the previously defined testing protocol, which included task-based interface evaluation, think-aloud walkthroughs and feedback matrices (Appendix 10). The sample size of 5 participants was maintained.

Susi

User Indentfied Benefits

➕ "The navigation is consistent with other apps ive been using so it is familiar and easy to use."

Questions and Comments

💡 Sometimes when you purchase things your transactions on your card ring up weird card details/business.

💡 Environment pushed down our throats. What would make this different?

Susi Prioritisation Matrix

High

Do Next The graphic of the planet, doesn't speak to the tone of the design, change it so it doesn't look like it's designed for kids	**Do Now** Adding a search bar function on top of the transaction to allow users to search for specific transactions easily Users expressed the interest in being able to filter and sort out the alternatives displayed according to there buying needs
Do Never The planet does seems to be clickable: This is a limit of paper prototyping	**Do Last** I wish it catered to different people needs The designs comes across as condescending, how can you reward small changes because

Importance (vertical axis label)

Low

Low · **Urgency** · High

The actionable outcomes following this round were as follows:
- Shifted tone of copywriting within the point system;
- Integrated a search function into the transaction view;
- Re-designed the graphics of the planet to match the tone of the concept, and eliminate the infantilised aesthetic it previously portrayed;

3.4.2 Feature Range Expansion

Intention: Integrating the new functionality into the format of a browser extension.
Method: Paper Prototypes Features Extension
Analysis: Usability testing on General audience: Abstracts Tasks, Think Aloud, Feedback Matrix Converted into a prioritisation Matrix

The feedback received from previous testing rounds of the "Susi" platform contained a common sentiment regarding the application of the platform in a wider context. In response to this recommendation, the team brainstormed additional platform functionality. A pain point identified through the journey mapping stage (Figure 3.2.1.3) highlighted that certain purchases were of high enough importance to the users, that their "unsustainable" characteristic created a mental incongruity. This resulted in feelings of guilt and distress, which undermined the effectiveness of our solution. These negative feelings played into the desensitization state which the team sought to break, and went against the team's chosen approach: encouragement and comfort.

3.4 Phase 4 : Concept Expansion (Continued)

Following this observation, the team expanded the feature range to include an algorithm to identify alternative stores and products based on a selected reference. While the functionality was originally integrated into the standalone web app, convenience featured as a heavily-weighted criterion for success which was derived from the primary research in the previous phase of the project. In accordance with this design consideration, the team began integrating the new functionality into the format of a browser extension.

To streamline the testing of the new functionality, the team maintained the paper medium accompanied by task-based interface evaluation, developing a new task set. These testing methods helped the team stay within the tight deadlines of the project, as throughout the previous testing rounds, the team members became comfortable and familiar with the administration of the testing protocol. The sample size of 5 participants was maintained. Figure 3.4.2 shows one of the paper artifacts used to test the browser extension.

Figure 3.4.2 - Feature Range Expansion (Paper Prototype)

Susi

User Indentfied Benefits

➕ "I really like the integration of the checker and i like how you can do something before and after so positive negative reinforcement as a whole for the ethical consumerism process"

➕ The alternatives, reduces the cognitive load, because it was tough mental process to shop ecological
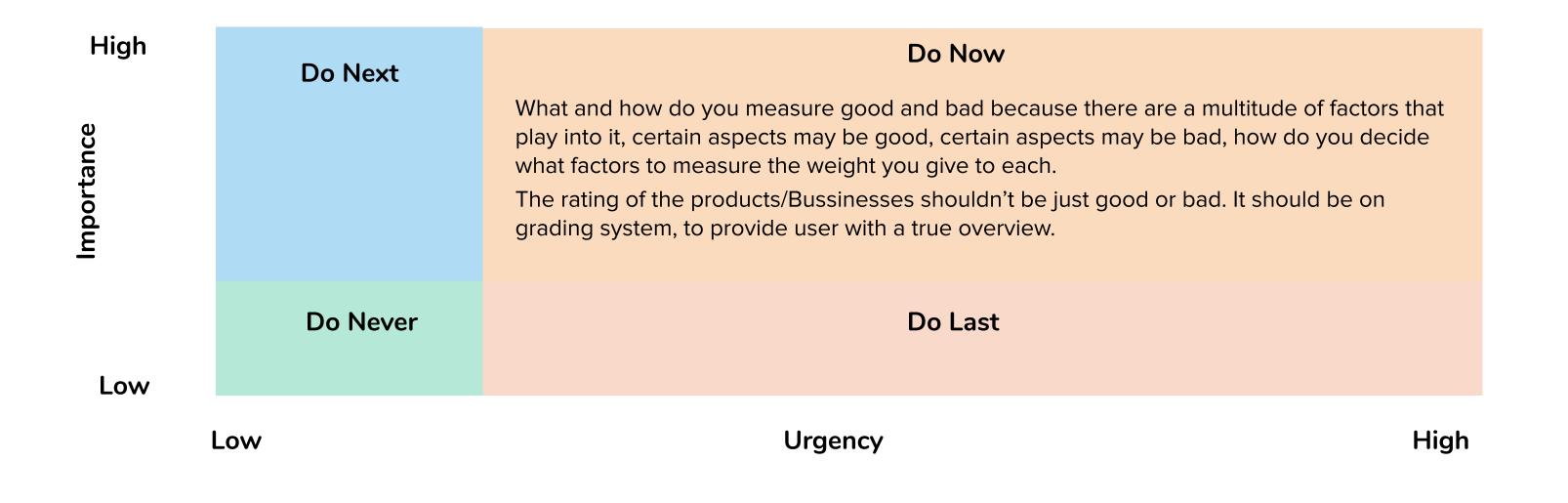
Questions and Comments

💡 Even if i'm wearing and buying clothes made at good companies, it still can be bad because of my net impact.

Susi Prioritisation Matrix

Do Next	**Do Now**	
	What and how do you measure good and bad because there are a multitude of factors that play into it, certain aspects may be good, certain aspects may be bad, how do you decide what factors to measure the weight you give to each.	
	The rating of the products/Bussinesses shouldn't be just good or bad. It should be on grading system, to provide user with a true overview.	
Do Never	**Do Last**	

Importance: High → Low
Urgency: Low → High

The actionable outcomes following this round were as follows:
- Adjusted the cosmetic appearance to increase consistency with the main interface.
- Developed the business rating system into an elaborated breakdown of individual characteristics.

23

3.4 Phase 4 : Concept Expansion (Continued)

3.4.3 Interface Validation
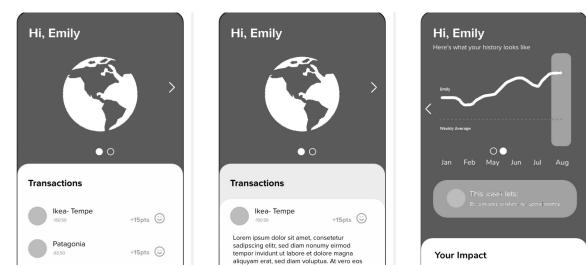
Intention: Usability testing with a general audience to ensure the applicability of the concept to all level of competency, to identify possible usability problems within the concept Expansion

Method: Digital prototypes: Low fidelity

Analysis: Usability testing on General audience: Abstracts Tasks, Think Aloud, Feedback Matrix Converted into a Prioritisation Matrix

Following the positive reception of the new layout and extended functionality, the two sets of paper prototypes were used as a reference to carry over the changes into the existing digital prototype. At this stage, the previously chosen style guide, proven effective through accessibility testing, was applied to the new screens.
The testing protocol was kept constant to the previous rounds, consisting of task-based interface evaluation, think-aloud walkthroughs and feedback matrices. The sample size of 5 participants was maintained.

Low-fi Round 1

Low-fi Updated according to Expansion Findings

Figure 3.4.3.1 - Example of the Changes Applied to Existing Digital Prototype

Webpage

Figure 3.4.3.2 - Webpage (Low-Fidelity)

3.5.1 Higher Fidelity Prototyping

Intention: Refine the interface, create a prototype representative of the final product
Method: Digital Prototypes: Mid Fidelity and High Fidelity
Analysis: Usability testing on General audience: Abstracts Tasks, Think Aloud, Feedback Matrix Converted into a prioritisation Matrix, Heuristic Evaluation

After applying the feedback from the previous rounds, the team worked on enhancing the cosmetic appearance of GUI elements, and compiling the final screens into an operable prototype. In the next stage of the project, this prototype will be evaluated against Jacob Nielsen's 10 Heuristics to cheaply and quickly confirm its compliance with best practices (Nielsen, 2005). The resulting mid-fidelity prototype will be used as a basis for preliminary front-end development. While the team will continue to test and iterate on the prototype through the next stage of the project, the majority of the resources will be dedicated to front-end software development. The next section will contain the final concept description, along with mid-fidelity prototypes and project future.

4. Chosen Concept

4.1 Description

Susi is an innovative shopping companion, with a focus on encouraging sustainable spending. As both an integration into an existing online banking service, and a standalone web-application, Susi displays purchasing history and information on the environmental impact of each purchase. Additionally, a search engine and matchmaking service within the platform can offer alternatives to unsustainable stores/products. To accompany the point-based scoring system, the user is given a personified virtual world that they are responsible for caring for. The virtual world's health responds to the user's spending behaviors, which are analysed with regard to sustainability of the business they support. Depending on the purchases' determined environmental impact (waste created, resources consumed, emissions produced) the planet's appearance and statistics change.

This empathetic response triggered by personification (Kleinberger, 2020) actively encourages accountability for spending habits, by building a direct connection between the purchases and their relative environmental consequences. Each purchase is rated according to existing sustainability guidelines, and scores are available to the customers, allowing them to make better choices. While there are existing solutions that follow a similar route, none rely on real time purchasing data, but rather work off self-entered information. This requires additional commitment, and can become bothersome. By eliminating the manual logging process, we ensure accurate input and continued data entry.

The platform also functions outside of the web application process, accompanied by a browser extension. The extension contains a live business screening function, which can be triggered at any time while shopping online, and will proactively recommend alternative stores and products.

By visualising the consequences in an easily digestible way, and employing the nudge theory accompanied with empathetic motivators, Susi seeks to encourage sustainable consumption. The following pages will contain a prototype summary and concept art.

4. Chosen Concept

4.2 Motivation for choosing this concept over the others.

While the team entered this leg of the project with a diverse palette of concepts, at the conclusion of the testing phase, Susi outperformed other proposed solutions in all significant criteria previously identified and documented in the Pugh Matrix (See Appendix 1).

Built for empathy, the solution implements nudge theory, supplying the participants with the information they need to make lifestyle changes, and the tools to measure accountability, while maintaining freedom of choice. The product most clearly communicates the individual impact of users' purchasing decisions, while proactively offering actionable alternatives on the fly. The presence of ebullient imagery, encouraging statements and positive reinforcement appeals directly to the team's pledge to "avoid causing undue distress". Most significantly, as opposed to all other approaches, Susi requires minimal user input, but rather accompanies an existing activity within the participants' life, bypassing burnout and motivation loss (Guise & Scott, 2013).

Despite the success of the application throughout all testing phases, the team is still grappling with privacy concerns and implementation feasibility. Originally intended to be a banking plug-in, the product was removed from the banking environment and transformed into a standalone app. This decision was made by the team in response to the research outcomes of an investigation into the software development practices in banking applications. Through conversations with past and present employees involved with the process, the team concluded that the likely timeline (1-2 years) hinders the team's ability to get the solution to the market. Long implementation timelines allow time for competitors to step in, and render currently applicable research insights obsolete (Gothelf, 2011). Conversely, participants stated that they were not comfortable with providing their transaction history to a third party. The next phase of the development process will include additional research into perceptions of privacy and trust establishment strategies.

4.3 Target audience

Per the brief, the product was designed with the general Australian population as the broad target audience. Based on the recommended platform (web-application), the audience narrowed down to the subset of the population with access to the Internet and an appropriate browsing device (outlined in Section 5.2.1: Operational Requirements). Section 3.2.1 elaborates on the personas used to represent the target segments of our audience - individuals who are aware of the pressing nature of the climate change catastrophe, but struggle with converting the concern into actionable outcomes.

4.4 Implementation Plan

The following section describes a strategy for the next stage of the project: development and implementation of the solution.

4.4.1 Operational Requirements:
Within the constraints of the brief, the nominated platform for the solution is a web application. Therefore, the user will require a device with the latest version of least one of the following browsers: Chrome, Safari, Edge, Firefox, Internet Explorer or Opera.

In addition to the above, the device must have hardware capable of running graphical elements represented in WebGL. The recommended devices are the below (or similar):
A personal computer with at least an Intel Core i5-6400 processor or equivalent;
A mobile device with an Apple A11 Bionic processor, a Qualcomm Snapdragon 855 processor or equivalent
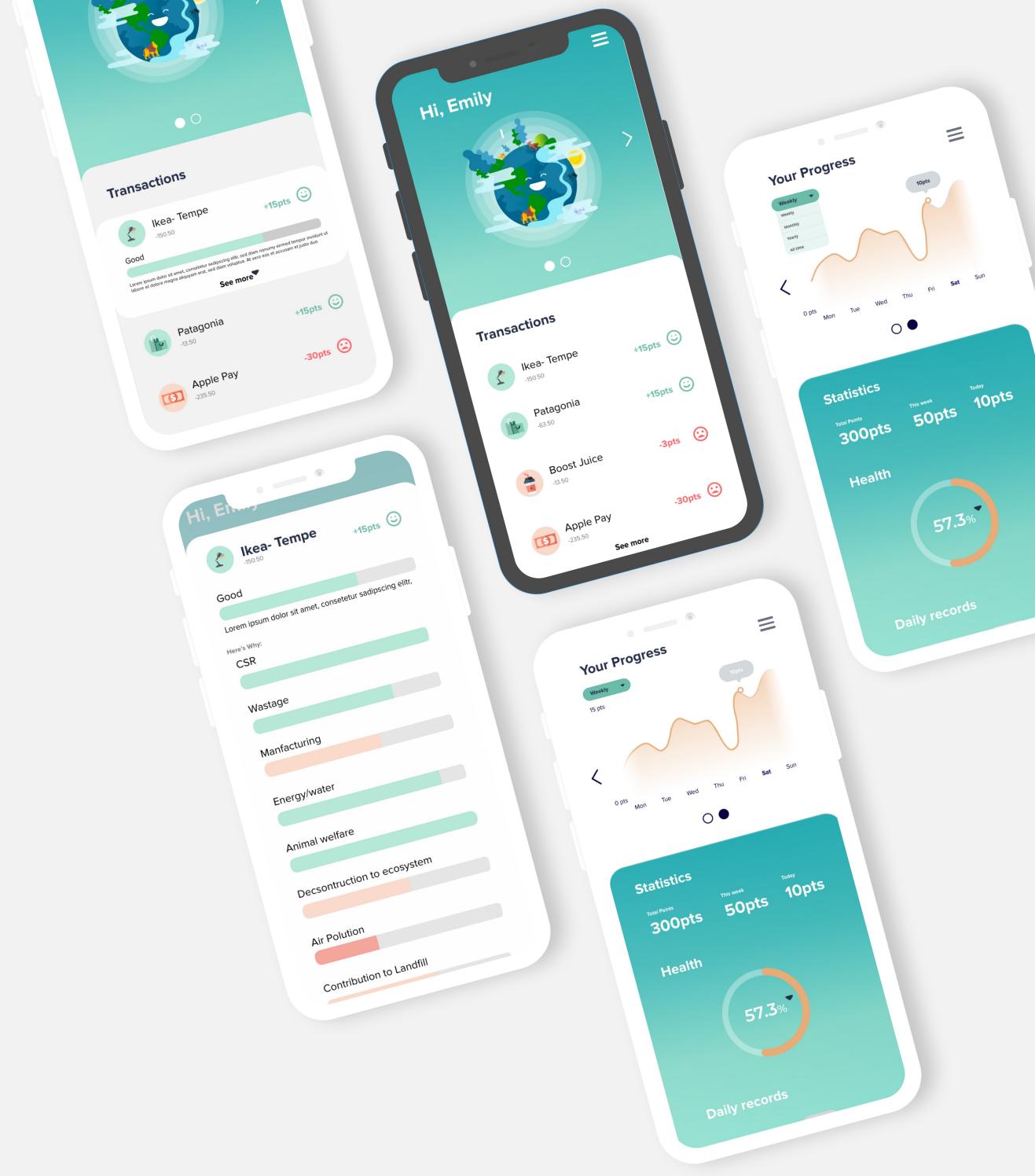
4.4.2 Development Specification:
The application prototype will be built in HTML with the use of a CSS framework (E.g. Bootstrap) to speed up the rapid development process. Additional JavaScript elements may be written to create custom transitions and animation effects. The Google Chrome Javascript API will be used to build and implement the browser extension component.
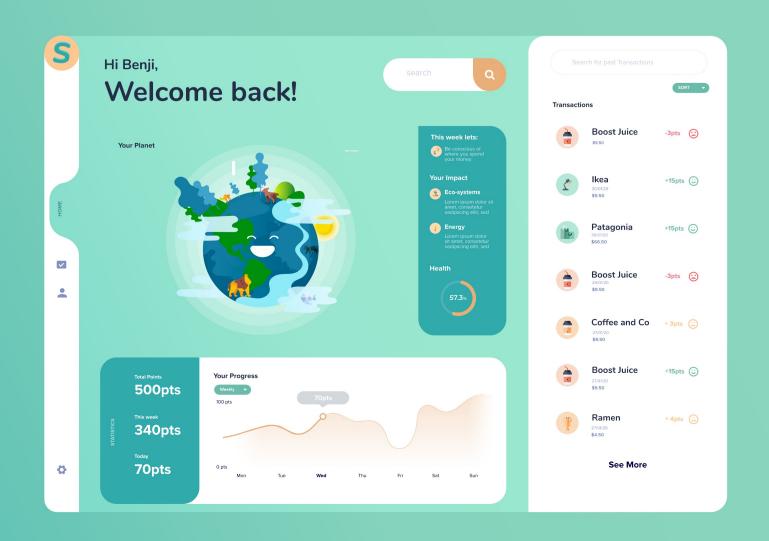
Non-original 2D Assets may be purchased and downloaded for use in the project, with full attribution. Hardware requirements remain consistent with those described above.
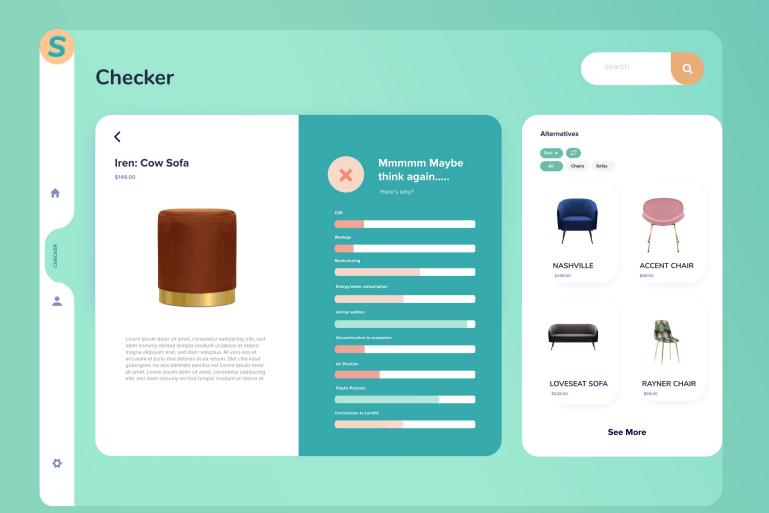
4.1.2 Concept Art

Mobile & Bank Plugin
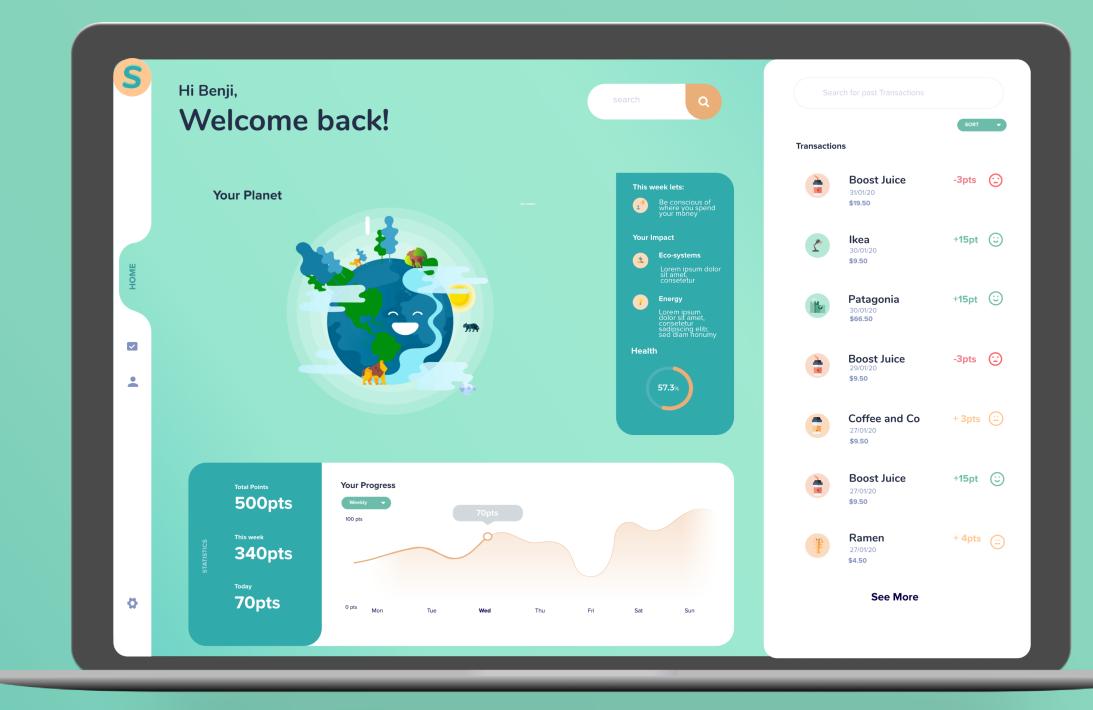
Webpage
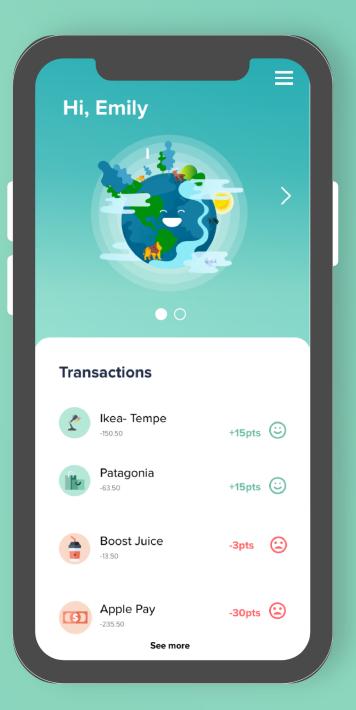
4.1.1 Concept Art:
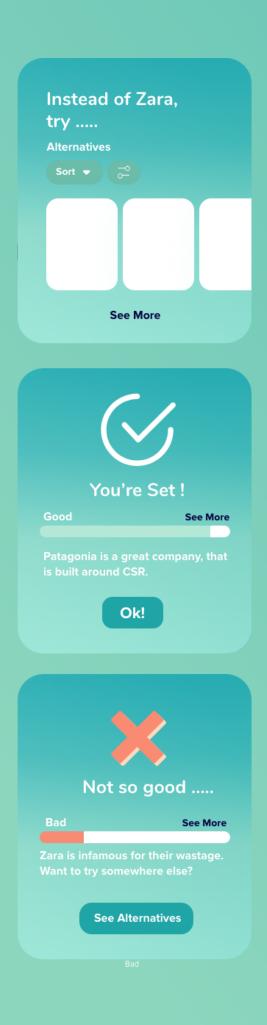
Mobile & Bank Plugin

Webpage

Browser Extension

4. Chosen Concept

4.4.3 Phases of Development and Implementation:
Figure 4.4.3 demonstrates the implementation plan recommended by the team. The timeline presented documents the last phase of the project to be undertaken by this team, as well as the future steps required to release the solution into the market.

3-4 Weeks	8-10 Weeks	2 Weeks	2 Weeks	2 Weeks	Underdetermined
Higher Fidelity Prototyping and Development	**Industry Intergration**	**Stakeholder Pitch**	**Web-App Soft Launch**	**Hard Launch**	**Further Dissemination**
Testing and Iteration — Agile Development Sprints	Legal and logistical process in preparations for launch.	Gauge interest of "Angel Investors", dicuss online banking intergregation.	Invite early adopters as part of a soft launch to a small audience.	Full-scale product release.	Penetrate online banking platforms on a case-to-case basis.

(Figure 4.4.3 - Development and Implementation Plan Overview

5.2.4 Team Member Responsibilities

Anastasia Feshina:
Front-End Development
Copywriting
Implementation

Ebony McCue Shore:
Testing Coordination
Copywriting and Interface Design
Reporting

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Appendix 1: Concept Evaluation

Concept Evaluation - Pugh Matrix

Pugh Selection Matrix								
Design Criteria		Weight	Concept 1: Digitized Future	Concept 2: Tamagotchi Earth	Concept 3: Ruler of your own Planet	Concepts 4: Socially-Networked Climate Activism	Concept 5: Game-Facilitated Learning	Concept 6: Climate-Friendliness Certification Scheme
Physical								
Technology:	Must make use of technology that the general audience would have access to	1	1	1	1	1	1	1
Durability:	Must withstand multiple uses	1	1	1	1	1	1	1
Aesthetics	The interface must be minimalistic, yet engaging and motivating	1	1	1	1	1	1	1
Speed	Interaction must be paced, according to the interpretations ability of the average audience	1	1	1	1	1	1	1
Usability Criteria								
Easy to learn	Learning curve must be appropriate for a general audience. Must not require any time dedicated to learning the screen based solution.	2	2	2	2	2	1	1
Effective	Must inform the general public around one or more of the specific problems triggered by climate change	2	1.5	1.5	2	0.5	1	0
	Must encourage awareness of and a change in behaviour to a more sustainable lifestyle	3	2.5	3	1.5	3	0	2.5
	Must provide motivational factors for personal	3	1.5	3	1.5	3	0	0

	contribution							
	Must demonstrate the consequences on the climate of different lifestyle choices	**3**	3	3	3	1.5	1	0
Engaging	Must present information in a interactive engaging manner to overcome desensitization	**2**	2	2	2	1.5	2	0
Efficient	Must be an elegant and efficient solution	**1**	1	1	1	1	1	0
Socio-Ecological Criteria								
Social	Must provide honest and accurate information from reliable sources	**1**	0	0	0	0.5	1	1
	Must not cause undue distress	**1**	0.5	1	1	1	1	1
	Must not use and unnecessary amount of resources or processing power	**1**	1	1	1	1	1	0
Accessibility	Usable on both desktop and smartphone devices.	**2**	2	2	2	2	2	0
Feasibility								
Cost	Low cost to implement Low cost to manage	**2**	1	1	1	2	2	0
Time	Must make use of rapid development practices due to the short timeline	**1**	1	1	1	1	1	0
Manufacturability / Technology	Must use existing technology and not require new R&D	**1**	1	1	1	1	1	1
Facility	Must not directly compromise any stakeholders, and be appropriate for its surroundings.	**1**	1	1	1	1	1	1
Overall score		**30**	25	27.5	25	26	20	11.5
Overall weighted score			47.5	54	46	49	30	17.5

Appendix 2: Concept Evaluation - 4L's Matrix

Concept 1
Synthesized Participant Feedback:

Successful Features	• Users appreciated the novelty of VR. It piqued their interest and enticed them to use it. • Users loved the combination of data entry and VR, as it helped them see their impact clearly and understand the direct connection to my actions • Users felt that it would show them whether their efforts are meaningful. • All testing participants enjoyed seeing their present impact. They found it both exciting and confronting
Unsuccessful Features	• Users felt that there was a disconnect between initial surveys and the visualisation. To them, it lacked the narrative experience • The form-filling process is a de-motivator. The process is too boring and tedious • Multiple users pointed out the lack of barriers to lying, no actionable goals or educational material.
Interesting Discoveries	• All users were aware that the solution relies on the initial shock factor to enact change. • The average Australian consumes 6 times more than the average global citizen, and this is a great opportunity to highlight that.
Missing Elements	• Needs more actionable outcomes. • Participants seem to seek experience learning instead. It may be more effective to immerse them into a narrative where they are faced with certain decisions. It will help them achieve better understanding and be more engaged with the topic. • Social media integration may be a positive addition, users liked the possibility of seeing their friends' worlds.

Concept 2
Participant Feedback:

Successful Features	• Users liked the bank account integration, as they couldn't see themselves committing to manually inputting information into the app. • Users felt more connected with a personified, living being, as opposed to the abstract concept of harmful consequences. • Users loved that it integrated seamlessly into their existing lifestyle.
Unsuccessful Features	• Users expressed concerns about their privacy and third-party handling of bank data.
Interesting Discoveries	• Can a compromise be established between manual data entry and bank account integration without invading personal security? • Users stated that they enjoyed direct consequences for their actions. To them, it's never been more clear - how their purchases impact sustainability.

Missing Elements	● Game strategy and orientation. ● More severe consequences, that replicate real life - e.g. animals dying or ecosystems being destroyed.

Concept 3

Participant Feedback:

Successful Features	● The element of competition and collaboration seemed to be a hit with most participants - they found it highly motivating and infections. It was referred to as a "collaborative way to be better". ● Although the app lacks clear educational material, users enjoyed the idea of learning by example. ● The tendency of these platforms to create a culture will translate to wider usage and impact. ● The possibility of getting family or community involved appealed to the users. ● Users believed that the solution encourages accountability and community effort, as they know what the right thing is, and they are so sick of hearing about it. ● Users believe that being peer pressured to do it provides the incentive to get started.
Unsuccessful Features	● User input is subject to bias/lying. ● Effort of importing data manually can discourage people. ● Some users were concerned that they may be subjected to judgement from their higher educated friends. They longed for a like-minded community that matched their level.
Interesting Discoveries	● It may not work for different people (some people don't use social media, or engage with competitive environments).
Missing Elements	● Participants asked for the team culture integration into the solution, and suggested the use of collaboration based achievements. ● Participants longed for some form of habit building encouragement, like streaks, where participants have to individually or collectively use it regularly. ● There is a need for a matchmaking system to build homogenous communities - harsh competition can be a de-motivator.

Sheet 1

Concept 1: Digitized Future	Concept 2: Tamagotchi Earth
Loved... VR, Strong story, see consequences	**Loved...** Gamification
Learned...	**Learned...**
Lacked... No desire to fill out the form. I wouldn't believe it.	**Lacked...** Data? No
Longed for... Skip form	**Longed for...** Gamify the data collection

Concept 3: BitLife Earth	Concept 4: Socially Networked Sustainability
Loved...	**Loved...**
Learned...	**Learned...**
Lacked... Feels like there are no consequences. More of to take away than edu.	**Lacked...** I don't enjoy social networks. Tough sell.
Longed for...	**Longed for...**

Sheet 2

Concept 1:	Concept 2:
Loved... the combination of a form and are or your life	**Loved...** Integrated with bank account simitaneously
Learned...	**Learned...** applications on buying decision from daily life
Lacked... in the vr world. interaction w/ incorporated	**Lacked...** prolong course
Longed for... Share on social media	**Longed for...** incentives !

Concept 3:	Concept 4:
Loved... education through quest format	**Loved...** would create sense community
Learned... How does it translate to real life?	**Learned...** accountability, community effect
Lacked... interaction / variety of scenarios	**Lacked...** possibly diverse representation
Longed for... more applicable to every day life	**Longed for...** Stresses prolonged vr

Concept 1:	Concept 1:

Sheet 3

Concept 1: Digitized Future	Concept 2: Tamagotchi Earth
Loved... Sounds really cool and informative	**Loved...** integrates into my existing lifestyle. Cute
Learned...	**Learned...** How my purchases impact my sustainability.
Lacked... Emotional content	**Lacked...** Privacy Concerns
Longed for...	**Longed for...**

Concept 3: BitLife Earth	Concept 4: Socially Networked Sustainability
Loved...	**Loved...** Leadership. Compare to others
Learned...	**Learned...**
Lacked... Consequences	**Lacked...** Accountability. Uniqueness?
Longed for...	**Longed for...**

Sheet 4

Accountability v3

Concept 1: Digitized Future	Concept 2: Tamagotchi Earth
Loved... life. It would show if my changes would be meaningful. It is awe to see a real impact right now.	**Loved...** more cared for. I feel I animal mascot would learn my good purchase brought with stakes
Learned... Am it good to see. Bod to awoe of my action but my is greatest problem is that I don't know the right thing even when.	**Learned...** Good purchases. Consequences of action. Different diversions of the environments and climate change.
Lacked... Accountability. How to mae woke? How to supprted bu size is and expenditure. How to apply my food environment.	**Lacked...** expecting. farm/animal dying. the adverse effects of climate change. going back coming back to it of the gamification/abstract award
Longed for... valued to my life when it is tough. Accountability! Empower me to make oth better	**Longed for...** animal dying from climate change. should using stores for stories.

Concept 3: BitLife Earth	Concept 4: Socially Networked Sustainability
Loved... Second chance cause I learn from my mistake. Visually appealing idea.	**Loved...** Being peer pushed never. Not being last will push me. It would make work cause my friends will make fun of it.
Learned... how to push government to change. Balancing self-realistic environmental change.	**Learned...** Habit Building. Examples of what to small or big.
Lacked... Games I don't treat games to real life cuz it an escape. Good to see how to impact my realistic.	**Lacked...** finding the right community. If other people are too woke and feel like shit end of it.
Longed for... Stakes. You can't make a perfect world without consequence. Good to learn realistic environmental actions	**Longed for...** Matching system were it's competitive enough that I will try but too competitive where I wont to get it

So I can sound educated when I talk to people about what the world looks like.

Concept 1: Digitized Future	Concept 2: Tamagotchi Earth
Loved... The ability to adapt VR Immersion through the analysed data set, being multiplied	Loved... - The companion - Aspects Gamification
Learned...	Learned...
Lacked ... Would not want to fill out forms	Lacked ... Would not be comfortable having data set sent
Longed for ...	Longed for ... Would be a strong concept if you can figure out a way to overcome

Concept 3: BitLife Earth	Concept 4: Socially Networked Sustainability Security concers
Loved... Companionship. Creates an entising element	Loved... The competetive Aspect. I Enjoy comparing results
Learned...	Learned...
Lacked ... What are the consequences? If I make the wrong decisions.	Lacked ... Importing data manually is tedious.
Longed for ...	Longed for ...

Appendix 3: Empathy Building

Personas :

Persona 1 :

Nancy Fried

Age : 27   **Occupation :** Accountant

Motivation

Free Time

Education Level

Archetype:

Nancy is a mum to 3 children, and she works extremely long hours, and is often exhausted after a days work. Because of this she often chooses convenience, and cost over sustainability. She doesn't understand her impact or view herself as part of the problem or solution.

Attitudes:

She know that she can do more to reduce my impact on the climate but she doesn't always do it, because sometimes it is too much. She finds it hard to hold himself accountable because he thinks her impact doesn't matter, on the grand scale of climate change. When she see Climate change in the news and its never any good news, sometimes she just tunes out because it becomes all too overwhelming. She doesn't pay attention to where i invest my money into.

Needs :

She want to feel motivated to change her behaviours. She needs it to be easy and covenient, as she doesn't have alot of time. She would like to feel satisfaction and good from doing the right thing.

Frustrations :

Sometimes she becomes overwhelmed by what to do, and because of this she feels bad and disassociates from the issue. She doesn't have motivation to make these lifestyle changes, she needs guidance, incentive.

Goals :

She want to feel motivated to take action. She doesn't want to feel guilty about not doing anything anymore. She want to know the little things that she can realistically do, and get satisfaction from doing the right thing.

" I know that I can do more to reduce my impact on the climate but i don't always do it, sometimes it's too much. "

Persona 2:

Timothy Edge

Age : 21   **Occupation :** Student

Motivation

Free Time

Education Level

Archetype:

Timothy is a student currently studying Commerce at University. He wants to help reduce his impact on the climate but doesn't know what he can do. He is very busy with University, and balancing a full-time job, becasue of this he doesn't have the time to educate himself. He wants to learn what small things he can do.

Attitudes:

Timothy knows that climate change is a problem, but doesn't know what impact my lifestyle has. He has seen climate change on social media, but its always what's wrong, or these unlrealistic goals he can't do. He want to help but i don't know where to start. He doesn't pay attention to where he invests his money into. Recently he had needed to choose a super fund, he chooses to go where his parents

Needs :

He needs to be provided realistic task that will motivate him. He wants to know more he can do, but doent want to have to put effort into learning. He wants to feel inspired and responsible for my actions and get satisfaction from doing the right thing.

Frustrations :

He get frustarted when he see's climate change on social media and how bad it is. He wants to help because it makes him feel bad. Sometimes he gets frustrated that the government and bussinessses aren't doing more.

Goals :

He wants to be inspired on what small actions he can take, and want to feel satisfaction from doing the right thing. He wants to feel like he is making a difference.

"I want to my play role, but i dont really know what realistic steps i can take"

Digitised Futures: Future State Journey Map

Phases		Prior		During				Post
Sub Phases		Present State	Discovery	Onboarding	Enanging with Objectives	Reviewing Results	De-Briefing	Future Steps
TouchPoints		- Exposed to conversations surrounding Climate Change	- Users are exposed to the solution through word of mouth.	- Adoption of solution, user begins the onboarding process, becoming familier with the platform.	- Completing Checkpoints	- Users review results in a VR Visulsation according to their in-game decisions	- Users are immersed in the a virtual world which reflects what the world would look like if everybody lived like them.	- User are provided with appropriate steps to take according to their results.
Feelings and Needs	Nancy	I want to do more but sometimes its too hard	Will my data be private?	I really like the idea of being able to visualise my impact	I do the right thing so my pet planet lives	I feel really good that I am making a difference	I really like the idea of being able to visualise my impact	I feel really good that I am making a difference
	Timothy	I want to my play role, but i dont really know what realistic steps i can take	I'm excited to learn how to reduce my impact	I hope this teaches me small things i can change	Essentials turn out to be kool, cool app	I'm inspired to do better	I hope this teaches me small things i can change	I'm inspired to do better
Activities		- Consuming Media; - Being Exposed to conversations surrounding climate Change.	- Observing the use of patterns of peers and community.	-Completing the sign-up process. -Following the referral links. -Interacting with promotional Material.	- Completing Checkpoints	-Observe the in-app supplimenetay educational materials. - Share Experience with friends. - Evaluate future steps.	- Repeat the experience. - Act upon new understandings	- Sharing results, and tips to friends and family; - Accessing Thrid party Learning Tools
Service Blueprint	Tech	- Advertising material - Social media presence	- Hosting platforms re-direct links	- in-App Advertising and onboarding	-Internal Data Processing mechanisms		- External Information provided through third-party links. - Social media integration	-"Retry" Functionality
	People	- Word- of-mouth generated by use in the community	- Word of Mouth	- Word of Mouth		- Word-of-mouth - Sharing experience with Friends		
	Objects		- Log-in/sign up Process	- in-game processes	- Using a web supported device	-Endgame Screen	- Using a web supported device	- Using a web supported device

Susi: Future State Journey Map

Phases		Prior		During		Post
Sub Phases		Present State	Discovery	Onboarding	Daily Use	Future Steps
TouchPoints		- User are exposed to Conversations around Climate Change	– Discovers a online platform bank intergration that help users visualise their puhcases impact on the climate.	-Opts to intergrate the Plugin in the banking app	- Users purchases translate into + - points, which effect the health of there own virutal pet planet.	-Continued use of the plugin, and conscious buying behviour to help pet planet survive.
Feelings and Needs	Nancy	I want to do more but sometimes its too hard	Will my data be private?	I really like the idea of being able to visualise my impact	I do the right thing so my pet planet lives	I feel really good that i am making a difference
	Timothy	I want to my play role, but i dont really know what realistic steps i can take	I'm excited to learn how to reduce my impact	I hope this teaches me small things i can change	Essentials Turn out to be bad, cool app	I'm inspired to do better
Activities		- Consuming Media - Being Exposed to conversations surrounding climate Change	- Observing the use of patterns of peers and community	-Following in-app prompts to enable the feature	- Observe the effects of purchases - Review information about purchases -Implement lifestyle changes and adjust purchasing behaviours	-Observe the in-app supplmenetay educational materials - Share Experience with friends - Evaluate future steps
Service Blue Print	Tech	- Interacting with Media	- In- App adventure by bank - External ads by bank	- In-App Advertising and onboarding	-Internal Data Processing mechanisms -Internal data visualatsions	- Social media - Third party educational Materials
	People	- Conversations on climate change	- Word of Mouth	- Word of Mouth		- Word-of-mouth - Sharing experience with Friends
	Objects			- Using a web supported device	- Using a web supported device	- Using a web supported device

Eco Habit: Future State Journey Map

Phases		Prior		During			Post
Sub Phases		Present State	Discovery	Onboarding	Daily Use	Introspection comparing yourself	Future Steps
TouchPoints		- No exposure to platform; - Exposure to news and social media platforms covering Climate change.	- Exposure to the platform through word of mouth and advertising campaigns.	- Adoption, decides to make a account and see what the hype is about.	- Users post what activites they are doing, compete within group settings and discover like minded people.	- Users begin comparing their own effort to there Friends.	- Users frequently enage with the Platform sharing lifestyle choices - Begin conversation around Eco Habit.
Feelings and Needs	**Nancy**	I want to do more but sometimes its too hard	What's this app all my friends keep Talking about	I wonder how my lifestyle compares to my friends	I do the right thing so my pet planet lives	Wow, my friends are doing so much more than me.	I am inspired to keep on trying to improve my lifestyle
	Timothy	I want to my play role, but i dont really know what realistic steps i can take	Ive heard about this platform i think it might be a good place to start	Im exicted to see, what small things others are doing that i can do	I really like how i can visualise my progress and earn rewards	My progress compared to everybody else is so much lower	Now that i know what others are doing i want to try and implement more lifestyle changes
Activities		- Consuming Media - Being Exposed to conversations surrounding climate Change	- Observing the use of patterns of peers and community	-Completing the sign-up process -Following the referral links -Interacting with promotional Material	- Completing Checkpoints	- Interacting with Friends post - Sharing own efforts - Looking at leaderboards	- Consuming Media - Being Exposed to conversations surrounding climate Change
Service Blueprint	**Tech**	- Advertising material - Social media presence	- Hosting platforms re-direct links	- In-App Advertising and onboarding	-Internal Data Processing mechanisms		-"Sharing" Functionality -"Saving Tasks" Functionality
	People	- Word- of-mouth generated by use in the community	- Word of Mouth	- Word of Mouth	- Joining like minded Communities	- Friends Sharing Experiences online	- Joining like minded Communities
	Objects			- Log-in/sign up Process	- Using a web supported device	- Interacting with Eco Habit Platforms	- Using a web supported device

Appendix 4: Development of Tasks flow

Concept 1 : Digitised Futures

Start Screen

- Credits → Offsite
- Privacy Statements → Offsite
- Account Info ↔ Account Creation

Primary World generation

Scenario based question → Update World

Final Render

Outcome based Advice

- Share → Offsite
- Learn More → Offsite
- Retry

Concept 2 : Susi

Third Party on-boarding

Bank Transaction Input (automated)

Notification [+- X Points] → User click

Update Rendering → View Rendering VR

Purchase Info + impact Info + Metrics

Metrics

Concept 3: Eco Habit

Appendix 5: Preliminary Interface

Concept 1 : Digitised Futures Sketches

Sketching Wireframes - Web Page

Sketching is a quick way to start to visualize ideas and design together. Have fun!

Log In/Signup

START

Use the Draw tool...

> Credits

> Privacy Policy.

Write a caption here..

Scenario A

Answer X   Answer Y

Use the Draw tool...

25°C

Write a caption here..

THIS IS WHAT THE FUTURE HOLDS...

if everyone followed your
example :

> Learn how to help others become
more sustainable
Use the Draw tool...

Share   Retry

THIS IS WHAT THE FUTURE HOLDS...

if everyone followed your example:

> Learn how to develop a sustainable
lifestyle

Share   Retry

Use the Draw tool...

Sketching Wireframes - Web Page

Sketching is a quick way to start to visualize ideas and design together. Have fun!

Scenario B

Answer X   Answer Y

30C°

Use the Draw tool...

Write a caption here..

Scenario C

Answer X   Answer X

40°C

Use the Draw tool:..

Write a caption here..

Concept 2 : Susi

Home

Reserved for bank interface

Use the Draw tool...

- $3 Coffee   -1
+ $8   -3
- $7   +3
- $3.50   +3

My Planet

Use the Draw tool...

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24 March 2020   Project Name

Home

Reserved for bank interface

Use the Draw tool...

- $3 : Coffee

-1

Why?

Write a caption here..

Use the Draw tool...

Write a caption here..

Concept 3: Eco habit

Sketching Wireframes - Web Page

Sketching is a quick way to start to visualize ideas and design together. Have fun!

Write a caption here..

Write a caption here..

Sketching Wireframes - Web Page

Sketching is a quick way to start to visualize ideas and design together. Have fun!

Home   Profile   Community   **Leaderboards**

Weekly ☑

Personal   >
Friends   >
Clubs   >
Events/ Competitions >

1. 👑 ◯ ——————   456 pts.
2. ◯ ——————
3. Use the Draw tool ——————
4.

456 👤 Your   Place   XYZ PTS

Use the Draw tool…

Write a caption here..   Write a caption here..

Sketching Wireframes - Web Page

Sketching is a quick way to start to visualize ideas and design together. Have fun!

| Home | community | profile | leaderboard |

Groups

Q _____

Refine

[⌄]

[⌄]

[⌄]

[GO]

◯ climate Change newbies
    72·k members

◯ Use the Draw tool

◯

◯

Use the Draw tool...

Write a caption here..

Write a caption here..

Sketching Wireframes - Web Page

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24 March 2020   Project Name

Activity: Badges

Climate change
For newbies

JOIN

Use the Draw tool...

Weekly rankings   Challenges

30%

70%

Use the Draw tool...

Write a caption here..   Write a caption here..

Appendix 6: Translation Into Visual Format
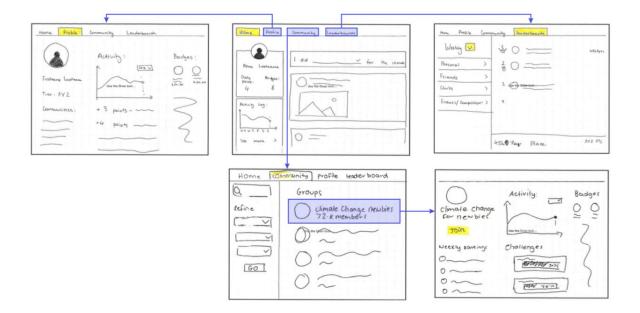
Concept 1: Digitised Futures

Concept 2: Susi

Concept 3: Eco Habit

Appendix 7: Rapid Concept Building

Concept 1: Digitised Futures

Sketching Wireframes - Web Page

24 March 2020   Project Name

Write a caption here..

Sketching Wireframes - Web Page

24 March 2020   Project Name

Write a caption here..

Sketching Wireframes - Web Page

Sketching is a quick way to start to visualize ideas and design together. Have fun!

24 March 2020   Project Name

Write a caption here..

Sketching Wireframes - Web Page

Sketching is a quick way to start to visualize ideas and design together. Have fun!

24 March 2020   Project Name

Write a caption here..
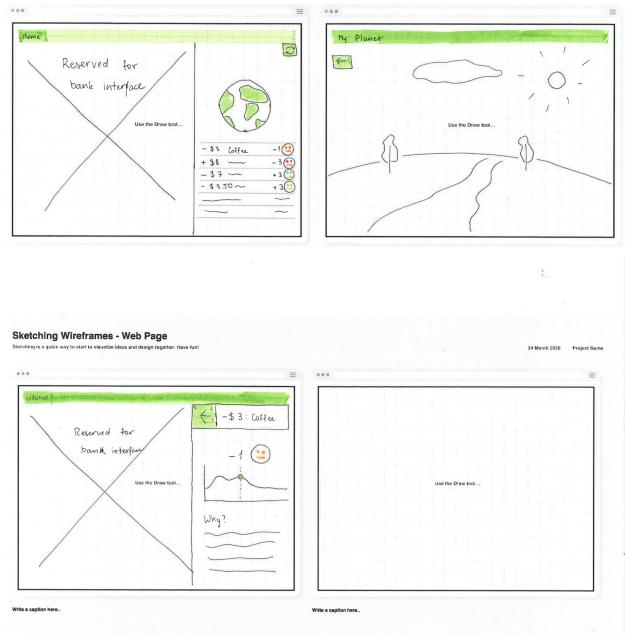

Sketching Wireframes - Web Page

Sketching is a quick way to start to visualize ideas and design together. Have fun!

24 March 2020   Project Name

Write a caption here..

Concept 2: Susi

< - 3.50 Coffee

Your impact:

− 3.50	Coffee	− 1	😐
− 45.38	Petrol	− 10	🙁
− 7.30	Coles	+ 0	😐
− 20.18	Patagonia	+ 10	🙂
− 35.00	Frank Green	+ 5	🙂
− 389.99	Apple Pty	− 30	🙁
+ 0.20	Commonwea...	+ 3	🙂
− 7.60	Subway	− 1	😐
− 3.50	Coffee	− 1	😐
− 5.73	Lime Bike	+ 3	🙂

Concept 3: Eco Habit

THE BOYS HOUSE   JOIN

WEEKLY RANKINGS: ACTIVITIES: BADGES:

1. John Doe
2. Robert Citizen
3. Henry Roberts
4. Liam Loke
5. Josh Taylor
6. Claudio Lucini
7. John Sharpe
8. Rob Dougas
9. Harrison Ford

13.05.20   13.05.20

CHALLENGES:

A cup a day:

80%

Mile walk:

Sort by ⌄

🔍

Refine Search:

Members

1   100   300

Locale:

Newtown

Tier:

Newbie   Expert

Climate Friends of Iglu
300 members
JOIN

Climate Warriors   New town
125 members
JOIN

The boys house
100 members
JOIN

John Smith

Tier: Eco-Hero

My communities:

- Back Town Boys
- Roseville area activists
- Glebe walkers

ACTIVITY:

+ 2 points
Used a keep cup

+ 2 points
Brought my own

. . .

BADGES:

Daily Top
11.10.20

Sunny Day
10.10.20

HOME | PROFILE | COMMUNITY | LEADERBOARD

John Smith

Daily
Points:

Badges:

4

8

Log Activity:

I did | Used a keep cup ★ | For The Climate today

Select... ✓

Activity Log:

M T W T F S S M T

See More ⟩

Jane Doe
12 Dec

Steve Doe
11 Dec

User Testing and Feedback Transcript:

Method: Think-aloud testing
Low-Fidelity Low-Resolution Paper Prototype
User Reached = 5

Concept 1: Digitised Futures

Task: Participate in the experience.
Objective: Test the experience effectiveness and clarity, and gain feedback on both concept and navigation structure.

Verbal feedback:

Navigation:
1. "How would the text input work? I can't imagine it being very easy to type within a VR view."
2. "Am I supposed to see an on-screen keyboard? Will it submit the text after I press enter or click away from the input field?"
3. N/A

4. "It's pretty straight forward, I knew what was going on after 1 question."
5. N/A

Concept:
1. "This doesn't feel that deep. While I am learning whether my actions are "good" or "bad", I have no idea why, or how I could do better. These scenarios feel very specific."
2. "There is not much to do per se, I'm just filling in a survey which has some sort of effect on a fictional world. I don't feel like it's representative."
3. "It's so easy to lie. There is a punishment, and I hate that. It makes me want to give "correct" answers, instead of the truth."
4. "I didn't really notice the changes because I was so focused on the questions. Looking back at it, it makes sense, but in the heat of the moment I wasn't paying attention. Maybe in an actual VR headset it would have been different."
5. "I didn't really learn much. It felt exaggerated and I wouldn't do it again out of interest. It's a fun novelty."

Users Feedback

Likes......	Criticisms...	Ideas/missing....	Questions....
"I liked the novelty of it, and the positive reinforcement. I felt validated and the validation would probably encourage me to maintain my habits. At least for some time, I think." "I like how it is more of a reflection of what you do, rather than an instruction manual, like most things are." "I like that fact you turned a boring experience into an interesting one, filling out a form is deathly uninteresting at its	"The judging system is strange. I would question the judgement behind each decision as the effects seem extremely exaggerated." "The neutral state is very bleak and grey, it feels like you start on a negative note." "The drastic changes feel very exaggerated. There is no way me using a dryer causes the entirety of global warming."	"The verbal data entry feels like it might be a pain. Is there a way to get around it by getting me to pick from a few options instead?" "Adding animals would be a nice touch, I think. I am very attached to animals usually and it would make the whole experience more heavy-hitting." "It feels like the sociability of it is missing. Is there a way to maybe add the combined effort of everyone?"	"What was happening in the back end? Why did my decisions affect the world in such ways?" "What long term effect was this supposed to have?"

core." "I liked the immersion of VR, the self-reflective nature of it. The direct implication of your choices, and the visualisation of the planet suffering seem like an effective way to tell the story."			

Concept 2 : Susi

Task	"Find out more information about your most recent transaction."
Goal	To streamline the information architecture in the "transactions" section.
Observation	Users generally were quick to identify the target information, as well as the steps required to fetch further details.
Errors (Participants 1-5)	1. Nil 2. Nil 3. Nil 4. Nil 5. Nil
User Comments (Participants 1-5)	1. N/A 2. "It's pretty straight-forward." 3. "Not sure why the graph would be necessary here." 4. N/A 5. "I feel like the fact that it takes me to a different page creates a disconnect between the action and the info. Maybe if the section expanded, or a notification box popped up, it would be less of a load?"
Proposed Changes	Move the extra transaction info into the item as an expansion, rather than a separate page. Separate the overall metrics from the line items into a separate page in the widget.

Task	"Take a closer look at your virtual pet."
Goal	To demonstrate the "virtual environment" functionality and gain feedback on the feature.
Observation	Users generally were quick to identify the target information, but noted the segmentation between the two screens.
Errors (Participants 1-5)	1. Nil 2. Nil 3. Nil 4. Nil 5. Nil
User Comments (Participants 1-5)	1. Nil 2. Nil 3. "I feel like there is a bit of a gap between seeing the round planet and the flat environment. Maybe by zooming in, it could be a little more obvious, what's going on." 4. "The event made sense, but the whole feature feels a little useless? I don't know if it's just me, but this is not something I see myself using." 5. Nil
Proposed Changes	Finalise the details of the transition animation between the globe and the landscape.

Task	"Using the information on your screen, which companies do you think are most sustainable?"
Goal	Judge the effectiveness of the "scoring system" as a representation of the quality of purchasing decisions.
Observation	Most users had very little trouble reading the scores, although some had to run their eyes over the list several times before they were ready to call out company names.
Errors (Participants 1-5)	1. N/A 2. N/A 3. N/A 4. N/A 5. N/A

User Comments (Participants 1-5)	1. "It's pretty easy to understand". 2. "I don't like the fact that my essentials are labelled unsustainable. What if the only way I have to get to work is by driving? Why should I be guilt-tripped about my petrol purchase?" 3. N/A 4. N/A 5. "It makes perfect sense."
Proposed Changes	No changes required.

User Feedback Matrix

Likes......	Criticisms...	Ideas/missing....	Questions....
"I really like the visual format, it is easy to click through and has no clutter. " "I like being able to see my feedback so clearly. It really boils it down to a simple scoring system and only feeds you extra info when you want it." "The bank integration makes me feel a little better about my data being handled. I don't know if I would trust an external source to funnel my data through like that."	"The integration with individual banks raises a few concerns. The bank app I use is quite outdated and clunky, so I don't think it would integrate seamlessly, as intended."	"A lot of my payments come from external sources such as Amazon and PayPal. Is there still the option to have those payments rated?"	"Could it be an extension, rather than an integration? I guess I already give my bank details away to quite a few services."

Concept 3 : "Eco Habit"

Task	"You just used a keep cup and want to log it in the application."
Goal	Identify whether the posting process is understandable, and the section easy to spot.
Observation	Users reported ease of use due to similarity to existing social networks.
Errors (Participants 1-5)	1. Nil 2. Nil 3. Nil 4. Nil 5. Nil
User Comments (Participants 1-5)	1. "Would I be able to search through a list, or add my own options?" 2. N/A 3. "Are there more than 4 options? How can I save them/quickpost?" 4. N/A 5. "Can I have a checklist of some sort, or options suggested to me? There is so much I could be doing and it's a little overwhelming."
Proposed Changes	Maintain existing posting structure. Test a posting "Bubble" that floats in the bottom right corner on the desktop to prevent users having to scroll back up their feed to post. Solidify "Favourites" functionality. Additionally, users proposed the catering of tasks through a checklist or suggestion. Team to investigate this option.

Task	"You have earned a new badge. Check what it is."
Goal	Identify the path taken by participants to the objective, and solidify the navigation structure.
Observation	All participants took the shortcut through the profile sidebar on the home page, rather than entering their profile page.
Errors (Participants 1-5)	1. Nil 2. Nil 3. Nil 4. Nil 5. Nil

User Comments (Participants 1-5)	1. "Easy to find."
	2. N/A
	3. "Easy to find and get to."
	4. N/A
	5. N/A
Proposed Changes	Maintain the left sidebar shortcuts. No change necessary.

Task	"You heard about a new group all your friends have joined. Find this group, "Group Name", and join it."
Goal	Test community page layout, get feedback on the collaboration functionality.
Observation	All users successfully performed the task without struggle, citing the consistency of functionality with other social networks.
Errors (Participants 1-5)	1. Nil
	2. Nil
	3. Nil
	4. Nil
	5. Nil
User Comments (Participants 1-5)	1. N/A
	2. N/A
	3. N/A
	4. N/A
	5. N/A
Proposed Changes	No changes necessary.

Task	"You've heard that your friend "John", is topping the community leaderboard in this new group. Check if that's true."
Goal	Test leaderboard page layout, get feedback on the competition functionality.
Observation	No major issues, although users took different paths to get there. Some went through the leaderboard page, while one of the testers went the community route.

Errors (Participants 1-5)	1. Nil 2. Nil 3. Nil 4. Nil 5. Nil
User Comments (Participants 1-5)	1. N/A 2. "I struggled for a minute, but then I found the leaderboard on the page." 3. N/A 4. "The word "leaderboard" hinted to me where I should have been looking."
Proposed Changes	The current leaderboard dropdowns on the left feel slow and clunky, and confused some users. Team to re-look the layout in the next prototype.

Task	"View what your friends have been posting."
Goal	Check that the "newsfeed" functionality adheres to the user's understanding.
Observation	The consistency with other social networks made this task straightforward.
Errors (Participants 1-5)	1. Nil 2. Nil 3. Nil 4. Nil 5. Nil
User Comments (Participants 1-5)	1. N/A 2. N/A 3. N/A 4. N/A 5. N/A
Proposed Changes	None needed.

Users Feedback

Likes......	Criticisms...	Ideas/missing....	Questions....
"I liked the social aspect of it, social pressure and a loop to keep returning back to the app." "It's going to be hard to consistently log, I will definitely forget to do it." "I can see myself being really competitive, with my friends. That's the very fun of it." "I used to have this step race with my friends, it's in me to lie about stuff - I'd always be tempted to enter a few fake ones." "Similar to existing social networks, e.g. facebook. Fairly straightforward." "I found it exceptionally easy to navigate, other than the leaderboard -> community -> leaderboard, it was all good."	"The tiers system is a little strange. How are you going to assign point values to certain things? It feels like a very subjective territory." "It feels like another burden, another streak. The excitement of doing it with your friends will wear off eventually." "With so many tasks available, it's overwhelming. Maybe with goals it might be easier, but setting goals is another layer of effort that most people probably won't have."	"The interaction between friends seems low. What else could we be doing besides looking at each other's progress?" "Individual profile/friend interaction would be nice."	"Would favourites functionality be possible? How would you go about suggesting tasks to me?"

Appendix 8: Transition into Digital Format

Concept 1: Susi

Sketching Wireframes - Web Page

Sketching is a quick way to start to visualize ideas and design together. Have fun!

24 March 2020   Project Name

Leaderboard

Sort by :

Time ⌄

Weekly

Monthly

Yearly

All time

People ⌄

Friends

Clubs

Friends

1. John Doe	342pts
2. Lorem ipsum	342pts
3. Lorem ipsum	342pts
4. Lorem ipsum	342pts
5. Lorem ipsum	342pts

Sketching Wireframes - Web Page

Sketching is a quick way to start to visualize ideas and design together. Have fun!
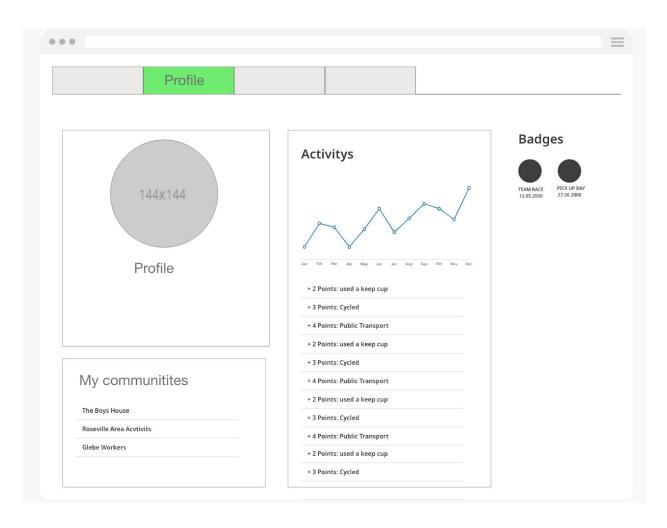
24 March 2020   Project Name

Community

259x259

1481x279

The Boys house

Join

Weekly Rankings

1. John Doe
2.
3.
4.
5.
6.
7.
8.
9.

Activitys

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Challenges

A cup a day:

40%

A cup a day:

Badges

TEAM RACE
13.05.2000

PICK UP DAY
27.06.2000

Profile

144x144

Profile

My communitites

The Boys House

Roseville Area Acvtivits

Glebe Workers

Activitys

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

+ 2 Points: used a keep cup

+ 3 Points: Cycled

+ 4 Points: Public Transport

+ 2 Points: used a keep cup

+ 3 Points: Cycled

+ 4 Points: Public Transport

+ 2 Points: used a keep cup

+ 3 Points: Cycled

+ 4 Points: Public Transport

+ 2 Points: used a keep cup

+ 3 Points: Cycled

Badges

TEAM RACE
13.05.2000

PICK UP DAY
27.06.2000

Friends

2. Lorem ipsum	342pts
3. Lorem ipsum	342pts
4. Lorem ipsum	342pts
5. Lorem ipsum	342pts

Refine Search:

Memebers:

Location:

Tier:

Profile

144x144

Log Activity

John Doe

659x242

History

246x184

John Doe

659x242

Concept 2: Eco Habit

-3.50 Coffee	-1	☹
-45.38 Points: Cycled	-10	☹
-7.30 Coles	+0	☺
-20.18 Patogonia	+10	☺
-35.00 Frankgreen	+5	☺
-389.99 Apple Pay	-30	☹
+0.20 Commonwealth	+3	☺
-7.60 Subway	-1	☹
-3.5o Coffee	-1	☺
-5.73 Lime Bike	-3	☺

Header

Sketching Wireframes - Web Page

Sketching is a quick way to start to visualize ideas and design together. Have fun!

24 March 2020   Project Name

< -3.50 Coffee

Activitys

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Your Impact:

Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam

Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam

Appendix 9: Expert User Consultation

Concept 1 :

Hi, Emily

Transactions

	Ikea- Tempe	+15pts	☺
	-150.50		
	Patagonia	+15pts	☺
	-63.50		
	Boost Juice	-3pts	☹
	-13.50		
	Apple Pay	-30pts	☹
	-235.50		

Hi, Emily

>

● ○

Transactions

| | Ikea- Tempe
-150.50 | +15pts | 🙂 |

| | Patagonia
-63.50 | +15pts | 🙂 |

Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos

| | Boost Juice
-13.50 | -3pts | ☹ |

| | Apple Pay | -30pts | ☹ |

Hi, Emily

Transactions

●	**Ikea- Tempe** -150.50	+15pts	☺
●	**Patagonia** -63.50	+15pts	☺
●	**Boost Juice** -13.50	-3pts	☹

Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos

●	Apple Pay	-30pts	☹

Hi, Emily

● ○

Transactions

Ikea- Tempe
-150.50   **+15pts** ☺

Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos

Patagonia
-63.50   **+15pts** ☺

Boost Juice
-13.50   **-3pts**   ☹

Apple Pay   -30pts ☹

Hi, Emily

Here's what your history looks like

Emily

Weekly Average

Jan   Feb   May   Jun   Jul   Aug

This week lets:
Be concious of where we spend money

Your Impact

Eco-systems
Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna

Energy
Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna

Hi, Emily
Here's what your history looks like

Emily

Weekly Average

Jan   Feb   May   Jun   Jul   Aug

This week lets:
Be conscious of where we spend money

Your Impact

Eco-systems
Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna

Energy
Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna

Concept 2 :

Refine Search:

Memebers:

0   1,000   70,000   100,000

Location:

Tier:

1   2   5   7

Suggested Groups for you

The boys house
13,000 Members

Join

Gladeville's cupers
3,000 Members

Join

Glebe Shoppers
300 Members

Join

See More

Home Leaderboard **Community** Profile

The Boys house

Join

Weekly Rankings

1. John Doe	342pts
2. Lorem ipsum	262pts
3. Ana Skittle	242pts
4. Nancy Sugar	82pts
5. Ebony Monster	2pts

Activitys

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Challenges

A cup a day:

40%

Badges

TEAM RACE
13.05.2000

PICK UP DAY
27.06.2000

Powder chow

22 years old
Lives in Sydney
Recently joined

Badges

TEAM RACE
13.05.2000

PICK UP DAY
27.06.2000

CYCLING
12.07.2000

History

Aug   Sep   Oct   Nov   Dec

Log activity

Today i did ....

Dana Pousini

Lorem ipsum dolor sit amet,
consetetur sadipscing elitr, sed diam
nonumy eirmod tempor invidunt ut
labore et dolore magna aliquyam
erat, sed diam voluptua. At vero eos
et accusam et justo duo dolores et
ea rebum. Stet clita kasd gubergren,
no sea takimata sanctus est Lorem

Taegan Fuinse

Lorem ipsum dolor sit amet,
consetetur sadipscing elitr, sed diam

Refine Search:

Memebers:

0   1,000   70,000   100,000

Location:

Tier:

1   2   5   7

Suggested Groups for you

 The boys house
5 Members   Joined

 Gladeville's cupers
3,000 Members   Join

 Glebe Shoppers
300 Members   Join

See More

Powder chow

22 years old
Lives in Sydney
Recently joined
Badges

TEAM RACE
13.05.2000

PICK UP DAY
27.06.2000

CYCLING
12.07.2000

Edit Details

Friends
1,380 friends

Activitys

Jan   Feb   Mar   Apr   May   Jun   Jul   Aug   Sep   Oct   Nov   Dec

+ 2 Points: used a keep cup

+ 3 Points: Cycled

+ 4 Points: Public Transport

+ 2 Points: used a keep cup

+ 3 Points: Cycled

+ 4 Points: Public Transport

+ 2 Points: used a keep cup

+ 3 Points: Cycled

+ 4 Points: Public Transport

Badges

TEAM RACE
13.05.2000

PICK UP DAY
27.06.2000

Powder chow

22 years old
Lives in Sydney
Recently joined

Badges

TEAM RACE
13.05.2000

PICK UP DAY
27.06.2000

CYCLING
12.07.2000

History

Aug   Sep   Oct   Nov   Dec

Log activity

Today i did ....

Quick Selection

Keep cup

Recycled

Cycled

Brought my
own bag

Submit

Dana Pousini

Lorem ipsum dolor sit amet,
consetetur sadipscing elitr, sed diam
nonumy eirmod tempor invidunt ut
labore et dolore magna aliquyam
erat, sed diam voluptua. At vero eos
et accusam et justo duo dolores et
ea rebum. Stet clita kasd gubergren,
no sea takimata sanctus est Lorem

IZHAK

Sort by :

Time   ⌄

People   ⌄

Weekly: Friends

1. John Doe	342pts
2. Lorem ipsum	262pts
3. Ana Skittle	242pts
4. Nancy Sugar	82pts
5. Ebony Monster	2pts

Sort by :

Time ⌃

Weekly

Monthly

Yearly

All time

People ⌄

Weekly: Friends

1. John Doe   342pts

2. Lorem ipsum   262pts

3. Ana Skittle   242pts

4. Nancy Sugar   82pts

5. Ebony Monster   2pts

User Testing and Feedback Transcript:

Method: Think-aloud testing
Low-Fidelity Low-Resolution Digital Prototype
User Reached = 5

Concept 1: "Susi" (Formally "Tamagotchi Earth")

Task	"Find out more information about your most recent transaction."
Goal	To streamline the information architecture in the "transactions" section and test the new information placement.
Observation	All participants performed the action quickly and without hesitation.
	Note: The first participant encountered a broken link between a button

	and an action. This was fixed before testing on other participants.
Errors (Participants 1-5)	1. Nil 2. Nil 3. Nil 4. Nil 5. Nil
User Comments (Participants 1-5)	1. "While the prototype broke, I would assume I would be able to click out of it by clicking an empty space." 2. N/A 3. N/A 4. N/A 5. N/A
Proposed Changes	No changes necessary.

Task	"Take a closer look at your virtual planet."
Goal	To test the animation introduced in the prototype to fix the segmentation issue identified in the previous stage.
Observation	While the animation was successful, the existing representation does not evoke a sufficiently strong emotional response on it's own.
Errors (Participants 1-5)	1. Nil 2. Nil 3. Nil 4. Nil 5. Nil
User Comments (Participants 1-5)	1. N/A 2. N/A 3. N/A 4. "Didn't know that you could look closer at the planet. There was nothing really to tell me that there is more to it besides the picture." 5. N/A
Proposed Changes	Adding faces or animal representations on the surface of the planet before maximising it. Eliminate the "maximising" as it's not necessary.

Task	"You want to check your overall metrics for the month."
Goal	To test the information architecture introduced in place of the previous placement within each transaction.
Observation	When prompted, participants went directly to the carousel, and found the option without trouble.
Errors (Participants 1-5)	1. Nil 2. Nil 3. Nil 4. Nil 5. NIl
User Comments (Participants 1-5)	1. N/A 2. N/A 3. "I'd need more info on the graph. It's currently quite confusing what the graph is tracking. Is it my money or my points?" 4. "Would I be able to see the graph over different time periods? It would be cool to see a comparison over how I did last month, or over the whole year." 5. "I thought the arrow was going to make the world spin, not take me to the metrics. Although, when I actually clicked it, it made sense that it's a carousel."
Proposed Changes	Improve graph appearance and readability. Ensure correct alignments of all arrows and visual elements.

Task	"Using the information on your screen, which companies do you think are most sustainable?"
Goal	Reaffirm the effectiveness of the "scoring system" as a representation of the quality of purchasing decisions.
Observation	The participants easily interpreted both the visual and numerical systems.
Errors (Participants 1-5)	1. Nil 2. Nil 3. Nil 4. Nil

	5. Nil
User Comments (Participants 1-5)	1. "The smiley and sad face help me recognise the good and the bad" 2. N/A 3. N/A 4. "The numbers and smiley faces are pretty clear." 5. N/A
Proposed Changes	No changes necessary.

User Feedback Matrix

Likes......	Criticisms...	Ideas/missing....	Questions....
"I love the simplicity and the aesthetic, and I liked the cute little visualisation." "I like how it's built in. I don't like giving my bank details away to other services, and this add-on flows with my current bank interface." "I love the visualisation of the globe. It really adds to me wanting to use it." "The navigation is consistent with other apps ive been using so it is familiar and easy to use."	"I know this is a prototype, but the arrows are different heights in the carousel. It just annoyed me." "I'd need more info on the graph. It's currently quite confusing what the graph is tracking. Is it my money or my points?" "I exclusively bank on mobile, so the desktop environment is an eyesore." "When I see a planet, to me it's an inanimate object. Until I saw little animals in the close-up, I had zero	"The points seem confusing. Could I use them for rewards/discounts? Maybe this is something to be addressed in the onboarding." "A chrome extension to tell me about purchases before I make them would be a super helpful addition." "Calculating the value of different products from different companies may be difficult. Certain products may be better than others."	

	emotional investment in its survival." "I don't see a purpose for the full screen planet view. It would be more productive to have it zoomed in already."		

Concept 3 : "Socially-Networked Sustainability"

Task	"You just used a keep cup and want to log it in the application."
Goal	Reaffirm that the posting process is understandable, and the section easy to spot.
Observation	
Errors (Participants 1-5)	1. Nil 2. Nil 3. Nil 4. Nil 5. Nil
User Comments (Participants 1-5)	1. N/A 2. N/A 3. N/A 4. N/A 5. N/A
Proposed Changes	No changes necessary.

Task	"You have earned a new badge. Check what it is."
Goal	Reaffirm the navigation structure determined in the previous prototype.
Observation	The participants maintained previously observed navigation patterns.
Errors	1. Nil

(Participants 1-5)	2. Nil 3. Nil 4. Nil 5. Nil
User Comments (Participants 1-5)	1. N/A 2. N/A 3. "The section doesn't click, or fold out. It's sort of unsatisfying" 4. N/A 5. N/A
Proposed Changes	Maintain the left sidebar shortcuts. Make a separate menu for badges.

Task	"You heard about a new group all your friends have joined. Find this group, "Group Name", and join it."
Goal	Reaffirm the community page layout.
Observation	The participants easily found the required section and performed the action with no hesitation.
Errors (Participants 1-5)	1. Nil 2. Nil 3. Nil 4. Nil 5. Nil
User Comments (Participants 1-5)	1. N/A 2. N/A 3. N/A 4. N/A 5. N/A
Proposed Changes	No changes necessary.

Task	"You've heard that your friend "John", is topping the community leaderboard in this new group. Check if that's true."
Goal	Reaffirm leaderboard page layout.
Observation	The participants followed the intended pathway to reach the information,

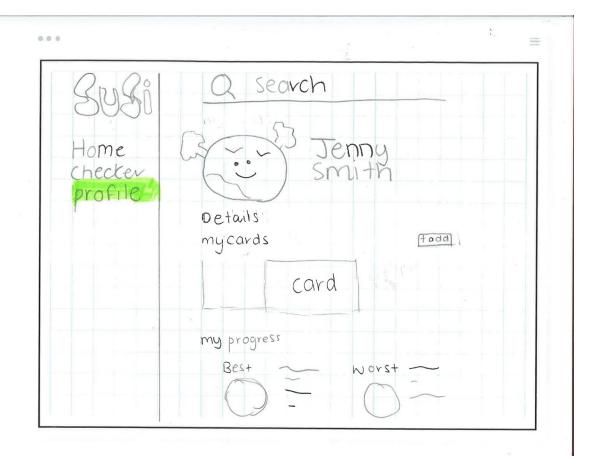|	
	unlike on previous prototyping runs.
Errors (Participants 1-5)	1. Nil 2. Nil 3. Nil 4. Nil 5. Nil
User Comments (Participants 1-5)	1. N/A 2. N/A 3. N/A 4. N/A 5. N/A
Proposed Changes	No changes required

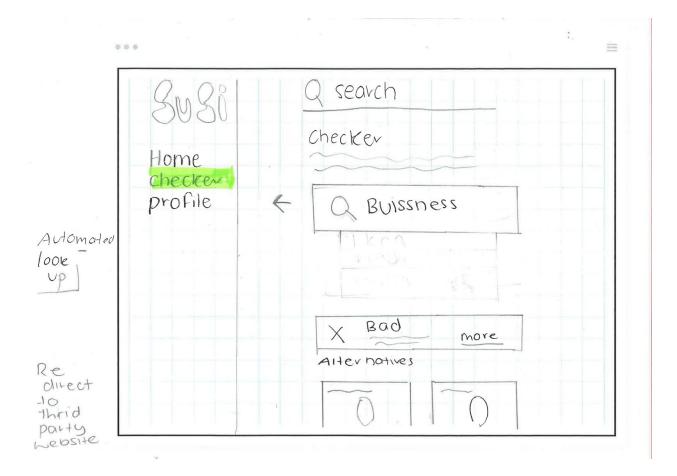|	
Task	"View what your friends have been posting."
Goal	Reaffirm that the "newsfeed" functionality adheres to the user's understanding.
Observation	All participants returned to the home page without hesitation.
Errors (Participants 1-5)	1. Nil 2. Nil 3. Nil 4. Nil 5. Nil
User Comments (Participants 1-5)	1. N/A 2. N/A 3. N/A 4. N/A 5. N/A
Proposed Changes	None needed.

Users Feedback
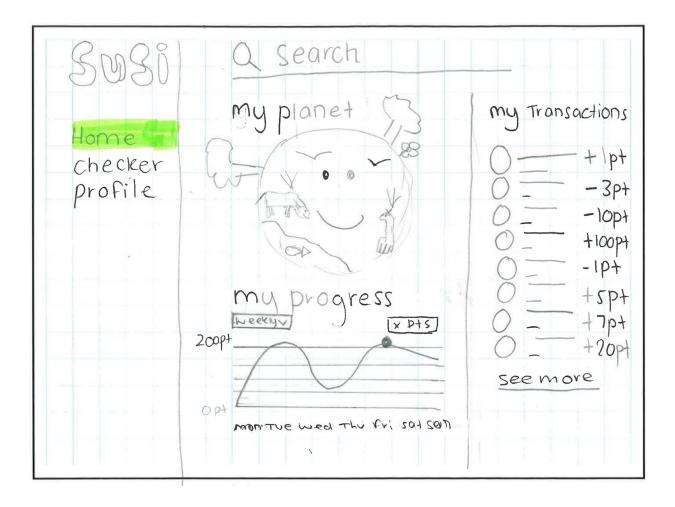
Likes……	Criticisms…	Ideas/missing….	Questions….
"I love the competitive aspect, and the similarity of the app to other social networks. I found it really easy to use because of how similar it is to facebook and such." "This feels like social media made for ethical consumerism. I feel like I will meet like minded people, and avoid all the frustrating climate change deniers. It's like a little safe space."	"I like the idea of competing, but seeing every time your friends do something is really cumbersome. Just too much information." "Lying, or tricking the system is so easy. I would be too tempted to do it. Especially if I was trying to compete with my friends." "I don't really see the point of joining a community. All the local pages I join on Facebook, I always end up muting anyway." "I feel like I wouldn't want to download yet another app. There are already too many apps and social media networks in my life."	"It reminds me of a fitness app!" "People have different goals or things they want to do. Maybe setting up an action plan specific to their overall goal could be done during onboarding."	

Appendix 10: Expanding Platform Context

Paper Prototypes:

Susi

Home
checker
profile

Q Search

Jenny Smith

Details
mycards

+add

card

my progress

Best

Worst

Susi

Q Search

my planet

my Transactions

+1pt
−3pt
−10pt
+100pt
−1pt
+5pt
+7pt
+20pt

see more

my progress

weekly ⌄

x pts

200pt

0pt

mon Tue wed Thu Fri sat sun

Automated look up

Re direct to thrid party website

User Testing and Feedback Transcript:
Method: Think-aloud testing
Low-Fidelity Low-Resolution Paper Prototype
User Reached = 5

Concept 1: "Susi" (Formally "Tamagotchi Earth")

Web Application Interface

Task	"Find out more information about your most recent transaction."
Goal	To streamline the information architecture in the "transactions" section and test the new information placement.
Observation	All participants performed the action quickly and without hesitation. Note: The first participant encountered a broken link between a button and an action. This was fixed before testing on other participants.

Errors (Participants 1-5)	1. Nil 2. Nil 3. Nil 4. Nil 5. Nil
User Comments (Participants 1-5)	1. N/A 2. "How can you make it less condescending and reward small changes because people are are at different levels" 3. N/A 4. "What if i wanted to look up other transactions without scrolling" 5. N/A
Proposed Changes	Add incentives, for all achievement and possibly level progression to make sure all users are actively encouraged to play their small role. If we make it encouraging it will motivate users to do better instead of deterring them from being too harsh. Adding a search bar function on top of the transaction section to allow users to search for specific transactions easily

Task	"Take a closer look at your virtual planet."
Goal	To test the animation introduced in the prototype to fix the segmentation issue identified in the previous stage.
Observation	The paper prototype fidelity limited the users in identifying that the planet was clickable. The graphics did not match the overall tone of the design.
Errors (Participants 1-5)	1. Nil 2. Nil 3. Nil 4. Nil 5. Nil
User Comments (Participants 1-5)	1. N/A 2. "The planet does seems to be clickable: This is a limit of paper prototyping " 3. N/A 4. "The happy face i'm not a kid, the graphic looks it's designed for kids" 5. N/A

Proposed Changes	Re design the face of the planet to match the tone of the concept, and eliminate the "childish aesthetic" it previously portrayed

Task	"You want to check your overall progress for the month."
Goal	To test the changes in the graph's styling information and layout issue identified in the previous stage.
Observation	When promoted users were easily able to digest the graph and navigate from weekly view to monthly
Errors (Participants 1-5)	1. Nil 2. Nil 3. Nil 4. Nil 5. NII
User Comments (Participants 1-5)	1. N/A 2. N/A 3. N/A 4. N/A 5. N/A
Proposed Changes	No changes necessary.

Task	"You want to purchase a top from h&m but are unsure of its sustainability, find out more.""What are some alternatives"
Goal	To streamline the information architecture in the "checker" section and test the new information placement.
Observation	The participants easily were able to navigate and find specific product
Errors (Participants 1-5)	1. Nil 2. Nil 3. Nil 4. Nil 5. Nil
User Comments	1. N/A 2. N/A

(Participants 1-5)	3. " I want to be able to filter and rot out the alternative displayed because sometimes ecological friendly, options can be pricey and i like to see things lowest to highest" 4. N/A 5. N/A
Proposed Changes	The addition of a filter and sort function in alternatives section to provide, users the ability to sort according to their needs

Task	"You want to link a new card to your account"
Goal	To streamline the information architecture in the "profile" section and test the new information placement.
Observation	The participants easily identified how to add new cards
Errors (Participants 1-5)	1. Nil 2. Nil 3. Nil 4. Nil 5. Nil
User Comments (Participants 1-5)	1. N/A 2. N/A 3. N/A 4. N/A 5. N/A
Proposed Changes	No changes necessary.

User Feedback Matrix

Likes……	Criticisms…	Ideas/missing….	Questions….
The alternatives, reduces the cognitive load, because it was tough mental process to shop ecological	Users expressed the interest in being able to filter and sort out the alternatives displayed according	Transactions should have own individual search bar	"What is good and what is bad" Sometimes when you purchase things your

| | to there buying needs

I wish it catered to different people needs

The graphic of the planet, doesn't speak to the tone of the design, change it so it doesn't look like it's designed for kids

The designs comes across as condescending, how can you reward small changes because people are are at different levels

The planet does seems to be clickable: This is a limit of paper prototyping | Adding a search bar function on top of the transaction to allow users to search for specific transactions easily | transactions on your card ring up weird card details/business.

Environment pushed down our throats. What would make this different?

Even if i'm wearing and buying clothes made at good companies, it still can be bad because of my net impact. |

Appendix 11: Feature Range Extension

Internet Extension

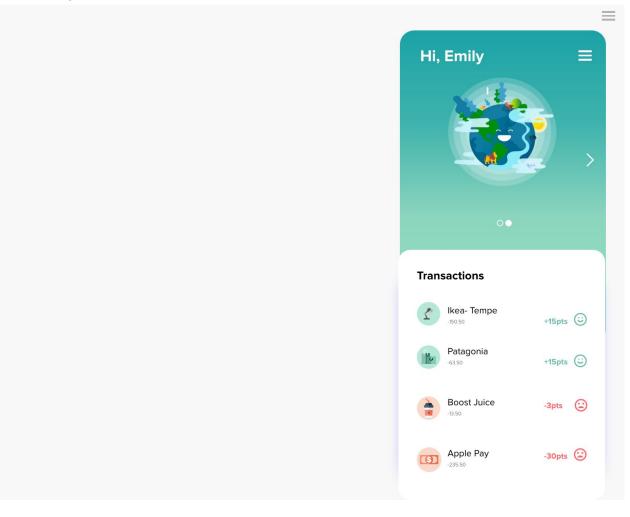| Task	"You are shopping online and want to understand if the products you are about to buy are sustainable. Use Susi"
Goal	To test the user's ability to navigate extension.
Observation	When prompted the participants were easily able to use "Susi" to check their products
Errors (Participants	1. Nil 2. Nil

1-5)	3. Nil 4. Nil 5. Nil
User Comments (Participants 1-5)	1. "Saying a business is good or bad is condescending because businesses aren't either good or bad they can be a bit of both." 2. N/A 3. N/A 4. "To what extent is good with the scaling, it doesn't tell me" 5. N/A
Proposed Changes	Adding in a grading function where businesses are graded on a scale to give a more realistic overview.

User Feedback Matrix

Likes......	Criticisms...	Ideas/missing....	Questions....
"I really do like the integration of the checker and i like how you can do something before and after so positive negative reinforcement as a whole for the ethical consumerism process" "I really like the idea Integration of the checker and i like how you can do something before and after'		The rating of the products shouldn't be just good or bad. It should be on scale, maybe a star/grading system What and how do you measure good and bad because there are a multitude of factors that play into it, with certain aspects may be good, certain aspects may be bad, how do you decide what factors to measure the weight you give to each.	Even if i'm wearing and buying clothes made at good companies, it still can be bad because of my net impact.
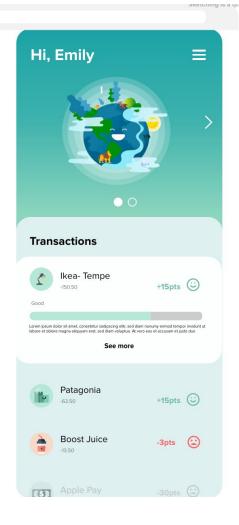
Appendix 12: Interface Validation

Mobile/Plugin:

Hi, Emily

Ikea- Tempe
-150.50

+15pts ☺

Good

Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo

Here's Why:

CSR

Wastage

Manfacturing

Energy/water consumption

Animal welfare

Decsontruction to ecosystem

Air Polution

Contribution to Landfill

Hi, Emily

Transactions

Ikea- Tempe
-150.50
+15pts 🙂

Good

Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo

See more

Patagonia
-63.50
+15pts 🙂

Boost Juice
-13.50
-3pts ☹️

Apple Pay
-30pts 😐

Hi, Emily

Here's what your history looks like

Weekly ⌄

+ 50 pts

200 pts

0 pts

Mon Tue Wed Thu Fri Sat Sun

○ ●

This week lets:
Be concious of where you spend your money

Your Impact

Eco-systems
Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna

Energy
Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna

Hi, Emily

Here's what your history looks like

Weekly ⌄

Weekly
Monthly
Yearly
All time

2

+ 50 pts

0 pts

Mon Tue Wed Thu **Fri** Sat Sun

○ ●

This week lets:
Be concious of where you spend your money

Your Impact

Eco-systems
Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna

Energy
Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna

Webpage:

Search

Checker

Home

Checker

Profile

❮ **Iren : Daisy Girl top**
$35.99

Mmmmm Maybe think again..... ✕

Bad

Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo dolores et

Here's Why:

CSR

Wastage

Manfacturing

Energy/water consumption

Animal welfare

Decsontruction to ecosystem

Air Polution

Contribution to Landfill

Alternatives ⚇ Sort ⌄

Luna Top
Tree of life
$35.99

Luna Top
Tree of life
$35.99

Luna Top
Tree of life
$35.99

Luna Top
Tree of life
$35.99

Browser Extension:

You're Set !

Good

Patagonia is a great company, that is built around CSR.

See More

Ok!

Not so good .....

Bad

Zara is infamous for their wastage. Want to try somewhere else?

See More

See Alternatives

Instead of Zara, try .....

Alternatives

Sort ▾

See More