Master's thesis

NTNU
Norwegian University of Science and Technology
Faculty of Architecture and Design
Department of Design

Ella Constansia Håkansdotter Swan

Futures beyond economic growth

Supporting speculation, imagination and transition through design

Master's thesis in Industrial Design Engineering
Supervisor: Ida Nilstad Pettersen
June 2022

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Preface and Acknowledgements

Preface

This master's thesis describes the process and result of a design project completed in the course *TPD 4900 - Industriell design, Masteroppgave*. The project was conducted, and the thesis was written, during the spring semester 2022 by Master's student Ella Constansia Håkansdotter Swan, at the Institute for Design, Faculty of Architecture and Design at NTNU.

The goal of the project was to design a concept that increases the understanding of as well as supports the imagination of, engagement in and transition to desirable futures where the societal and economical systems are not dependent on on economic growth.

Acknowledgements

For her reliable help, support and advice during this project I would first like to thank my supervisor Ida Nilstad Pettersen.

For his contagious enthusiasm, for always making time, for his completely volutary support and for the rewarding conversations, I would to thank Stig Larssæther.

For taking time and for providing precious feedback and advice, I would like to thank all experts who contributed to this project as well as everyone who participated in tests.

For the valuable feedback, help and philosophical discussions, I would like to thank my collaboration group partners Edvard Liodden and Jacob Bierman Jørgensen.

For being there for me through good and bad and for all support at home, I would like to thank my partner Gustav Corin.

For being there for me, making life more fun, skiing with me, putting up with my complaints, and celebrating my wins, I would likte to thank my family and friends.

And finally, for their support when working with this project as well as all others, and for entertainment when not working, I would like to thank my classmates. It's been a good five years.

Abstract

This thesis describes a speculative design project with the aim of increasing understanding of 'beyond growth futures' and supporting the imagination of, engagement in and transition towards these futures. 'Beyond growth futures' is the term used in this thesis to describe desirable, resilient and just futures in which the economical and social systems do no longer rely on or pursue economic growth. This thesis explores the problems connected to economic growth, the possible solution of beyond growth economics and the value of engagement in positive future visions. Aspects of speculative design and Transition design are described and used together with tools facilitating co-creation and innovation to design a concept.

The current dominating economic system is fundamentally dependent on economic growth. All economic activity is linked to material resource and energy use and creates waste. Hence, economic growth results in increased environmental impact, pushing the limits of the ecosystems. In addition, the growth imperative increases inequality and creates significant social costs. While being environmentally, socially and economically unsustainable, economic growth is also a poor indicator of societal development and welfare and, hence, an inadequate longterm societal goal. A transition to a new economic model that doesn't rely on economic growth is necessary. An economic model that rather pursuits health, prosperity, equity and sustainability - such as beyond growth economics.

During an iterative process with user involvement through user tests and a workshop, a concept for an interactive, participatory exhibition was designed. This exhibition introduces the problems of economic growth and the solution space of beyond growth futures. It increases understanding of beyond growth futures as well as invites people to share their opinions about and ideas for these futures. Through supporting imagination, the exhibition can potentially alter our expectations, affect our behavior and shape our future. The contributions of visitors can be useful to change-makers in the process of creating visions for and transitions to beyond growth futures.

The concept is designed to target a broad public and to be used to connect citizens, stakeholders, scientists and change-makers. It is provided through an online template and guide, free for anyone to use. This way, it is easy to arrange the exhibition in many different places and contexts to facilitate the co-creation of better futures within communities.

User tests show that the concept does increase understanding of, support imagination of and create curiosity for beyond growth futures. It is concluded that, while the concept holds the potential of supporting a transition towards beyond growth futures, it is not possible at this stage to assess the scale of its impact.

Sammanfattning

Denna rapport beskriver ett spekulativt designprojekt med målsättningen att öka förståelsen för 'framtider bortom tillväxt' och stötta fantasier om, engagemang i, och samhällsförändring mot sådana framtider. 'Framtider bortom tillväxt' är den term som används i detta projekt för att beskriva önskvärda, hållbara och rättvisa framtider i vilka ekonomiska och sociala system inte längre är beroende av eller strävar efter ekonomisk tillväxt. Denna rapport utforskar problemen kopplade till ekonomisk tillväxt, den potentiella lösningen som ekonomier bortom tillväxt utgör samt värdet av engagerande framtidsvisioner. Delar av spekulativ design och Transition design förklaras och används för att designa ett koncept tillsammans med verktyg som faciliterar samskapande och innovation.

Det nuvarande ekonomiska systemet är fundamentalt beroende av ekonomisk tillväxt. All ekonomisk aktivitet är kopplad till användning av material och energi, och genererar avfall. Därför resulterar ekonomisk tillväxt i ökad miljöpåverkan, som pressar ekosystemens gränser. Dessutom leder jakten på tillväxt till försämrad jämställdhet och stora sociala kostnader. Ekonomisk tillväxt är inte bara ekologiskt, socialt, och ekonomiskt ohållbart - det är också en dålig indikator för social utveckling och välstånd, och är därför ett bristfälligt mål för samhällsutveckling. En övergång till en ny ekonomisk modell som inte är beroende av ekonomisk växt är nödvändig. En ekonomisk modell som snarare eftersträvar hälsa, välstånd, rättvisa och hållbarhet - som en ekonomi botrom tillväxt.

Under en iterativ process med involvering av användare genom användartest och en workshop, designades ett koncept för en interaktiv, samskapande utställning. Denna utställning introducerar problemen kopplade till ekonomisk tillväxt och lösningsrummet som ekonomier bortom tillväxt utgör. Den ökar förståelsen för framtider bortom tillväxt och uppmuntrar besökarna att dela deras åsikter om och idéer för dessa framtider. Genom att stötta fantasi kan utställningen potentiellt förändra våra förväntningar, påverka våra beteenden och forma vår framtid. Besökares bidrag till utställningen kan användas för att skapa framtidsvisioner och samhällsförändringar mot framtider bortom tillväxt.

Konceptet är designat med en bred allmänhet som målgrupp och kan användas som koppling mellan allmänheten, aktörer, vetenskapspersoner och personer som jobbar för förändring. Den är tillgänglig för alla på internet genom en mall och en manual. Detta möjliggör att utställningen arrangeras på olika platser av olika personer, för att facilitera samskapande av bättre framtider i ett samhälle.

Användartester visar att konceptet ökar förståelsen för, stöttar fantasier om, och skapar nyfikenhet för framtider bortom tillväxt. Det konkluderas att även om konceptet har potential att stötta en samhällsförändring mot framtider bortom växt, så är det ännu inte möjligt att bedöma storleken på denna påverkan.

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INTRO

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"OUR VERY SURVIVAL DEPENDS ON FINDING ANOTHER WAY OF LIVING"

- RUTH LEVITAS

Introduction to Thesis

In this introductory part of this report, the background and motivation for choosing this topic will be described. The scope of the project will be explained as well as what to expect from this report. The project is an exploratory design project conducted by one design student alone for the masters thesis, by own initiative. The project aims to explore the limits of growth, the possibilities of beyond growth futures, and how a designer can support a transition towards beyond growth futures through the use of visioning. It aims to thoroughly present the issues of a growth-focused economy and the possible solutions of beyond growth economics, and combine this theory with design methods to support the understanding and imagination of sustainable, just and better futures without reliance or focus on economic growth.

NTNU
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Master's Thesis for Ella Swan

Creating scenarios to communicate possible futures within a sustainable economic model
At skape scenarier som kommuniserer en mulig fremtid innenfor en bærekraftig økonomisk modell

An increasing number of scientists agrees that it is impossible to accomplish sustainability within the current economic system, arguing for a transition towards a new system without focus on economic growth. It is difficult to grasp what this implicates and what a society without economic growth could look like. In today's modern, western society, many consider it easier to imagine a dystopian world stricken by climate disaster, than a world where the economic system has changed.
This project aims to create one or more visual scenarios describing possible futures within a sustainable economic model, making this understandable and relatable. The scenarios could, for example, be presented through an exhibition, a website, social media or a short movie. Scenarios are not only useful to make possible futures relatable and allow people to engage in them, but they can also contribute to altered expectations and change of what is seen as normal. Hence, they are helpful in sustainability transitions.

The contents of the thesis includes:

- Analyzing which limitations of the current economic model have been put forward by scientists as well as choosing a sustainable economic model and analyzing its implications to use as a basis for the future scenarios
- Discovering the goal and purpose of the scenarios and different ways to create and present them
- Creating a design brief through analyzing insights and defining the goal
- Creating and developing one or more scenarios communicating possible futures within the chosen sustainable economic model, through an iterative process of prototyping and testing
- Present and evaluate the final scenarios

The project is executed in accordance with "Retningslinjer for masteroppgaver i Industriell design".

Course supervisor (from ID): Ida Nilstad Pettersen

Start date: 7th of January 2022
Due date: 7th of June 2022

Trondheim, NTNU, 7th of January 2022

Ida Nilstad Pettersen
Course supervisor

Sara Brinch
Head of Department

This is the original Master's contract.

Background and Motivaiton

I was at an online lecture about 'The conundrum - why have we not solved the climate problem?' when the lecturer, a well-known professor in sustainable development, concluded that the short explanation for this is that *"As long as the goal for economic growth is the superior goal of societal development, AND economic growth cause at least some growth in material resources use and pressure the real economy, each action to reduce the environmental burden per krona will either cause or (in the best case) not result in a net reduction of environmental burden"*. This is due to rebound effects, Jevon's Paradox, problem shifting etc. Hence, he said *"There is little to no room for continued economic growth"*.

I was well aware of these issues, and had heard the economic growth issue be mentioned before - but even as somewhat of an environmental activist who has taken university courses on the topic of sustainable development, I was not familiar with what the alternatives to economic growth was or what such a society could look like. So, I asked him, *"What does this mean? What could a society without economic growth look like?"*. The answer didn't make me any wiser, and my impression was that this was a complex question. But, I thought, how could I argue for and work towards such a future if I didn't know what it meant, what it could be like? In the time following this lecture, I encountered similar statements, emphasizing the need to stop the economic growth trajectory, on several occasions - always with the same difficulties of explaining what this could entail.

"As long as the goal for economic growth is the superior goal of societal development, AND economic growth cause at least some growth in material resources use and pressure the real economy, each action to reduce the environmental burden per krona will either cause or (in the best case) not result in a net reduction of environmental burden (...) There is little to no room for continued economic growth"

At the same time, I was working with an article and design project for my masters education in design, though which I had learnt that while future visions and scenarios support engagement in and understanding of possible futures, they can also help shape this future through affecting expectations and actions. Furthermore, I was trying to find a topic for my masters thesis, and I wanted it to be connected to design for sustainability transitions and exploring ways to use design to shape society and create a better future.

Given the circumstances, it seemed a very natural choice for me to combine these two aspects to create the topic of my masters thesis, using future scenarios to increase understanding of what the future could be like without economic growth, while at the same time contributing to the transition. The idea was to find existing descriptions of possible beyond growth futures, and design a way communicate them in a visual, understandable and relatable way. I talked to family, friends and supervisors at the university about this topic. Everybody found it very interesting and exciting, making my feeling of this being the right topic for my thesis stronger and supporting the choice. But, I also received some warnings regarding the complexity of the project and how it might require too much time and effort for a masters project. These warnings were more or less ignored, with the thought that because so many scientist agree on the limits of economic growth, there must be many theories, descriptions and scenarios of alternatives to the growth-relying economy out there - I must just find and choose one to use, and communicate its implications. How wrong I was.

Scope of Thesis

The original scope of this project and thesis was *"Creating scenarios to communicate possible futures within a sustainable economic model"*, aiming to create visual scenarios describing possible futures within a sustainable economic model not relying on growth. Because of insights from research, the goal of the project was changed from creating and communicating descriptive scenarios of futures beyond growth, to rather engaging people in beyond growth futures - imagining them, creating ideas for them and considering what they can be like. The change was from having a descriptive and predictive concept as the goal, to having an engaging and speculative concept as the goal. The reasons for this change are described throughout the research part of the report, and specifically explained in the chapter *Reflections* in the *Design* part or the report.

The project combines theory and design. Due to the complexity of the theory and the importance of understanding and getting the information about the limits of growth and the characteristics of beyond growth economics right, it is focused on research especially in those areas. This is essential, for the design of the final concept as well as for being able to argue for the value of this project and responding to any skepticism and criticism of belong growth economics. There is a lot of that - after all, we have all been taught by society that growth in general and economic growth in particular is essential and good. Even when writing the word 'degrowth' on the keyboard, it is autocorrected to 'regrowth'.

Questioning this dominating standpoint is, still, quite radical and bound to provoke some questions. The weight on this part, though, means that less time and effort is spent on other parts of the project, such as the design of the final concept. This solution will be conceptual and presented through prototypes and sketches, rather than a detailed, refined and finalized product. Especially as the focus will be on designing the most suitable concept with the most useful contents, making sure that it is viable, rather than jumping to a solution just to have time to finalize the details, making it look good.

This thesis has the general starting point that climate change and other environmental issues are driven by human action and poses great threats to humanity and society as we know it, and this fact is not argument for or debated. Furthermore, it acknowledges several additional issues of the present society, such as poor equity and rising inequality. Another starting point of this thesis and project is that the economy system is created by humans for the purpose of serving us and making our lives easier. If it does no longer serve or help us, we can change it. The economic system is not at all a natural law or condition that we just have to live with and adapt to.

Structure of Report

This report is structured in different sections, parts and chapters. The first section of the report is the *Intro* section, containing the background for the project and the scope of the report, a description of the process, the project plan, methods used and biases to consider. Section two is the *Research and Insights* section. This is where the insights from research is presented, explaining the value of this project and laying the foundation for the concept to be designed. It contains one part which presents information about the problems related to growth and presents beyond growth economics as a better alternative, explaining its theories, characteristics and solutions. It also contains a part where insights from research regarding designing better futures are presented, the importance of future visions is explored as well as design approaches that are useful for societal transitions and the value of participation and engagement in the creation of better futures. The third section of the report, *Design*, contains parts describing the design process as well as a part describing the final concept. Finally, the last section of the report, *Evaluation*, contains a discussion and conclusion, evaluating and summarizing the project and its results.

In the *Research and Insights* section of the report, there is a summary of the information in every chapter. This is done to allow for gathering the most foundational information without reading the the full length of the report, as well as to conclude with what insights has been gathered and will be used later. The same is not done for the other sections of the report, as they contain shorter chapters and are easier to grasp just by reading headlines and looking at illustrations.

The layout of the report is tailored to be printed as a book in size b5 with a standing portrait orientation. Fonts have been chosen to be clear and readable, with good contrasts between different headings and types of text. Colors are chosen to fit the ecological and economical topic of the thesis, including earthy and contrasting colors, and each color is included in three different shades - one dark and saturated, one light and pale, and one in between. The b5 format is quite tall and narrow compared to the classic a4, making it suitable for one column of text. This column is quite narrow, fitting the page and making it readable.

"NO COUNTRY HAS EVER ENDED HUMAN DEPRIVATION WITHOUT A GROWING ECONOMY. AND NO COUNTRY HAS EVER ENDED ECOLOGIC DEGRADATION WITH ONE."

- KATE RAWORTH

Process

In this part of the report, the process of the project is described. As this is a project combining theory and research with a design project, it was planned as an iterative process of research and design with a carefully thought through time-plan.

Iterative Multi-Double Diamond Process

From the start of project, there was a wish for the project to be iterative, shifting between research and design rather than having a long phase of research followed by a long phase of design. The reason for this was to through this method learn from the design what research was needed, hence avoiding to waste time on useless reading. It should help making clear what should be prioritized and spent time on, earlier in the process. It was also a method for avoiding to get stuck for too long in the captivating research phase. The variation should also help with keeping the focus, motivation and productivity up throughout a long solo project. But there was one more reason for this - for this designer to try a new method.

Inspiration was taken from the 'Double Diamond' methodology (Design Council n. d.), an illustration of a design process consisting of two diamonds, as seen in figure 1. The first diamond is the research diamond, showing how the research diverges when the problem or topic is discovered and then converges when the problem or topic is defined. After this follows the design diamond, showing how the design process diverges at first in the phase of development, and converges at the last delivery scale.

The Double Diamond methodology is sometimes criticized for being too simplifying of the design process, but can be useful as a framework and structure to aim for while the process is likely to end up messier.

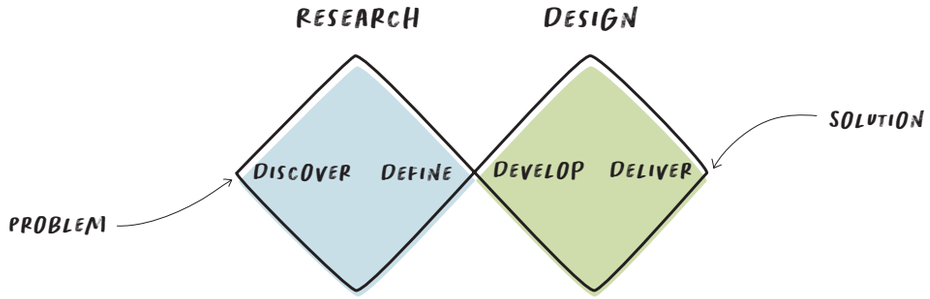


Figure 1, the Double Diamond

In this project, the Double Diamond was used as a framework, setting constraints for the time-plan. But it was adapted to the iterative aim of this project through being split up into several smaller Double Diamonds, following each other. This is illustrated by figure 2 and can be seen in the project plan.

In every iteration of the double diamond process, the research and design phases would have new topics and goals, building on insights from the previous iteration. And for every iteration, the topic and concept would get discovered, defined and developed at a higher level of detail, preparing for the next iteration through identifying what needs to be learned, improved and tested next.

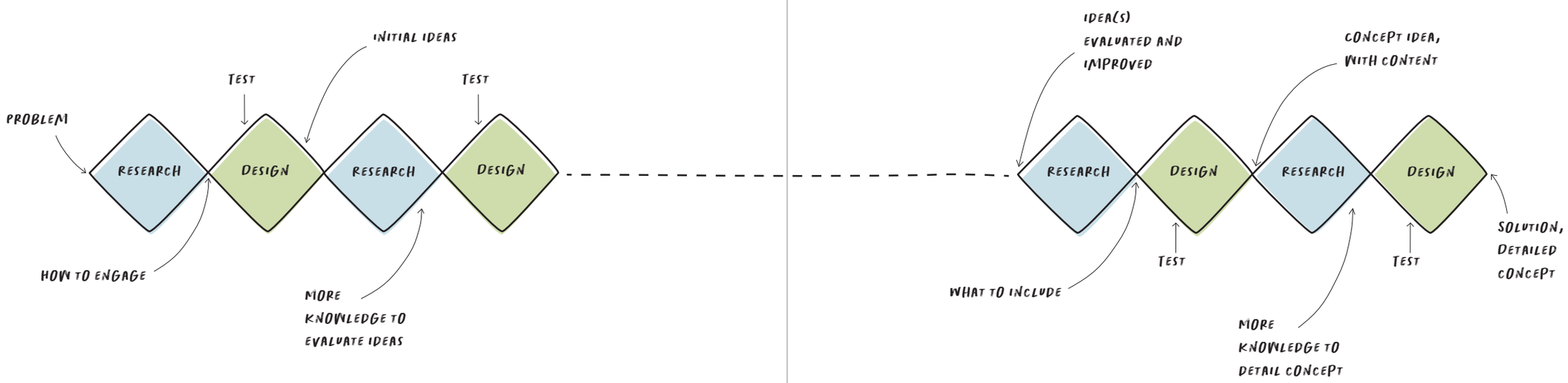


Figure 2, the Iterative Multi-Double Diamond process

Project Plan

The project plan, as seen in figure 3, was the framework for the process. It includes phases of the project, some specific tasks, milestones and deadlines. It is not to be seen as a law to follow, but as a guide showing what should be done and where the project should be at every week. It starts with an introductory kick-off period with initial research and some tasks such as contacting experts, applying for the right to conduct interviews and planning the rest of the project.

This is followed by a one week long pilot Design Sprint and one week of analyzing the results of this and deciding the road forward. The pilot Design Sprint can be seen as a fast-forwarded trial round of the entire project, used to gather insight on what should be prioritized and whether the iteration of short periods of design and research are useful.

After this, the iterative multi-Double Diamond process follows, starting with a two week long research period and ending with a two week long design period, with week-long shifts in between. The longer periods for research in the start and design in the end are because of the need to focus some more on research in the start, gathering necessary insight to get the project on the right track, and the lesser need for research in the end of the process when finalizing the concept.

The plan end with a period reserved for evaluation of the concept, report writing and the making of a presentation.

In the plan, there was also room to add weekly tasks and deadlines during the project. The project plan was made and kept in MIRO, on a board which was used daily during the project to keep track of tasks and progress, make notes, save resources, map out ideas etc.

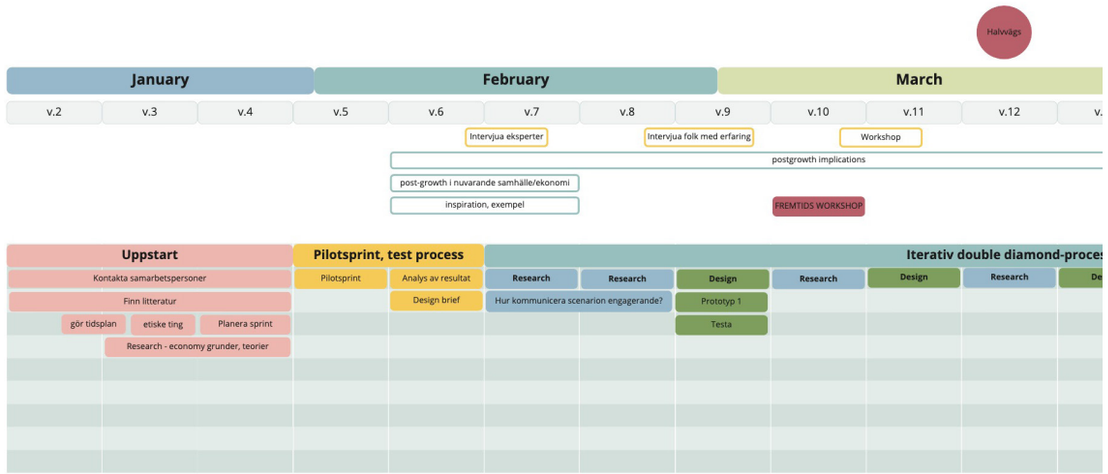


Figure 3, the Project Plan

The Flipper Game

As one might have been able to predict, the process did not look just like the plan. The plan was useful as a structure and to keep the project on track, and the actual process was inspired and influenced by it. The actual process was iterative, shifting between research and design, but not in this clear week-by-week manner but in a more messy way. Research and design ended up being done more or less in parallel, resulting in a process of jumping back and forth between them, hitting obstacles and doing the most urgent tasks on the way, similar to a flipper game. *The Flipper Game Methodology*, as illustrated in figure 4, would not be to recommend as a framework, as it provides little structure. But, it seems to always be where a design process ends up. And it does the work.

Working solo was a new experience, just as working on such a speculative and complex project. During the project, the process was described as an icy road. You slide a bit to the right, a bit to the left, a bit forward and a bit backwards. You may slip and fall on the way, but get back up. You try to find patches of pebbles, jump between patches of dry ground and try to find something to hold on to. And, you manage to make your way forward. Sounds a bit similar to a flipper game, doesn't it?

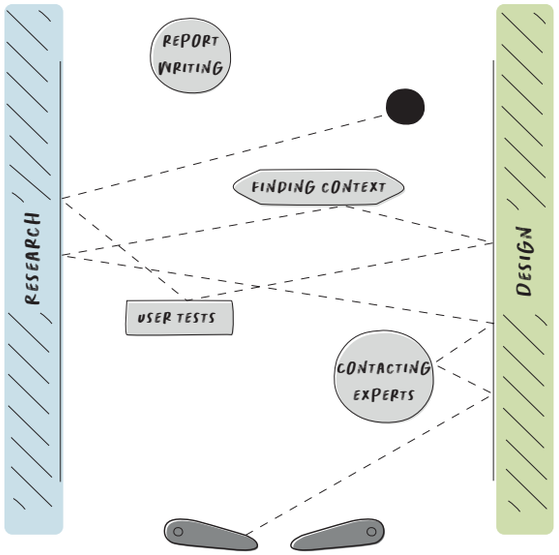


Figure 4, the Flipper Game process

Not Entirely Alone

This masters project and thesis was conducted by a single student in the Industrial Design program, but not without help.

SUPERVISION

Weekly meetings took place with the supervisor of the project, Ida Nilstad Pettersen. The meetings normally started with a long update on the proceedings, accomplishments and challenges of the project, met with feedback and advice. Finally, next steps were discussed and decided.

COLLABORATION GROUP

Because of the value of collaborating with others and getting input, feedback and ideas from others, a collaboration group was started with two other students working alone on their projects - Jacob Bierman Jørgensen and Edvard Liodden. The group had (mostly) weekly meetings, ranging from around 40 minutes long to several hours. During the meetings, each person updated the others on their progress and challenges, and received feedback and ideas. Much time was spent on highly valuable discussions related to each others topics, generating new insights and ideas. The things to do until the next meeting was also shared. Telling someone what you intend to achieve, and having them check on it, each week proved very useful for productivity. The group also helped each other by participating in ideation sessions and user tests.

Method

During this project, several methods were used to gather insights and support the design process and creation of the best suited concept. In this chapter, thesis methods are introduced.

PILOT DESIGN SPRINT

The 'Design Sprint' is a concept originating from Google (GV n. d.). It is a five day process of defining the problem and designing a solution through ideation, prototyping and testing. The Design Sprint is like a very much sped up and compressed design process. While it is an efficient process to start producing and gathering insights, it can be a bit simplified, hence limiting the quality of the solutions.

The main goals of using the pilot Design Sprint method early in this project was to test the format and learn wether it might be useful to do repeated design sprints during the design phases of this project, as well as to gather insights regarding the project through doing a mini-version of it during one week - what would need to be done, prioritized and researched and what are the main challenges? This would help planning the project in a useful way.

Many useful takeaways came from this sprint. To include others in the design process, to conduct 'quick and dirty' fast and early testing of potential concepts, to have short-term goals and deadlines and to learn about how to engage in and create understanding about possible futures as well as to learn about beyond growth economics. The insights gathered from the sprint also supported the idea of it being useful to work iteratively with design and research, to find what needs to be researched and learned partly from the design process.

The pilot Design Sprint is further explained in the *Design* section of this report.

RESEARCH

This project required a lot of research to be done in order to increase understanding. Most research was conducted through literature review. The literature has been found through the search devices oria.no and Google Scholar, and consist of books and scientific articles. The search terms has been many, including examples such as 'economics without growth', 'degrowth economics', 'post-growth economics', 'visions of better futures', 'design for better futures' and many more. Google has also been used to find existing examples and newspaper articles. Much of the useful sources of information was found through recommendations and through the 'snowball' method, finding additional literature in the citations of relevant literature.

Some information and increased understanding has also been found through watching TED Talks, online lectures and listening to podcasts regarding beyond growth economics, visioning of futures and possible futures. Mainly, these have been featuring the authors of relevant literature, found by searching on their names. They have been used to increase understanding, finding inspiration and to learn whether a book might be relevant to read or not.

WORKSHOP

In the middle of the project, a workshop took place with students taking the course 'Design for Sustainability Transitions'. The goal of the workshop was to try different tools for supporting engagement in and imagination of better futures, learning wether or not they might be useful. The workshop was a useful way to engage users and get feedback from a diverse group of people, and some interesting insights were gathered. This is further explained in the *Prototyping and User Involvement* part, in the *Design* section of the report.

PROTOTYPING AND TESTING

With the goal of getting feedback sooner rather than later, involving potential users in the project and making sure that time was open designing a viable concept, several iterations of prototyping and testing was conducted. The prototypes were at first created 'quick and dirty', at a very conceptual level, and became more detailed with every iteration. The tests were held with potential users, and with the aim of representing the diversity of the target group. Verbal consent was given to participate in tests, and no personal or traceable data was collected. Just as the workshop, the prototyping and user tests are further explained in the *Prototyping and User Involvement* part, in the *Design* section of the report.

INTERVIEWS

A total of seven conversations with six different experts took place. The conversations were held at the first half of the project, before the application to gather personal information had been approved. Hence, no personal data or recordings were gathered at the meetings, also meaning that consent forms could not be used. This is why no such information is presented in this report, and the conversations are never referred to as sources of information. One of the experts, though, became a collaborator through the project and has later on agreed to being part of the report.

These conversations were planned as expert interviews, meant to increase knowledge on different topics. The persons or experts contacted were mainly found through recommendations, mainly by the experts previously talked to, but also through specific research. Some were experts in topics such as sustainable development and ecological economics, and some had experience from engaging people in possible futures and designing exhibitions communicating possible futures. Some interviews were loose in the structure, meant mostly for getting advice and feedback, while some had very specific questions regarding theory and were meant to be used for increasing understanding and gathering information. In those occasions, the experts either had no interest in explaining these scientific topics, or were not experts on those areas. Hence, all interviews turned out to bee more guidance conversations than expert interviews.

The first conversation was with Stig Larssæther, the coordinator of NTNU Sustainability. He is an expert in sustainable development and societal transitions, and has previous experience from designing an exhibition where visitors engage in possible futures. The goal of this conversation was to learn from the experiences and expertise of this expert, as well as getting his perspective and thoughts about this project. Utopias, speculative design, future visions and the importance of using values and value based choices in societal transitions were discussed. Some suggestions for people to contact and potential contexts were provided. Stig was very supportive and enthusiastic about the topic of this project, its criticism of society and the aim of structural change. He has a strong interest in communication of information and engaging people in important topics. Stig became a supporter, collaborator and adviser of this project, and an additional meetings took place to further explain the exhibition he took part of creating as well as do discuss the final concept.

The next conversation was with a person who was introduced as an expert in ecological economics. The goal of this expert interview was to get further insight into the economical system, ecological economy and theories beyond growth economics. But, this expert had not been working with these topics for years, and could not provide the explanations needed. Instead, the complexity of the topic and the resulting difficulties of finding descriptions of beyond growth futures was explained. Because of this complexity, advice was given to change the topic somewhat - creating scenarios for futures without growth was described as too complex and technical for this thesis.

The third expert interviewed was with a professor working with ecological economy, societal transitions and sustainable design. In this conversation, it was explained that the economic growth trajectory is unsustainable and needs to change, but it's the competition of the GDP that is important rather than the size of it. The term 'Agrowth', being agnostic about growth, was introduced. It was emphasized that in a sustainability transition, the systems must change, and it must be a radical change. It was discussed how to communicate with people and help them think of such a radically different world. As people want thing that they cannot have, we need to impose limits and ask people what they would like within these limits, and how they could stay within them.

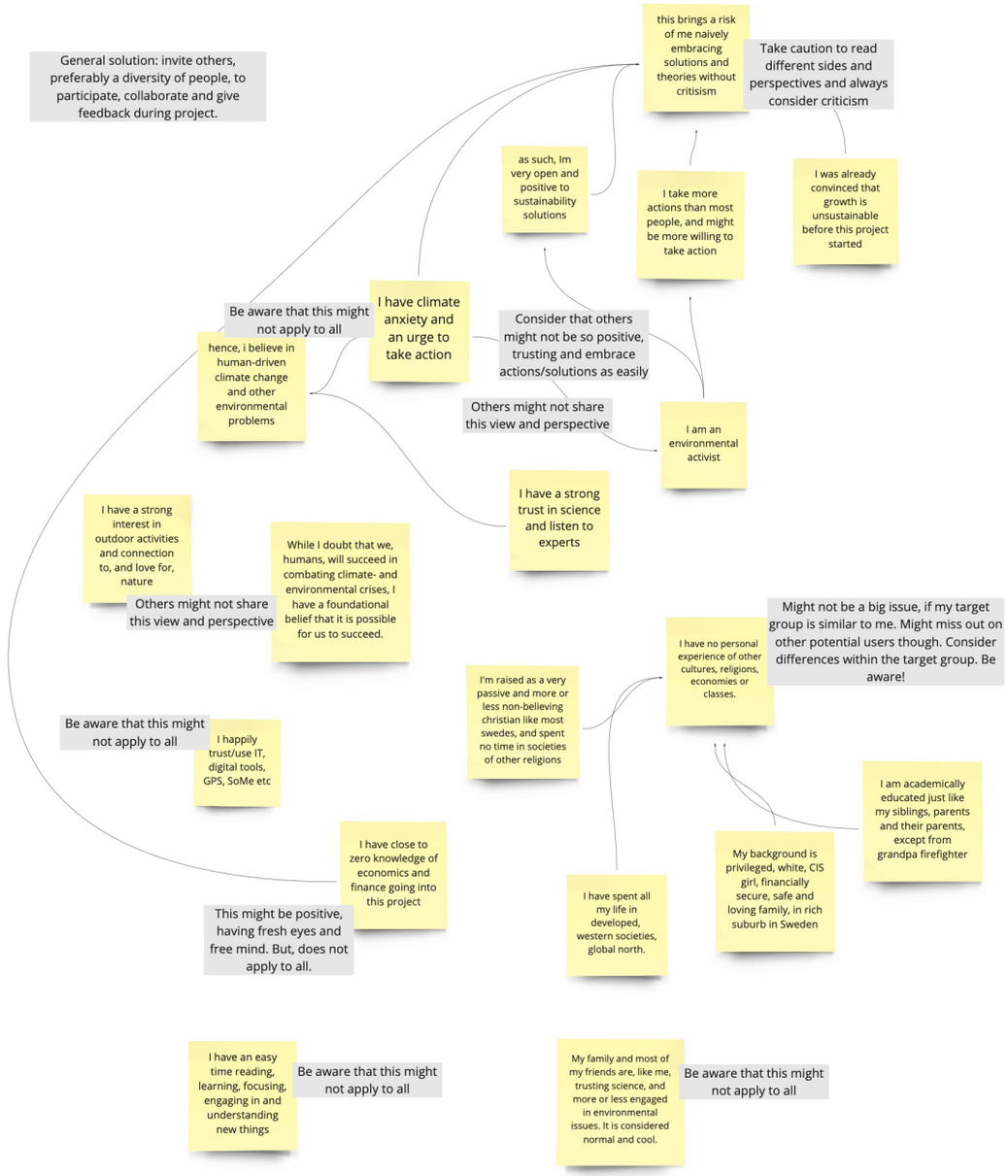
The following two conversations were with designers with experience related to designing exhibitions where the visitors engage in possible futures. In these meetings, potential concepts, contexts and framing was discussed. The potential of design to go beyond what is scientifically known and speculate about potential futures was discussed. To have a physical rather than digital solution was advised because great ideas are lost in the vast amount of digital solutions. It was emphasized that an exhibition must not only describe but convey information, engage emotionally and preferably inspire action as well as balance between being provoking and encouraging. It was suggested that the final concept should create understanding about beyond growth futures in a simple and engaging way, creating some boundaries, and then engage in the imagination and visioning of futures within these boundaries.

A lot of useful insights were gathered from these conversations, getting the perspectives of experts. Advice regarding topics to research, who to contact, what to read, things to keep in mind and advice on what to do next. And feedback regarding the topic and goal of the project as well as potential concepts and contexts for these.

My Limitations and Biases

In every project, the biases and preconceptions of the people involved affect the results. Through including more people in a project, more perceptions and opinions are involved, reducing the impact of individual biases - especially if there is diversity. In a one-girl-project like this, the individual biases can be allowed a large impact, risking to reduce the quality of the result. By acknowledging the existing biases in a project, it is possible to be mindful of how they might affect the project, consider mitigation strategies and reduce the impact of the biases somewhat, even if it is not possible to remove it completely.

This is why all potential biases were mapped out in the start of this project together with notes on how to handle them. Most biases were related to personality traits that are not likely representable for the entire target group, such as being a privileged, white, educated woman from Sweden as well as an environmental activist, and perspectives and traits related to this. The biases were mostly addressed though inviting others, experts and potential users, to participate, collaborate and provide feedback from different perspectives during the project, as well as being mindful of them and designing a concept not relying on those traits.



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"TODAY WE HAVE ECONOMIES THAT NEED TO GROW, WHETHER OR NOT THEY MAKES US THRIVE;
WHAT WE NEED ARE ECONOMIES THAT MAKES US THRIVE, WHETHER OR NOT THEY GROW"

- KATE RAWORTH

Moving beyond Growth

In this part of the report, insights from research on the topic of economic growth and beyond growth economics will be presented. First, the current domination economic model, its fixation with economic growth and the problems related to this are explained. This information is useful for understanding the context for the following information as well as to understand the project, why beyond growth economics are relevant and why this project can add value. Secondly, some different theories of economics beyond growth will be explained, laying the foundation for the next section describing the characteristics of a society beyond growth. These are the insights that are used in the final concept to increase understanding about beyond growth futures.

Why Not Growth

In 1972, *Limits to Growth* was published, creating sensation through its controversial ideas. The study presented and analyzed 12 scenarios of world development and suggested that, due to global ecological constraints, population growth and natural resource use would impose limits to industrial and economic growth (Meadows, Meadows et al. 2004). *Limits to Growth* (Meadows 1972) warned that the ecological constraints would impact the global development significantly, and that in every realistic scenario the limits force an end to physical growth during the twenty-first century - either as a collapse or as a smooth, controlled adaptation. In *Limits to Growth*, the authors argued that collapse is a result of growth only if growth has led to overshoot, and that in 1972 there was still room to grow safely while considering long-term solutions. When the 20-year and 30-year updates were published, this was no longer true and data was included to support the suggestion that the world was in overshoot (Meadows, Meadows et al. 2004). In a study published in 2008, Turner (2008) compared 30 years of historical data to the scenarios of *Limits to Growth*, finding a close match between the historical data and the 'standard run' scenario - resulting in global collapse before the middle of this century. This supports the conclusion from *Limits to Growth* that the global system is heading towards collapse unless there is a transition to a sustainable society.

Since the controversial suggestion of the limits to growth in 1972 the issues of climate change, ecological limitations and economic growth has been increasingly debated and normalized. Numerous books and articles, conferences and podcasts discuss the need for a shift from a systemic focus on growth to sustainability and highlight the issues of overshoot. Multiple new economic systems have been designed and advocated for. But still, economic growth is used as a measurement of success. The following sections will dig deeper into what this means, why it is a problem, and what the solutions might be.

WHAT IS ECONOMIC GROWTH

Economic growth does not have a single specific definition, but is used in several, similar, ways. In practice, it is most commonly referred to as the same as GDP growth (Daly 1996, Raworth 2017). But, economic growth can also be described as increased physical throughput in a given economic system (Daly 1996).

In the 1930's Simon Kuznets made a calculation called 'Gross National Product' (GNP) based on the income generated worldwide by the nation's residents, and it quickly became an important tool to measure the success of the US economy. This is what later became the more common 'Gross Domestic Product' (GDP). GDP has for a long time been used as the main indicator of an economy's health or success, and is measured as the market value of goods and services produced within a nation's borders within a period of time (usually in a year) (Raworth 2017). GDP measures whats sold for a price in a formal market. GNP or GDP calculations does not separate qualitative improvement or development and quantitative increase - they can both contribute to an increase of the value of annual goods and services, and hence contribute to the GDP. While GDP is not solely a measurement of physical things, it is *"a value-based index of an aggregate of goods and services which are physical"* (Daly 1996, p. 28).

While GDP is used to measure welfare, Daly argues that it is rather an index of throughput (1996). A useful example of economic growth is that a house that is burnt down and rebuilt contributes to economic growth as it demands material resources and labour. The house just steadily standing does not - even if the end result is the same, and the first is likely a tragedy, harming the welfare of the people staying in the house as well as increasing resource use and environmental impact.

CURRENT DOMINATING ECONOMIC MODEL

The current dominating economic theory is the neoclassical theory (Storli n.d.), practiced through a neoliberal market economy (Jakobsen and Engqvist 2019). The economic system its capitalistic and fundamentally dependent on growth (Hickel 2021). In this model, value is not objectively set but decided by the market based on utility maximization and balance between supply and demand. While markets and trade is usually seen as capitalist features, they have been around a lot longer than capitalism. In a traditional economy, commodities are sold and traded with the goal of adding value through being useful and what matters is 'use-value'. Whats distinctive for a capitalistic economy, is that the 'exchange-value' that matters - the goal of the trade is to make a profit. And it's not enough to make a steady profit, but the goal is to reinvest that profit, expand and create a greater profit than previous years. Small businesses are satisfied with enough profit to pay the rent, put food on their table and maybe go on a vacation every year. They do not need their profit to increase every year, and while they participate in some capitalist activities (creating profit, paying wages) they are not distinctively capitalist, as they are focused on satisfying needs (use-value) rather than increasing profit. Unlike this steady-state principle of local, small businesses, large corporations use their profit to expand the company and increase the profit (Hickel 2021).

The neoliberal market economy is based on the precondition that actors always prioritize utility maximization (the rational economic man) and that decisions are made based on an egocentric perspective, where the interests of others are not considered (Jakobsen and Engqvist 2019). The main goal of society in the current dominating economic model has become economic, or GDP, growth, an exponential growth usually of ca 2% per year (Raworth 2017). There is a view that growth will make everything better (Raworth 2017), and the basic financial, political, redistributive and property institutions rely on continuous economic growth (Kallis 2011). Economic growth is generally considered equal to development (Daly 1996) and therefore essential and desirable (Ward, Sutton et al. 2016) as well as something to aspire to, which will allow everyone to be better off (Raworth 2017).

Since the goal for economic activity is connected to GDP growth and profit, values that are not operated through money is ignored. Hence, the households, the commons, the society, the earth and its resources, are ignored (Raworth 2017). The social economic costs or utilities that are not included in the market prices, for example emissions of greenhouse gasses, are called externalities (Storli n.d.). Sometimes, it is considered necessary for the authorities to intervene in the market and for example put a price on externalities. Many economists have created methods for including nature and natural resources in their analysis though giving it a value, but setting a correct value and a price for nature is challenging. In the market economy, value and price is considered the same thing. And deciding the value is easy because where there is a market, there is a price. But, for natural resources and services there are no markets and, hence, no obvious price - even though it's clear that nature is essential for us humans, and environmental degradation is connected to large costs.

The Iceberg Model

In current society, while the neoliberal market economy is the dominating economic model, taught in economy educations and foundational for institutions and political policy, in does not comprise all economic activities commonly practiced. *The Iceberg*, as shown in figure 5, is an illustration showing that *"what is usually regarded as 'the economy'—wage labor, market exchange of commodities and capitalist enterprise—comprises but a small subset of the activities by which we produce, exchange and distribute values"* (Gibson-Graham 2002, p. 1).

The illustration highlights the diversity of ways in which we all engage in economic activity, and how much more there is to the economy than whats included in the dominating economic model. This more diverse view of economy includes economic activities of production, consumption and transactions that are not money-based on a formal market, and hence does not contribute to GDP. Many of these activities, both good and bad, are performed for other purposes than increasing monetary profit, enhancing other values.

Figure 5, Diverse Economics Iceberg: Diverse Economies Iceberg by Community Economies Collective is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

INFINITE GROWTH ON A FINITE PLANET?

We know that we have a finite planet, with limited capacities. These are explained and measured through the nine planetary boundaries by the Stockholm Resilience Centre (n.d.). Economical actions have environmental effects and generate ecological imbalance in two categories - emissions and pollution affect the sink capacity and resource use affects the source capacity. In *Limits to Growth* (Meadows 1972), the concept of 'overshoot' was introduced describing to exceed the ecological limits and put a demand on the source and sink capacity of the planet that can't be sustained. Likewise, Daly (1996) argues that the natural world is a non-growing, finite and materially closed ecosystem. Hence, as a condition for sustainable development, human economic activities must be kept at sustainable levels, within the ecosystem boundaries of regeneration of raw material input and absorption of waste outputs (source and sink capacity) .

It is commonly argued that the economy must be seen as a subsystem of the larger ecosystem of the environment (Meadows, Meadows et al. 1992, Daly 1996, Raworth 2017, Hickel 2021, Jackson 2021). Societal and economical systems are relying on ecological systems - and not the other way around (Smith 2021). This is illustrated in figure 6. This image sparks questions like how big the economy can be without disrupting the function of the total system, and how big it should be. It also makes it obvious that the economy can not grow forever - as a subsystem of the environment, it must remain smaller than the environment and respect its limits and capacities.

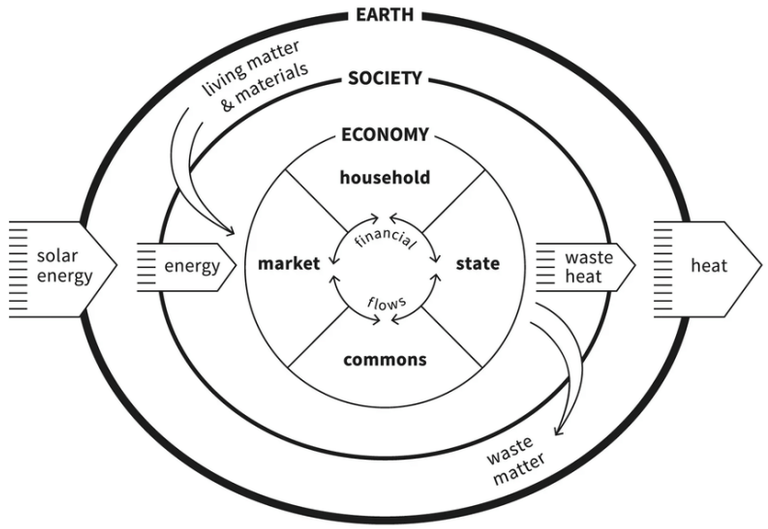


Figure 6, The Embedded Economy. From *Doughnut Economics* by Kate Raworth, 2017

As mentioned above, economic activity uses energy and material resources and produces waste (Soldal n. d.). And the laws of physics state that in a closed system, energy can neither be created, nor be destroyed, but only be transformed. Hence, beyond-growth economists argue that eternal growth is impossible - it's agains the laws of physics (Kallis 2011). Historical measurements supports these theories, showing a strong relationship between growth in GDP, energy use and oil use (see figure 7) (DISNOVATION.ORG and Gottlieb 2021). A study by Juliet Schor and Kyle Knight also support this view, finding that economic growth is a strong driver of emissions and that this relationship has not weakened notably between 1991 and 2008 (Schor 2015).

The technical summary of the IPCC report from April 2022 (Pathak, Slade et al. 2022, p. 12) agrees, stating that *"Globally, Gross Domestic Product (GDP) per capita and population growth remained the strongest drivers of CO2 emissions from fossil fuel combustion in the last decade (high confidence). Trends since 1990 continued in the years 2010 to 2019 with GDP per capita and population growth increasing emissions by 2.3% and 1.2% yr-1, respectively."*. They add that scenarios of mitigation likely limiting the warming to 2°C or 1.5°C all entail losses in global GDP, from 1.3% to 4.2%.

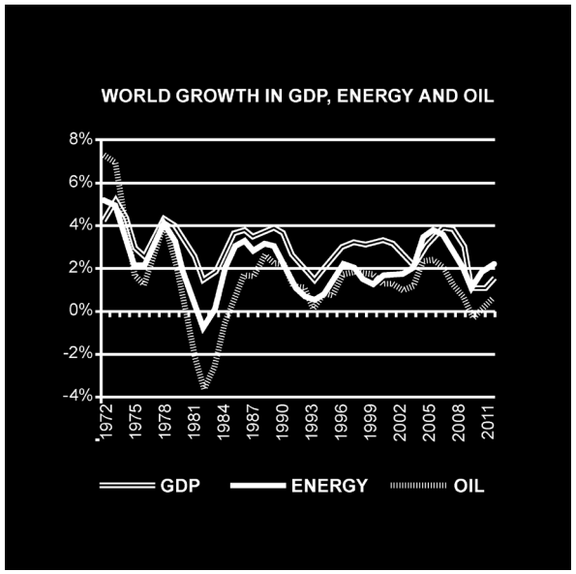


Figure 7, The world growth in GDP, enery use and oil use, made by DISNOVATION.ORG and Gottlieb, 2021 (https://disnovation.org/sg/#shadowgrowth)

In neoclassical economics, environmental protection is seen as a luxury good to be purchased, something that can be fixed with further growth (Schor 2015), a view explained through the 'environmental Kuznets curve'. This environmental version of the 'Kuznets curve' suggests that as the economy grows, or more specifically as the income per capita increases, it will at first create a lot of pollution. But as the growth continues, environmentally friendly actions are afforded and eventually the growth will fix the problems it has created. In *Doughnut Economics,* Raworth argues that even if the environmental Kuznets curve exists, *"it is a mountain that humanity simply cannot afford to climb because we cannot survive its peak"* (Raworth 2017, p. 179). This statement is partly based on an analyze by Chris Goodall who found that the resource consumption levels of the UK seems to have peaked and plateaued or even started to decline - but the peak was at such a high level, if other countries had the same development it would demand the resources of more than three planet earths.

In *Doughnut Economics*, Raworth (2017) argues that the extraordinary economic growth in high-income countries the last two centuries is mostly due to the high efficiency of converting energy into work. This is explained through the high availability of energy-packed cheap fossil fuels. Without sufficient alternatives, shifting from fossil fuels makes it likely that the GDP will decrease. In a letter signed by 238 academics and posted at theguardian.com (O'Neill et al. 2018), it is explained that if current trends continue, there might not be economic growth in Europe at all within a decade. Due to declining productivity gains, market saturation and ecological degradation growth is becoming harder to achieve.

There is a common understanding that as long as economic activity is coupled to resource and energy use with environmental impacts, there is a limit to growth. Many publications, including *Limits to growth* (Meadows 1972) and the IPCC report from February 2022 (IPCC 2022) consider economic growth to be threatened by climate impacts and ecological constraints. They also highlight the importance of an intentional, deliberate and envisioned transformation towards a more sustainable society, and stress the risk of a less desirable, forced transformation or collapse of the economy, if this does not succeed.

ECONOMIC GROWTH AND SUSTAINABLE DEVELOPMENT

In 1987, sustainability was defined as *"development that meets the needs of the present without compromising the ability of future generations to meet their own needs"* (Brundtland and Dahl 1987). Sustainable development is commonly described as development which is socially, economically and environmentally sustainable. The previous section argued that growth is environmentally unsustainable, but what about economically and socially?

Growth is not only limited by environmental limits, but it is also economically limited as it is beginning to cost more than it is worth at the margin (Daly 1996). GDP measures throughput rather than welfare. And while increasing throughput would likely increase welfare in an infinite world, throughput is a cost in a world with finite sources and sinks. The economic system always pushes for more. But more is only better where there is not enough. Where there is already excess, more becomes a problem and contributes to costs (Jackson 2021). On the website https://disnovation.org/sg/ (DISNOVATION.ORG and Gottlieb 2021) the project *Shadow Growth* is presented. *Shadow Growth* presents visualizations of the classic GDP growth graph together with its shadow (see figure 8), consisting of the estimated social costs of the CO2 emissions related to the GDP growth. This visualizations clearly communicates the true cost of economic growth as it is related to CO2 emissions.

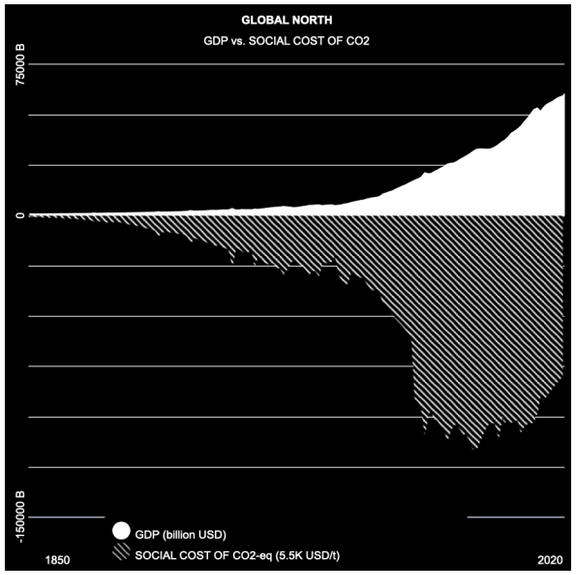


Figure 8, Showing the GDP growth and the social costs related to greenhous gas emissions generated in the Global North from 1850 to 2020, made by DISNOVATION.ORG and Gottlieb, 2021, (https://disnovation.org/sg/#shadowgrowth)

There are growing inequalities both within countries and globally. While this is socially unsustainable, it also creates challenges for implementing climate policies within countries, when for example higher carbon taxes are not accepted (Schor 2015). Globally, one issue is the capacity to mitigate missions, which is lower in poor countries. An other issue is the responsibility of carbon emissions. Countries that industrialized early, generally the Global North, are responsible for a large amount of cumulative emissions, while the Global South is more vulnerable to the consequences (Gore 2020). Ethically, poor countries also have the right to develop and increase average income through economic growth (Schor 2015).

In Daly's opinion, development is *"a process by which the south becomes like the North in terms of consumption levels and patterns"* (Daly 1996, p. 4). But, this is not possible without exceeding the ecological carrying capacity even with anything resembling our best existing technology. A point made by many critics of the growth-focused economy is that rich countries must stop growing their economy, to make room for poor countries to grow and reach similar levels of development (Daly 1996, Kallis 2019, Gore 2020, Jackson 2021). While money can expand, the total economy (consisting also of all resources) cannot. Hence, when I use resources, someone else can't (Smith 2021). Kallis (2019) argues that there is already enough for everyone to have a decent share, so there is no reason for the global economy to continue on its growth focused journey.

The Kuznets curve suggest that with economic growth, or more specifically increased income per capita, inequalities must first rise before, with continued growth, it falls again - *"It's got to get worse before it gets better, and growth will make it better"* (Raworth 2017, p. 143). But, the value of owned capital has increased more rapidly than the economy as a whole, resulting in success to the successful and continuously increased inequality. Together with the claim that inequality is necessary for progress, the Kuznets curve has been debunked by several studies. But it's still deeply embedded in the society and not completely left behind (Raworth 2017). On the contrary, Daly argues that the only way to lift people out of poverty is through development rather than growth - through population control, redistribution of wealth and income, and by technical improvements in resource productivity (Daly 1996).

The tradition is to consider economic growth as necessary for development as well as mitigation of climate change. In an interview study by Schor and a student, they found that *"You can't worry about global warming if you are struggling to put food on the table"* (Schor 2015) was a common statement. But, globally the richest 10% produce around half of all greenhouse gas emissions while the poorest

3.5 billion are responsible for only about 10% of all emissions (Gore 2020). In addition, historical evidence shows that large reductions in emissions have occurred during economic recessions, such as the economic collapse of the Soviet Union and the Great Recession of 2009 in the United States (Schor 2015).

The Sustainable Development Goals (SDG) are widely used and *"provides a shared blueprint for peace and prosperity for people and the planet, now and into the future"* (United Nations n. d.). The 17 goals include social, economic and environmental sustainability goals. It can be criticized for making the goals seem equal, or even putting social and economic goals above the environmental goals. In fact the economy depend on the society which depends on the environment and hence, the environmental goals are the foundation of all SDG's as seen in the Wedding cake illustration by the Stockholm Resilience center (Obrecht, Pham-Truffert et al. 2021). Especially goal number 8, which is about decent work and economic growth, has been criticized as problematic for it's focus on economic growth, a potential contradiction to sustainable development and a status not proven to be of importance for neither societal nor environmental sustainability (Smith 2021).

In the technical summary of the IPCC report from April 2022 (Pathak, Slade et al. 2022) social actors such as individuals, groups and collectives, corporate actors, institutions and infrastructure actors are encouraged to contribute to climate change mitigation. They also mention the need for change to a different kind of economy, stating that *"Actors either contribute to the status-quo of a global high-carbon, consumption, and GDP growth-oriented economy, or help generate the desired change to a low-carbon energy-services, well-being, and equity-oriented economy."* (2022, p. 99).

Even Kuznets, the creator of the GNP calculation which later became GDP, saw its limits and warned that is was not a sufficient way to measure the success of a nation's economy and that using this tool could harm the welfare.

Even Kuznets, the creator of the GNP calculation which later became GDP, saw its limits and warned that is was not a sufficient way to measure the success of a nation's economy and that using this tool could harm the welfare. He stated that the difference between quantity and quality of growth must be considered, and that goals should be specific of what kind of growth and for what (Kuznets 1962). Many agree, arguing that the the goal of GDP growth has hijacked economics in absence of other articulated goals (Raworth 2017) and that we must have an 'enough' and consider *"growth of what, and why, and for whom, and who pays the cost, and how long can it last, and what's the cost to the planet, and how much is enough?"* (Meadows 1999).

Daly argues for replacing the standard economic goal of quantitative expansion, or growth, with qualitative improvement - development. But, as most economic and political institutions are founded on traditional quantitative growth, this shift is resisted. Daly defines sustainable development as *"development without growth beyond environmental carrying capacity, where development means qualitative improvement and growth means quantitative increase"* (Daly 1996, p. 9).

GREEN GROWTH

'Green growth' is a variation of the current dominating economic model, aiming to make growth sustainable through technological development, innovations and market regulations. Green growth is a dominant policy response to the issues of climate change, ecological breakdown and limits to (classic) growth, widely assumed in national and international policies (Hickel and Kallis 2020). Within green growth, it is argued that the problem is not the economic growth itself, but the waste of resources. The traditional economic growth, closely related to resource use and environmental impacts, is called grey growth (Stoknes 2021). Green growth, on the contrary, relies on the theory that GDP growth can be absolutely decoupled from resource use and carbon emissions (Hickel and Kallis 2020). It is argued that these negative environmental effects can be eliminated through higher efficiency and resource productivity, as well as the right regulations and incentives putting a price tag on all natural resources (Jakobsen and Engqvist 2019). Hence, green growth aims to reduce the material throughput of the economy, but not the monetary value (Jackson 2021).

Green growth relies on innovations to provide *"economic benefits and cleaner technologies"* (Herman 2021). Many green growth economists argue that growth is necessary for development and that using the mechanisms of the market economy to drive innovation is the fastest way to transition to a sustainable society (Raworth 2017, Herman 2021, Hertwich 2021, Jackson 2021, Stoknes 2021).

Is Green Growth Possible?

Since green growth relies on the assumption that absolute decoupling of GDP growth from material throughput and carbon emissions, it is relevant to ask if this is possible in a sufficient timeframe. Raworth (2017) argues that to be sustainable, the absolute decoupling must have rate high enough for the emissions of high income countries to decrease at a rate of 8-10% per year, at least. And the rate of decoupling must keep pace with the growth of GDP, constantly improving. *"Efficiency must outrun scale faster than it has ever done in the past, and it must continue to do so indefinitely"* (Jackson 2021, p. 40).

In an article in Göteborgs-Posten March 21st 2022 (Björk 2022), it is argued that while a level of decoupling has been accomplished in Sweden, it is far from sufficient and there is no research evidence supporting the theory of green growth with emissions reductions larger than 2% per year.

Research by Kyle Knight and Juliet Schor (see Schor 2015) examined the connection between greenhouse gas emissions and GDP growth in 30 OECD countries from 1991 to 2008. They found that *"the growth rate of GDP has a consistent, positive and significant relationship with the growth rates of both territorial and consumption-based carbon dioxide emissions"* (Schor 2015) and that this relationship does not seem to have weakened in the period 1991-2008. It is also noted, though, that the relationship between GDP levels and emissions levels are widely varying and that some countries have managed to produce GDP with far lower emission levels than others.

Hickel and Kallis (2020) agree, finding no empirical evidence of absolute decoupling of resource use from GDP growth at a global scale even under highly optimistic conditions. While absolute decoupling is possible and has been achieved in some regions, indications show that this might not be possible to sustain in the long term. And, most importantly, absolute decoupling is unlikely to happen rapidly enough to prevent us from exceeding the carbon budget for 1.5°C or 2°C (Hickel and Kallis 2020).

Absolute decoupling is unlikely to happen rapidly enough to prevent us from exceeding the carbon budget for 1.5°C or 2°C (Hickel and Kallis 2020).

The study *Decoupling Debunked* (Parrique, Barth et al. 2019) concluded that *"not only is there no empirical evidence supporting the existence of decoupling"* (Parrique, Barth et al. 2019, p. 10) on a scale anywhere near what would be sufficient to deal with the environmental breakdown. But, such decoupling seems unlikely to be achieved in the future. The study presents the seven main barriers to green growth: cost shifting, insufficient and inappropriate technological change, limited potential of recycling, the underestimated impact of services, problem shifting, rebound effects and rising energy expenditures (Parrique, Barth et al. 2019). Ward et al. (2016) agree, finding that GDP growth is unlikely to be decoupled from growth in material and energy use. Ward et al. also argue that GDP has shown to be a poor indicator of societal wellbeing and that it is a questionable long-term goal in any case.

One of the methods of green growth to reduce environmental impacts is to regulate the market through putting a price tag on environmental resources, making all economical actions with a negative environmental impact unprofitable. Jakobssen and Engqvist (2019) argues that this is unrealistic for two reasons: 1. It is not desirable nor possible to turn all values and natural resources into money and give it a price tag and 2. The market can only regulate economical transactions that are connected to ownership, and it is impossible to say who has the right to ownership of air and the ocean.

In a lecture at Events at Bergen Global, Jørgen Randers stated that while we know how to solve the environmental crisis, it is highly unlikely to happen in a growth-focused, liberal market economy (Randers 2019). This is due to the solutions (long-term sustainable choices) leading to short-term costs and loss of workplaces. And, he argues, while putting a price tag on emissions is a good idea, the prices can't increase enough to make the better choice profitable - because the democracy, the people, won't accept it.

Jakobssen and Engqvist (2019) argue that green economy reduces the problems of established economy without any structural change. Therefore, it also causes environmental rebound effects, increased inequality and hides the real, structural problems behind a smoke cover of nice green words. Hence, green growth contributes to increased environmental issues - despite good intentions.

While we need all possible technical innovation contributing to sustainable development, it will not be enough. For improved efficiency to be effective, also aggregate economic activity needs to be scaled down (Hickel and Kallis 2020) and efficiency improvements must be combined with efforts to reach sufficiency (having enough of something for a certain purpose) (Parrique, Barth et al. 2019).

Raworth (2017, p. 223) argues that while it might be too early to rule decoupling out, *"it is too late to rely on the belief that it will happen"*. In the previously mentioned article in Göteborgs-Posten, it is argued that the politic debate is locked in the idea of green growth as the solution to environmental issues because of a misunderstanding of what growth means. Growth is commonly used in society as synonymous to positive development and increased efficiency - traits which are completely possible and desirable also in a society not pursuing GDP growth (Björk 2022).

SUMMARY - THE MANY LIMITS TO GROWTH

In this chapter, the environmental limits of economic growth were introduced, as well as how the pursuit of GDP growth in our current dominating economic model drives resource use and greenhouse gas emissions. Furthermore, the social issues and costs related to growth have been described. I have argued that the pursuit of economic growth is not only environmentally, but also socially and economically unsustainable.

It has been explained that green growth is an unlikely solution to the issues as it requires absolute decoupling between GDP growth and resource use and emissions and there is no research supporting that this is likely to happen in a sufficient timeframe. And, unless this decoupling is accomplished, GDP growth is unsustainable. Hence, while growth itself just might be able to solve the issues created by growth, it's too late and too big of a risk to rely on. Moreover, as GDP is shown to be a poor indicator of societal development and welfare, which it was never designed to measure, GDP growth is inadequate as a longterm goal of society. It is relevant to explore other options and ask the question of what a society in which economic growth is not the main objective could look like. As stated in Göteborgs-Posten March 21st 2022 *"Rather than pursuing a green growth without scientific support political power should be focussed at developing an economy focused at real health, security and prosperity"* (Translated from Swedish by author)(Björk 2022, p. 4).

Economics Beyond Growth

In 1968 Robert Kennedy criticized the use of economic growth and GDP as the dominant measurement of social progress and policy indicator, stating that it counts the wrong things. It counts things that impair our quality of life, such as cigarette advertising, air pollution, napalm and weapons. And it excludes things that are important to us and improve our quality of life, such as unpaid labour, domestic care, health, the quality of education and the beauty of art (Jackson 2021). But since then, the financial, political and social addiction to economic growth has not decreased, rather the opposite.

While the limits of GDP as a measurement of welfare and societal success has been proclaimed from the start, the economic, social and environmental limits to growth have become increasingly emphasized. But it can seem like we are trapped. *"Capitalism is fundamentally dependent on growth. If the economy doesn't grow it collapses into recession"* (Hickel 2021, p. 22). And while capitalism is considered essential in politics and it's taboo to question it, it's no longer supported by a majority of people. A study by Edelman Trust Barometer in 2020 showed that 56% of people around the world agrees with the statement 'Capitalism does more harm than good' (Hickel 2021). And environmental protection is prioritized over economic growth in most surveys and countries when people are asked to take a stance.

A fundamental change of the economic system seems to be necessary as well as desirable. But to what? Scientists, economists and activists such as Jackson (2021), Jakobsen (2017), Hickel (2021), Raworth (2017), Kallis (2011) and Daly (1996) have contributed to the debate, arguing for alternative economic theories. In this thesis, these different economic models are called beyond growth economics, as they insist that through leaving the goal of economic growth behind, creating a better world is possible. A world that values what humans actually value, where we can live more fulfilling lives and thrive while allowing nature to thrive too. As put by Raworth (2017, p. 26): *"Today we have economies that need to grow, whether or not they makes us thrive; what we need are economies that makes us thrive, whether or not they grow"*.

In this thesis, these different economic models (alternatives to the current model) are called beyond growth economics, as they insist that through leaving the goal of economic growth behind, creating a better world is possible. A world that values what humans actually value, where we can live more fulfilling lives and thrive while allowing nature to thrive too.

THEORIES OF BEYOND GROWTH ECONOMICS

There are many different, more or less precise, theories and strategies of beyond growth economics, for example 'Doughnut Economics' (Raworth 2017), 'Ecological Economics' (Jakobsen 2017) and 'Degrowth' (Kallis, Kerschner et al. 2012), 'Steady State' (Daly 1996), 'Agrowth' (van den Bergh 2017), 'Post Growth' (Jackson 2021) and 'Wellbeing' economics (Wellbeing Economy Alliance n. d.). The proponents of these concepts can seem determined to insist on the differences between the concepts and have a hard time agreeing on what to call them (see the debate between Kallis and van den Bergh (Kallis 2011, van den Bergh 2017) and between Kallis and Raworth (Kallis 2015, Raworth 2015)). But the concepts also have many foundational similarities. What they all have in common, and what makes them 'beyond growth' economy concepts, is the view that the society and economy needs a systemic, radical transformation from focusing and relying on economic growth, to focusing on prosperity and equality within the ecological capacity of the planet. Their fundamental goal is a sustainable and just global society.

These theories of beyond growth economics are described as potential alternatives to the growth-focused current economic model. Hence, understanding them and their characteristics is key for understanding what an alternative beyond growth future could be like. This information is also the foundation for creating a concept meant to support understanding and imagination off and engagement in possible beyond growth futures.

Ecological Economics

Ecological Economics is a field aiming to create a society and economy inspired by nature, where quality of life is in focus rather than quantity of material resource use and the economy is adapted to the limits of the ecosystem (Jakobsen 2017). In Ecological Economics the mechanical perception of reality is replaced by an organic perception of reality and relations are in focus, between humans and between humans and nature. Decentralized collaborative networks replace competitive markets, circular value flow replace linear value flow and processes are more important than products. Equality and fair distribution of resources is central and the economy serves society and nature, rather than the opposite. For businesses, collaboration rather than competition and contributing to the greater good rather than maximizing profit are key concepts. The society should be decentralized and there should be a participatory democracy where the citizens engage in their community (Jakobsen and Engqvist 2019). Ecological Economics can be seen as the foundational subject, which many of the beyond growth economic theories are part of and have their origin in.

Doughnut Economics

Doughnut Economics, introduced by Kate Raworth (2017), is a model for 21st century economics, a mindset and a way of thinking that aims at meeting the needs of all humans while staying within the planetary boundaries. The Doughnut, as seen in figure 9, consists of two rings. The inner ring is the social foundation, which marks the limit of where people starts falling short on life's essentials. The outer ring is the ecological ceiling, illustrating the planetary boundaries that humanity must not overshoot. Between these two rings and sets of boundaries is the ecologically safe and socially just doughnut-shaped space, the space where humanity can thrive.

Doughnut Economics is about changing the societal goal from infinite GDP growth to thriving within the Doughnut. It's about systems thinking and a regenerative and distributive economy embedded in society and nature. While recognizing growth as a healthy phase, Raworth argues that growth cannot last. She promotes being agnostic about growth and not letting growth be a goal in itself.

Figure 9, showing the Doughnut from *Doughnut Economics* by Kate Raworth, 2017 (https://doughnuteconomics.org/about-doughnut-economics)

Post Growth Economics

Post Growth is more of a mindset than an economic model, a generic term and stance covering different solutions to how the society might transition from the growth-focused economy. As put by Jackson: *"Post growth is still a necessary thought-world. Even in the midst of change, we remain obsessed with growth. Post growth is a way of thinking of what might happen when that obsession is over. (…) an unexplored territory where plenty isn't measured in dollars and fulfillment isn't driven by the relentless accumulation of material wealth."* (2021, p. xv).

Post Growth is focused on how prosperity, happiness, health and quality of life, can be improved in a society beyond growth. Mentioned as important for this is finding balance between having too little and having too much, reducing inequalities, and replacing consumerism with non-material views of prosperity. Work is seen as important for the individual and the society, creating fulfillment and belonging when done right. Especially work in care, craft and creativity sectors should be enhanced, as they deliver prosperity and are less environmentally harmful.

Steady State Economics

In Steady State economics, the growing economy is replaced by a steady, but not static, economy that might occasionally grow or decrease. When talking about economic growth, Daly (1996) refers to increase of physical throughput of matter and/or energy for economic activities, not the commonly used GDP growth. Hence, the Steady State economy does not imply zero growth in GDP, but a constant aggregate throughput. It is central that this level of constant throughput is ecologically sustainable in the long term, for a population living at a standard sufficient for a good life.

The economy might have to first decrease, to reach a sustainable level of throughput. Also the size of the population should find a steady state balance, because a growing population means that more resources have to be used to uphold the same standard of living. The Steady State economy is most relevant in developed countries, as undeveloped countries might have to grow out of poverty before they too can reach a balanced steady state.

Degrowth Economics

Sustainable Degrowth is an economic strategy that can be defined as *"a socially sustainable and equitable reduction (and eventually stabilization) of society's throughput."* (Kallis 2011). Hence, Degrowth economics aims for a decrease of the size of the economy, not eternally, but until it has a sustainable size (meaning, a sustainable level of throughput) for a Steady State economy. Just like Steady State, Degrowth concerns only the throughput, and qualitative changes, improvements and innovations can still take place. To degrow GDP is not a goal of sustainable Degrowth, but it is considered an inevitable outcome of it (Hickel 2021).

Degrowth economics aims to create a controlled, prosperous downscaling of the economy through institutional changes. *"Sustainable degrowth is not equivalent to negative GDP growth in a growth economy. This has its own name: recession, or if prolonged, depression. (…) Sustainable degrowth instead is the hypothesis that the inevitable – and desirable – economic (GDP) degrowth can be turned socially sustainable"* (Kallis 2011).

Proposals for how the degrowth should be accomplished are very diverse, but there is some consensus around the need for institutional and policy changes, including redistribution of work, natural resources and wealth as well as decentralization of the economy as a means to reduce throughput and make the adaption to a smaller economy stable. It is argued that there is already enough for everyone to have a decent share, and rich countries must degrow their large economies, to allow for poorer countries to grow out of poverty (Kallis 2019).

Wellbeing Economics

Wellbeing economy is an economic model that brings more to our lives than being bigger than it was the year before, aiming to create shared wellbeing for people and the planet. It *"recognizes that the economy is embedded in society and the rest of nature. It must be understood and managed as an integral, interdependent system of social relations that pursues balance and prosperity, rather than the maximization of production and consumption. It is an economy that values both social and natural dimensions as fundamental components of national wealth and as critical factors in determining wellbeing"* (Constanza 2020).

In a Wellbeing economy, indicators of wellbeing and environmental as well as social aspects of progress would replace GDP as a measurement of success and as a goal. In a Wellbeing economy, the economy can grow but only if it improves our values and is sustainable (Hopkins, Trebeck et al. 2020). The Wellbeing economy should be collaborative, and be designed to prioritize what we actually value and what improves our wellbeing. For example, the care sector would be prioritized and valued. Meeting our needs before our wants is important as well as social justice (Wellbeing Economy Alliance n. d.).

Agrowth Economics
Agrowth, short for agnostic about growth, is a strategy criticizing both pro-growth and anti-growth strategies for constraining the societal development and progress. In an Agrowth strategy, the GDP is ignored as a measurement of progress, and might increase and decrease depending on the period and context. This is argued to be the most flexible strategy, as it imposes no growth or anti-growth related constraints to the pursuit of progress. It is also more likely to be acceptable from both sides of the debate - the pro and the anti-growth sides (van den Bergh 2017).

SIMILARITIES AND DIFFERENCES

While there are differences in methods, terminology and perspective amongst these different beyond growth economic strategies (see figure 10), they are all on the same side of the debate, arguing for similar goals and transition towards a beyond growth future. They consider the economy to be a subsystem of the environmental ecosystem, and stress the importance of sustainability and resilience. They argue that institutional reliance on economic growth needs to be removed to make room for sustainable and just development. They emphasize the importance of equality and the need for just sharing of resources and giving smaller economies the space to grow out of poverty.

While there are differences in methods, terminology and focus among these different beyond growth economic strategies, they are all on the same side of the debate, arguing for similar goals and transition towards a beyond growth future.

They agree that economic growth is an inadequate goal for societies, that it is linked to social, economical and environmental issues and that green growth is unlikely to succeed in solving these issues. They also agree that economic growth is not equal to or necessary for development, but might even threaten it. They agree that *"The end of growth is not the end of social progress. To dethrone material expansion is not to give up on human prosperity"* (Jackson 2021, p. 5) and that beyond the growth-focused economy lies the possibility for a sustainable, better future where humans and nature are allowed to thrive. They agree that there should be a low level of resource use and circular, regenerative, value flows. The different concepts also have similar views on the characteristics of a beyond growth society, which will be explored in the next chapter.

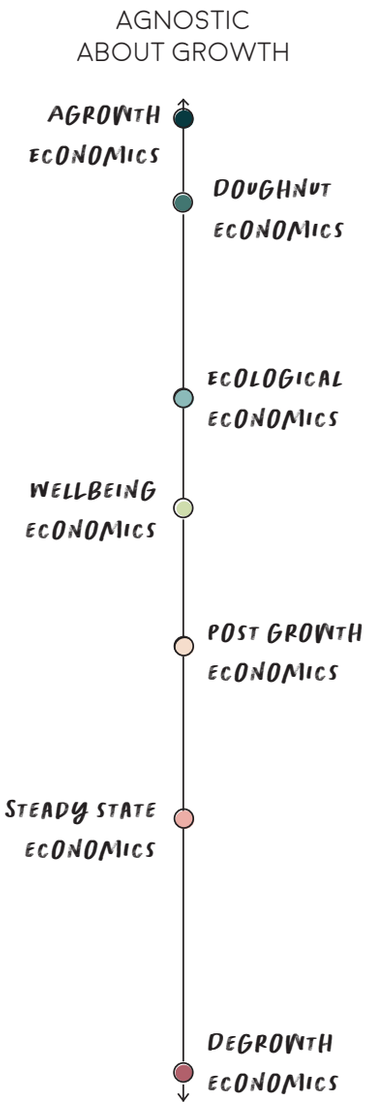


Figure 10, Beyond Growth theories mapped out according to (the perception of) their perspective on growth, from being agnostic about growth to arguing for degrowth.

Characteristics of a Society Beyond Growth

While none of the beyond growth economic strategies have a comprehensive, clear idea of what a society that has transitioned to a beyond growth economy would entail, they all convey characteristics that are vital for the transition as well as in the society. Many of these ideas of the important characteristics of a society beyond growth are shared by the different strategies. In a beyond growth economy, instead of pursuing growth in every sector, conscious decisions can be made regarding which sectors should grow and which should degrow. In this chapter, some fundamental characteristics and solutions are described.

RADICAL CHANGE

Jackson (2021, p. 148) argues that we learnt two things from the radical responses to the Covid-19 pandemic. That *"radical change is undeniably possible"* and that *"incrementalism won't achieve it"*. This is also argued to be true for the case of the environmental crisis which can only be solved by radical systemic change.

Jakobsen and Engqvist (2019) agree. Economic foundational scientific preconditions that are taken for granted, considered the truth and not questioned in regular Economics, are considered 'the hard inner core' of economic theory. Around the hard inner core, there is a 'protective belt' of theories and methods supporting the hard core. The theories and methods in the protective belt can be changed to adapt to changes in society and to protect the hard core. Questioning or changing the theories of the hard core of economics has dramatic consequences for the research and for the existing economical and political systems. Therefore, while it is much more important to question the hard core, the changes are more difficult to implement.

Jakobsen and Engqvist (2019) argue that ecological economy requires a change of the fundamental preconditions of the economic system, as opposed to green economy that only requires adaptions of the economic methods. If Ecological Economics were implemented within a neoliberalistic, capitalistic model, without a radical change, it would result in an adapted version of green growth economics. This is because ecological economy and capitalism are not ideologically compatible. Kallis (2019) has a similar opinion, arguing that as capitalism is a system that either grows or fails, the end of growth requires a transition from capitalism.

All of the described beyond growth economic theories emphasize the issues related to the economic system as it is, and its implications on politics and institutions. They all question the fundamental preconditions, the hard core of the economics that the society and institutions are based on, and argue for a transition towards a different system. Indeed, they all argue for radical change.

THRIVING WITHOUT GROWTH

Depression brings the global economy enormous monetary costs every year, and the human cost is even higher with suicide having become a very common cause of death. Jackson argues that as this problem has increased as the world has gotten incredibly richer, it's becoming obvious that *"living well is not just about having more"* (2021, p. 50). It is found that the happiness levels in the US have not increased in the last four decades, while the economy has more than tripled in size. Also in the UK, happiness has declined despite a tripling of income since the 1950's (Hickel 2021). And the happiness levels are reportedly higher in poorer countries like Chile and Costa Rica compared to the US. *"If the aim of economic growth is to improve life and to increase happiness, then why don't richer countries always look happier than poorer ones?"* (Jackson 2021, p. 53).

In every society, economic growth (as conventionally measured) increases the quality of life - but only to a threshold point. Beyond this point, further economic growth does not improve quality of life, but might even decrease it.

Modern economics origins from the idea of utilitarianism, to pursue the greatest level of happiness for the greatest number of people (Jackson 2021). While the term utility has changed and now refer to the value of something, usually measured in monetary terms, the pursuit of utility maximization and economic growth is still seen as something good, aiming to increase happiness. But, this would only work if money was a good substitute and indicator for happiness. It's not. Max-Neef (1995) analyzed data of measured welfare from several studies, finding that there is a threshold point. In every society, economic growth (as conventionally measured) increases the quality of life - but only to a threshold point. Beyond this point, further economic growth does not improve quality of life, but might even decrease it.

In the book *Post Growth* (2021), Jackson presents several studies, showing the same phenomenon. If income is very low to start with, higher income is reflected in levels of happiness. Having proper access to basic needs as nutrition, water and basic services matters to the happiness of people. But after a certain point, when people have enough to cover their basic needs, having more money does not effectively affect happiness.

Studies show that the highest happiness levels are found in countries with robust welfare systems. Universal healthcare, unemployment insurance, pensions, paid holiday and sick leave, affordable housing, daycare and good minimum wages are things that are important for happiness, allowing people not to worry about covering their basic needs (Hickel 2021). Living a meaningful life is also important to thrive, experiencing compassion, co-operation and community. Everyone should be allowed access to the things that are essential for a good life such as healthcare, education and economic security. Schor presents the concept of plenitude to *"work and spend less, create and connect more"* (Schor 2010, p. 7) as an alternative to the growth-focused economy and an opportunity to enrich our lives.

All of the described beyond growth economic theories agree, arguing that through shifting the focus and goals of society (and individuals) from quantitative values to qualitative values, and from economic growth to wellbeing, our prosperity and quality of life can improve (Daly 1996, Jakobsen 2017, Raworth 2017, Hickel 2021, Jackson 2021). These theories aim to find ways of how to increase welfare in a beyond growth society, and how to make the transition in a controlled way, supporting increased prosperity. To have a thriving population on a thriving planet is the main goal of beyond growth economics.

SOCIAL JUSTICE

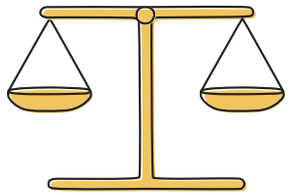
In beyond growth economics, a just and equal distribution of resources is fundamental, and giving poorer countries the chance to grow their economies is a reason for why the economic growth in developed, rich countries must urgently decrease. There is an ethical challenge in a world with finite sources, pushing the planetary boundaries: When one person uses the resources, another person can't. While the money can expand, the real economy can't.

While ethical responsibility and social sustainability are obvious reasons for the importance of equality, there are more factors to this. In fact, in countries with high inequalities and gaps between the rich and the poor, not only the poor suffer. The inequality affects everyone, decreasing happiness in society as a whole (Wilkinson and Pickett 2019). Reducing inequalities could improve happiness greatly. This is due to the sense of unfairness linked to inequality, as well as the connection to poorer health, depression and higher crime rates (Hickel 2021).

The equality of a nation has greater impact on the social welfare than the wealth of the economy. In addition, lower equality results in higher ecological degradation. Hence, reducing inequalities would also have a positive environmental impact, through reducing the income and purchasing power of the very rich and reducing competitive consumption across society (Hickel 2021). Within a country, inequalities could be reduced through wage caps, making income distribution more equal. For example caping the after-tax wage at a 10 to 1 ratio, so the highest income is maximum 10 times higher than the lowest in a nation or in a company. Wealth taxes could could be used to distribute wealth more equally, pushing the richest to sell assets (Hickel 2021).

Raworth (2017) argues for global distribution not only of income and wealth, but also the things that can create wealth. It is important to consider who has the power to control and benefit of land, money, creation, enterprise, technology and knowledge. Through cooperations, businesses owned by workers, decentralized production, open source design, makerspaces, alternative currencies, shared profit, citizen's wage and similar collaborative solutions can distribute the power and goods created by these sectors.

In beyond growth economics, it's argued that resources must be shared. Because there is not more to add and everyone must be allowed access to resources sufficient for a good life. Actually, through distributing income and opportunity more fairly and investing in public goods, all social goals could be achieved for every person in the world with less GDP than we currently have (Hickel 2021). This would also help shift the economy from exchange-value towards use-value. As stated by Daly (2007, p. 10) *"How could we fight poverty without growth? We might have to share!"*.

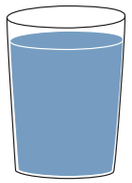


SUFFICIENCY

Daly (1996, p. 33) argues that the new economy should be *"sufficient for a good life"*. In the growth economy, there is no such thing as sufficiency, because more is always considered better. Jackson (2021) argues that the growth economy is dependent on the myth that there will always be more and more for everyone, which is not true. But it also relies on the hypothesis that more is always better. And, while more is better where there is not enough, this is not true where there is already excess. Furthermore, capitalism is organized around creating 'artificial' scarcity to increase consumption and growth (Hickel 2021).

A useful example from *Post Growth* (Jackson 2021) of what happens to this balance in an economic system designed for growth is the case of food. When there isn't enough food, more is needed and growth works in favor of health and wellbeing. But, when there is excess, more will create problems, decreasing health and wellbeing. The economic system fails in this balance, both to provide enough and to not drive excess. One out of five children worldwide suffers from problems related to undernutrition, while two fifths of adults are overweight. The economic model of the food sector relies on selling more and more food, growing like the rest of the economy. This model drives the excess, imbalance and obesity, creating societal costs and negatively impacting health and happiness.

While green growth is focused on increasing efficiency (allowing for production using fewer resources), to make further growth possible, beyond growth uses sufficiency to ask the question of what is enough. Sufficiency is defined as the possibility of having enough of something, for a certain purpose. In this context it usually concerns reducing material production and consumption and 'living well on less' (Figge, Young et al. 2014). Sufficiency lies within the safe and just space, hence there is not too much to stay within planetary boundaries, and not too little to satisfy human needs. Sufficiency can be framed as *"a question of responsibility – the responsibility of the affluent individuals, groups and societies in the world to refrain from taking more than their fair share, or, in other words, to withdraw from their excess environmental space"* (Callmer 2019).



RESILIENCE

The beyond growth society should be resilient. Resilience is about sustainability and such aspects as decreasing consumption and material use, and not pushing the limits of the source and sink capacity of nature. But it is also about decentralization and making communities resilient, less dependent on the outside world. It's about shorter supply chains, increasing the local production and creating local livelihoods. It's about thinking globally, but acting locally (Hopkins, Raworth et al. 2020). *"Resilience emerges out of a system's ability to endure and bounce back from stress, like a jelly that wobbles on a plate without losing its form"* (Raworth 2017, p. 136). Diversity and redundancy should be integrated in economic and societal structures, making it more able to adapt to future shocks.

Apart from the fundamental systemic changes putting sustainability in the center of society, the more specific sustainability solutions of the beyond growth society are not very different from what is commonly discussed today. The biggest difference might be that the beyond growth strategies do not fully rely on technical innovation, but rather require a change of posture from quantitative to qualitative values, both individually and systemically, reducing consumption and affecting many aspects of society.

In a beyond growth economy, sectors that are important for sustainability and wellbeing should grow - such as green energy, public healthcare, essential services and regenerative agriculture. On the opposite, harmful sector such as fossil fuels, private jets, arms and excess consumption should degrow (Hickel 2021). Materials that are not biologically degradable should be kept within technical recycling systems, and organic materials should not contain any poisonous substances when returned to the natural ecosystem (Jakobsen and Engqvist 2019). The economy should be circular and regenerative (Raworth 2017).

SOLUTIONS BEYOND GROWTH

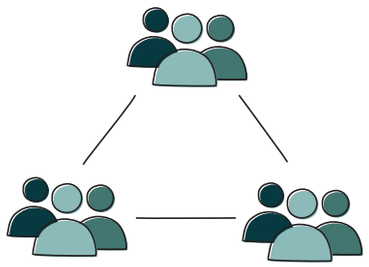
While the interventions that really matter for human wellbeing, like healthcare, education and decent wages, require some financial resources, they do not require high levels of GDP (Hickel 2021). These are the kinds of specific solutions and interventions that are mentioned in the beyond growth literature. They are interventions that can support a safe, just and equitable society and economy in balance with nature where collaboration, cooperation and informal economic activity is important (Gunnarsson-Östling 2017).

The transition should happen through a combination of bottom-up and top-down movements. There is no one solution that fits all as there are great differences in needs and possibilities globally. Hence, every community should engage in finding the solutions that fits them best (Jakobsen and Engqvist 2019). Here follows some examples of solutions beyond growth, which are later used for creating understanding of what beyond growth futures could be like in the final concept.

Local communities, global network

Because of the need for communities around the world to find the solutions that fits their circumstances best, and to increase community resilience, the beyond growth society is likely to focus a lot on local communities, connected by a global network (Raworth 2017). Being part of a community is also important for living meaningful lives, and has proven to contribute to longer lives in Costa Rica (Hickel 2021). The cooperative solutions are both small local and large global, enabled through digital platforms (Gunnarsson-Östling 2017).

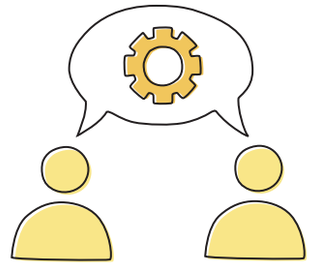
It is common within ecological economy to believe that decentralized cooperative networks are essential for developing the sustainable society. Cities become a unit of smaller communities that meets all needs regarding housing, work, social activities and shopping, so-called ’20-minute societies’ (Jakobsen and Engqvist 2019).



Most of what is produced is not produced for exportation, but for filling needs in local networks. Most citizens are both consumers and producers and basic commodities are generally produced locally, while rarer commodities are produced and circulated nationally and globally. Some exportation also exist, as an exchange for things that can’t be produced locally or nationally (Gunnarsson-Östling 2017). Most traveling is done locally by walking, biking or public transport for everyday purposes, but some national and global travel exist for collaboration or socializing as well as leisure activities. Traveling by plane is unusual and longer distance traveling usually means staying away for longer periods of time.

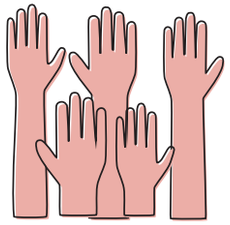
Collaboration

The beyond growth future is characterized by collaboration rather than competition (Gunnarsson-Östling 2017). Citizens, businesses and nations collaborate with each other to accomplish common goals and create positive impacts rather than increase profits (Jakobsen and Engqvist 2019). The beyond growth economy is largely based on cooperative and collaborative solutions.



Participatory democracy

In a study (Hauser, Rand et al. 2014) by scientists at Harvard and Yale aiming to explore whether or not people choose to share resources with future generations, participants were given a share of common resources to be be managed across generations. It was found that a majority, on average 68%, acted sustainably, sacrificing possible profits to take only what could be regenerated, allowing future generations to thrive. But, the other 32% prioritized short-term profits, depleting the commons so that by the fourth generation resources were completely exhausted. But, when the decisions were made collectively using direct democracy, the selfish minority was overruled



and even made more sustainable choices, realizing that they were in it together. Under these democratic conditions, resources were always sustained for future generations.

The study shows that the necessary limits on recourse use and waste is exactly what people want, and that the problem is not human nature but the political system allowing for the selfish few to sabotage our collective future. The problem with the political system is that the economical power of the richest has given them political power. They spend money on political advertisement, lobbying and own large amounts of the media. The richest countries have higher voting power in global economic governance institutions and in the City of London Council, the businesses get votes based on their size (Hickel 2021). To stop the sabotage from the selfish few, democracy must expand and the influence of the rich must be removed from politics.

It is commonly argued that in a beyond growth future, democracy is somewhat decentralized and participatory, and many decisions are made locally through direct democracy and referendums, enabled through digital tools (Gunnarsson-Östling 2017, Jakobsen and Engqvist 2019). Open information systems contribute to a democratic decision process and many citizens are politically engaged, influencing decisions regarding their local community. There should be open spaces in every community where citizens can meet up, discuss and share information, ideas and knowledge (Jakobsen and Engqvist 2019). The politicians, the government and the state are responsible mainly for upholding the legal system and for organizing, guiding and facilitating local politics, innovations and sustainability policies.

Scaling down harmful industries

In a beyond growth economy, we have the option to rather than assuming that all sectors should grow, consider which sectors are useful to grow and which are not. Harmful industries such as the fossil fuel, beef, arms, single-use plastics, SUVs, big mansions and commercial airline industry needs to be scaled down to reduce throughput and emissions. Governments needs to cap and reduce resource and energy use, in an equitable way (Hickel 2021).

Less consumption

Excess consumption is driven by the capitalistic economy, and has an undoubted negative environmental effect, pushing the limits of the source and sink capacity and contributing to increased resource use and pollution. In a sustainable beyond growth economy, less consumption and the shift from pursuing materialistic values to finding other sources of satisfaction and meaning is essential (Daly 1996, Gunnarsson-Östling 2017, Jakobsen and Engqvist 2019, Hickel 2021, Jackson 2021).

While a shift of values, the concept of sufficiency, reduced incomes for the richest, reduced advertising and ended planned obsolescence will reduce excess consumption, shifting from owning to using products will do the same (Hickel 2021). For example, rather than each household having its own lawnmower and power tools, the neighborhood could have shared equipment. This could highly reduce the demand for and consumption of products. Increased circularity, reuse and repurposing also contributes to less consumption of new materials (Gunnarsson-Östling 2017).

End Food Waste

As much as 50% of the food produced globally is wasted every year (Hickel 2021). This is a huge problem in term of use of resources, energy, land and water as well as emissions. But through reducing waste there is also a great opportunity to degrow the agricultural sector without reducing access to the food we need.

End Planned Obsolescence

Planned obsolescence, deliberately creating products with a shorter lifespan is widespread in capitalist production (Hickel 2021). To increase sales, products are actively designed to break down and require replacement relatively quickly. Producing long-lasting products would reduce consumption, resource waste and energy use but is incompatible with capitalism. Mandatory extended warranties, simplified repairs or switching to leasing business models could be solutions for this.

Remove advertising

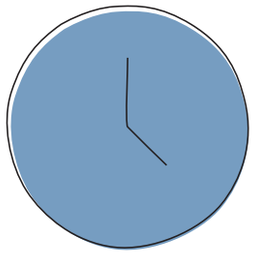
Advertising manipulates people to buy not only what they don't actually need, but also what they don't actually want (Hickel 2021). Reducing advertising, banning the use of psychologically manipulative techniques and removing ads from public spaces can reduce unnecessary consumption and actually have a positive effect on the wellbeing of people.

Work & reduced work hours

Jackson (2021) argues that work is essential for human prosperity. It can create fulfillment and a sense of belonging for the individual. Especially work related to care, creativity and craft is important, contributing to health, employment, creativity, fulfillment and wellbeing. Work in these sectors is more about services and time spent than material goods and stuff sold, and hence it is less environmentally damaging.

Many of the other policies suggested for a beyond growth economy likely makes the economy more rational and efficient, and requiring less labour. This can be catastrophic for the people losing their jobs, but it also means that less people will spend their time doing meaningless work. The solution to this problem is to share the work that is still needed among the population, shortening the working week to thirty or even twenty hours, and maintaining full employment (without necessarily reducing the income) (Hickel 2021). There could be retraining programs and public job guarantee, so that people in need of a job can do the work that the communities need. In this solution, everyone would also benefit from having more free time to spend on things other than work.

Reducing working hours has positive impacts on wellbeing, quality of life, health, happiness and gender equality both at the workplace and at home (Hickel 2021). In addition, evidence shows that longer working hours is directly linked to higher consumption and activities with high environmental impacts. Actually, *"shortening the working week is one of the most immediately impactful climate policies available to us (…) Transitioning to a shorter work week is key to building a humane, ecological economy"* (Hickel 2021, p. 225). This can be made possible through productivity gains, which have so far been used to increase profits and growth rather than to liberate humans from work.



The shorter working hours could can be arranged in the way that best suits each person, for example working more hours during fewer days per week, fewer hours during more days or more hours during more days followed by longer vacations. When spending less time working, people spend more time doing leisure activities, sports, socializing and unpaid but meaningful work like caring for others, engaging politically, growing food or practicing handicrafts (Gunnarsson-Östling 2017). The concept of worksharing and reduced work hours is commonly mentioned and considered important for beyond growth economics and especially for degrowth (Kallis, Kerschner et al. 2012).

Basic income

In a beyond growth economy, there should be economic security for all. This could be achieved through implementing a basic citizen income for all, covering the basic costs and needs (Kallis 2011, Gunnarsson-Östling 2017). With an unconditional basic income, people would be able to afford to pay for their basic needs, inequality would be reduced and as explained before, happiness and welfare would be improved when worrying about covering basic needs is reduced.

Money

Hickel (2021) argues that debt is a large driver of growth, requiring to grow or collapse, while also having a direct negative impact on ecology and wellbeing. Cancelling debts, both within and between countries, is an important step to reduce human suffering and environmental impacts, but also to improve global justice and start repaying the rest of the world for the environmental issues caused by rich countries. While big creditors would lose money, that might be an acceptable loss for the gains.

Further, Hickel argues that the money system must change because it is itself debt, a scarcity resulting in competition and necessary growth. Banks only have reserves of maximum 10% of what they lend out, and the rest is created from nothing when loaned. Hence, most of the money in society represents someone's debt, that has to be paid back with interest. The money system based on compound interest with exponential growth could be replaced by a simple interest system with linear growth. This could allow for a shift to a beyond growth economy without causing a financial crisis. Another solution is to remove debt-based currency. Rather than having banks create credit money and lend it, the state could create it and spend it into the economy, free of debt. In this scenario, banks could still lend money, but only money they actually have. An independent, democratic and transparent agency could have the responsibility for money creation (Hickel 2021).

Community currency can be used to complement the traditional currency. Community currency can be used to pay for local products and services, and be gained through local work. Community currencies can strengthen the local economy and increase price stability and community resilience (Kallis 2011, Kallis, Kerschner et al. 2012, Gunnarsson-Östling 2017).

Care

As Jackson (2021) argues, when the COVID-19 pandemic hit it became clear which jobs in society really matter to us, jobs that have been undervalued systemically for a long time. One of these is the care sector. Work in the care sector can be fulfilling for the individual. Care is proven to have a positive effect on human wellbeing and health (Hickel 2021) and is important for society - so it should be valued accordingly. This sector is not about producing or selling material goods, so it can grow without pushing the ecological limits too far. Care includes healthcare, teaching, care for children, elderly and sick, shopping, cleaning and cooking as well as contributing to agriculture, food production and similar.

In the current economy, a large amount of care work is unpaid and not included in the economy, performed by women or girls in household or communities. While being excluded from the economy, it is very important to it - similar to the role of nature. Feminist economists and beyond growth economists argue that this unpaid or underpaid caring and care work must be higher valued, properly rewarded and recognized in the economy it's essential for (Schildberg, Tover Restrepo et al. 2014). The responsibility of caring should also be equitably distributed between genders and between individuals, families, the state and the market.

In a beyond growth economy, the care sector should be prioritized and scaled up because of its importance for wellbeing. It should be public and cheap, allowing people to access what they need to live well without needing to pursue a high income just to get by. And in the care sector, where human contact adds value, labour policies should encourage more employment and less focus on productivity (Kallis 2011).

Commons

Under capitalism, companies commercialize, commodify and destroy the commons to generate profit. In a beyond growth economy, commons should be expanded, restored and created and basic goods should be 'decommodified' (Hickel 2021). This allows people to access what they need for a meaningful and good life, without needing ever-increasing income to do so. Euler (2019) argues that in a commons-society, where commons are central rather than commodities, it would neither be necessary nor makes sense to destroy ecosystems. Furthermore, there are already examples of how commons improve sustainability through community gardens, repair cafes and similar solutions.

Raworth (2017) argues that the commons, both natural, cultural and digital, are creative and that they hold great potential. Rather than being tragic as described by Hardin (1968), commons are actually successfully and collaboratively managed through self-organizing communities, with clear rules and punishments for those who break them (Raworth 2017). Natural commons contribute with sources of food, material resources and an arena for leisure activities. Cultural commons keep alive traditions, languages, myths, music and practices. And digital commons hold the potential for networks of collaboration, distribution ownership and production, open-source software and design, information, education and social networks.

SUMMARY - A BEYOND GROWTH SOCIETY

In this chapter, an effort has been made to describe features of the beyond growth society and what it could be like. While there are no definite answers to this, the information in this chapter can give a hint and lay a foundation for the discussion and exploration of what we would like a beyond growth future to be like.

Hickel describes Degrowth as *"a planned reduction of excess energy and resource use to bring the economy back into balance with the living world in a safe, just and equitable way. The exciting part is that we know we can do this while at the same time ending poverty, improving human well-being, and ensuring flourishing lives for all"* (Hickel 2021, p. 29). But to me, these words describe not only degrowth but beyond growth economics in general. This is what the beyond growth solutions are about, and what characterizes a beyond growth society.

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It is a society where development is more important than growth, where humans thrive in balance with nature, in a safe, just and equitable way. For this, important concepts are resilience and sufficiency. In a beyond growth society, it is likely that people spend less time working, care is highly valued, there is less consumption, and collaboration is important. There is likely to be a decentralized participatory democracy with strong local communities and a robust welfare system.

Everyone should be able to access what they need to cover their basic needs, there should be extensive commons and possibly a basic income for all citizens. Harmful industries should be scaled down and there should be caps on resource use and waste, making sure that the source and sink capacities of the planet are not overstepped. And every community should find the solutions that suit them best to reach the goal.

"ECONOMIC GROWTH IS STILL NECESSARY - AND SO IT MUST BE POSSIBLE" VS "ECONOMIC GROWTH IS NO LONGER POSSIBLE - AND SO IT CANNOT BE NECESSARY"

- KATE RAWORTH, ABOUT THE TWO SIDES OF THE DEBATE

Designing Different Futures

This part of the report is about design-related tools for initiating societal transitions. As described in the previous chapters, beyond growth economics require a radical change of the foundational economic system and a transition to a more sustainable society. In what ways can design support this transition? Understanding and imagining such a radically different society is very challenging, making it a difficult concept to engage in, discuss and work towards. As explained in the famous quote by Fredric Jameson: ***"it seems easier to imagine the end of the world than to imagine the end of capitalism"*** (Tally 2022). Hence, to support the imagination of different futures is useful for transition movements, something that is often done through visions. This part of the report will start off by presenting design approaches aiming for societal change. Secondly, the value of visions and especially positive future visions will be explained. Then, the the importance of co-creation and participation in societal transitions will be discussed followed by an exploration of tools to support innovative thinking and imagination.

Design Approaches

Many design approaches and methods aim to solve problems and create better futures in some scale. But there are some approaches that have the main purpose of changing society to the better through design. They criticize the current society, speculate about other possible societal solutions, and work towards societal transitions.

ACTIVIST, CRITICAL AND SPECULATIVE DESIGN

A large part of the design industry is commercial, facilitating production and consumption and creating wants and needs (Chamberlin 2021) - an instrument for the neoliberal market economy and its growth imperative. As a response to the crises caused by neoliberalism, the movement of design activism has emerged, addressing social, political and an environmental concerns (Julier 2013). Design activism uses elements from many design approaches to intervene and create positive change.

Design activism as well as the closely related approaches critical and speculative design challenges the commercial role of design in society and aims to find a more useful role for design (Dunne and Raby 2013, Malpass 2013). And without the commercial demands, they are free to experiment, explore ideas and issues and provoke reflections and discussions (Dunne and Raby 2013, Chamberlin 2021). Dunne and Raby (2013) calls this conceptual design, design about ides rather than products. Conceptual design is not about experiment with things as they are now, but about other possibilities and 'unreality' - designing for how things could be. It is about design for debate rather than production, making us think rather than making us buy, provocation rather than innovation and design as a medium rather than a solution. These differences are futher explained in the A/B list in figure 11.

Speculative design aims to influence people's ideas about what is possible, exploring 'what-ifs', alternative futures and other worlds, and engaging imagination of what could or should be (Dunne and Raby 2013, Lockton and Ranner 2017). It is linked to futures and scenario building, often focusing on new science and technology and its future or alternative role and potential (Malpass 2013). Critical design rather focuses on the present, criticizing what already exists (Malpass 2013) and challenging how people think about everyday life (Dunne and Raby 2013).

Speculative and critical designs depend on engagement with an audience, usually done through exhibitions, publications, press, and the internet. Dunne and Raby (2013) argue that exhibitions are ideal for this, as they connect science with design, sparking discussion and debate. Exhibitions can be highly accessible, bring people together and *"become laboratories for rethinking society, places for showing not only what already exists, but more important, what is yet to exist"* (Dunne and Raby 2013, p. 154).

A	B
Affirmative	Critical
Problem solving	Problem finding
Provides answers	Asks questions
Design for production	Design for debate
Design as solution	Design as medium
In the service of industry	In the service of society
Fictional functions	Functional fictions
For how the world is	For how the world could be
Change the world to suit us	Change us to suit the world
Science fiction	Social fiction
Futures	Parallel worlds
The "real" real	The "unreal" real
Narratives of production	Narratives of consumption
Applications	Implications
Fun	Humor
Innovation	Provocation
Concept design	Conceptual design
Consumer	Citizen
Makes us buy	Makes us think
Ergonomics	Rhetoric
User-friendliness	Ethics
Process	Authorship

Figure 11, the A/B List from *Speculative Everything* by Dunne and Raby, 2013 (http://dx.doi.org/10.1093/jdh/epv001), listing the difference between traditional design, A, and conceptual design, B.

DESIGN FOR SUSTAINABILITY TRANSITIONS

Design for sustainability has expanded from a focus on products to a focus on large scale, system level changes through strategic design, in an approach called Design for Systems Innovations and Transitions (Ceschin and Gaziulusoy 2016). Transition design is an emerging field of design research, aiming at *"engaging design practice in exploring and enabling transitions towards more sustainable futures"* (Hesselgren, Eriksson et al. 2018, p. 2).

Transitions design uses a systemic perspective and transdisciplinary approach to understand, see and solve wicked problems (Irwin, Kossoff et al. 2015). Irwin et al. (2015) state that Transition designers *"see themselves as agents of change and are ambitious in their desire to transform systems"*. They design solutions for different time horizons, but always using long-term thinking and the natural world as context. They design at varying levels of scale, advocating for lifestyle-oriented and place-based, locally customized but globally networked solutions to global problems (Irwin 2015, Irwin, Kossoff et al. 2015).

Transition design framework distinguish four different but related and co-evolving areas of *"knowledge, action and self-reflection"* (Irwin 2015, p. 232); vision, theories of change, mindset/posture and new ways of designing. Through speculative long-term visions, Transition design aims to challenge present conceptions and inspire change - and the tools and methods of design can help develop these visions. The visioning process should be iterative, dynamic and based on local conditions and grassroots movements.

Lockton and Candy (2019) state that *"visions of sustainable futures have been proposed as a key component of transition design, a means through which contemporary lifestyles and design interventions can be assessed and critiqued agains a desired future state"*. Furthermore, Transition Designers can serve as translators between minds, ideas and the world and between the current and possible future ways of living.

SUMMARY - DESIGN APPROACHES FOR BETTER FUTURES

Transition Design, Design Activism, Critical and Speculative Design are some design disciplines and approaches aiming to create different, better futures. Transition Design is most closely related to established design fields such as Service Design and Design for Social Innovation, designing solutions through transdisciplinary and systemic perspectives. But Transition Design does this in a more radical and systemic way, working at a longer timeframe, deeper engagement and larger context (Irwin 2015). As conceptual design approaches, Critical and Speculative Design does not aim to design solutions but rather to provoke thoughts and spark debate. Transition Design contains elements of speculative and critical design, challenging the existing paradigms, exploring possible futures and inspiring change.

Similarily, this project can be considered a Transition Design project using elements from primarily speculative but also critical design. It aims to challenge the current economic paradigm and use design tools to engage people in speculating about, exploring and imagining alternative futures as well as creating visions for the future.

Similarly, this project can be considered a Transition Design project using elements from primarily speculative but also critical design. It aims to challenge the current economic paradigm and use design tools to engage people in speculating about, exploring and imagining alternative futures as well as creating visions for the future. Visioning, creating future scenarios and supporting imagination is central in design approaches working towards better futures. The value of visions will be further explored in the next chapter.

Future Visions

In her TED Talk (2018), Elena Bennett stated that we know that humans make decisions based on what they expect from the future. Visions affect our beliefs and expectations, and therefore they can also shape our future. It's like what I've learned from working as a skiing instructor - you go where you look. If you look at the trees, you will hit the trees. To avoid crashing, you need to look at the space in between the trees. And the general perception of the future is quite dystopian - 73% of 20 000 persons in G20 countries surveyed in 2021 believe that *"the planet is close to serious 'tipping points', and 58% were very or extremely worried about the states of global commons such as the oceans and the climate"* (Galaz Rodriguez and Collste 2022: p. 46). There is a need for visions of other possible futures, to avoid a crash. Once the power of future visions is understood, it can be very useful for societal transitions. In this chapter, the value of future visions and especially positive visions will be explained as well as some approaches to positive future visions.

THE VALUE OF VISIONS

In design, it is common to use future scenarios as a tool to describe a new solution, product or service and make it relatable and understandable in a future setting. It is argued that in these times, where societal transition and radical change is needed, future visions and scenarios are important in several ways. They can increase understanding of novel concepts and support reflection, elaboration end experimentation with these (Hasselqvist and Hesselgren 2019). Visions can inform and inspire projects and change (Irwin 2015). They create spaces for discussion and debate regarding possible futures and requires us to consider what things could be like (Dunne and Raby 2013). They can help grasp possible long-term effects of policymaking and aid decision making. They can change what is considered normal (Wangel, Hesselgren et al. 2019) and alter expectations (Ilstedt and Wangel 2014).

Berkhout (2006) argue that because *"it is not possible to act without making assumptions about the consequences of that act"* expectations are part of all action, and it is *"widely accepted that expectations influence the attitudes and behaviour of social agents"*. Expectations steer our actions, and those actions can make the expectations come true. Our expectations are shaped both through what we experience for real and through imagination (Ilstedt and Wangel 2014). Hence, imagination and visions can alter expectations, affecting behavior and shaping the future. But, Berkhout (2006)

Our expectations are shaped both through what we experience for real and through imagination (Ilstedt and Wangel 2014). Hence, imagination and visions can alter expectations, affecting behavior and shaping the future.

argues that to alter expectations, a future vision must be considered urgent, credible and legitimate, as well as be flexible enough to resonate with a larger group of actors than those who created it.

There are several approaches to studying the future and creation of future visions and scenarios, for example forecasting (where past and current trends are used to forecast the future) and backcasting (where visions of the future are created and pathways leading to them are explored) (Berkhout, Hertin et al. 2002). But according to Dunne and Raby (2013), visions in speculative design are rather about speculating about what could be, imagining possible futures and discussing what kinds of futures we do or do not want.

POSITIVE FUTURE VISIONS

Elena Bennet argues that because visions can alter our expectations, affect our behavior and therefore shape our future, visions can become self-fulfilling prophecies (Bennett 2018). Similarly, Lockton and Candy (2019) argue that *"there can be a self-fulfilling nature to imaginaries. If we believe something to be real, and act as if it is real, and design and build institutions and infrastructures around that 'reality', the effect may be the same as if it had been real in the first place. What were once fictions become fact"*. This is why positive visions of better, desirable futures are important.

There are many different names for positive future visions and methods for creating them. Here, two of them are presented - 'Seeds of Good Anthropocenes' and 'Utopias'. These two are specifically chosen for their relevance for this project. They are both strictly positive, and Utopias are commonly mentioned in beyond growth literature, especially by Jakobsen and Engqvist (2019). Seeds of Good Anthropocenes are used in workshops where positive future visions are co-created and use of imagination and radical thinking is supported, and are part of several existing solutions used for inspiration in this project, further described in *Existing Examples and Inspiration*.

Seeds of Good Anthropocenes

The current geological era of the planet, where human activities are a major planetary force, is called the Anthropocene. A 'Good Anthropocene' is a prosperous, ecologically diverse and just world where the large environmental and social challenges of the Anthropocene has been solved (Bennett, Solan et al. 2016). The research initiative called the 'Seeds of Good Anthropocenes' (SOGA) project aims to develop creative, innovative and transformative visions of positive futures, Good Anthropocenes (Pereira, Bennett et al. 2019). In the SOGA project, inspirational visions are considered to be essential for transitions and help shape the future they explain (Bennett, Solan et al. 2016). But many previous visions of better futures have either been too unrealistic or not enough radically different from the current world.

Bennett et al. (2016) argue that while a better future is likely to be fundamentally different from the present, it will build on the present and many elements and initiatives that are already in existence. These initiatives, social, technological, economic, or social-ecological ways of thinking or doing are called 'Seeds'. Seeds already exist on some scale, but are not yet well known or dominant. Through building on Seeds, radical but still realistic visions of the future can be created as it amplifies existing efforts and desires for the future. This method is argued to be highly suitable for participatory approaches. The SOGA project has collected examples of Seeds in a database (http://goodanthropocenes.net/). The Seeds are used in workshops where visions of Good Anthropocenes are created in a collaborative, participatory and transdisciplinary manner on local, regional and global levels (Pereira, Bennett et al. 2019).

Utopias

Jakobsen and Engqvist (2019) argue that utopias should be used to criticize the current and experiment with solutions, and that through utopias radical changes can be made. Utopia means no place or other place, and per definition utopias are not visions of futures too good to be true, but visions of alternatives and other futures. *"Utopia is not about the impossible. What's really impossible is to carry on as we are"* (Jakobsen 2017, p. 4).

Through ideology, society is looked at and described from the inside. Through utopias though, society is challenged through looking at alternatives, visions of what could be. Similarly to speculative design, utopias ask the question of 'What if'. While utopias are not meant to predict futures or be realized, they can create tension, energy and direction for change. But to create change, the perks of change and

"Utopia is not about the impossible. What's really impossible is to carry on as we are" (Jakobsen 2017, p. 4).

the costs of following the old pattern must be conveyed. The fear of change must also be reduced through using positive visions and utopias, so that we wish to make it real.

The utopia theory of Jakobsen and Engqvist (2019) build on the work of Ruth Levitas. Ruth Levitas argue that the purpose of utopia research is to articulate the potential for change and create a foundation for democratic discussion (Jakobsen and Engqvist 2019). Even if the utopia doesn't change society, it might change the consciousness of people, contributing to change. While the utopia is seen as the start of concrete action, the utopia is not a description of a static condition, but a dynamic vision. To search for a finished, one-size-fits-all vision for future society is both useless and dangerous, since all societies have different history and tradition and are always developing. Hence, the utopia for a society should be created by people who are part of that society through participatory, collaborative workshops. The utopia is also approached through actions decided by the people living in the society.

SUMMARY - VISIONS OF DESIRABLE FUTURES

In this chapter, it has been explained that through changing our expectations and affecting our behavior, visions can become self-fulfilling. This why positive visions of desirable futures are important, and one of the reasons why future visions are important for sustainability transitions. Other reasons for the importance of visions are that they create understanding, discussion and speculation about what the future could be, and what we want. Useful future visions are at the same time innovative, radical, credible and realistic enough and are not meant as a prediction of the future nor as a goal to be realized, but as a tool to give direction for and allow engagement in change. It is useful to create visions for desirable futures in a participatory manner, where members of a society can create visions that suits their society. This process can also provide learning and important knowledge about the desired, values and needs of the members of the society.

The information presented in this chapter will be useful for concept development, as well as it describes the purpose of this project and why it might be useful to create future visions and support imagination.

Innovation, Participation and Engagement

In design approaches for better futures as well as for creation of visions for better futures such as Good Anthropocenes and utopias, societal engagement and participation is mentioned as essential. Another commonly emphasized attribute is the radical, systemic change that is considered necessary for a societal transition to better futures. For future visions to contribute to this transition, they, too, need to be radically different. This requires innovative thinking - but how to achieve this? And why is participation and engagement important? These topics will be explored in this chapter.

Within beyond growth theory, the importance of engaging imagination, asking "what if" and considering what we would like the future to be rather than what it will be is emphasized. This message is conveyed to be more important and useful than trying to predict the future (Hopkins 2017, Jain 2017, Jakobsen and Engqvist 2019, Hopkins, Raworth et al. 2020). Hence, this chapter explores ways of supporting radical thinking, creating ideas for and imagining different possible futures through tools and methods included specifically because they don't aim to predict the future. They leave the future completely open for speculation, creation and discussion, supporting imagination only through drawing on what is already known in the present. This is why common methods that support imagination of possible futures through describing what the future could be like are not included (such as pre-made visualizations of the future, artifacts from the future, experiential futures etc).

PARTICIPATION AND ENGAGEMENT

Participatory design, also known as co-creation, co-design or cooperative design is a design strategy where the end-users of a product, service or experience are actively involved in the design process (Elizarova and Dowd 2017). This has become an increasingly popular and common strategy in design, because when designing with rather than for users, the solutions are often more useful, innovative and user-centered. Participatory design is commonly carried out through workshops and can create better understanding and meeting of needs.

In societal transitions, the members of the society will be the 'users' of the 'solution'. Hence, it is useful to include the society for the same reasons as to include users in participatory design. The scale of the 'solutions' as well as the reliance on acceptance and engagement from society to make change happen increases the importance of participation. Jakobsen and Engqvist (2019) argue that it's essential to include the people living in a society in the process of imagining the future of that society - because the desirable future for a society

will be a result of the people who live their, their culture, religion, and values. There is no one solution that fits all. This inclusion can be achieved through utopia workshops, where different stakeholders analyze values, create utopias based on these values and specify projects to work in that direction.

In place-based, participatory scenario planning, stakeholders are brought together to reach innovative insights though their different perspectives and knowledge. Participatory scenario planning supports systems thinking and help communities find ways to adapt and even thrive in spite of the circumstances (Falardeau, Raudsepp-Hearne et al. 2019). Pereira et al. (2019) argues that *"Connecting entrepreneurs behind different seeds can foster learning and collaborations that can help catalyze larger scale transformation"*.

After a successful visioning workshop, Pereira et al. (2018) concluded that *"Cocreating novel futures together in a world defined by complexity, diversity, and uncertainty calls for creative, collaborative, and experimental tools and methods that create spaces for transformative understanding and action"*. They argue that what made their workshop successful was the diversity of participants, the engaging of their emotions and challenging of their beliefs, and incorporation of arts and artists. Future visions and utopias are not about trying to predict the future, but about engaging people in thinking about what the future can be and what they would like it to be (Jakobsen and Engqvist 2019). This is what creates change.

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TOOLS TO SUPPORT INNOVATIVE THINKING AND IMAGINATION

Donella Meadows argues for the importance of imagination, stating that to accomplish a sustainable world we must have a shared vision of a sustainable world (Meadows, Randers et al. 2005). Rob Hopkins, the founder of the Transition Towns movement, agrees, arguing that supporting imagination and using future visions is essential for creating engagement in societal transitions (Hopkins 2017). While the value of future visions and participation in their creation has been explained, the following sections will explore how to support imagination and innovative thinking, to create radically different futures.

Within design, there are several tools used to spark imagination, innovation and creativity. Most of them are used in the ideation phase of design, where the most intense creative thinking takes place and ideas for solutions are created. Especially in participatory, transdisciplinary ideation workshops there are many useful tools to help people with different backgrounds and experiences use their imagination and create radical ideas. Some tools set the direction of thoughts, such as How Might We-questions and problem statements. Some tools support collaboration and building on each others ideas, such as Brainwriting. Some tools spark imagination and creativity, such as What If-questions, Mash-Up, Worst Possible Idea, Brain- and Bodystorming and Crazy Eight (Mazur 2018, Board of Innovation n. d., Hyper Island n. d.).

The Seeds of Good Anthropocenes (SOGA) project aims to co-design visions of better futures and pathways to make them real through innovative methods and participatory processes (Pereira 2021). Several participatory, transdisciplinary, multi-day workshops of this kind have been held, trying different methods and developing an approach (Pereira, Hichert et al. 2018, Falardeau, Raudsepp-Hearne et al. 2019, Pereira 2021). This approach is based on Seeds (as described earlier), combining an adaption of the 'Manoa approach' and the 'Three Horizons Framework'. The Manoa scenario building method explores the primary and long-range impacts of emerging issues or weak signals and is suitable for innovative and transformation thinking (Pereira, Hichert et al. 2018). In the Seeds approach, the method is similar but based on Seeds, emerging initiatives rather than issues. Through combining this method with the Three Horizons framework, the approach can both explore radical visions of the future based on present initiatives, and find ways to link the present to those future visions.

In these workshops, the 'Futures Wheels' exercise is used to create bases for the future scenarios (Pereira, Hichert et al. 2018). In the Futures Wheels exercise, the participants consider the first-, second-, and third-order impacts of three seeds as if they were a mainstream condition. After this, the connections between the impacts of different seeds are mapped out and a cross-impact matrix was completed to find ways that the seeds could impact each other. Then, the scenario skeletons are expanded into vivid visions. The Three Horizons framework is used to help the participants enrich their visions and

and explore the pathways that can lead to them from the present. In this exercise, the future visions where transition has taken place is Horizon 3, and the goal is to connect this visit with the present in Horizon 1 through discussing systemic changes, problems and possibilities in the transition space in Horizon 2.

The Seeds of Good Anthropocenes workshop approach has proven useful, an inspiring process for the participants resulting in engaging and powerful narratives, showing creative imagination and a transformative space (Pereira, Hichert et al. 2018). In the workshop guide called 'Building Better Futures'-toolkit by the Doughnut Economics Action Lab (https://doughnuteconomics.org/tools-and-stories/133) a similar approach is taken. The first activity in this toolkit is about identifying Seeds of Change to use in the next activity - the Futures Wheel exercise. This is followed by making 'Future Statements', bridging the second activity with the forth, the Three Horizons exercise. The last activity is called the 'Planning Tree', where a step-by-step path to reaching the preferred future is created.

SUMMARY - INNOVATION, PARTICIPATION AND ENGAGEMENT

In this chapter, the importance of participation in designing future visions as well as tools to support imagination and innovative thinking in participatory visioning processes have been described. Without societal engagement, a societal transition is not possible. And to engage society, visions that enhance their values and needs are necessary. The need to replace the current societal values of materialism with other, more intrinsic, values for a transition to beyond growth is a reason for why this is important. Societal participation and co-creation in this process can increase understanding of what values to enhance and how to make a desirable future vision.

The topics in this chapter are especially relevant for the design of the final concept of this project, with the goal of supporting engagement, imagination and innovative thinking though participatory visioning of better, beyond growth futures.

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"You can't use up creativity. The more you use, the more you have."

- Maya Angelou

Pilot Design Sprint

In this part of the report, a Pilot Design Sprint is described. It took place in the beginning of this project, with the plan seen in figure 12. The goal of this sprint was to:

- Try the Design Sprint format, to find out if it is useful in this project and should be done more times
- To learn about the project, it's containments, challenges and aspects, through doing "the entire design project" compressed in one week
- Getting insights into what what needs to be learnt, done and prioritized to make the planning of the project easier
- Kicking off the project and starting to produce
- Have a first, testable prototype

Before this pilot Design Sprint, the researched had just started and the knowledge about beyond growth future and communication was very limited. But, as the purpose was to gain insights rather than producing a viable solution, this could be successful despite making assumptions and having a lack of knowledge.

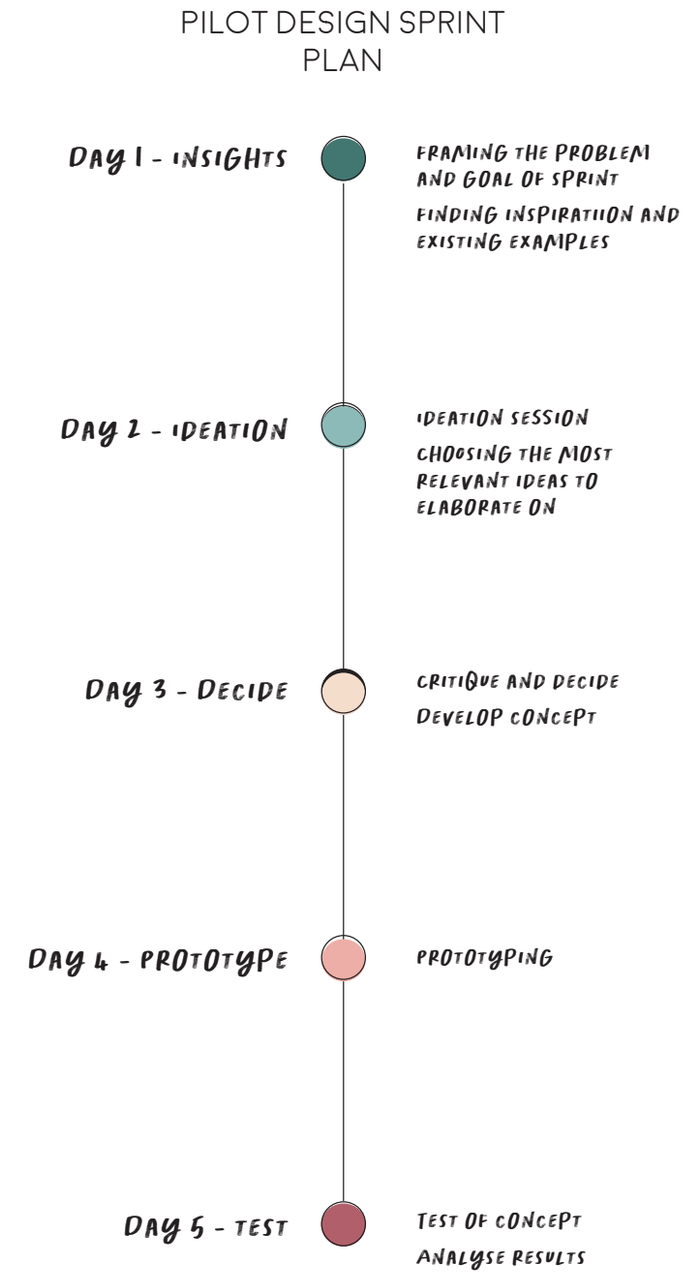


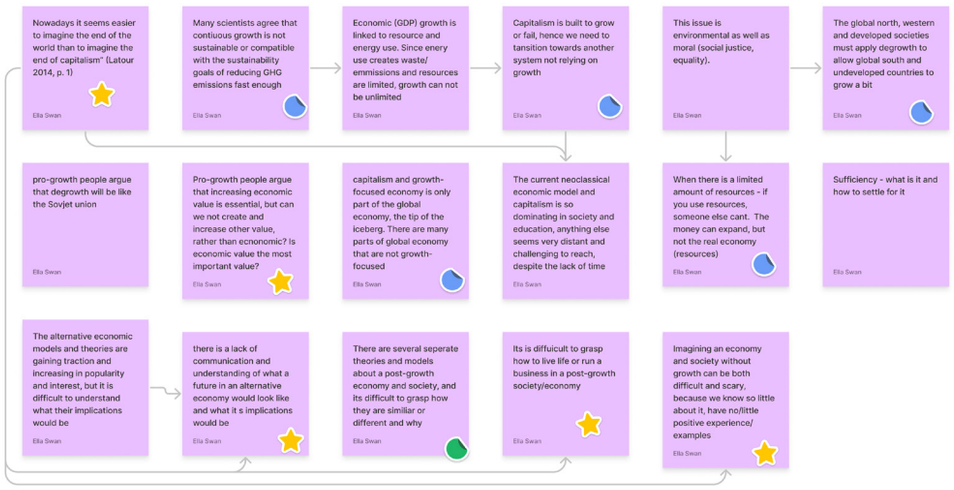
Figure 12, The plan for the Pilot Design Sprint

Day 1 - Insights

Day 1 of the sprint was about insights and specifying the problem statement and goal for the sprint. It began with specifying the target users - general public and citizens of Scandinavia, adults. This decision was based on the wish to target people with the potential and age to influence the society within the next 10 years, because of the urgency of the environmental situation.

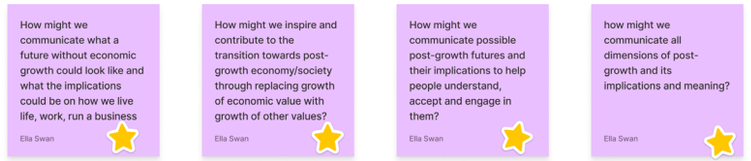
The next step was to write down Pain Points or Problems related to the topic. Some examples of this is shown below.

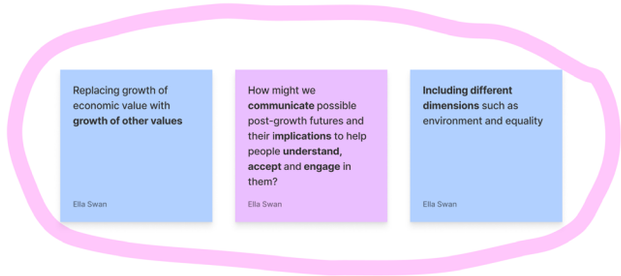
Pain Points / Problems



After identifying Pain Points and Problems and marking the most interesting ones with stars, the next step was to identify opportunities, framed as How Might We-questions, corresponding to these Pain Points. The opportunities were analyzed and the 4 most relevant and interesting ones for this sprint were selected, combined and reframed into one How Might We-question, specifying the scope of this sprint. See this How Might We-question and goal of the sprint on the next page.

Scope of Sprint/ Goal

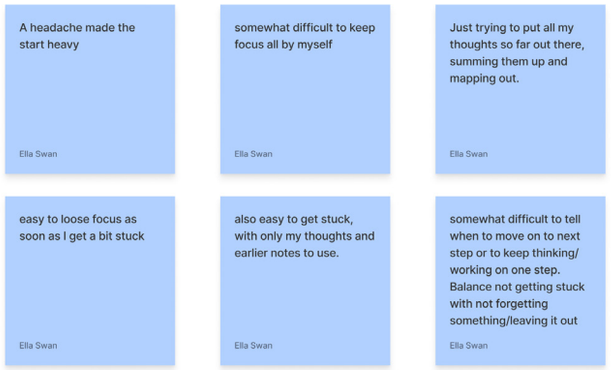




Goal during sprint: Generating ideas for solutions to the HMW-question, creating and testing a first prototype

After this, some existing solutions for communication of future scenarios and beyond growth were looked into for inspiration.

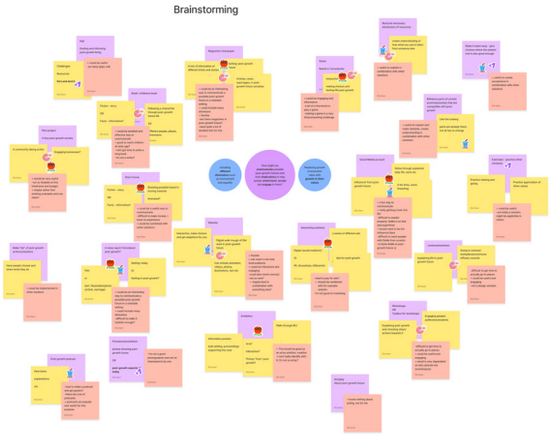
THOUGHTS DAY 1:

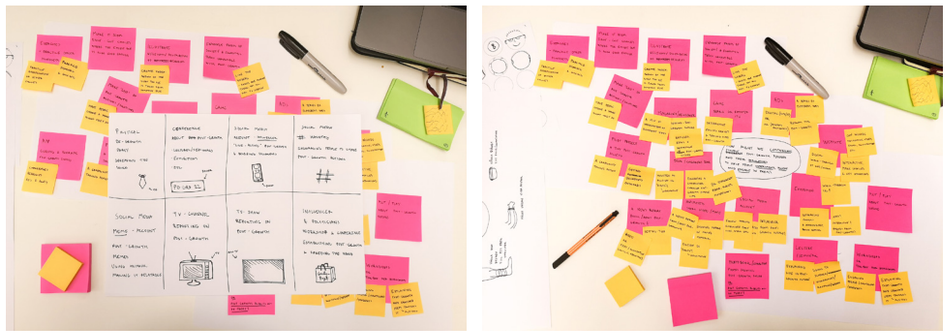


Day 2 - Ideation

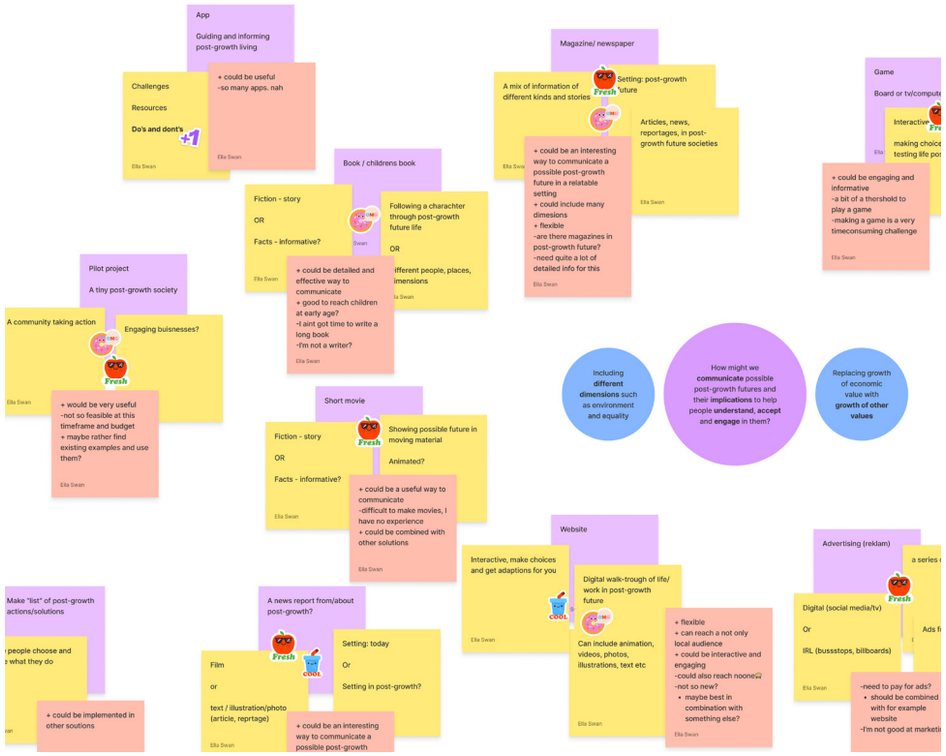
Day 2 was all about creating ideas. To get the creativity flowing, two warm up exercises were used, 30 Circles and Alternate Uses. This was followed by a traditional brainstorming around the How Might We-question from day 1, and finally, when it felt like all the ideas were out there, a crazy eight session to generate some last, innovative ideas.

The ideas generated were concerning mediums for the solution, such as a news report, advertising, workshops and a game. But they also concerned ways to do it, for example using exercises to practice other mindsets, making the solution interactive and enhancing part of present society which are compatible with a beyond growth future. After the brainstorming, some ideas were elaborated on and notes analyzing the pros and cons of the ideas were added.





Pictures from ideation session



THOUGHTS DAY 2:

A bit wierd doing brainstorming and warmup exercises alone

Ella Swan

easier to get stuck or caught up in a specific track by yourself

Ella Swan

had to take a long time just to keep thinking out of the box and squeezing out new ideas

Ella Swan

worked quite good though

Ella Swan

intense day for brain!

Ella Swan

Need to know more about how to help people understand, accept and engage

Ella Swan

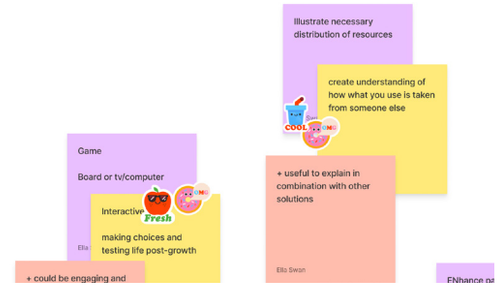
Day 3 - Decide

Also day 3 started with a warm-up exercise, ranking random nouns from least to most dull, shiny, true and colorful. This got the analyze and decision making of the day started. After this, the ideas from yesterday were rated in the categories 'New', 'Useful' and 'Feasible'. For each category, 8 stickers were added to the best suiting ideas, and one idea could get several stickers of one or different kinds. The stickers draw attention to the ideas that are most innovative, useful and realistic.

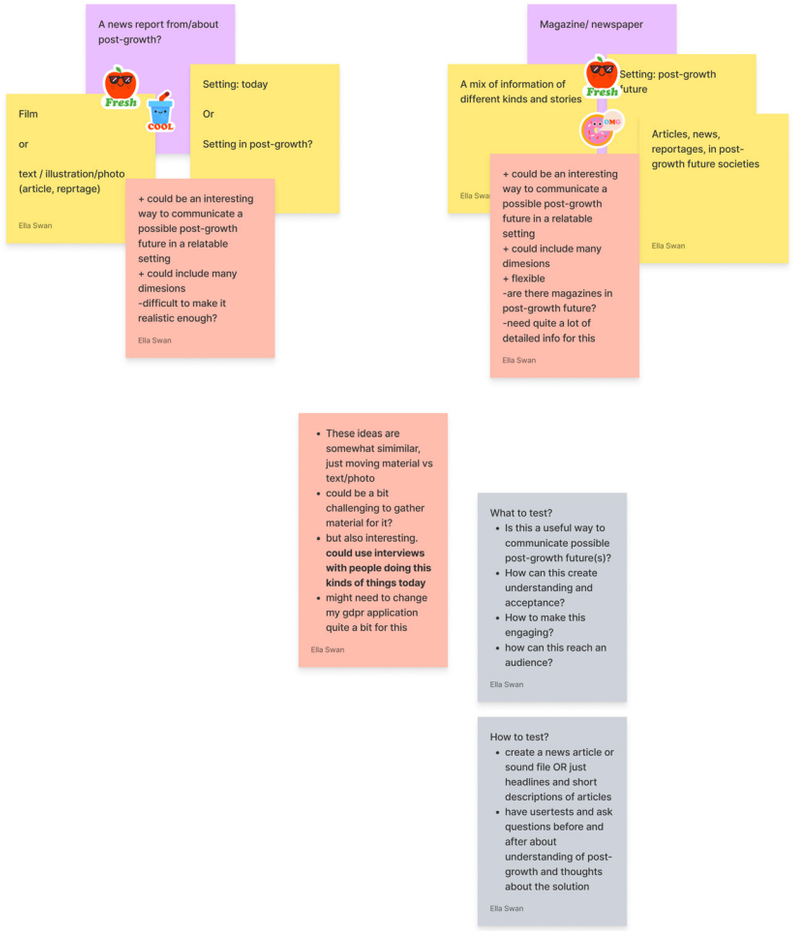
New:

Useful:

Feasible:



Examples of stickers and how they were used.



The four chosen ideas.

After this, the four most interesting ideas were chosen. A social media account of an influencer from the beyond growth future, an interactive website with a digital walkthrough of life in the beyond growth future, a news report or a magazine from the beyond growth future. The choice was made based on how well the ideas respond to the How Might We-question as well as it's feasibility. This included how realistic it was to accomplish a useful test of the concept during this week as well as how well it fit with the strengths and skills of the designer. The choice was also based on the need to test an idea - while some ideas were somewhat safe choices, proven to work previously, some felt very uncertain and only a test could show if they had the potential to solve the problem or not.

These four ideas were further analyzed and lists were written of what aspects of the ideas that needed to be tested and how this could be done. Eventually, the idea of creating a social media account where an influencer from a beyond growth future shares and explains daily life was chosen to be tested in this sprint. This was chosen because it was found interesting, could work well in combination with another solution, and as it was not considered a safe choice but needed a test to tell if it would be a success or a failure. In addition, since this was an early pilot sprint, testing something that could be useful but unlikely the only final solution was a choice made to avoid getting stuck on a solution too early in the process.

THOUGHTS DAY 3:

difficult to rate ideas without discussion. Might get stuck in my patterns and biases? Ella Swan	Difficult to keep distance to ideas and not treat them as final solutions Ella Swan	I feel like I need to know more about how to communicate in an engaging, understandable way that can create acceptance 😅 Im just making guesses here based on experience Ella Swan	Enhancing the growth of other values and including different dimesion can be done in (almost) any solution. I just need to do it. Ella Swan
I feel like i need to test many different solutions, but also different versions of these solutions Ella Swan	Very unsure of which solution to use now and later. difficult to decide by myself. Ella Swan	Lär mig om detta, kom tillbaka, evt kom på fler ideer, ratea ideer utifrån engaging, understandable och creating acceptance för att underlätta beslut Ella Swan	i'm not sure if a new brainstorm on the same topic would be useful, even if this was just an early test-round. I'm out of ideas? Ella Swan

Day 4 - Prototype

On day 4, the test of the concept and the prototype to use is designed.

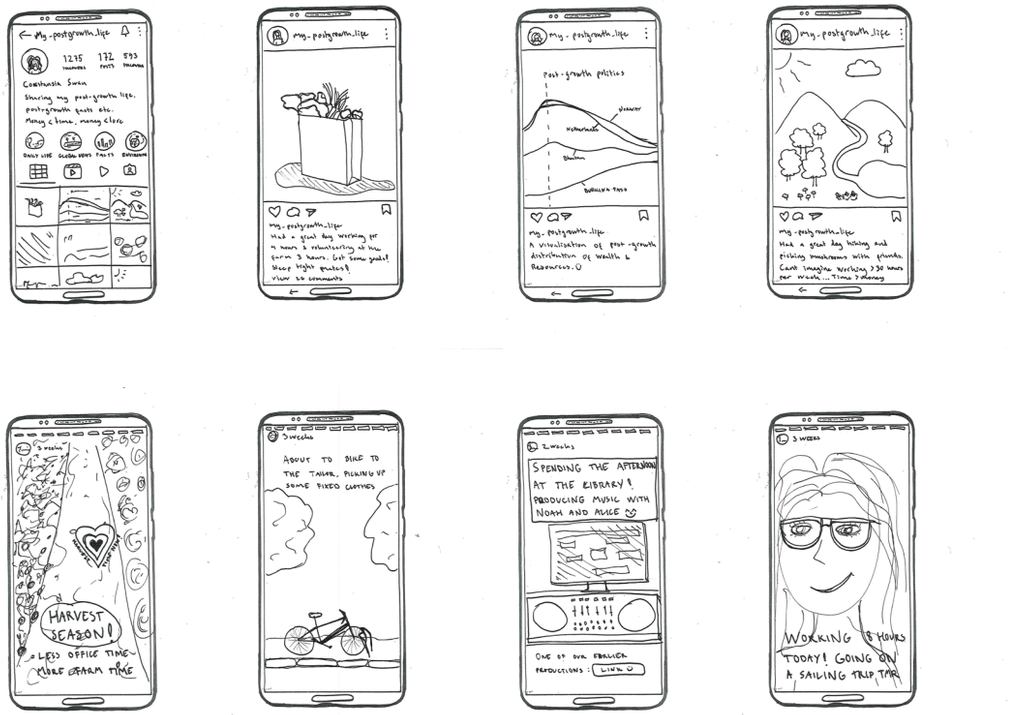
It started with analyzing what to test:

- Is this a useful way to communicate possible beyond growth future(s)?
- Can different dimensions be included?
- Can this create understanding and acceptance of beyond growth futures?
- Can this be engaging?
- Can it be realistic enough?
- Can this spread/reach a crowd?

This was to be tested through creating a few instagram slides, showing them to a few test persons and ask some questions. The test persons were to be asked about their impression and understanding of beyond growth futures both before and after the test, followed by some further questions about their impression of the concept.

Because of the wish at this point to test the concept of using an instagram account to communicate the beyond growth life, rather than the details of the posts and solutions of a beyond growth life, a sketched low fidelity prototype was created for the tests.

Pictures from prototyping.



Pictures of the prototype.

THOUGHTS DAY 4:

I made the prototype very fast and without much thought and planning - and thought maybe it was done too quick and careless and I should have put more time into doing it "properly"

Ella Swan

but no, the initial tests was very useful and putting a lot more time into iit at this point might have been wasteful. The low degree of attachment and fidelity was essential for my ability to enhance feedback and critique, and maybe also for them to give it.

Ella Swan

it seems to be easier to discuss, give and recieve honest feedback to prototypes that look like not much effort is put into them , low fidelity

Ella Swan

even if I chose a low fidelity prototype too avoid getting the user caught up in details and for example the quality of photos, the focus was quickly on content and superficial aspects.

Ella Swan

Testing fast and early is great! not a lot to lose, but a lot to gain. Implement this in project? Test fast? fail fast? test everything? test every week?

Ella Swan

Day 5 - Test

On the final day of the sprint, the tests were conducted followed by an analyze of the results. The test persons were Scandinavian men in ages 26-30 with different levels of education and background. The test were interesting and gave some useful insights. While most of the communicated aspects of a beyond growth life were popular, they could be written off as too good to be true for a normal person and it was unclear that this would be the normal life in an other economic model. The concept turned out to bee a bit to simplified and personal, not objective.

The main takeaways from the tests were:

- It's important too keep some objectivity and show the good and the bad, to make it seem realistic.
- It is quickly written off as unrealistic and utopian, rather than inspirational.
- It is perceived as as activists sharing a polished, perfect life in the present rather than a normal life in a changed, future society.
- To work less, be outside more etc is considered luxurious - but by some considered unrealistic and utopian, and by some considered realistic and reasonable, as another way to achieve the same goals.
- The concept does not convey how the society has changed, how beyond growth works or how she is able to live the way she does. The implications and meaning of beyond growth is not clear.
- Showing structural differences and societal changes might be more important than first considered, compared to showing the life of a person.

Pilot Sprint - Conclusions

During every day of the sprint, thoughts and reflections were written down. These, in combination with the actual results, were the base for the conclusions and insights gained from the sprint.

In general, doing a Design Spring alone was a new experience. It was easier to get stuck and difficult to tell when to move on to the next step. There was a worry of getting caught up in personal thoughts, patterns and biases without the input from others. It still worked surprisingly well, possibly thanks to the detailed sprint guide consisting of warm-ups, tasks and exercises and a solid structure just like in a transdisciplinary Design Sprint workshop.

It was also found that making and testing the prototype 'quick and dirty' was a recipe for success. While a lot more time and effort could have been put into planning, sketching, and making a 'better' prototype that might not have improved the results and learning. On the contrary, at this stage the low fidelity prototype with the corresponding low level of time, effort and attachment was believed to be essential for the honest feedback and discussion, as well as the ability to face critique.

The key takeaways for the project from the sprint were to:

- Include people (with diversity) in ideation and decision processes
- Test a lot, fast and early. Quick and dirty prototypes and tests!
- Plan and structure both at day and week level. Have daily targets and goals!
- Learn about how to communicate scenarios in engaging and understandable ways
- Use that knowledge to add new ideas and make a new decision for solution (based on these qualities/goals)
- Idea: rating can be used for testing and decision-making
- Also, learn about beyond growth and its implications
- There are so many ideas, possibilities, things to do and include. Work iterative with research and design, to avoid researching the wrong things and getting too little time for the solution.

These insights shaped the project and the road forward, and the ideas as well as insights were used several times during the project.

"THIS WORK IS NOT ABOUT PREDICTIONS, ITS ABOUT TOOLS, TOOLS THAT CAN HELP CONNECT OUR PRESENT AND OUR FUTURE SELVES, SO THAT WE CAN BECOME ACTIVE PARTICIPANTS IN CREATING THE FUTURE WE WANT, A FUTURE THAT WORKS FOR ALL"

- ANAB JAIN

Reflections

The original scope of this thesis, as well as in the pilot Design Sprint was creating scenarios to communicate possible futures within a sustainable economic model, with the goal of creating one or more scenarios communicating what the future could be like within a sustainable beyond growth economic model. But during the course of this project since the pilot sprint, based on research finings and advice from expert interviews, this objective has changed.

The idea was to find features and descriptions of futures in a sustainable economic model beyond growth, to use as the foundation for creating communicative, visualized scenarios. But, during the research into beyond growth economic models and their implications for the future, this turned out to be a challenging task. In the beyond growth literature, the descriptions of beyond growth futures were very inadequate and lacked detail. Finding information about what implications a transition into an economy not relying on growth could have was difficult. No detailed enough descriptions of beyond growth futures was found to lay a foundation for vivid scenarios, making a beyond growth future understandable. And not enough information about the implications of leaving the growth imperative was found to make it possible to create comprehensive scenarios based on this.

When the feeling of hopelessness was increasing, an advised meeting with an expert on ecological economics took place. The hope was that the expert would be able to provide the lacking information, increase understanding of the economy and explain the traits of a beyond growth future. Instead, it turned out that the the expert had not worked with ecological economics and beyond growth futures for years. She believed that it was limiting to focus on whether the economy should grow or not, rather than focus on what's essential - sustainability. Furthermore, she explained that there are no comprehensive descriptions of beyond growth futures, because of the complexity of it. She believed that the project was to technical and strongly advised to change the topic. As her remarks and advice supported what had started to be discovered through research, the advice was taken and followed.

As previously mentioned, in the research into beyond growth theories, the importance of engaging people in imagining possible futures, asking *"what if"* and considering what they would like the future to be rather than what it will be was found to be emphasized. This message was conveyed to be more important and useful than trying to predict the future and make scenarios of what it could be like in several sources, both in literature (Jakobsen and Engqvist 2019), TED Talks (Jain 2017) and podcasts (Hopkins 2017). This argumentation led to a natural change in the direction of this project - from trying to predict what beyond growth futures could look like and convey this through scenarios, to opening the door to a new room of beyond-growth solutions and supporting the imagination of and engagement in a desirable future. This new direction is both more achievable, due to the lack of information about what the society in a beyond growth economy could look like, and more engaging - it could actually result in a more useful and impactful project.

Later in the project, the scenarios for futures beyond economic growth made by a team at KTH (Gunnarsson-Östling 2017) were found. By then, the course of the project was already changed and even if they could have been the foundation for communicating scenarios that I was looking for before, it didn't make sense to change back to the original goal.

Originally, the project aimed to decide on one beyond growth economic theory to use. Based on the findings in the chapters *Economics Beyond Growth* and *Characteristics of a Society Beyond Growth*, this aspect of the project was also changed. It was found that while the economic theories have some differences, they have foundational similarities. And the characteristics, features and solutions of the society they are aiming to create are similar. Hence, for this project, which is speculative rather than specific and focus on what the future society could be like, settling on just one of the theories brings no benefits, but is rather limiting. This project is aiming to open the door to a new solution space, create engagement in this and increase the understanding and imagination of what the future society could be like without economic growth. Therefore, it is beneficial to include all beyond growth economic theories described in the chapter *Economics Beyond Growth*, and focus on beyond growth economics in general rather than one specific theory.

The original scope aimed to communicate a realistic scenario, describing what a society without growth could likely be like. This scenario would include the good and the bad, neither dystopian nor utopian. The new scope, on the contrary, aims to be speculative rather than realistic, and give a positive or even utopian impression of beyond growth futures. This is illustrated in figure 13.

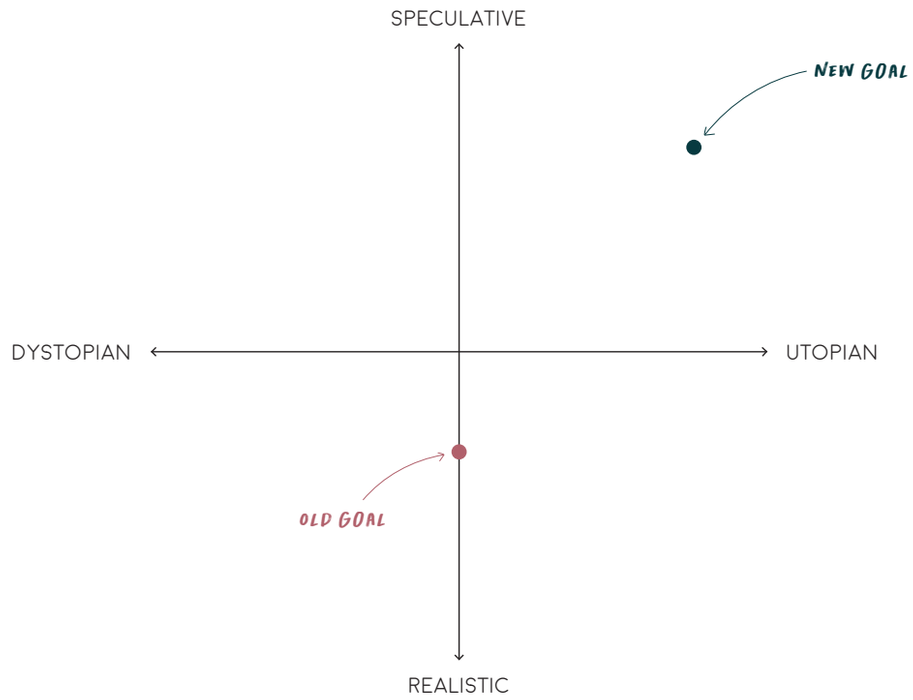


Figure 13, Mapping of the old and the new goal of the project.

"THE SOURCE OF ALL OUR PROBLEMS TODAY COMES FROM THE GAP BETWEEN HOW WE THINK AND HOW NATURE WORKS"

- GREGORY BATESON

Design Brief

To kick the concept design phase of the project off, and specify the scope and intentions of the project, a classic *Design Brief* was made. The scope of the project is two-sided. One aspect of it is to increase understanding of beyond growth economics. The other aspect is about creating engagement and supporting imagination of beyond growth futures. These two sides are reflected in all parts of the *Design Brief*. All parts of the *Design Brief* were made through ideation, analyst and iteration - writing different idea, choosing, rewriting and improving until they convey the right message.

The design brief includes a *Mission* statement, defining the goal of the concept, a *Vision* statement defining the purpose and *How Might We*-questions defining the main challenges. It also includes an analyze of what impact the concept should have; what thoughts, feelings and actions to provoke.

At this point, potential the context and target audiences for the concept were still being explored.

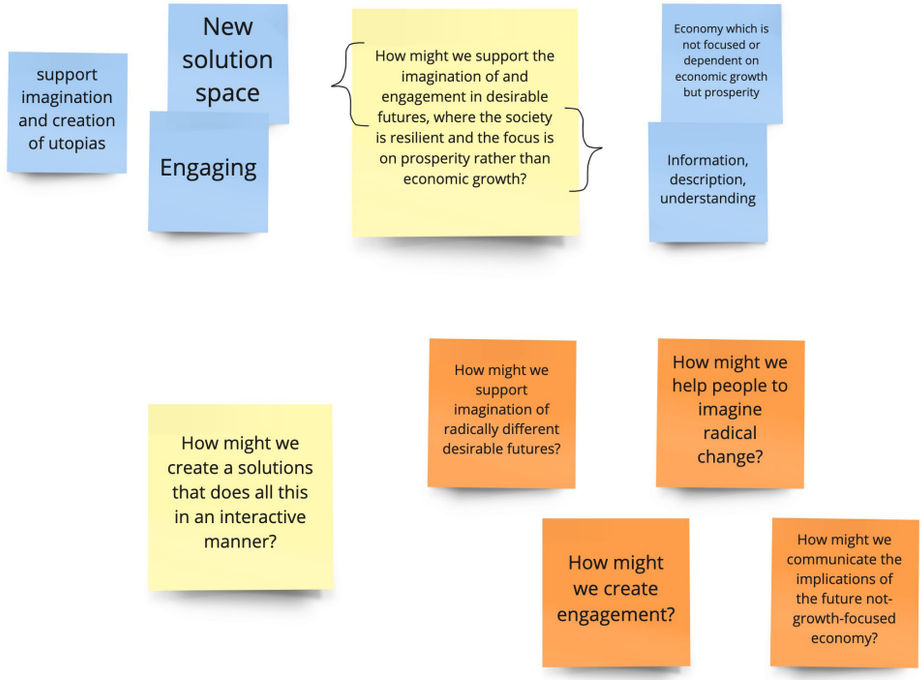
MISSION STATEMENT

"Communicating the implication of a future where the focus is on resilience and prosperity rather than economic growth, opening the door to this new room of solutions and supporting the imagination of and engagement in a desirable future within these boundaries."

VISION STATEMENT

"Contributing to a transition towards a future where the focus is on resilience and prosperity rather than economic growth."

HOW MIGHT WE



THOUGHTS AND FEELINGS TO PROVOKE

To further articulate the goal and priority of the solution and the impact it should aim to create, which feeling, thought and action to provoke was explored and decided. This was based on the *Mission* and *Vision* statements of the concept, as a way to further define the intentions and goals and establish specific, somewhat measurable impacts to work towards achieving.

Feeling:

Curiosity for better futures beyond growth.

This feeling implies:

- Curiosity is a positive, open feeling, quite close to inspiration.
- They find this new and interesting.
- They might not trust that this will be realized enough to feel hope, but the ideas have caught their interest and they are open to the ideas, would like to know more and might engage further to learn more.
- They are looking into the new room of solutions, and not dismissing what they see.
- The solution has sparked interest and new questions and they might consider what it could be like etc.
- Curiosity supports "what if"-questions and further imagination and engagement.

Thought:

"In a (desirable) sustainable beyond growth future, i would like to…"

This thought implies:

- They have a idea of what a sustainable future beyond growth might implicate.
- They are able to imagine their own life in desirable futures beyond growth.
- They are considering their values and priorities.

- They are thinking about what they would like their future to be like, rather than what it will be.
- They are considering the "what if" - What if I lived in a sustainable beyond growth society, what would that be like?
- They have an impression of the positive changes and possibilities such a future might bring.

Action:

Discuss with others what (desirable) sustainable futures beyond growth could be like.

This action implies:

- They are able to imagine futures beyond growth, to some degree.
- They are engaging in possible sustainable futures beyond growth.
- They are creating their own visions of sustainable futures beyond growth.
- They are looking into this room of solutions.
- They are spreading the ideas, creating an impact.

"THE TRUE SIGN OF INTELLIGENCE IS NOT KNOWLEDGE BUT IMAGINATION"

- ALBERT EINSTEIN

Existing Examples and Inspiration

To find inspiration and insight, existing examples with relevance to this project were analyzed. They are examples of products and concepts that support the use of imagination, creates engagement, speculate about futures or communicates information and increase understanding in different ways. Many of the examples are exhibitions, an interesting setting for this where the visitor is allowed to interact with, participate in and experience the concept. The Examples are explained in this part of the report.

Summary of Existing Examples

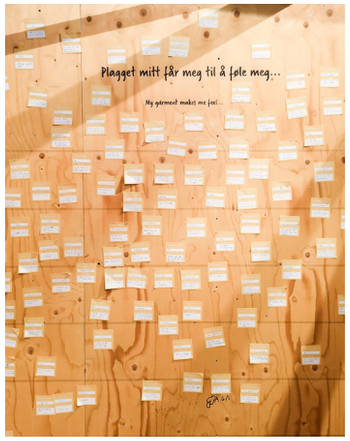
Here follows a brief explanation of every example analyzed, what tools or methods they are examples of and what good qualities they have, that can be useful in this project.

THE FUTURE OF FASHION EXHIBITION AT FUTURUM

This is an interactive and engaging exhibition display. The user is presented with facts about a circular economy future, can enter two future concept 'stores' where they get to experience the look and feel of future stores, are asked to comment on how they feel about their clothes and participate in an interactive survey about their clothing-related behavior patterns. The answers are part of the exhibition and visible to all. This is part of the *Futurum* exhibition at *Vitenskapsmuseet* in Trondheim, an exhibition speculating about what the future could be like and include.

Example of: Artifacts from the future, user participation, KonMari method of decluttering, Speculative Design and Design Activism, interactive surveys on display, experienced futures, partly predictive and descriptive.

What makes this interesting: This display includes interactive, reflective exercises and the responses of others are part of the exhibition. This is done and visualized in clever ways.



Photos from the exhibition.

THE TIME MACHINE AT FUTURUM

A module where one person goes inside a 'time machine' to 2050 and one other stays on the outside, in the present. They talk to each other and the person in the present is encouraged to ask questions about what things are like in the future. The person in the 'future' responds entirely based on his/her own fantasy - there are no correct answers. This is part of the *Futurum* exhibition at *Vitenskapsmuseet* in Trondheim.

Example of: Participation, lived experimental experiences, encouraging fantasy.

What makes this interesting: This module forces the user to think about and imagine the future.

Photo from the exhibition.

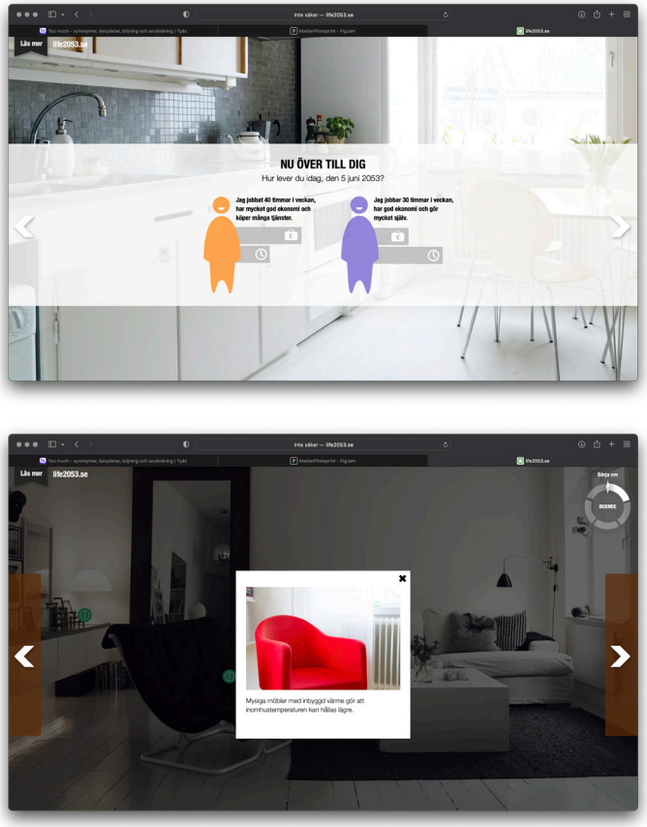
LIFE2053.SE

This is a website showing elements of everyday life in 2053, with highly reduced energy use. Somewhat interactive, the user can click around and make some decisions. This works to make the website somewhat engaging and feeling personalized, but the responses and choices of people are not an active part of it. The scenario seems realistic and predicting, giving an image of the future more than provoking debate on possible futures. More explaining than engaging.

Example of: Future scenarios, visualization & communication, speculative design, predictive, descriptive.

What makes this interesting: This website conveys the future scenario in a clear, comprehensive way. It paints a picture of a nice future, not too different from our present.

life2053.se



Screenshots of the website *2053.se*, n. d., (http://www.life2053.se)

DISNOVATION.ORG / SHADOWGROWTH

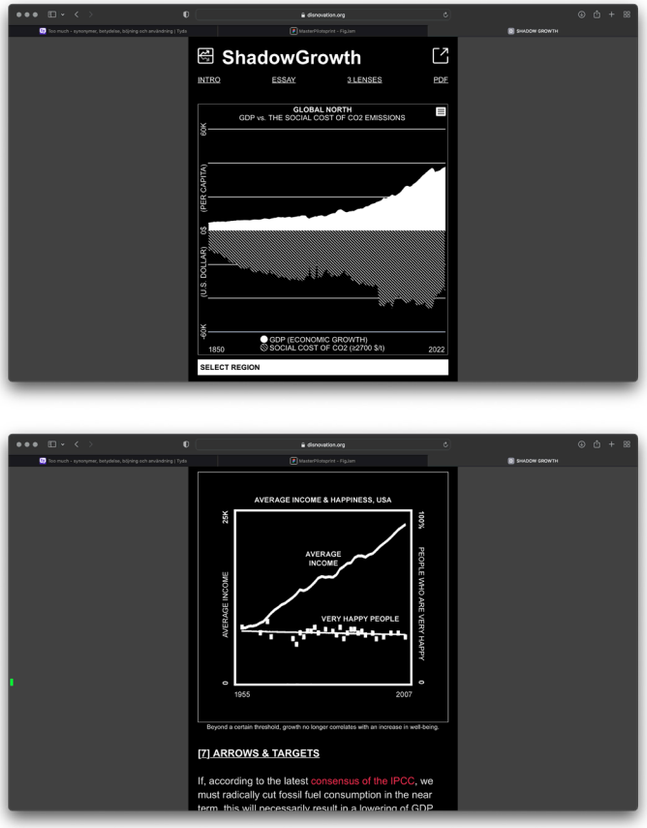
DISNOVATION.ORG describes themselves as "A WORKING GROUP AT THE INTERSECTION OF CONTEMPORARY ART, RESEARCH AND HACKING. THEY DEVELOP SITUATIONS OF DISRUPTION, SPECULATION, AND DEBATE, IN ORDER TO QUESTION DOMINANT TECHNO-POSITIVIST IDEOLOGIES, AND TO STIMULATE POST-GROWTH NARRATIVES".

The *ShadowGrowth* project aims to highlight the social costs of CO2 emissions, connected to GDP growth.

Example of: Growth/climate/eco visualizations, climate art

What makes this interesting: It clearly illustrates the problem of GDP and what is usually left out of the upwards arrow illustration.

https://disnovation.org/sg/



Screenshots from *ShadowGrowth* made by DISNOVATION.ORG and Gottlieb, 2021 (https://disnovation.org/sg/#shadowgrowth)

SUPERFLUX / MITIGATION OF SHOCK

Superflux is a studio that uses Speculative Design, Foresight, Experience Prototyping and storytelling to create experiences from the future. They base their future vision on current emerging trends, fears, hopes and possibilities. Their work is very artistic and they have created several exhibitions and movies. In the exhibition *Mitigation of Shock*, which was part of the large exhibition *2219: Futures Imagined* at the *ArtScience Museum* in Singapore, the visitor is invited into a future Singaporian apartment. Here, they can see and experience parts of life changed by climate change, extreme weather, economic uncertainty and broken supply chains. Just being in the apartment and looking at the details, the newpapers, the books, the food and the tools, tells a lot about have adapted to survive but also thrive in the changed world.

Example of: Speculative design, storytelling, experienced futures, forecasting, artifacts from the future, predictive and descriptive

What makes this interesting: The future is brought into the present, making the consequences of climate change seem less distant and more real. The visitors are allowed to experience and explore this imagined future home, learning what life could be like through looking at the interior and the details - from the food growing equipment to the small notes.

http://superflux.in/index.php/work/mitigation-of-shock-singapore/#

Photos from the *Mitigation of Shock* made by *SuperFlux*, 2019, (http://superflux.in/index.php/work/mitigation-of-shock-singapore/#)

CLIMAGINARIES / CARBON RUINS

Climaginaries is a multidisciplinary group of scholars envisioning post-fossil futures. Their exhibition *Carbon Ruins* takes the visitor to a new museum 2053 in Sweden, where the first exhibition *Carbon Ruins* is opening in celebration of global net-zero emissions of carbon dioxide being accomplished. In the exhibition, familiar objects from the fossil era are on display with associated stories.

Example of: Speculative design, experienced futures, predictive and descriptive

What makes this interesting: The selected, familiar objects show the visitor what will not be a part of a fossil-free future, and will be considered souvenirs from an unsustainable past. The associated stories tell the story of the objects and how they became irrelevant.

https://www.climaginaries.org/carbon-ruins

Photos from *Carbon Ruins*, made by Climaginaries, n. d. (https://www.climaginaries.org/exhibition)

TRANSITION TOWN TOTNES/ THE TRANSITION NETWORK

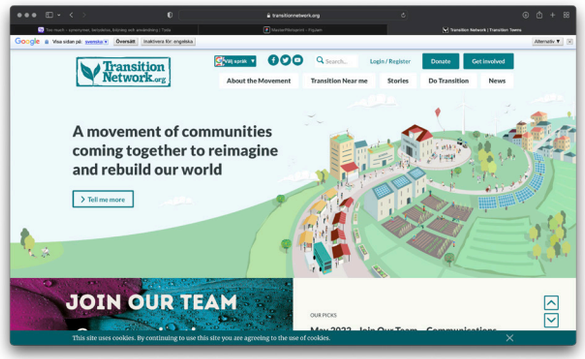
"Transition is a movement of communities coming together reimagine and rebuild our world" (Transition Network n. d.). Totnes is one of the first 'Transition Towns', and the 'Transition Network' is the global platform for communication and collaboration. Central for the Transition movement is participation, to engage local communities to create change. They do this through open space meetings, trying to remove the obstacle to act, and to start doing, together. Their goal is to work for "*a low-carbon, socially just future with resilient communities, more active participation in society, and caring culture focused on supporting each other*" (Transition Network n. d.). In Totnes, they have worked for increasing low impact affordable housing, sharing skills, creating livelihoods, reducing energy costs and carbon emissions and growing a local food economy etc. To believe in a positive vision of the future and work to realize it is an important method for Transitions.

Example of: Creating change, community participation, visioning

What makes this interesting: This is a useful way to engage citizens and communities in a transition, creating change 'bottom-up'.

https://www.transitiontowntotnes.org

https://transitionnetwork.org/about-the-movement/what-is-transition/



Screenshot of the website *https://transitionnetwork.org*, Transition Network, n. d., (https://transitionnetwork.org)

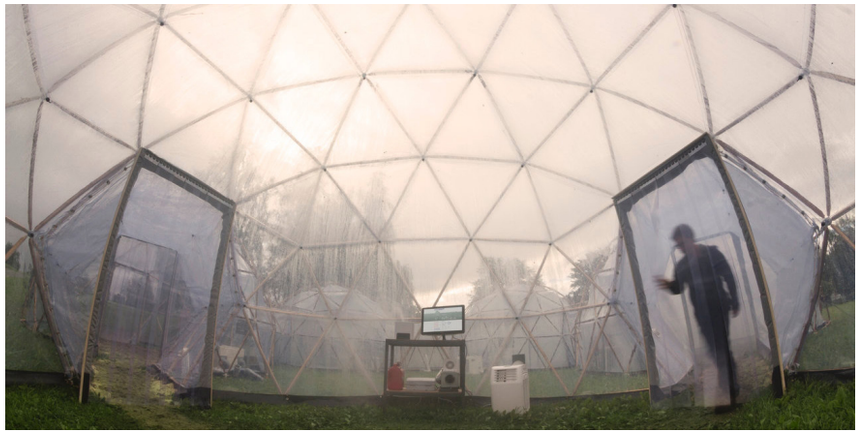
POLLUTION PODS
STARMUS FESTIVAL TRONDHEIM

By Festningen during the *Starmus* festival in Trondheim 2017 five pods were built to simulate and allow visitors to experience the air quality of five cities around the world - Trondheim, London, Beijing, Sao Paolo and New Delhi. The pods were transparent so the different air qualities could both be observed from the outside and experiences from within. This was done to raise awareness of air pollution.

Example of: Climate arts, experienced art, ecovisualization

What makes this interesting: It makes the air pollution problems obvious through allowing you to experience it and noticing the differences by yourselves.

https://fm4.orf.at/stories/2860484/



Photos of the exhibition, from *The Pollution Pods of Norway* by Pinsky, M., 2017, (https://fm4.orf.at/stories/2860484/)

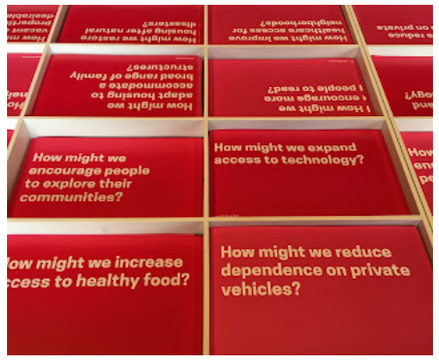
PROCESS LAB: CITIZEN DESIGN

At the exhibition *Process Lab: Citizen Design* at the *Cooper Hewitt Museum*, the visitors are invited to try creative problem-solving through a guided step-by-step design process.

Example of: Interactive Exhibitions, self-facilitated design workshop tools, participatory design

What makes this interesting: The exhibition is engaging visitors to try the design process. It's specific enough to make it understandable and easy, but vague enough to support creativity and a vast collection of solutions. It uses tools from design and workshop techniques in a new, not facilitated setting.

http://uncatalogedmuseum.blogspot.com/2017/07/no-bells-no-whistles-when-design-and.html



Photos of the exhibition, from *No Bells, No Whistles: When Design and Content Marry Perfectly* by Norris, L., 2017, (http://uncatalogedmuseum.blogspot.com/2017/07/no-bells-no-whistles-when-design-and.html)

SEEDS OF GOOD ANTHROPOCENES

The *Seeds of Good Anthropocenes* project is rooted in the belief that visions affect our future and risk becoming self-fulfilling. Hence, an abundance of dystopian visions can be dangerous and the project aims to counterbalance these with positive visions of futures that are ecologically and socially just, desirable and sustainable called 'Good Anthropocenes'. These futures are developed through exploring 'Seeds', elements of Good Anthropocenes that already exist but in small scale. They have created a 'Seedbank' with a collection and map of existing Seeds.

Example of: Creating future scenarios, positive visions

What makes this interesting: They use existing, emerging practices and innovations to support the creation of positive future scenarios, and that they work to make these easily accessible for the public through their Seedbank.

https://goodanthropocenes.net

Screenshot of the *Map of Seeds*, made by Seeds of Good Anthropocenes, 2019 (https://goodanthropocenes.net/map-of-seeds/)

BUILDING BETTER FUTURES TOOLKIT

The *Building Better Futures toolkit* is a workshop guide from *Doughnut Economics Action Lab*, designed to help people imagine and take steps towards realizing the better futures they want to see. The 'Futures Wheels' exercise is used to imagine and create positive futures, radically different from the present, through building on Seeds of Good Anthropocenes.

Example of: Creating future scenarios, participatory design

What makes this interesting: The Futures Wheels exercise makes envisioning radical change easier through building on existing seeds.

https://doughnuteconomics.org/tools-and-stories/133

Screenshot from the *Building Better Futures Toolkit*, by McConnell, B., 2022 (https://doughnuteconomics.org/tools-and-stories/133)

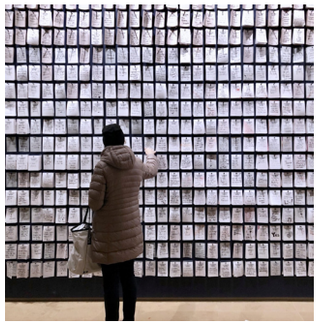
THE WORK OF CANDY CHANG

Candy Chang is an artist involving the visitors in her installations through notes. Her installations are emotionally engaging and often take place in public spaces. She asks the visitors to write their experiences and thoughts - what they want to do before they die, what they wish they learned in school, what makes them anxious or hopeful or to make a confession. The anonymous notes are displayed in different ways, creating an interesting and emotionally engaging exhibition of thoughts. One of her exhibitions ask the visitors to sit down and reflect upon a question for 5 minutes, while an illuminated hourglass counts the time.

Example of: Participatory arts, emotional engagement.

What makes this interesting: The installations are made from the contributions of visitors, in a very emotionally engaging and interesting way.

https://candychang.com/work/



Photos from *Confessions*, by Candy Chang, 2012 (https://candychang.com/work/confessions/)

THE HAPPY SHOW - SAGMEISTER

The Happy Show at the *Museum of Contemporary Art* in Los Angeles by graphic designer Stefan Sagmeister is an exhibition described as an 'experience' of his interpretation of happiness. The exhibition is a combination of art, Sagmeister's thoughts, information visualization and interactive sections as visual voting (how happy are you from 1-10? Take one gumball from the corresponding machine) and a task to dram your symbol of happiness.

Example of: Interactive exhibition, experiential art

What makes this interesting: The exhibition is described as an experience of Sagmeisters interpretation of happiness, rather than just an explanation of it. There are also some good examples of interactive exhibition elements.

http://www.minimallyminimal.com/blog/the-happy-show-at-moca

Photos of the exhibition, from *The Happy Show at MOCA* by Kim, A., 2017 (http://www.minimallyminimal.com/blog/the-happy-show-at-moca)

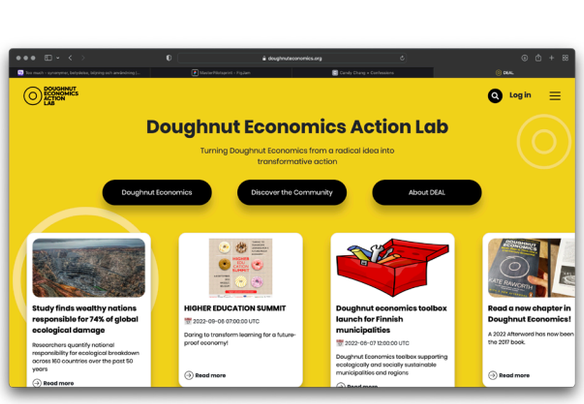
DOUGHNUT ECONOMICS ACTION LAB

The *Doughnut Economics Action Lab* aims to turn ideas of Doughnut Economics into action, co-create a new economy and create systemic change. There is also a community meant to connect and engage people and learning together.

Example of: Creating change, participation

What makes this interesting: The *Doughnut Economics Action Lab* aim to continuously experiment, explore and learn and share tools and stories in the community.

https://doughnuteconomics.org



Screenshot of the website *https://doughnuteconomics.org* by DEAL, 2022 (https://doughnuteconomics.org)

THE BUBBLE PROJECT

In Stefan Sagmeisters Ted Talk *Happiness by Design* (2004) he mentions an art project by a young designer, Ji Lee, in New York. In the project, the designer printed 55 000 empty, sticky chat bubbles and placed them on posters around New York, allowing for the public to fill them in.

Example of: Participatory arts

What makes this interesting: The public are the ones making the art, the artist just allowed/facilitated for it to happen.

https://www.dezeen.com/2007/09/09/the-bubble-project-by-ji-lee/

Photo of the project from *The Bubble Project* by Price, A., 2008 (https://www.good.is/articles/the-bubble-project)

Mapping of Examples

Here in figure 14, the existing solutions are mapped out in the realistic - speculative, dystopian - utopian graph. This is done to increase the understanding of the solutions and their characteristics, as well as their relevance for this project.

Therefore, also the space where the concept of this project aims to be placed is marked. The descriptive part of the project, providing information and increasing understanding, aims to be more descriptive than participatory and realistic rather than speculative. The other part of the concept, where imagination is supported and people are invited to engage, should be speculative and participatory.

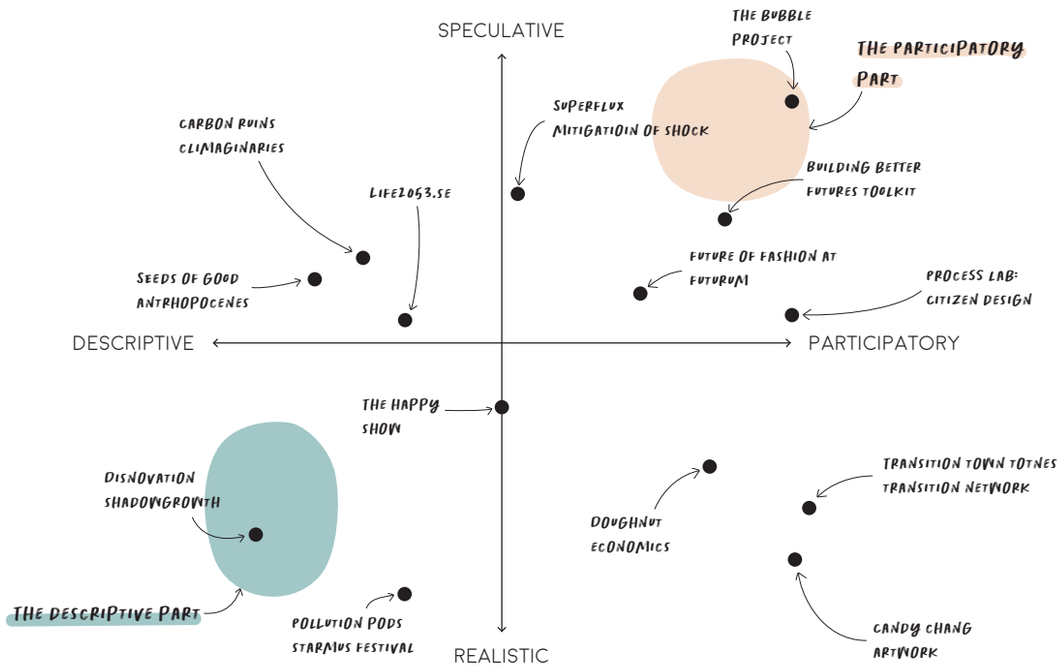


Figure 14, Mapping of the existing examples used for inspiration. The light teal-colored area shows where the descriptive part of the conpect should be positioned, and the light pink colored area shows the same for the participatory part.

"Design and arts more broadly—can be seen as a form of language encompassing the fictional or imaginary, making it real enough to be addressable, to be considered and critiqued and reflected on"

- Dan Lockton and Stuart Candy

Concept Development

The concept development phase has been an iterative process with several iterations and tests, leading up to the solution that best realizes the intention of the project. This process will be described in a chronological manner in this part of the report.

Idea Generation

At the start of the concept development phase, the setting, context and medium of the solution was not yet decided. This phase was kicked off with an idea generation session, listing possible mediums for the solution to support creativity, engagement and imagination. These ideas were based on the most relevant ideas from the pilot Design Sprint as well as research and the existing solutions analyzed for inspiration.

This was closely followed by a joint brainstorming session with Jacob from my collaboration group. The brainstorming session was mainly focused on ways to support engagement, imagination and radical thinking. One idea was to ask provocative questions and be careful with use of words to provoke radical thinking - for example using words that entail some radicalness such as 'utopia'. To ask questions and give feedback on whether or not the answers were in line with beyond growth economics was also discussed, as well as asking questions and use the answers as a part of the concept, making the solution participatory.

After this brainstorming session, the possible mediums were narrowed down based on the design brief and discussions with the collaboration group. It was decided that the medium of the solution would be either a game, a website or an exhibition display. Further, it was concluded that deciding on the medium before deciding on the content might be limiting and the decision was made to work to developing the most useful content first, and then decide on the most appropriate medium for this content.

Some questions were listed to explore for the content:

- What are the implications of beyond growth economy and how to communicate them?
- How to engage and support imagination of radically different futures?
- What methods to use?
- What questions to ask?

Photo from the ideation session with Jacob

Initial Concept Description

As the next step, thoughts and what was known and decided about the solution concept was written down. This was an effort to summarize insights so far and concretize the concept. The insights and decisions are based on the research, on discussions with designers and on advice from meetings with experts. It was decided that the concept should include one informative, descriptive and reality-based part and and one engaging, participatory and speculative part, consisting of several sections.

In general, the concept should:

- Keep the message simple
- Take regard of the short attention spans of people, and be simple, shocking and engaging
- Remove all obstacles, make it easy to understand and participate
- Keep it context specific, tailored
- Provide information, engage feelings and inspire action. Understand —> feel —> act
- The engaging part is interactive, and the contributions are part of the concept, participatory
- Spark interest

The informative part should:

- Convey the meaning of economic growth
- Convey what beyond growth means and what a beyond growth future might entail
- Be as brief as possible
- Include good and bad, possibilities and limitations
- Balance of provocation and encouragement

The participatory part should:

- Be interactive and participatory, contributing to the concept
- Increase understanding about beyond growth futures and their possibilities
- Engage emotionally
- Make people feel, through provocation or reflection
- Include hopes and fears as well as values
- Engage creativity, radical thinking and imagination
- Support imagination of possible futures
- Could make use of workshop methods to do this
- Have information and values as a starting point, using them as constraints to aid imagination
- Be based on something understandable and known, expanding the imagination from this
- Be specific, concrete and easy enough to do

Eventually, the concept should:

- Leave the user with the right feeling, thought and action
- Tie the knot
- Use the contributions somehow

Context and Target Group

Finding a context for the concept was necessary, to allow for further development of the concept, tailored towards the context and situation where it is to be used. Potential concepts were discussed with experts, the collaboration group and the supervisor, with the aim of finding a context allowing for the goals of the concept to be achieved. Ideally, the context would be a specific event or project with a similar topic, enabling a collaboration with stakeholders that could benefit both parties. A potential context like this was mentioned by Ove Jakobsen in a podcast episode (Jakobsen 2021) - they are creating examples of what Ecological Economics could look like in practice for 'Bodø 2024'.

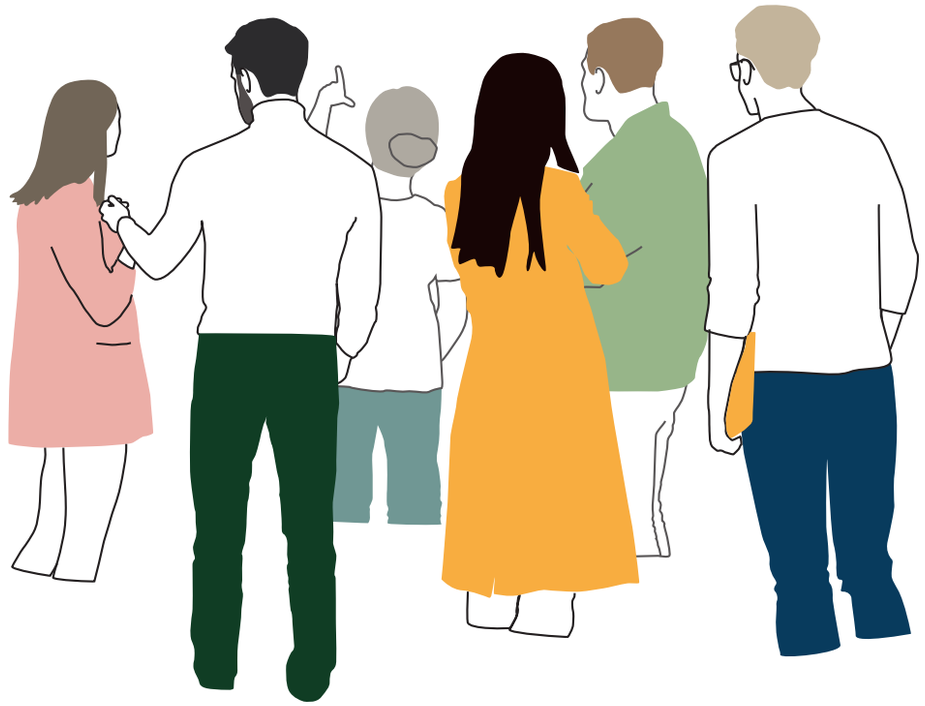
The north Norwegian city of Bodø will be the European cultural capital 2024, a project called 'Body 2024'. This means that until then, they will rethink and develop the cultural sector but also implement new societal strategies, and in 2024 there will be a full year of cultural events. The three main themes are the art of nature, fish and ships and transition. In connection to this, they will work with Ecological Economics, with professor Ove Jakobsen in the lead. Ove Jakobsen also work a lot with utopia workshops, where local stakeholders are brought together to analyze their values, create visions of utopias based on those values, and specify make an action plan taking them in that direction.

In a conversation with Ove Jakobsen, interest was expressed in using something physical, for example an exhibition, to to show during Bodø 2024. The exhibition could illustrate the road forward from Bodø 2024 within Ecological Economics, be related to their utopia workshops or bridge the gap between stakeholders and scientists. The conversation with Ove Jakobsen laid the foundation for the context of this concept.

The concept will designed to be used as a bridge between scientists or changemakers, working towards beyond growth futures, and stakeholders as well as citizens. The concept will provide stakeholders and citizens with information about beyond growth economics and engage them in this topic, laying the foundation for continued collaboration towards a transition to better futures. The scientists and people working towards change will get to take part of the values, priorities and ideas of the citizens and stakeholders, giving them essential information to make the transitions viable.

The concept will be designed to be useful in Bodø 2024, but could also be used for the same or similar purpose in other places and settings such as conferences, museums, libraries and town halls, primarily in Scandinavia but possibly other parts of the world.

The target group, provided by this context, is wide, consisting of adult citizens who could contribute to change. They are primarily educated Scandinavians in age groups 25-65 who know of and believe in human-driven climate change and environmental impacts, but are not very knowledgable about beyond growth economics, as green growth is the dominant economic solution discussed in politics and media.



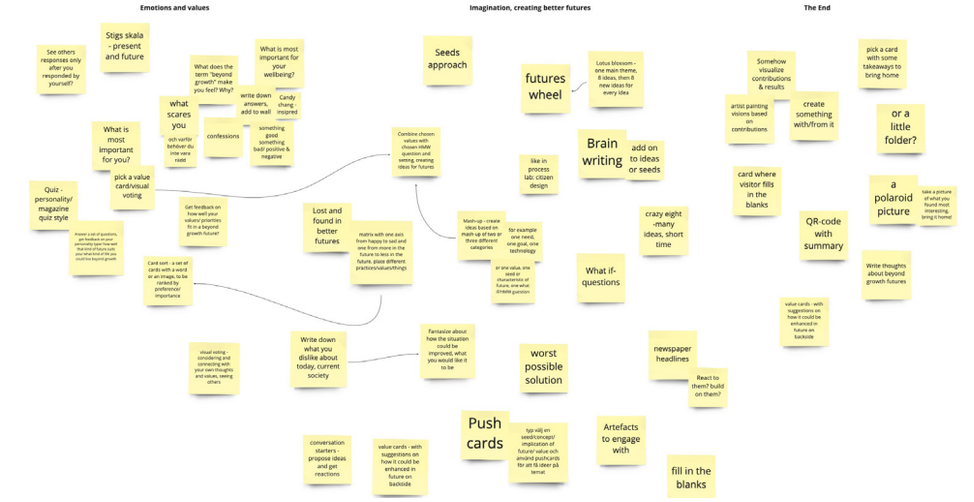
Idea Generation 2

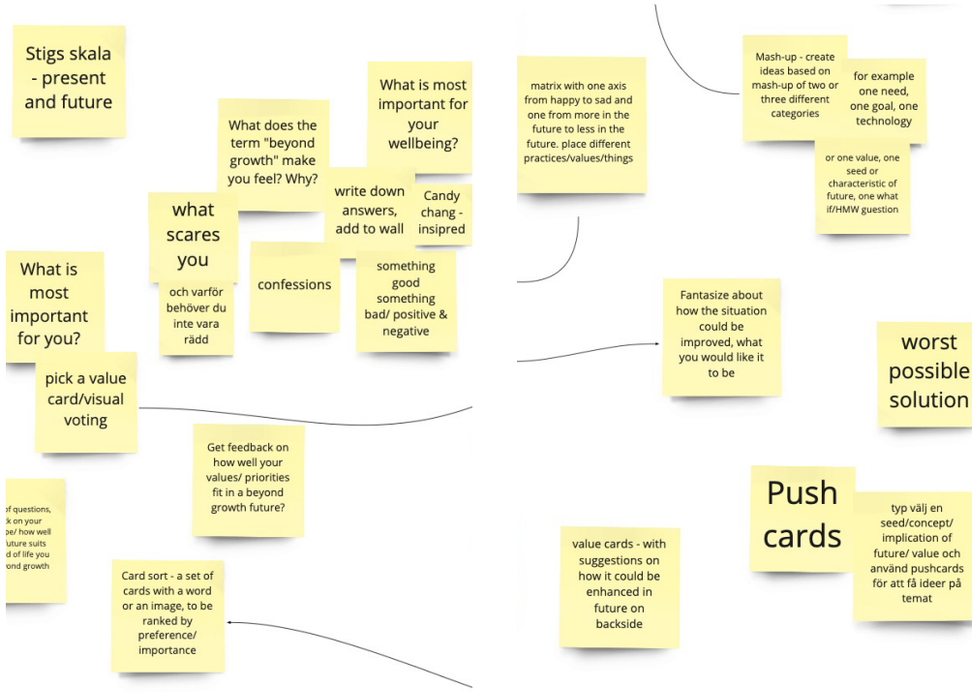
After getting a context, a new ideation session was hold to create ideas for the content. Three topics were brainstormed - ways to engage users emotionally and connect to their values through in the interactive/participatory part of the concept, ways to engage imagination, increase understanding of beyond growth futures and generating innovative ideas for better futures for the same part of the concept, and eventually ways to end the concept in a good way. After encountering the concept of using workshops to co-create visions of better futures in the research, many ideas were connected to using workshop tools and design tools to support imagination, creativity and innovative thinking.

For the emotionally engaging content, ideas ranged from having a magazine style personality quiz to get feedback regarding what a future beyond growth could be like for you, writing down your feelings on a note and adding it to the wall, to picking the value that is most important for you, and seeing others answers.

The ideas for engaging imagination, creating ideas and increasing understanding were mostly based on ideation techniques to spark innovative thinking. Some examples are creating ideas based on mash-ups of different categories(for example, a value and a seed of choice), brain writing, worst possible solution, newspaper headlines and artifacts to engage with. Some ideas combined emotional engagement, imagination and increased understanding. Such ideas were conversation starters (proposing ideas about beyond growth futures and getting reactions), lost and found (users pick a card with things that will be more or less common in a beyond growth future, and answers if this makes them happy or sad, and why so) and users writing down what they dislike about the current society, followed by imagining and creating ideas for how this could be improved in a beyond growth future.

The ideas for how to end the concept were focused on solutions how to tie the knot and leave the users in a useful headspace. Ideas included using the contributions to create visualizations or art, writing down final thoughts or getting a card to bring home with key takeaways, blanks to fill in or pictures of the concept to remember it.





Frames from the ideation session in Miro.

Prototyping and User Involvement

During the design process, potential users have been involved to test prototypes of solutions on several occasions. Involving potential users in the design process through user tests is a common method in design, with the goal of getting insights into whether or not the solution works as intended, is understandable etc. In this project, users have been involved early to test concepts and create a direction for the project, but also later on for more specific feedback. The first user tests took place in the pilot Design Sprint in the beginning of the project, as previously described. Later on, after making the design brief and the initial concept description, a workshop was held testing some tools for imagination of beyond growth futures and emotional engagement. After finding the context and target group for the solution and the second round of ideation, two iterations of prototyping and user tests took place.

WORKSHOP

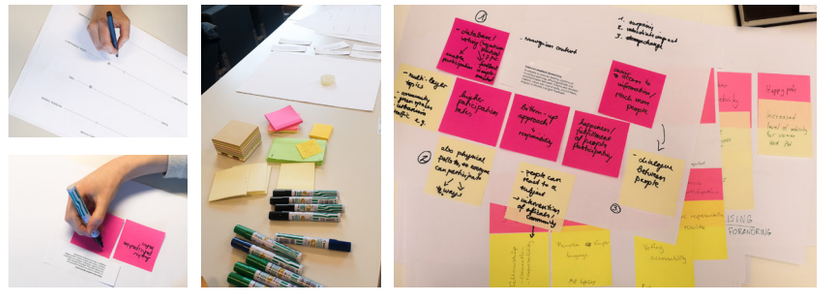
In the middle of the project timeframe, the possibility was given to facilitate a workshop with students taking the course *Design for Sustainability Transitions*. This took place before deciding on a context and before the second idea generation. The workshop was scheduled to last for maximum one hour, and the amount of participants was uncertain and could, even if unlikely, be up to 20 students. The students were working on projects regarding the transformation of an urban area in Trondheim, and the workshop would ideally be useful for them in their process of envisioning possible futures for this neighborhood as well as for this project.

The idea of using tools that are normally used for creating innovative ideas in workshops to support imagination and radical thinking was on the rise. And, the workshop took place shortly after the Seeds of Good Anthropocenes method for creating positive future visions, and the Building Better Futures workshop toolkit was discovered. Hence, it was a natural decision to use the workshop to test their tool for generating ideas to lay the foundation for visions of a better future, the 'Futures Wheel'. The was also an interest in trying a tool Stig Larssæther had introduced to the project, hence the working name 'Stigs Skala' (scale). This could be used to engage people emotionally and shine light on their values.

In Stigs Skala, there were 19 axes with two somewhat opposing terms, concepts or values, one on each side. The terms, values and concept included were specifically chosen for being features mentioned in literature as relevant or central for the current societal and economic system versus for beyond growth economics. These are characteristics debated as issues or ideals for the society. The users were asked to first mark the position of the present society on the axis, based on what the user perceived to be most highly valued and prioritized. Then, the position of an ideal, utopian, future society should be marked, based on what the user would like to be valued and prioritized. In this exercise, the users need to consider their values and any difference between what they truly value and what the society values will be emphasized. This exercise was done individually.

In the Futures Wheel exercise, the students split into groups. Each group was handed a set of Seeds, turned into statements as I they were true right now. They were asked to choose the seed they found most interesting, and write down at least four initial impacts that this could have, what might happen what it would mean if it was real. Then, they were asked to write at least on second-order impact for every initial impact before discussing which impact had the most immediate impact, surprise factor and long-term effect.

10 students participated in the workshop that started with a short intro to the importance of enhancing the right values in a transition and of having positive future visions, followed by the Stigs Skala exercise. The main part of the workshop was the Futures Wheel exercise, followed by a short debrief. The goal of the workshop was to introduce the students to some tools that might be useful in their ideation and visioning process, as well as to test the two tools to get insights into where or not they could be useful in this project.



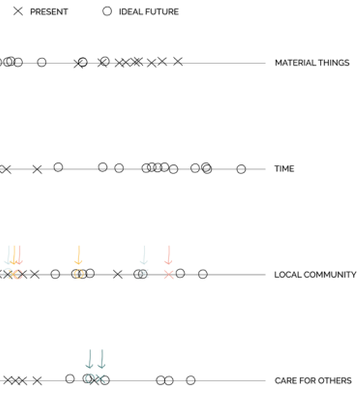
Photos from the workshop

Workshop Results

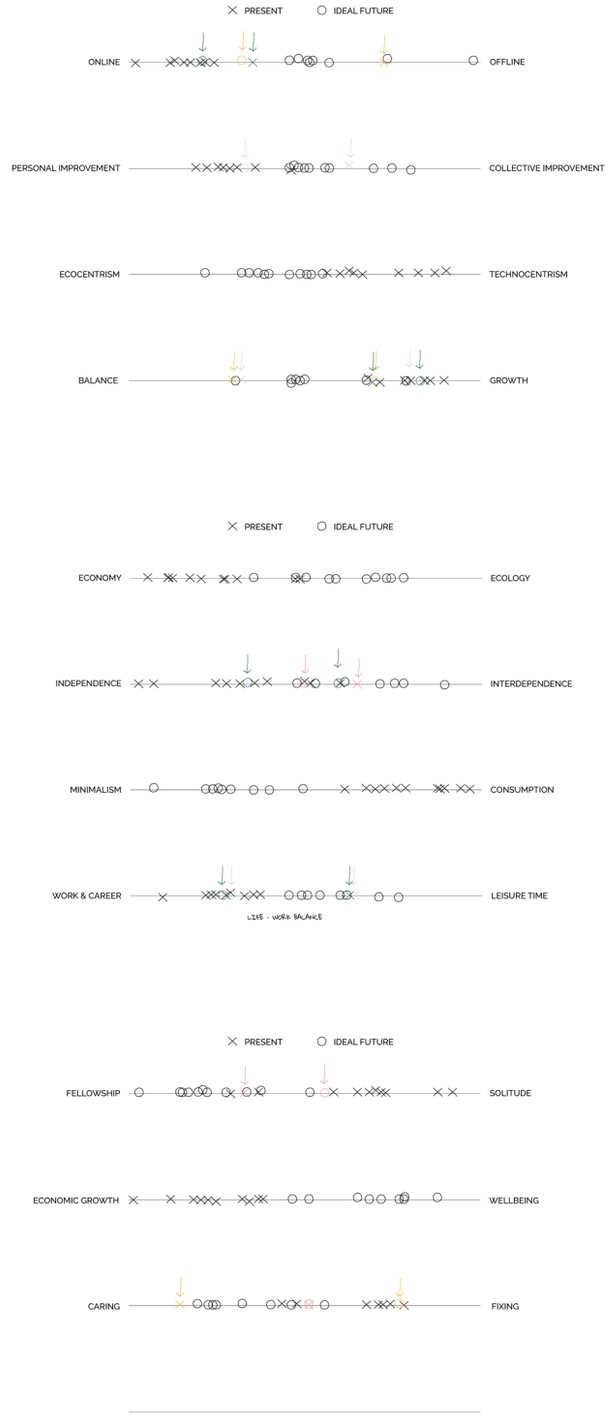
In general, the workshop was interesting. It was difficult to get the participants to engage, get feedback and start discussions, but there were some interesting conversations and thoughts. In the futures wheel exercise, the word 'impact' should possibly be changed to 'ideas' as this corresponds better with the examples in the Building Better Futures toolkit, and is perceived as more positive and inspirational. While some interesting values shone through, this exercise didn't really seem to help users imagine futures or visualizing what it could be like. Focusing more on ideas could help, as well as using less complex seeds.

The Stigs Skala exercise was very interesting, showing solid patterns in the values of people and the differences between what is and what should be valued. The values that they wanted to be prioritized were largely the values possible to enhance in a sustainable beyond growth economy. Some words though were clearly confusing, difficult to understand and subject of interpretation.

The results of the workshop can be found in Appendix A.



The results from the Stigs skala exercise, merged into the same axes to show trends and the spread of answers.
The ones with arrows are the opposite of the majority, showing where someone has for example put the future closer to work and career and present closer to leisure time, as opposed to the vast majority putting the future closer to leisure time. The amount of markings on these illustrations might not be correct, for example if two crosses overlaped i might only have included one visible. But, the spread is correct.



ITERATION 1

After the workshop, the context and target group for the concept was found and the second idea generation took place. After the second idea generation, the goal was to follow the insights from the Design Sprint and test several solutions quickly, to learn what could have the most useful results. At this point, the medium of the final concept was decided to be an interactive, participatory exhibition. This medium was recommended by experts through interviews as well as in literature (Dunne and Raby 2013), and it was considered the most suitable medium for the context. There were also a large interest to try to use the tools that are normally used to support innovation, creativity and collaboration in workshops in an other, not facilitated setting and see how that works. Based on an analyze of which ideas seemed most useful for different purposes, 5 different ideas for tools were chosen to be prototyped and tested: Lost & Found, Stigs Skala (second edition), Futures Wheels (second edition), Brain Writing and Mash Up.

The prototypes were made in the online program FigJam by Figma, a program for collaboration taking the shape of an online whiteboard. This was chosen because of practical reasons - the online, digital format allows for the tests to be conducted at different locations, and the results are saved at one, easily moved, place. This meant that getting the test to the test persons was easy, allowing for a more diverse group of test users. FigJam is also a tool that is very flexible yet simple and easy to understand, even for someone who has not used similar programs before.

All tools were tested through simple, quickly made prototypes. The focus of the test and the prototypes was on the tools and their instructions, discovering wether or not it is understandable and useful, fulfilling its purpose. Hence, the actual content and information was not very relevant at this point. The entrie prototypes, with answers, can be found in Appendix B.

A total of 9 user tests took place, where 3 tests were of Lost & Found only, and the rest were of several tools in different combinations. The tests were conducted in person on a computer, with both male and female test users ranging from 22 to 60 years old, with and without education and with and without engagement in environmental and/or economical questions. No personal or traceable data was collected, and only handwritten notes were taken.

The tests started with explaining the purpose of the test and asking for verbal consent to participate, followed by showing the participants a tool and letting them compete the tasks while thinking out loud. After the tasks of the tool were completed, some questions were asked regarding their thoughts of the tool, and wether it helped them connect to their values, imagine a better future, or increase understanding of beyond growth futures. The questions were formulated to not be leading and avoid yes or no answers. After this, a the next tool was presented or the test was finished. The tools were designed with clear instructions and full functions, so no guidance would be necessary.

Stigs Skala

While this had been tested previously in the workshop, it was relevant to test it again with changed use of words and a different context, where more feedback would be provided. The purpose of this tool is to engage the user emotionally and help them connect to their values, as well as highlighting any difference between the current and the ideal society.

The prototype consisted of 13 pair of words and axes, with one word on each side of the axis, a short instruction and a star sticker to mark the values of the ideal future, and a grey circle sticker to mark values of the present. Just like in the workshop, the words used were characteristics that are either central to current society and economy, or enhanced by beyond growth economics and societies. Many of the words used remained the same as in the workshop, but some were removed or changed based on findings in the workshop. For example, some were a bit difficult to interpret or could easily be interpreted in different ways, and some were not clearly connected to beyond growth economics and the current economy and society.

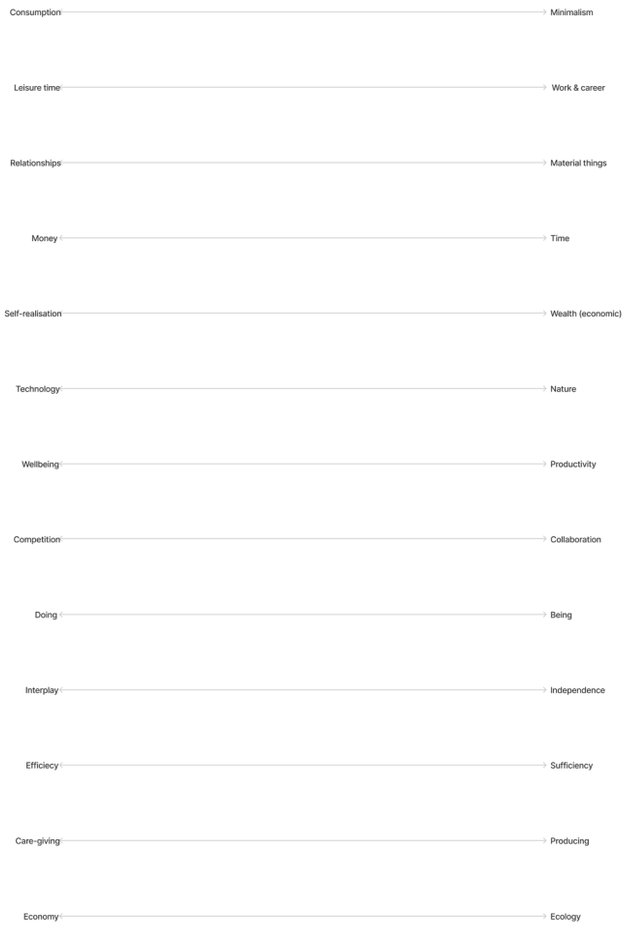
The criteria to test:

- If it is easy enough to do
- If it is understandable
- If there are any interesting results
- If it helps the user connect to their values
- If it highlights which values could be enhanced to create a better future
- Which words and word pairs are useful, and which can be removed

What is most valued in the present society, and in an ideal future society?

What to you interpret to be most valued and prioritized in the present society? Mark the postition of present society on the axises using a

What do you think should be most valued and prioritized in an ideal, utopian, future society? Mark the position of the future society as you would prefer it to be using a



The Stigs Skala prototype. The answers of test users, which were also the test, are on the next page.

Test results:
This tool performed well in test, providing interesting results highlighting the issues of the society and the need for change. It also helped participants engage emotionally, connect to their values and some participants were actually surprised to see how much they disagreed with present society, stating that the tool highlights the issues of society as well as what you should prioritize yourself, what you actual values are. It is interesting and somewhat surprising to see the results added together, there is a clear pattern.

There were some difficulties keeping the present about what is prioritized by the society and the future about the ideal, what they would like to be valued without including realism. The instructions need to be very clear and specific for this to work. Users liked how there is a scale, rather than different levels. Some words were difficult to understand and word pairs were difficult to prioritize, because they are considered necessary for each other. Especially technology vs. nature was difficult, and many stated that they are necessary for each other.

"This highlights the difference between what I consider important because I'm taught so by society, and what I actually value" - test user

The participants were somewhat affected by seeing the answers of others, so while this is an interesting feature it might be important that the user gets to answer before seeing the responses of others. This tool should be used before getting information about a beyond growth future, because: 1. It's a good mind- and eyeopener, highlighting the issues of present society and the need for change - a perfect introduction before being presented with a potential solution. And 2. After describing the concept of beyond-growth futures, the answers are likely to be colored by this.

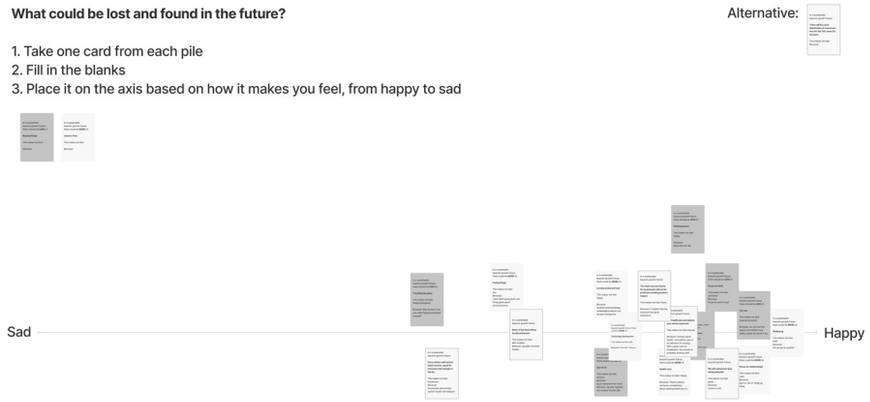
Lost and Found

In the Lost and Found tool, there are two sets of cards. One set with statements of things there could be more of in a beyond growth future, and one set of things there would be less of. The user should pick one of each cards, fill in the blank spaces saying what this makes you feel and why, and add the card to an axis from sad to happy. In addition, a third, alternative set of cards was created, where there are statements of what a beyond growth future could be like - not limited to less or more.

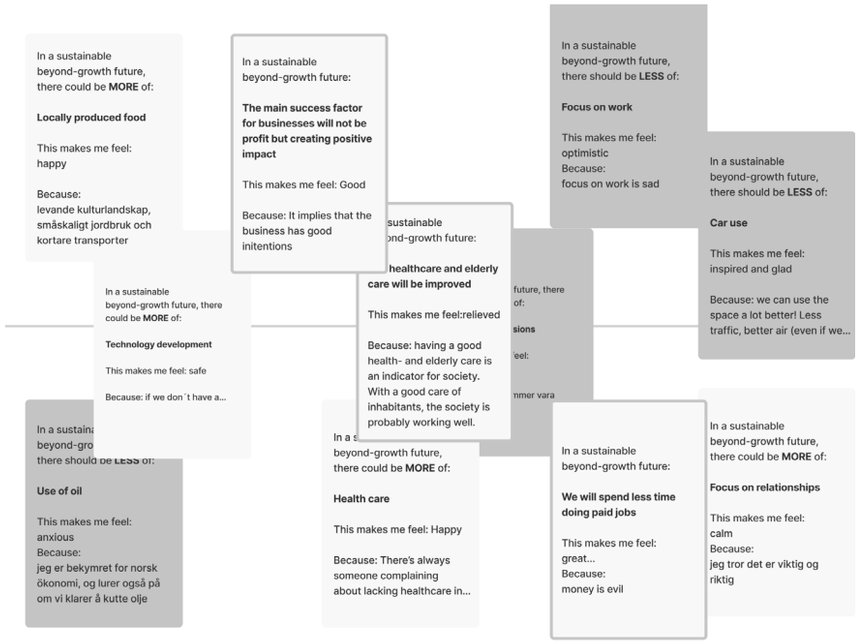
The goal of this tool is to help users get a better understanding of what a beyond growth future could be like, as well as allowing them to express their thoughts and feeling, engaging emotionally.

The criteria to test:

- If it is easy enough to do
- If it is understandable
- If there are any interesting results
- If it helps the user connect to their values and/or emotions
- If it helps the user understand or imagine a beyond growth future
- If it highlights which qualities could replace whats lost in a beyond growth future



The Lost and Found prototype.



Parts of the Lost and Found prototype, zoomed in.

Test results:
This tool had good test results, proving to be emotionally engaging and increasing understanding of beyond growth futures. It is fun, interesting, understandable and not too complicated. Users liked how it includes the good and the bad, but found it difficult to describe their feelings in such few words. They also liked seeing the others contributions.

It is important that the statements on the cards are beyond growth-specific and the right amount of complex. Hence, the alternative cards work the best, because they are less simplifying and allow for more nuances. There should also be sources and explanations for the statements, making them more credible.

"It's nice to think of opportunities in this way" - Test user

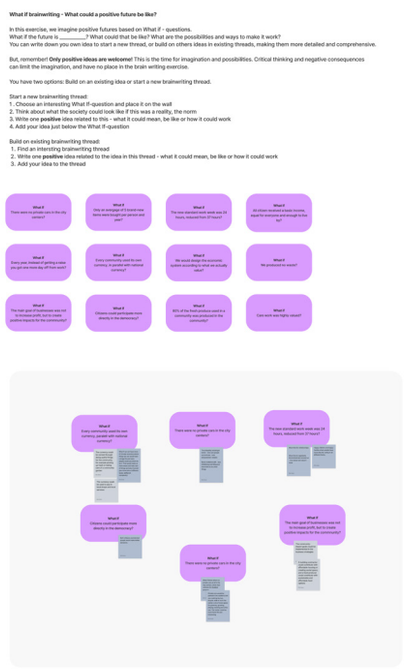
Brain Writing

Brain writing is a common ideation tool, where participants build on each others ideas. In this prototype, the user picks a What If-question they find interesting, and write at least one idea related to this (what it could be like or how it could work), adding the question and idea to the wall. They can also choose to build on the questions and ideas already put on the wall by others.

The goal of this tool is to use what if-questions to help the user imagine a different, beyond growth future, and create innovative ideas. There is an aspect of collaboration that might be useful and in this exercise beyond growth futures are co-created.

The criteria to test:

- If it is easy enough to do
- If it is understandable
- If there are any interesting results
- If it helps the user understand or imagine a beyond growth future
- If it helps the user create innovative ideas for a better future



The Brain Writing prototype.

Parts of the Brain Writing prototype, zoomed in.

Test results:
This tool had very good test results, being understandable and helping the users imagine a different future, especially through the more specific What If-questions. It is speculative and engaging. Most participants both added to existing threads and started their own, and the collaborative aspect turned out to be helpful and inspiring. Only including positive ideas was another important feature, and users stated that this helped them create more ideas instead of getting 'locked' and giving up. And when someone writes an idea related to something they happen to know about, the results become very interesting and educative.

The use of What If-questions and the word 'Utopia' helped users think past the learned conditions, remove constructed concepts and think differently, about a radically different world. Users stated that this was a fun exercise, as it is simple but sparks imagination and ideas. It was said that they could do this 'forever' and that it would be fun to do in a group, and discuss it. There was a wish for having more questions as well as empty notes to write your own suggestions.

> *"This is a good exercise to imagine different futures! It opens the what if-doors. You get a picture and idea of how it could be. And of what should be prioritized in society."* - Test user

All What If-questions should be beyond growth specific and this should be made clear to increase the feeling of understanding the possibilities of beyond growth futures. Sources could possibly be included to increase credibility. Adding some kind of 'like' or 'thumb's up' function was considered, but it might make the tool performance-focused. This would be unfortunate, because of the risk that people don't write ideas if they are worried they are not good enough.

Futures Wheels

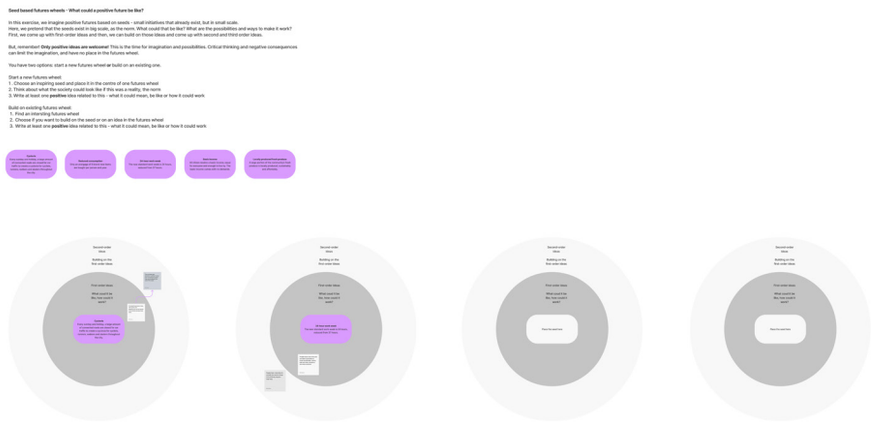
Just as Stigs Skala, this tool has been tested previously in the workshop, but it was relevant to test it again in a different setting and with some alterations.

This exercise is similar to Brain Writing. The user is asked to pick the most interesting or inspiring seed, and write at least one idea of what this could be like if it was the reality, adding them to a new futures wheel. They user can also decide to build on an existing futures wheel and the ideas on it. In this test, the word 'impact' was replaced by the word 'idea' and the seeds were more specific and less complex, based on insights from the workshop. There is also a visual structure supporting the tasks.

Similarly to the Brain Writing tool, the goal of this tool is to use seeds to help the user imagine a different, beyond growth future, and create innovative ideas. There is an aspect of collaboration that might be useful, and in this exercise beyond growth futures are co-created.

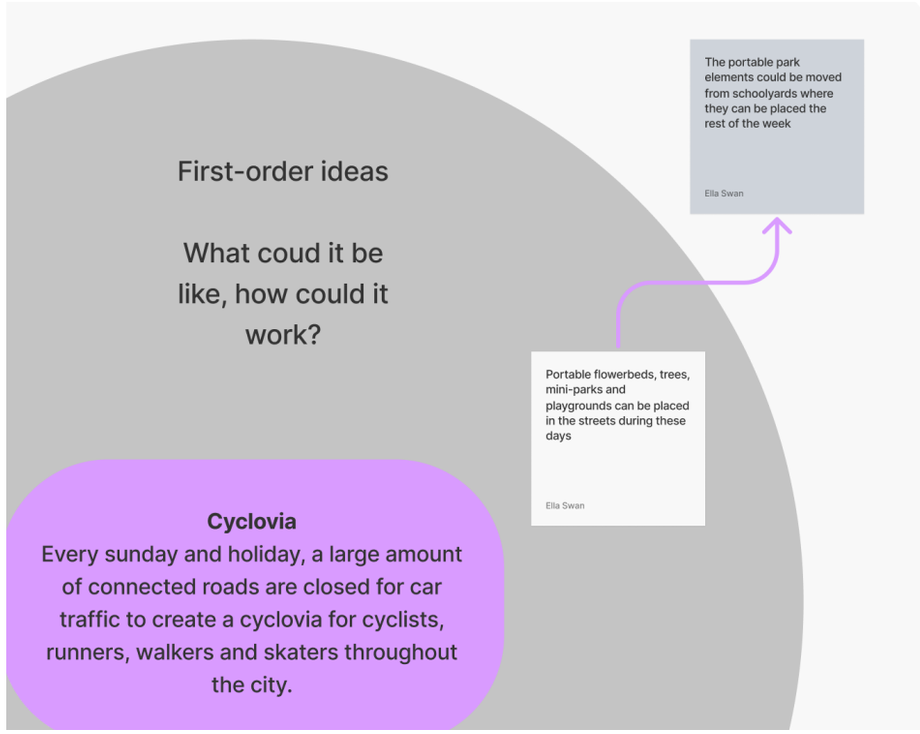
The criteria to test:

- If it is easy enough to do
- If it is understandable
- If there are any interesting results
- If it helps the user understand or imagine a beyond growth future
- If it helps the user create innovative ideas for a better future



The Futures Wheels prototype

Test results:
The test results were not great. The tool works, but it is very similar to Brain Writing, only more complicated and difficult to grasp. The tasks are too complex, and doing them takes too much time and effort.



Parts of the Futures Wheels prototype, zoomed in.

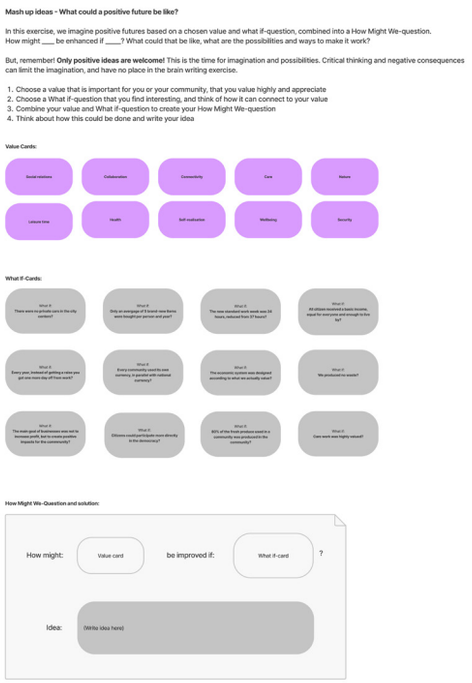
Mash Up

In the Mash Up tool, the users selects one card with a value on it, and one card with a What If-question, combining them to create a How Might We-question: How might (value) be improved if (what if-question)? The user should then write ideas related to this.

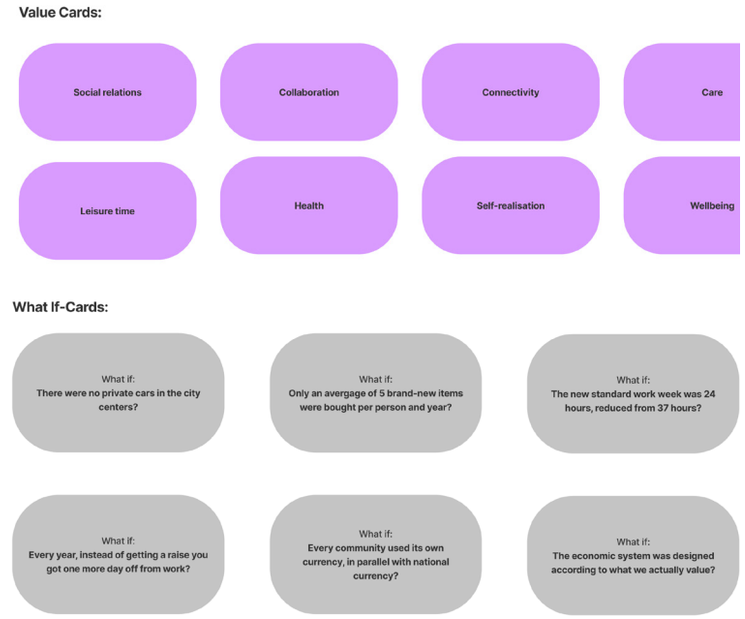
In this tool, values to be enhances are combined with What If-questions with the goal of sparking creativity and generate innovative ideas for a better future.

The criteria to test:

- If it is easy enough to do
- If it is understandable
- If there are any interesting results
- If it helps the user understand or imagine a beyond growth future
- If it helps the user create innovative ideas for a better future



The Mash Up prototype.



Test results:

The test results for this tool were pretty good, the users finds it interesting and that it helps them think. But, it helps them express their thoughts rather than imagine different futures. It is also perceived as quite complicated and time-consuming, and it lacks the collaborative aspect. This tool also has similar purpose as Brain Writing, but not with as good results.

Parts of the Mash Up prototype, zoomed in.

ITERATION 2

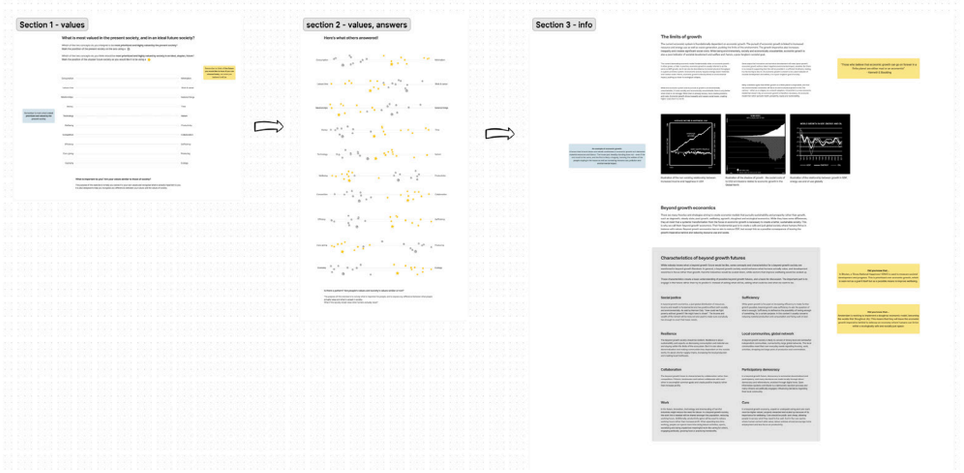
In the first iteration, the tools were tested by one by one, without context. Hence, for the second iteration, the goal was to test participatory tools together with the informative content, shaping the full concept and seeing how it would affect the experience and the understanding of beyond growth futures. When designing the prototype for the full concept, decisions and changes were made based on the insights from the earlier tests and some notes and explanations were added to make it run smoothly without guidance. It consist of six sections - one with informative content, four with participatory tools, and one with a final little tool to wrap it up. Again, the prototypes are made in FigJam, based on the earlier prototypes. Images of the prototypes, with answers, can be found in Appendix C.

Content

In this prototype for the full concept, Stigs Skala was chosen to be the first two sections, based on the findings in the previous test. The most difficult words to understand or interpret were removed, and the amount of word pairs were reduced to 10. The instructions were improved, making it more clear to: 1. Mark the position of present society based on what is interpreted to be most highly valued and prioritized by present society and 2. Mark the position of the ideal future society based on what you would like the society to prioritize, if you could choose freely. The Stigs Skala section consists of two sections, one with the exercise followed by one where the contributions of others are presented.

Stigs Skala was followed by an informative section, describing the limits of growth, what economic growth means, what beyond growth economics means and what the characteristics of a beyond growth economy are. This section was quite text-heavy, but designed with several levels of depth so that by reading only headlines the topic is understood, by reading the larger text the main concepts are conveyed and by reading the full text, the concepts are further explained. There are also diagrams and boxes with interesting facts. The text is formulated to be brief and compact while including the most important information, as well as being easy to read and understand.

In the section following the information, there was a wish to provide opportunity to react to this and the concept of beyond growth economics. Originally, the alternative version of Lost and Found would be used here, but it was found that the statements on the cards became very similar to the What If-questions in the Brain Writing exercise, making the tools repetitive. Hence, this was replaced by a new exercise based on ideas from the last idea generation and inspired by the arts of Candy Chang (see in the chapter about existing solutions

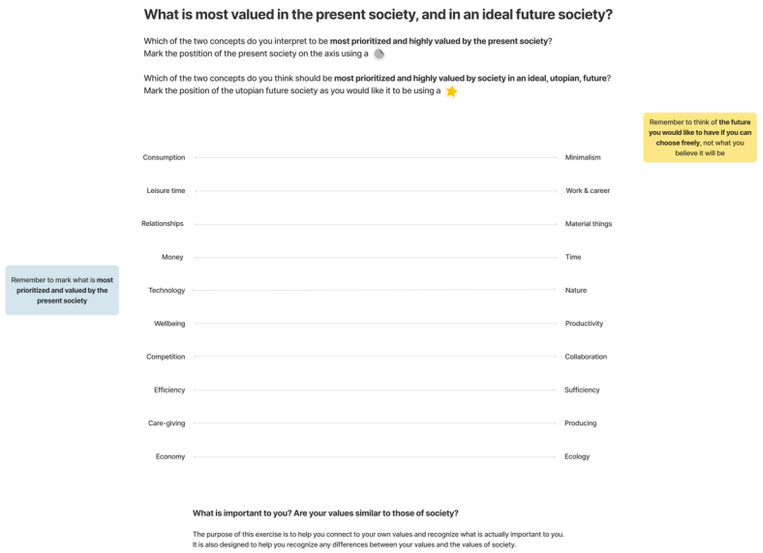


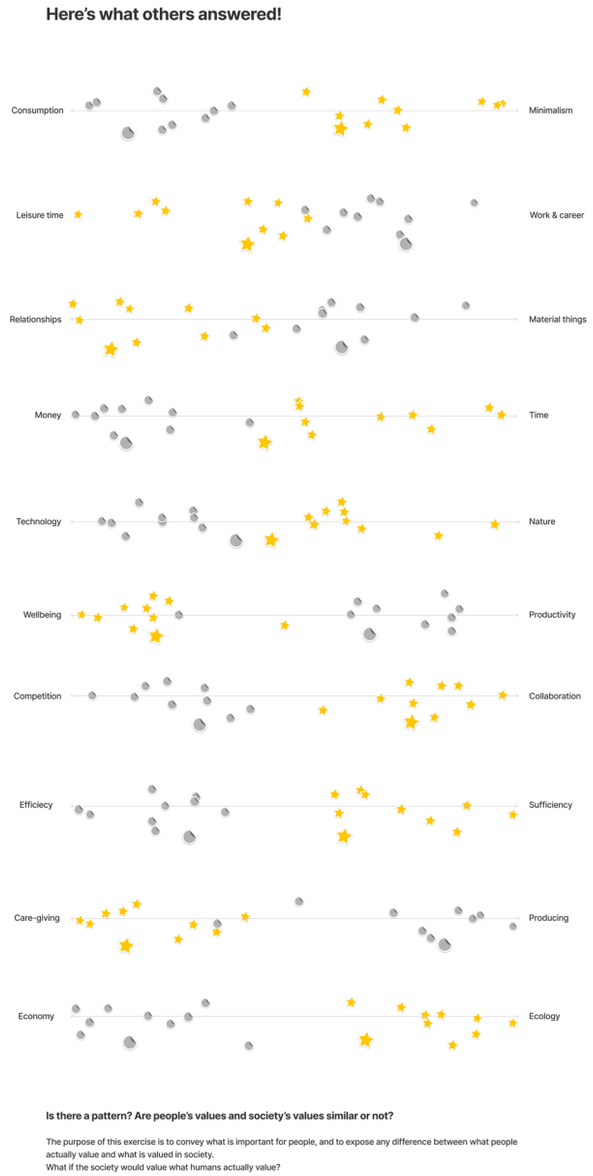
Screenshots of fhe five first sections of the prototype. In the actual prototype, they were all side by side.

and inspiration). In this exercise, the users are asked to pick the sticky note that best represents their feelings towards beyond growth futures - Hopeful, Anxious or Other, where the user can write any other feeling. The users are also asked to explain why they feel this way, before adding the note to the corresponding section of the wall.

The next section is the Brain Writing section, with edited and more understandable instructions. The What If-questions are also edited to be more specific, less complex and to have a clear connection to possible solutions of beyond growth futures. Many new questions are added as well as empty notes where users can write their on What If-questions.

The final section, the End section, is the shortest. It contains a summarization the exhibition, its goal and its purpose as well as a call to consider and discuss what kind of future you would like to have. It also encourages the user to grab and bring home a card with the words "In a beyond growth future, I would like to…". This blank could be filled in right away or later on. In the prototype, there are no physical cards to bring, but a digital example.





Previous side: the Stigs Skala section.
This side: the section containing Stigs Skala with answers.

Goal and Execution of Tests

The goal of this test is to learn how the different sections work together and if this concept could be a viable solution. Does the concept live up to its mission, vision, feeling, thought and action to provoke and product qualities as stated in the Design Brief? As most of the tools are properly tested prior to this, by themselves, the focus is not on testing how each test perform by itself, but how they perform together. Of course, the two new tools, the Feelings tool and the End card, as well as the new information section will be closely examined. The edited instructions and parts of the previously tested tools will also be considered.

The limits of growth

The current economic system is foundationally dependent on economic growth. The pursuit of economic growth is linked to increased resource and energy use as well as waste generation, pushing the limits of the environment. The growth imperative also increases inequality and creates significant social costs. While being environmentally, socially and economically unsustainble, economic growth is also a poor indicator of societal develoment and welfare and, hence, a poor longterm societal goal.

The current dominating economic model fundamentally relies on economic growth - it either grows, or fails. In practice, economic growth is usually referred to as the same as GDP growth, but it can also be described as increased physical throughput in a given economic system. All economic activity requires energy and/or materials and creates waste. Hence, economic growth is directly linked to environmental impact, pushing us closer to ecological collapse.

While the economic system and its pursuit of growth is environmentally unsustainable, it is also socially and economically unsustainable. More is only better when there is not enough. When there is already excess, more creates problems and costs. Economic growth drives inequality and causes social issues, creating higher costs than it is worth.

Some argue that innovation and technical development will make 'green growth', economic growth without direct negative environmental impact, possible. But there is no research supporting that this will be possible in a sufficient timeframe, making it a risk too big to rely on. As economic growth is shown to be a poor indicator of societal development and welfare, it is a poor longterm goal of society.

Many scientists agree that infinite growth on a finite planet is impossible, and that the environmental constraints will force an end to physical growth in the 21st century - either as a collapse, or a smooth adaption. A transition to a new economic model that doesn't rely on economic growth is therefore necessary. An economic model that rather pursuits health, prosperity, equity and sustainability.

"Those who believe that economic growth can go on forever in a finite planet are either mad or an economist"
- Kenneth E Boulding

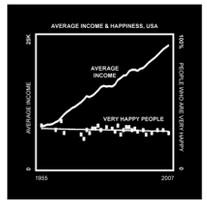


Illustration of the non-existing relationship between increased income and happiness in USA

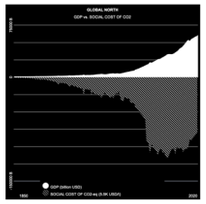


Illustration of the shadow of growth - the social costs of to CO2 emmissions related to economic growth in the Global North

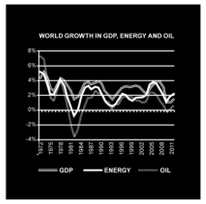


Illustration of the relationship between growth in GDP, energy use and oil use globally

Characteristics of beyond growth futures

While nobody knows what a beyond growth future would be like, some concepts and characteristics for a beyond growth society are mentioned in beyond growth literature. In general, a beyond growth society would enhance what humans actually value, and development would be in focus rather than growth. Harmful industries would be scaled down, while sectors that improve wellbeing would be scaled up.

These characteristics create a basic understanding of possible beyond growth futures, and a basis for discussion. The important part is to engage in the future rather than try to predict it. Instead of asking what will be, asking what could be and what we want to be.

Social justice

In beyond growth economics, a just global distribution of resources, income and wealth is fundamental and has positive effect both socially and environmentally. As said by Herman Daly: "How could we fight poverty without growth? We might have to share!". The income and wealth of the richest will be reduced and used to make sure everybody has enough to cover their basic needs.

Sufficiency

While green growth is focused on increasing efficiency to make further growth possible, beyond growth uses sufficiency to ask the question of what is enough. Sufficiency is defined as the possibility of having enough of something, for a certain purpose. In this context it usually concerns reducing material production and consumption and 'living well on less'.

Resilience

The beyond growth society should be resilient. Resilience is about sustainability and aspects as decreasing consumption and material use and staying within the limits of the ecosystem. But it is also about decentralization and making communities less dependent on the outside world. It's about shorter supply chains, increasing the local production and creating local livelihoods.

Local communites, global network

A beyond growth society is likely to consist of strong local and somewhat independent communities, connected by large global networks. The local communities meet their own everyday needs regarding housing, work, activities, shopping and large parts of production and commodities.

Did you know that...
In Bhutan, a 'Gross National Happiness' (GNH) is used to measure societal development and progress. This is prioritized over economic grwoth, which is seen not as a goal it itself but as a possible means to improve wellbeing.

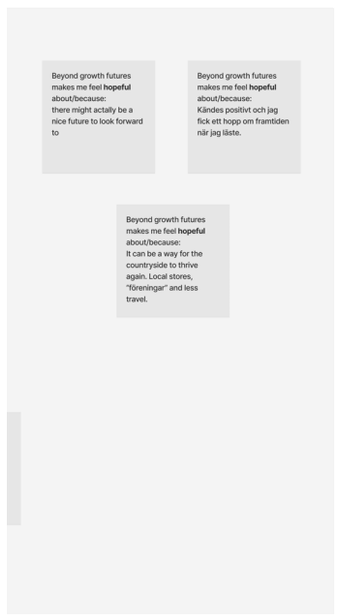
Did you know that...
Amsterdam is working to implement a doughnut economic model, becoming the worlds frist 'Doughnut city'. This means that they will leave the economic growth imperative behind to delevop an economy where humans can thrive within a ecologically safe and socially just space.

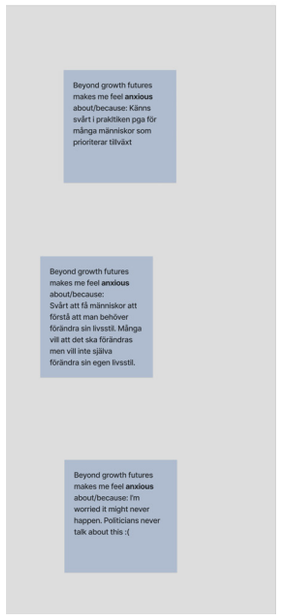
Parts of the Information section, zoomed in and cut.

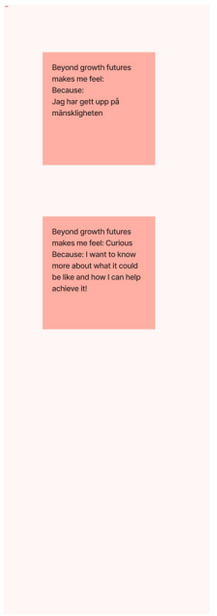
What do you feel about beyond growth futures?

After learning this information about beyond growth futures, what do you feel?
What about beyond growth futures makes you feel anxious or hopeful? Does it make you feel something else?

Instructions:
1. Take the post-it note that best represents your feelings: hopeful, anxious or an empty one where you add your feeling.
2. Fill in the blanks, explaining why you feel hopeful, anxious or something else about post growth futures
3. Place the post-it in the section corresponding your feeling







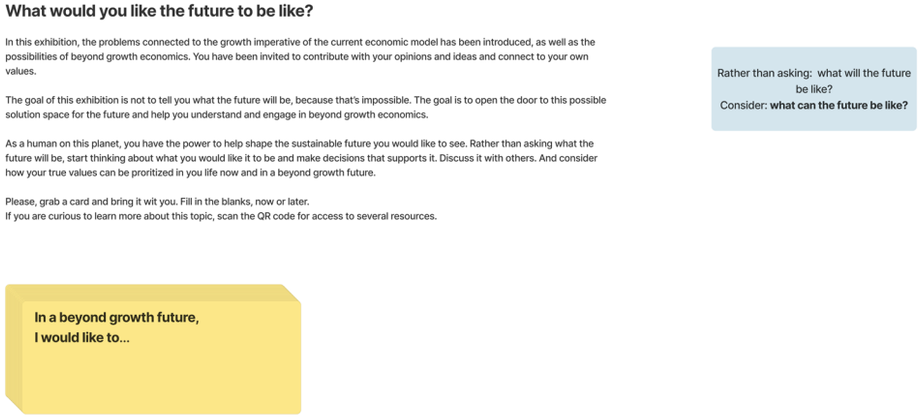
Parts of the Feelings section with answers, zoomed in and cut.

The criteria to test:

- Are the instructions/exercises understandable?
- Is the information shocking/interesting enough?
- What's the time consumed and level of effort? Is it too much or easy enough?
- Is the concept engaging?
- Does the information seem credible?
- Does it seem "too good to be true"?
- What can be removed, reduced? What to keep?
- Does the concept spark curiosity and hope?
- Does the concept help users imagine their lives in a beyond growth future, and what they would like there?
- Does the concept help users understand the implications of beyond growth futures?
- Does the concept help people identify their values and priorities?
- Does the concept spark discussions about sustainable beyond growth futures?
- Does the concept help change the question from what the future will be to what the future can be/what they want it to be?

In similarity to the previous tests, the tests were conducted in person on a computer. A total of five tests were conducted, with male and female participants in their 20's or 30's, most of whom with higher education and none of whom more than average engaged in environmental issues. Most test were done one by one, but in one test two persons did it together, collaborating. No personal or traceable data was gathered and only handwritten notes were taken. At the beginning of the tests, the context of the concept and the purpose of the test was briefly described, followed by asking for consent. Then, the participants were asked about their their prior knowledge or understanding of beyond growth futures, and their general thoughts and

Parts of the Brain Writing section with answers, zoomed in and cut.



Frame of the final section, the End.

feelings about the future. After this, the participants were showed the first section of the prototype, and independently worked their way though the prototype during the test, thinking out loud. Meanwhile, their comments and actions were noted.

After the tests, the participants were asked about their immediate thoughts and feelings, about their knowledge and understanding about beyond growth after the test, what their impression is of a beyond growth future and whether they were able to imagine it. They were also asked specifically about their thoughts about the information section and the new tools, as well as what they liked the most and the least. Finally, they were asked to share any additional thoughts. Again, the questions were formulated to not be leading and to avoid yes or no answers.

Test Results

The results of the tests were generally very good. When asked at the start, most participants had ad bad feeling about the future, feeling worry and hopelessness. Some stated that the concept had had an effect on their feeling towards and perception of the future, increasing hope and opening door to new possibilities as well as tilting them from relying on green growth towards considering beyond growth futures.

All users reported increased understanding of beyond growth economics and futures, a result very much improved by using the different sections together. Everyone were able to imagine beyond growth futures, and some found it easy, especially though the Brain Writing exercise and the specific What If-questions. In addition, several test users, without being asked about in, discussed what they would like in a better future and explicitly stated that the concept had given them a feeling of curiosity and wanting to learn more - proving that the concept has just the impact it aimed for, creating the right feeling, thought and action.

"Stigs Skala was difficult to begin with, but turned out to be genius. The distinctions became so clear, and it was fun to see the similar responses of others. And, if people had responded differently, that would also have laid a foundation for discussion" - Test user

In general, the tests were time-consuming, ranging between 10 and 45 minutes (active time, questions excluded). Some test participants did the the test very thoroughly, while some speeded through it, not reading everything or doing all exercises. The tests had good results in both cases, but the ones trying to do it fast argued that it was difficult to do it fast and without a lot of focus, because it was interesting and they wanted to learn more, but also because they didn't get the full experience and the amounts of text were stressful.

"I loved this (Brain Writing) exercise. It was fun and really interesting actually, and I could keep going all night long" - Test user

"My understanding of beyond growth has changed. I believe it's about not needing more and more, but using and sharing what we have." - Test user

Some persons expressed being somewhat overwhelmed at first sight by the information text and the tools requiring them to write their opinions and ideas, but after doing it they liked it and stated that it was easier than they first thought, and completely reasonable. Even when participants were actually told that they should skip parts or not write their feelings or ideas if they didn't feel like doing it, they didn't skip it and contributed with several notes, proving that they found it so interesting and fun that they wanted to do it.

The informative text section could look intimidating, but turned out to be understandable and interesting. Some didn't read all of it, but still got the message. The text was said to be brief, concrete, clear, qualitative and right to the point. The feelings exercise was interesting, people had a lot to say and used several notes even though the instructions said to use one. The ending worked as the easy wrap-up it aimed to be. And all instructions and edits of the tools had the purposed effect, making the tests run smoothly without any misunderstandings.

"NOWADAYS IT SEEMS EASIER TO IMAGINE THE END OF THE WORLD THAN TO IMAGINE THE END OF CAPITALISM"

- FREDERIC JAMESON

The Final Concept

In this part of the report, the final concept is described. The *Context Description* chapter describes the concept, what it contains and why. In the *Context, Target Group and Stakeholders* chapter the situations and persons the concpet is tailored for is explained, as well as relevant stakeholders. The part ends with the *Future Development* chapter, describing potential next steps for the concept.

Concept Description

The final solution of this project is a concept for an interactive, participatory exhibition as well as a template and a guide for arranging it. This exhibition aims to introduce the users to the problems related to economic growth and the solution space of beyond growth futures. It increases understanding and supports the imagination and envisioning of beyond growth futures as well as allow people to share their opinions about it. This exhibition is interactive as it contains sections where the visitors are encouraged to interact and contribute, and it is participatory as the contributions of the visitors become part of the exhibition. In the exhibition, visitors co-create ideas for better futures, contributing to the co-creation of future visions and laying the foundation for co-creation of better beyond growth futures. It uses workshop methods to support radical thinking, imagination off and engagement in radically different futures.

The concept is designed for targeting a broad public and to be used for communication between citizens, stakeholders, scientists and change-makers. It is designed for the context of the Bodø 2024 project, but may be used in other future-oriented, collaborative settings as well. This is further explained in the chapter *Context, Target Group and Stakeholders*. The exhibition does not only increase understanding about beyond growth futures, but it can create curiosity for this as well as gathering information useful for the process of working towards beyond growth futures. Hence, it is a useful tool in the co-creation of better beyond growth futures. As such, it is provided through an online template and guide, for anyone to use. This way, it is easy to arrange the exhibition in many different places and contexts, with similar goals.

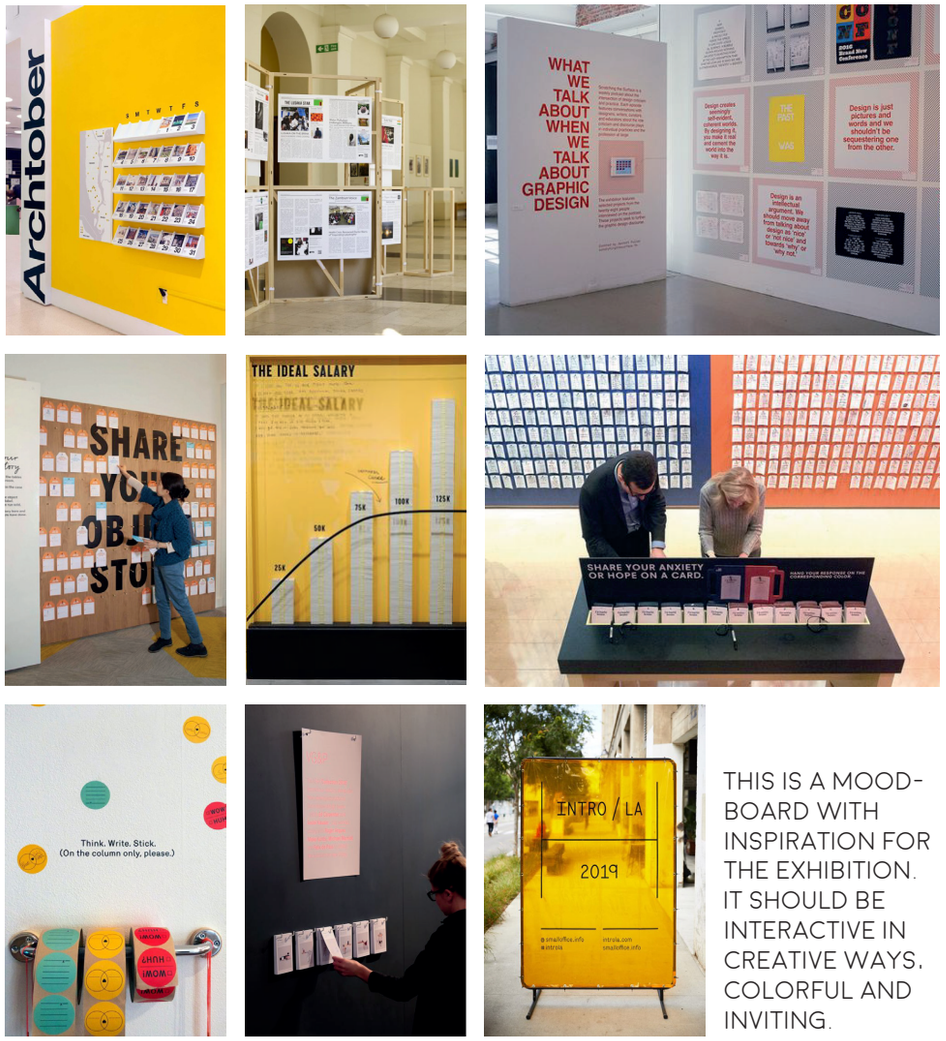
The concept does not introduce or rely on potential future technology, but uses existing technology and solutions as a basis. While it is about possible futures, these futures are not in a specific future timeframe but rather an alternative to the present, which could technically take place this year or in 30 years. The choice to avoid setting specific future timeframe was made to avoid limiting imagination. A long timeframe has a tendency to initiate a reliance on technological advances, while a short timeframe makes any change seem impossible. The solutions and ideas used to support imagination and understanding of these possible futures in the concept are already available. This basis in reality makes the envisioning of futures easier, as well as making a transition to these futures more realistic in a short timeframe. This is essential, as the transition needs to take place sooner rather than later.

The concept has taken inspiration from the participatory arts of Candy Chang and uses speculative methods as well as ideation tools known from workshops to support engagement, imagination and creativity. This lays the potential for the radical thinking that is necessary for imagining radically different futures and creating innovative ideas and visions for them. In this concept as well as in speculative design, the focus is not on predicting the future but on speculating about what the future could be and discussing what we would like it to be (Dunne and Raby 2013). Engaging in concepts of better futures is important as it can help shape the future through altering our expectations and, hence, our actions (Berkhout 2006). Because of the limits of growth (Meadows 1972), engaging in and discussing beyond growth futures is especially important.

Workshops are a common setting for the co-creation of design solutions as well as of visions for better futures (Pereira, Hichert et al. 2018, Jakobsen and Engqvist 2019). In these workshops, tools are used to support collaboration, imagination and innovative thinking. But, workshops are time-consuming, require strict facilitation and has a limited reach. Dunne and Raby (2013) argue that exhibitions are ideal for engaging with an audience, as they can be highly accessible, bring people together, connect science with design. Exhibitions can be used as arenas for rethinking society and showing what is yet to exist. Through using workshop methods in an exhibition, the great tools from workshops can be made use of without requiring the same amount of facilitation, while at the same time reaching a larger amount of people and taking advantage of the perks of using an exhibition.

The exhibition aims to create visual effects through clustering of feelings, and making the distinction between the values of the present and the ideal future visual as well as use of layout and typography. It uses words rather than illustrations and pictures to communicate the possibilities of beyond growth futures, as a means to allow the users to imagine freely and create their own mental pictures.

The focus of this project has been to design, prototype and test contents for the exhibition, designing on a conceptual level rather than finalizing the layout. Hence, all visualizations of the concept should be seen as illustrations and sketches, supporting the understanding of the concept, rather than showing the looks of it. For this purpose, illustrations are made with a hand-sketched style, aiming to put focus on the concept rather than the details. A moodboard was created to communicate the potential style of the final exhibition and function as inspiration.



THIS IS A MOOD-BOARD WITH INSPIRATION FOR THE EXHIBITION. IT SHOULD BE INTERACTIVE IN CREATIVE WAYS, COLORFUL AND INVITING.

The Moodboard

The Exhibition

In beyond growth literature, the importance of engagement, collaboration and participation in creating better beyond growth futures and visions for them is often emphasized (Falardeau, Raudsepp-Hearne et al. 2019, Jakobsen and Engqvist 2019). Furthermore, speculative design requires engagement with an audience to fulfill their goal of sparking discussion and debate (Dunne and Raby 2013). This is why the contents of this exhibition are designed to engage visitors though interactive sections, allowing participation in creating the exhibition as well as better futures. It is also why the exhibition aims not to describe possible futures, but to spark discussions, debate, imagination off and engagement in possible beyond growth futures. In an exhibition, the goal is not only to inform, but also to engage emotionally and preferably inspire action. There is one informative and descriptive section as well as five interactive and/or participatory. In each interactive section, there are brief and clear instructions companied by smaller chat-boxes, repeating instructions or giving advice to further guide the user. The exhibitions consists of the tools tested in the last iteration in the design process and can be found in Appendix D.

The exhibition is designed to be interesting for users putting in different levels of time, effort and engagement. Someone might just read the headlines and have a look on others contributions, not taking part actively. This person might not get the full experience, but still increase their understanding of beyond growth economics and have some seeds planted, at least lightly opening the door to the possibility of better futures and the solution space of beyond growth economics. The more actively a person participates, the more rewarding the experience will be. Furthermore, the exhibition fulfills its purpose regardless if the users are by themselves or collaborating in pairs. Collaboration in groups might work too, but has not been tested.

INTRO

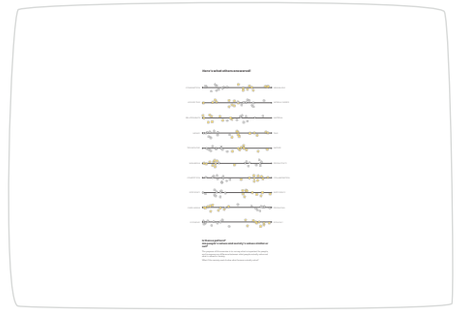
Welcome to this participatory exhibition about possible futures!

This exhibition is designed to help you understand beyond growth economics and engage in desirable futures.

You will have the possibility to contribute with your values, opions and ideas. This information will be used in the process of creating better futures.

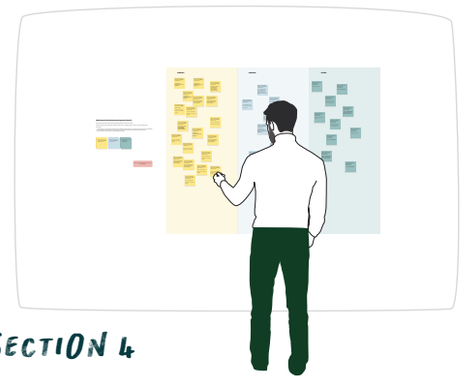
You can choose freely how to interact with this exhibition. Participate and engage in the exercises or just have a look. We hope that you find the exhibition interesting regardless of how you prefer to do it!

SECTION 1



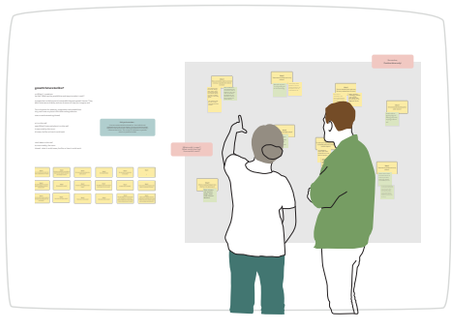
SECTION 2

SECTION 3

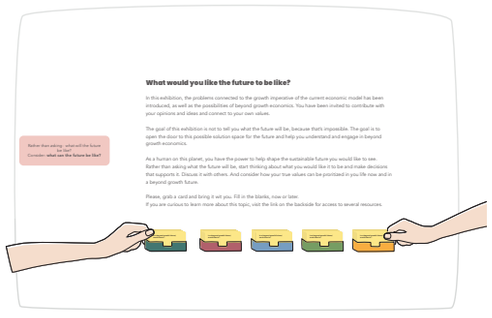


SECTION 4

SECTION 5



SECTION 6



Storyboard showing the different sections of the exhibition.

STIGS SKALA

The exhibition begins with an exercise helping the users to connect to their values and highlight any distinction between this and what is valued and prioritized by society. This tool consist of and ten pairs of words, the words of each pair on opposite sides of an axis. The user is asked to mark the position of the present society on the axises, based on what is most prioritized and valued in present society. Then, the user is asked the mark the position of a utopian future society on the same axises, based on what the user would like to be most prioritized and valued. After responding, the user is presented with the answers of others. If answers are similar, this can enhance the values of the user, and if not it can spark thought and discussion. In tests, there has been a very strong pattern and unity, highlighting how many are dissatisfied with the priority of current society.

In addition to engaging users emotionally and helping them connect to their values, this exercise can highlight the problems of society and open the mind towards the fact that things could be improved though change. Hence, it is the perfect start of this exhibition and introduction before facing information about the limits of economic growth. The exercise also gathers information regarding which values to enhance and prioritize to create a viable beyond growth future.

It is important that the user can answer first, before facing the answers of others, to avoid getting influenced. It is also important that there is an axis between the words rather that different levels. In a low-budget edition, this exercise can be printed on paper, answered using pencils and pinned or taped to the wall after answering. It is also possible that a facilitator adds previous answers to the same axises on a larger poster. This can be improved through using stickers for answers and using plastic sheets and an over-head machine to project the answers onto a wall on the same axises. In a high-level edition, digital screens could be used to gather and show answers.

Illustration of the Stigs Skala section of the exhibition.

INFORMATION

The information section informs the users of what economic growth is and the limits to it, and introduces beyond growth economics as a potential solution. It is brief and straight-to-the-point, including only the essential information. It is formatted in different layers, so that the topics can be understood just by reading headlines. Through reading the larger text, the key points are gathered and through reading all text, this is further explained. There are also graphs and boxes with interesting facts. The goal of this section is to convey the concept of beyond growth economics to the users, creating the foundation for the rest of the exhibition.

It is important that the text in this section is easily readable in sufficient distance. It can be printed on a poster and posted to the wall, printed or painted on a wall or laser cut into wood.

Illustration of the Information section of the exhibition.

FEELINGS

After the text-heavy informative section, the visitors are given the opportunity to express their feelings regarding beyond growth economics and futures. They are asked to pick the sticky note that best represents their feelings, hopeful, anxious or other (where they can write their feeling), and write why they feel this way on the note before sticking it to the wall in the corresponding section (hopeful, anxious or other). This way, the it will become visually clear whether people feel hopeful or anxious about beyond growth futures, while the reasons why are useful for the change-makers. The purpose of this exercise is to allow users to engage emotionally and express their thoughts, good and bad.

This section could consist of instructions and sections of feelings printed on posters and paper notes with printed text added to the sections using pins or tape, or sticky notes with text on them. The instructions feeling-sections could be painted or laser-cut into the wall and the notes for feelings could be made of thicker paper or even pieces of wood, hung on hooks.

Illustration of the Feelings section of the exhibition.

BRAIN WRITING

The Brain Writing exercise is designed to increase understanding of what a beyond growth future could entail, support imagination off this and co-create innovative ideas for better beyond growth futures. For this purpose, specific What If-questions based on beyond growth economics are used to spark innovation, debate and imagination. The user gets to pick an interesting What If-question, add this to the wall and add any ideas related to this, what this could be like or how it could work. There is also the option to rather build on the ideas of others and existing What if-questions on the wall. The ideas co-created can be used to design visions of beyond growth futures and lay the foundation for the discussion about, engagement in and creation of better futures.

In this exercise, it is important that there are only positive thoughts and ideas, and that there is no feeling of needing to perform created. Just like the previous sections, this tool could be printed on paper and posted to a wall using tape or pins, as well as the What if-questions and the empty notes for ideas. Alternatively, the questions could be printed on sticky notes and the instructions could be painted or laser cut into the wall.

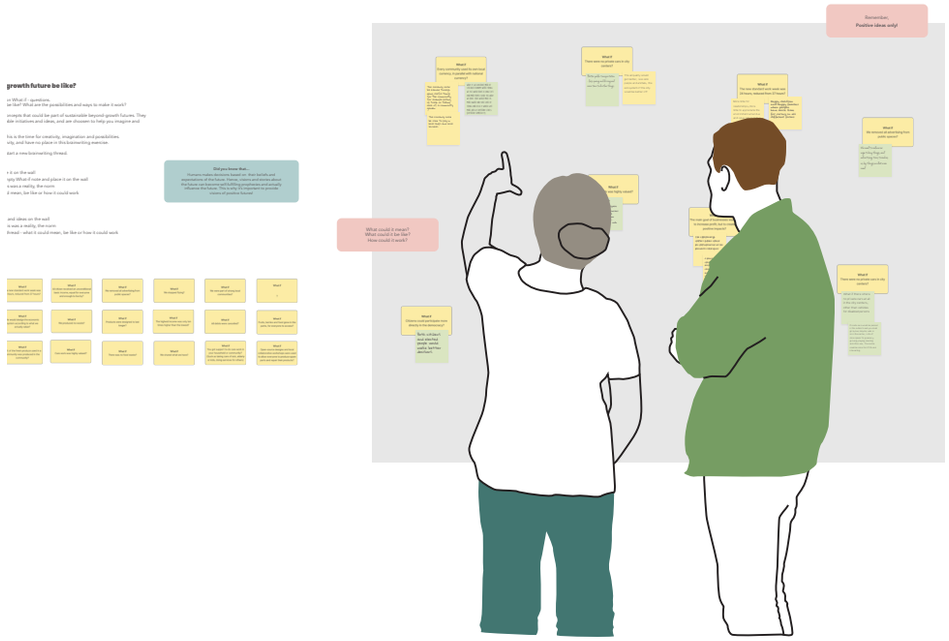


Illustration of the Brain Writing section of the exhibition.

THE END

The final section the exhibition contains a brief conclusion, summary and explanation of the exhibition. There should also be access to resources with further information. One goal of this exhibition was to make the visitors think about what they would like in a beyond growth future, and here that is done explicitly. The visitors are encouraged to take and bring a card saying 'In a beyond growth future I would like …' and fill in the blank. On the other side of the card, there is information about the exhibition and access to further information about it and beyond growth economics.

This could be done just like the rest of the exhibition, just on printed paper or in higher quality materials.

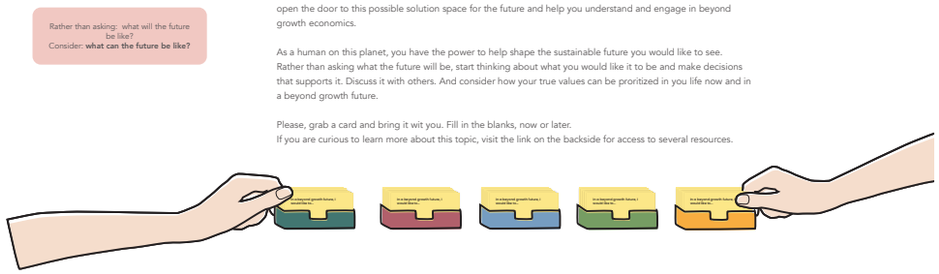


Illustration of the End section of the exhibition.

The Template and Guide

The importance of involving the citizens and stakeholders of a society when creating visions of the future of that society is mentioned as essential in beyond growth literature (Falardeau, Raudsepp-Hearne et al. 2019, Jakobsen and Engqvist 2019). This is why this concept does not merely consist of an exhibition to use in one setting at one occasion, but also a template for an exhibition that can be shared and used at many different occasions, in different societies sharing similar challenges and goals. The exhibition is designed for this purpose, with contents easy to adapt to different circumstances and set up without the need of specific materials. In accordance with the spirit of beyond growth economics, the template should be open-source, available for anyone to access and use.

The template for the exhibition, and the guide explaining it, is available at a website together with additional information about the purpose and the features of the exhibition, information about beyond growth economics, and a collaborative forum where people can share questions about the exhibition, share their experiences of using it, and any alterations or new versions that they have made. The template includes the different sections of the exhibition, complete with instructions and contents.

Illustration of the website.

The guide provides instructions for arranging the exhibition, explaining how to use the template, what to think of and what to do. The guide includes advice for how to arrange the exhibition in different levels of refinement, flexible to each situation.

To lower the threshold of using the template and arranging exhibitions as well as to minimize resource use, the basic level can be achieved just through printing the basic template and using adhesive tape or pins, pencils and walls. It can be easily improved through adding stickers, personalized post-its and cards in thicker paper as well as printing the section on better paper. This will be enough to fulfill the purpose of the exhibition and work well, but might not be a very durable. To make the exhibition more attractive and durable, an entire exhibition display could be properly built using wood, laser cuts, paint and quality materials as well as larger, digital screens.

The execution and appearance of the exhibition should be decided by the facilitators, based on their ideas as well as advice and inspiration from the guide. The execution of each exhibition should be adapted to the needs, wishes and possibilities of its unique situation.

Context, Target Group and Stakeholders

The concept is designed with the aim of targeting a broad public. It has been designed for being useful for the European Cultural Capital Bodø 2024 and their work with ecological economics, as an exhibition connecting the people working for change with the stakeholders and general public who needs to be a part of the change. But it could also be a useful tool in their utopia workshops and other collaborative, transdisciplinary settings.

The concept has been designed as an introductory tool, requiring no previous knowledge about beyond growth economics. This choice was made to make it fit for communication with a diverse group of citizens and stakeholders, making a wide reach possible. The target group is large and diverse, consisting of the general adult public in Scandinavia - mainly persons of age 25 to 65, with work and some education, more or less aware of human-driven climate change and environmental issues and without much knowledge of beyond growth economics. This large target group is chosen to allow for a wide reach, and for the need to involve large parts of society in the work towards better futures, if they are to become real.

To fit the large target group, the concept is somewhat generalized. While its contents can certainly be tailored towards more specific contexts and target groups, the generalized version allows for use in many different, but similar, places and settings. In addition to being useful in Bodø, the exhibition can be used in other scientific festivals, future-oriented exhibitions or environmental conventions. It could be used at conferences, in museums or in libraries. It could be used as a workshop tool, in scientific, educational or in political settings.

A part from Bodø 2024, potential stakeholders for the exhibition are educational institutions within environmental or economical topics, economical as well as environmental conferences, museums and city councils. The organization *DOGA*, working for *"good use of design and architecture in Norway to create the new, green and profitable solutions of the future"* (DOGA n. d.), contributes to sustainability and future-oriented design and innovation. They have experience from somewhat similar projects (DOGA n. d.) and would be a relevant stakeholder of this project, with similar interests. The online platform for accessing the template, guide and information could be a specific website, developed by the stakeholders involved in the project. Or, it could become part of an existing website or movement - for example *DOGA* or the *Doughnut Economics Action Lab* (https://doughnuteconomics.org), where similar tools, information and a discussion forum already exist.

Future Development

To get this concept ready to be used, a few things need to be done.

The first task would be to contact different stakeholders, trying to find a collaboration partner. The next step is to launch a pilot project, where one or several physical pilot exhibitions are created through an iterative process of prototyping and testing. In this process, at least one designer, preferably with competence within visualization and communication, should be included to continue this as a design project. It would also be useful to include persons with experience from creating exhibitions, such as artists or museum curators. Getting input and feedback from experts in beyond growth economics would be a relevant addition. This could be achieved through collaboration with the stakeholders mentioned in the previous chapter. One possibility is to introduce the pilot project as a student project in a course, as a master's project or as part of an PHD education.

While the content of the exhibition has been tested and proven useful, creating and testing at least one physical prototype is necessary to finalize the concept and establish all details such as sizes, placements, typography and colors. Especially the information section needs further work and visualizations to become more easily readable. Furthermore, there should be at least one finalized and completed exhibition setting the example for the template and the guide.

After this, the template and the guide would need to be created, tested and improved, based on the physical exhibition. The digital platform, a new webpage or part of an existing one, would also need to be created, tested and improved.

Then it's all about getting the exhibition out there. Writing articles about the concept, sharing it with stakeholders, getting it into media and having it used in different contexts. Through this, the concept should get its own life, always developing, adapting and spreading to where it might be useful.

The contributions and information generated through the exhibitions should be continuously gathered, processed and shared. It could be used to add to the exhibition, to co-create future visions, and to facilitate the transition to a resilient, just future beyond growth.

EVALUATION

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195 Be naive and reframe the impossible

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Results

"HOW COULD WE FIGHT POVERTY WITHOUT GROWTH? WE MIGHT HAVE TO SHARE!"

- HERMAN DALY

Results

The contents of the concept has been thoroughly tested for validation, as described earlier. In the Design Brief, the mission statement for this project was:

"Communicating the implication of a future where the focus is on resilience and prosperity rather than economic growth, opening the door to this new room of solutions and supporting the imagination of and engagement in a desirable future within these boundaries."

The test result support that this has been accomplished. All test users testified that the concept had improved their understanding of beyond growth futures and their possible implications. Furthermore, all test participants were able to imagine and engage in a future of this kind, creating and discussing ideas. Spontaneous comments such as "I like the idea that there is an other way to live and to build a society" (Test user) show that the door to this new room of solutions is open.

All test users testified that the concept had improved their understanding of beyond growth futures and their possible implications. Furthermore, all test participants were able to imagine and engage in a future of this kind, creating and discussing ideas.

Spontaneous comments such as *"I like the idea that there is an other way to live and to build a society"* (Test user) show that the door to this new room of solutions is open.

The vision statement for the concept was:

"Contributing to a transition towards a future where the focus is on resilience and prosperity rather than economic growth."

While this is not possible to prove by this point, the previously mentioned literature states that through engagement in, imagination and visioning of futures, our expectations and actions are affected, and hence the actual future is affected too. Based on this literature, a concept like this can contribute to a transition towards beyond growth futures.

The concept has also answered the How Might We-question from the Design Brief, as tests show that it has found one way to *"support the imagination of and engagement in desirable futures, where the society is resilient and the focus is on prosperity rather than economic growth"*.

In tests, several persons stated spontaneously that the concept made them feel curious, and that they would like to learn more. Some test users also said that their perspective of the future had changed.

In the Design Brief, the impact that the concept should create was also defined. The concept should create the feeling of *"curiosity for better futures beyond growth"*, the thought of *"in a (desirable) sustainable beyond growth future, I would like …"* and the action *"Discuss with others what (desirable) sustainable futures beyond growth could be like"*. In tests, several persons stated spontaneously that the concept made them feel curious, and that they would like to learn more. Some test users also said that their perspective of the future had changed. They said, for example, that they now wanted to (in the future) *"live more minimalistic and ecological, in a closer relationship with nature"* and that *"It would be nice to live in smaller communities with a stronger sense of belonging"*, indicating that they are thinking about what they would like in a beyond growth future. Discussing what beyond growth futures could be like is part of the tools, so naturally this happened during all tests. The discussion continued in small talk after the tests, indicating that this too was achieved, but it is unknown whether the discussion was had also with others.

The concept has been presented to some potential stakeholders and experts and received positive feedback. Stig Larssæther, the coordinator of NTNU Sustainability with interest in and experience of communication of information and engagement in possible futures, was very enthusiastic not only about the project but also about the concept. He believes that people take the current societal systems for granted, considering it a robust fact, while actually a lot of work is required just to maintain it. Therefore, there is a need to introduce people to the possibility of changing the system and showing that there are alternatives.

This important task is something that this concept succeeds in doing, according to Stig Larssæther, who described the project as *"important and innovative"*. Stig Larssæther stated that this concept *"destabilize peoples perception of the society a bit, and opens the door to a new solutions space - and this is an important thing to do. It shows that it (society and its systems) is complex and that there are alternatives"* (translated by author).

To conclude, the concept has proven to successfully accomplish all goals set in the Design Brief - at least in some occasions and a one-on-one test setting. To get a full picture of the effect of the concept, a physical and more defined prototype should be tested in its appropriate context.

"Viktig og nyskapende prosjekt" - Stig Larssaether

Discussion

"GROWTH OF WHAT, AND WHY, AND FOR WHOM, AND WHO PAYS THE COST, AND HOW LONG CAN IT LAST, AND WHAT'S THE COST TO THE PLANET, AND HOW MUCH IS ENOUGH?"

- DONELLA MEADOWS

BACKGROUND AND SCOPE

Already at the beginning of my project, I noticed how many are skeptical towards the concept of leaving the economic growth trajectory behind. People have such a hard time imagining it and understanding what it means, they automatically connect it to the most similar examples they know of - imagining Soviet Russia, communist China or a travel back in time, to a farming community where the economy is smaller and the technology less developed. Of course, that kind of regression is not very attractive. There's no wonder people are skeptical towards leaving the growth trajectory, when they believe that development is relying on it. Before starting this project, I thought this way too - completely unable to image a thriving, developing society without growth. This illustrates the importance of increasing understanding about beyond growth futures and helping people imagine other, more positive and accurate, visions of them.

This skepticism is also one reason behind the thorough research of the limits of growth. It was necessary, to fully be able to understand the problems and possible solutions, to be able to argue for this project and its importance, and to find topics to explore further.

"But", I thought, *"it must be possible to create a more desirable beyond growth future!"* Curious to find out about this, and to share my findings with others, I took on this project, aiming to use communication of beyond growth future scenarios to increase understanding about them and enable engagement, discussion and transition. While the means have changed from communicating scenarios during the project, the end goal has persisted. The new means, of using an exhibition to increase understanding of and support imagination and engagement in beyond growth futures, is more abstract and less explanatory, but possibly more engaging. Furthermore, it can be used to co-create visions and ideas used in scenarios.

PROCESS AND CHALLENGES

In the chapter *Background and Motivation* I mentioned that before starting this project, I received some warnings regarding the size and complexity of the topic, warnings that were more or less ignored. I was unprepared for the challenges this project would bring, and during this project the challenges made me feel naive for ignoring the warnings. Time after time surprising me, confusing me and leaving me dispirited, making me reassess and reconsider what I would be able to achieve in the project. But, always sticking to my motivation and goal, I was able to finish the project - even if the result is not what I envisioned at the start.

It has been a very conceptual, speculative and complex project, challenging in many ways. During the process it was described as

being in a room with several doors to open - each door representing things that needs to be done, for example topics to be researched, interviews or design-related tasks. But behind every door you open, is a new room full of doors. Some of these doors are useful, getting you closer to the goal, while others are irrelevant dead ends. There is not enough time to open every door, so the challenge is to decide which ones to open, and how far to go before returning to a previous or even the first room, and open a new door. It is easy to get lost in this labyrinth. I am a curious and ambitious person, always wanting to open all doors, so managing this has been my greatest challenge during this project - something that has had an effect on the project.

In design, the final concept or solution is sometimes described as an abstract cloud at the start of the project, getting more solid and detailed throughout the process to end up as a distinct shape. While I had a similar cloud-shaped image of the concept at the start of this project, it quickly disappeared into the skies, leaving only small, fluffy pieces behind. The final concept was not shaped from the cloud, but grew out of small pieces, combined one by one. And while it grew into a solid shape, it is still not very detailed on the surface.

The level of detail in the surface of the final concept holds a large potential for further development. It is a consequence of spending time and effort on research and theory as well as prioritizing detailing the contents of the solution over the looks of it, designing the right product before designing it right, but the original ambition was to manage both. Creating and testing a physical, full-size prototype of the exhibition in a more realistic context would have been useful, and without it the evaluation of the result is less viable. Still, concept has been tested and developed in several iterations, resulting in detailed and substantial contents. So evaluating it in a reasonable way is possible.

RESULT

As explained in the previous chapter, the concept has proved in tests to have the intended impact and the effect that it aimed for. It does increase understanding of beyond growth futures, it supports imagination of and engagement in them, opening the door to this new room of solutions.

Whether or not it contributes to a transition is difficult to say at this point, but it holds the potential of doing so in some level - even if it's just raising the discussion. Just during this project, the topic has been explained to quite a lot of people. Every time this has been explained, it clearly provokes thoughts as well as reactions (usually

curiosity or skepticism) and discussions. Not one single person has stayed completely unaffected. I believe that these conversations has had an effect, realizing the purpose of the project even if just in a tiny scale.

APPROACH AND CONTRIBUTIONS

Naming and categorizing the approach of this project has been challenging. It is an exploratory design project, using methods and tools from different design approaches. It is inspired by the ambition of design activism to find a more useful, non-commercial role for design in society. It is conceptual design as it uses design as medium, for debate and provoking thoughts, rather than for production and sales. Like critical design, it criticizes society as it is, and like speculative design it explores alternative futures and other worlds, engaging imagination of what could and should be. But it does this not through designing artifacts, visions or experiences like speculative and critical design often does, but through designing a way to co-create the foundation of these visions. It is a transition design project, aiming at using design to explore and enable transitions towards more sustainable futures.

Transition design framework consists of four areas; vision, theories of change, mindset/posture and new ways of designing (Irwing 2015). This project touches upon all these areas. It uses theories of change as the reason for the concept and its aim to engage imagination - because what we imagine shape our expectations, actions and therefore our future, contributing to change. The project explores an unusual strategy through designing a participatory, collaborative exhibition using workshops tools in a less facilitated setting. This exhibition aims to affect the posture and mindsets of the people using it, creating an openness for change. Furthermore, the exhibition can be used to co-create visions in a place-based but globally connected manner, through being designed to be shared, easily accessible and arrangeable in different places. Hence, this project can be seen as a contribution to the field of Transition design.

For future studies, this project contributes with a useful tool to support innovative thinking and co-create ideas that can lay the foundation for future visions. Within beyond growth economics, this concept can be used to increase understanding about beyond growth futures, while also enabling co-creation of them and gathering information that can be used to leverage change.

This concept is innovative through combining an exhibition with a workshop. Using workshop tools in an exhibition setting, requiring

less facilitation and reaching a broader audience, is an innovative way of co-creating, supporting innovative thinking and connecting the public and stakeholders with change-makers and scientists. While the test results have been promising, it would be interesting to see just how useful the concept is in its real context. Hopefully, this can inspire other similar solutions, facilitating imagination, co-creation and innovative thinking in accessible ways.

TIME TO LEARN AND DISCUSS

The science is clear - the current economic system and its pursuit of economic growth is socially, economically and ecologically unsustainable and green growth is an unlikely solution. It seems that most people are aware of this - a study found that *"Of almost 20,000 people surveyed in G20 countries in 2021, 73% believe that the planet is close to serious 'tipping points', and 58% were very or extremely worried about the states of global commons such as the oceans and the climate"* (Galaz Rodriguez and Collste 2022: p. 46). The same study also found a majority to prioritize the environment over economic growth. But, while most are aware of the problem, they are not aware of the potential solution of beyond growth economics. During the user tests, everyone expressed a dissatisfaction with current society and its priorities and most participants had a negative perception of the future, feeling hopelessness, anxiety and despair. But, none of the participants had prior knowledge of beyond growth economics, and skepticism was a common initial reaction to it.

The skepticism towards and lack of knowledge about beyond growth economics clearly illustrates the importance of this project, and other projects dealing with similar topics. How are we supposed to engage in creating a better future, if we have no understanding of what it might contain? How are we supposed to create a better future, if we can't imagine it? Whether or not beyond growth economics is the solution to the problems of our time, we need to understand it to be able to discuss and evaluate it.

Even if the current economic model is strongly dominating, and beyond growth economics are rarely mentioned in conventional economics, media, politics and even within sustainable development, it is a growing topic. Stig Larssæther told me that under the surface, arguing for beyond growth economics is increasingly common. The increasing effects of climate change, the COVID-19 pandemic, the Russian invasion of Ukraine and the resulting inflation and economical struggles, have opened the eyes of many, showing the problems of the world. People are realizing that radical change might be needed.

Combined with the increasing support of beyond growth economics, this might be the perfect time to introduce the possibilities of beyond growth futures to larger parts of the public. This is exactly what this concept has the potential of doing, through targeting a broad public and opening the door to this solution space. If not enabling a transition, at least enabling a discussion. To normalize the topic of beyond growth economics, and bring them above the surface, no single project will be enough. A joint force is necessary, with many different contributions combining and spreading to gain effect.

BE NAIVE AND REFRAME THE IMPOSSIBLE

In the podcast recording of Jørgen Randers' lecture at Bergen Global (Randers 2019), Randers argues that even if it is possible, a transition to a sustainable society will not happen within a sufficient timeframe. We are heading towards a catastrophe and even if we know the problem as well as the solution, humanity choose not to do what it takes - because the profit-oriented market and the democracy will only make decisions based on short-term gains. In this podcast, Randers makes a convincing case that the transition is not happening before it is too late. This made me think of myself as a very naive person, for just trying to make a change. Maybe I am naive. And maybe it was naive to take on this project, despite warnings. But maybe that's a good thing. Maybe, if I wasn't so naive, I would accomplish nothing. Maybe, naive persons are just what Randers forgot to include in his equation. Maybe, naive persons are just what we need to make a change.

It is about time we understand that economic growth does not equal development and prosperity. Development and prosperity can be achieved even without economic growth. Possibly, only without economic growth. It's time that we realize that transitioning to beyond growth economic is not impossible, it's continuing as we are now that is. This, reframing the impossible, is what this concept contributes to through explaining why continued economic growth is impossible, and introducing utpoian ideas as possible futures.

It is about time that we understand that economic growth does not equal development and prosperity. Development and prosperity can be achieved, even without economic growth. Possibly, only without economic growth. It's time that we realize that transitioning to beyond growth economic is not impossible, it's continuing as we are now that is.

Conclusion

"Be realistic: Demand the impossible"

- Ruth Levitas

During this project, the scope changed from creating scenarios to communicate possible beyond growth futures, to rather support engagement in beyond growth futures - imagining them, creating ideas for them and discussing them. While this change from a descriptive and reality-based concept to a speculative, utopian and participatory concept was founded in practical reasons, it was likely a change for the better. Beyond growth literature emphasizes the importance of engaging people in imagining possible futures, asking 'what if' and considering what they would like in a better future, rather than trying to predict the future.

Through an iterative process with user involvement, a concept for an interactive and participatory exhibition provided through an online template and guide, free for anyone to use, was designed. The exhibition can connect general public, stakeholders, politicians and change-makers to co-create ideas for beyond growth futures and gather information useful in a transition process. Test results show that the final concept has the intended impact and accomplishes the goals specified in the design brief. It opens the door to the solution space of beyond growth futures, creating understanding of them, supporting imagination of them and sparking curiosity for them.

While it is not yet possible to evaluate the impact the concept has on transitions towards beyond growth futures, it does hold the potential of being impactful through 1. Supporting imagination and hence shaping expectations, actions and futures, 2. Facilitating the co-creation of better futures within communities and 3. Gathering information that is useful for creating viable transitions.

In order to create understanding of the limits to growth and the potential solution of beyond growth economics, a lot of time and effort was put into this research. It is clear that desirable futures are possible without economic growth, and maybe impossible with it. Transitioning to a beyond growth economy is desirable if not necessary, and the first step is to create understanding of this concept and discussions about it.

Working with such a speculative and complex project has been challenging and rewarding. During the project, the importance of the topic has become enhanced to me. While this project might only have a tiny effect, I am convinced that the effect is positive. Because, just talking about the project has generated discussions about economic growth and post growth economics, sparked curiosity and opened the door to this room of solutions. And to be able to decide what future we want, we need to learn about our options and discuss them. I truly hope that this project can contribute to the creation of more desirable and sustainable futures, beyond growth or not.

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Appendix

A MATERIAL FROM WORKSHOP

B PROTOTYPES, ITERATION 1

C PROTOTYPES, ITERATION 2

D TOOLS, FINAL SOLUTION

A MATERIAL FROM WORKSHOP

1. surprising
2. immediate impact
3. ~~strong~~ change

1

- database / voting (negative + positive) e.g. pic.
  - ↓ enable participation
  - ↓ feedback is implemented

- Norwegian content

Internet-enabled democracy
A website is used for sharing opinions on municipal planning, affecting policies and communication between citizens and decision-makers. Users can vote in polls, submit ideas, engage in forums and give feedback.

easier access to information / reach more people

- multi-layer topics
- community
- green spaces
- urbanism
- traffic e.g.

higher participation rates

bottom-up approach
↓
responsibility

happiness / fulfillment of people participating

2

also physical polls to, so everyone can participate
↓ ↓
two ways

- people can react to a subject
→ intervention of officials / community

3

- dialogue between people

Short term thinking

Cybes attack

Internet-enabled democracy
A website is used for sharing opinions on municipal planning, affecting policies and communication between citizens and decision-makers. Users can vote in polls, submit ideas, engage in forums and give feedback.

Most important

Inclusive community

Information
- equal info
- Understandable info

Accessability

Continous participation

More representative results

Fellowship
- Connection
- responsability

Promote simpler language

Most Suprising

Voting accessability

First

24-hour work week
The new standard work week is 24 hours, reduced from 37 hours.

More Leisure time

Family and friends

Hobbies

Increased Happiness

Increased quality of life

Lower costs for companies

Higher wage/ bonus for employees

SOCIETAL

Higher Productivity

More employees

Better results

Happy pets

Increased level of activity for owner and Pet

SUPRISING MEST FORANDRING

PRESENT IDEAL FUTURE

ECONOMY — ECOLOGY

INDEPENDENCE — INTERDEPENDENCE

MINIMALISM — CONSUMPTION

WORK & CAREER — LEISURE TIME

PRESENT

IDEAL FUTURE

ONLINE — OFFLINE

PERSONAL IMPROVEMENT — COLLECTIVE IMPROVEMENT

ECOCENTRISM — TECHNOCENTRISM

BALANCE — GROWTH

PRESENT IDEAL FUTURE

FELLOWSHIP — SOLITUDE

ECONOMIC GROWTH — WELLBEING

CARING — FIXING

PRESENT IDEAL FUTURE

RELATIONSHIPS — MATERIAL THINGS

MONEY — TIME

GLOBAL COMMUNITY — LOCAL COMMUNITY

SELF CARE — CARE FOR OTHERS

PRESENT IDEAL FUTURE

FELLOWSHIP SOLITUDE

ECONOMIC GROWTH WELLBEING

CARING FIXING

PRESENT IDEAL FUTURE

RELATIONSHIPS — MATERIAL THINGS

MONEY — TIME

GLOBAL COMMUNITY — LOCAL COMMUNITY

SELF CARE — CARE FOR OTHERS

PRESENT IDEAL FUTURE

ECONOMY — ECOLOGY

INDEPENDENCE — INTERDEPENDENCE

MINIMALISM — CONSUMPTION

WORK & CAREER — LEISURE TIME

PRESENT IDEAL FUTURE

FELLOWSHIP SOLITUDE

ECONOMIC GROWTH WELLBEING

CARING FIXING

PRESENT IDEAL FUTURE

ECONOMY — ECOLOGY

INDEPENDENCE — INTERDEPENDENCE

MINIMALISM — CONSUMPTION

WORK & CAREER — LEISURE TIME

PRESENT IDEAL FUTURE

ONLINE — OFFLINE

PERSONAL IMPROVEMENT — COLLECTIVE IMPROVEMENT

ECOCENTRISM — TECHNOCENTRISM

BALANCE — GROWTH

PRESENT

IDEAL FUTURE

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LIFE- WORK -BALANCE

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CARING — FIXING

PRESENT IDEAL FUTURE

FELLOWSHIP — SOLITUDE

ECONOMIC GROWTH — WELLBEING

CARING — FIXING

PRESENT IDEAL FUTURE

RELATIONSHIPS — MATERIAL THINGS

MONEY — TIME

GLOBAL COMMUNITY — LOCAL COMMUNITY

SELF CARE — CARE FOR OTHERS

PRESENT IDEAL FUTURE

ECONOMY — ECOLOGY

INDEPENDENCE — INTERDEPENDENCE

MINIMALISM — CONSUMPTION

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RELATIONSHIPS — MATERIAL THINGS

MONEY — TIME

GLOBAL COMMUNITY — LOCAL COMMUNITY

SELF CARE — CARE FOR OTHERS

B PROTOTYPES. ITERATION 1

Section 1

What is most valued in the present society, and in an ideal future society?

What to you interpret to be most valued and prioritized in the present society? Mark the postition of present society on the axises using a

What do you think should be most valued and prioritized in an ideal, utopian, future society? Mark the position of the future society as you would prefer it to be using a

Consumption — Minimalism

Leisure time — Work & career

Relationships — Material things

Money — Time

Self-realisation — Wealth (economic)

Technology — Nature

Wellbeing — Productivity

Competition — Collaboration

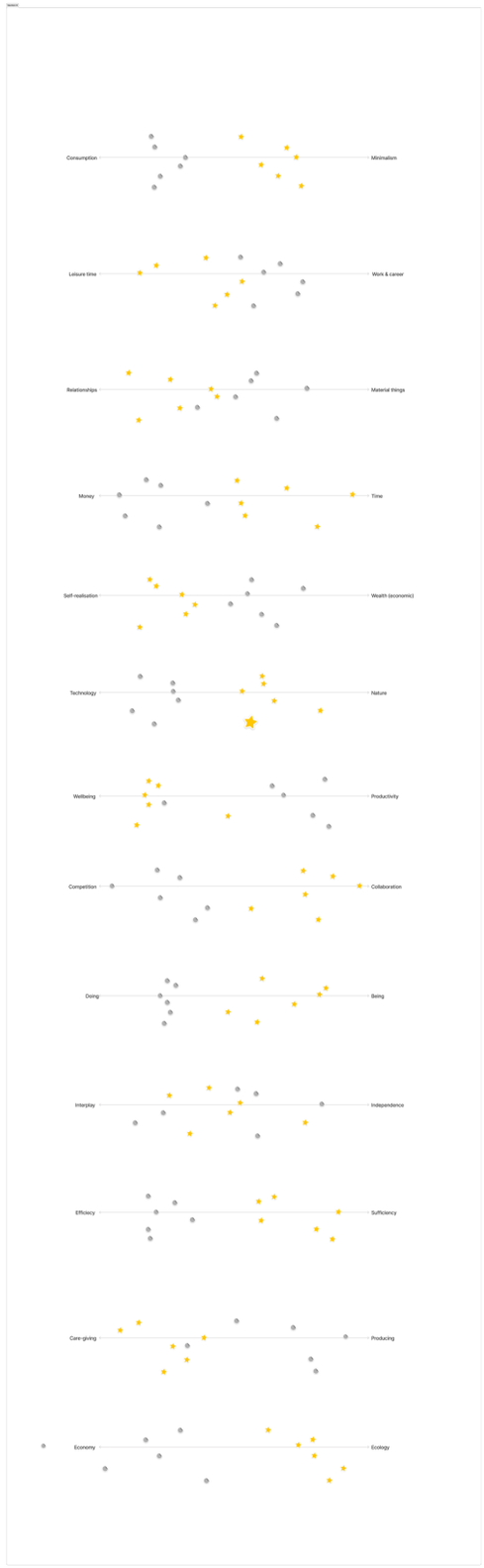
Doing — Being

Interplay — Independence

Efficiecy — Sufficiency

Care-giving — Producing

Economy — Ecology



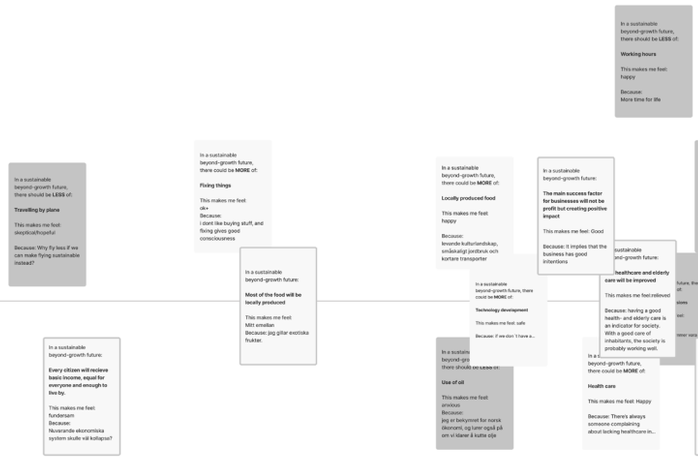
Section 2

What could be lost and found in the future?

1. Take one card from each pile
2. Fill in the blanks
3. Place it on the axis based on how it makes you feel, from happy to sad

Alternative:

Sad ⟵ ⟶ Happy



Section 4

What if brainwriting - What could a positive future be like?

In this exercise, we imagine positive futures based on What if - questions.
What if the future is _____? What could that be like? What are the possibilities and ways to make it work?
You can write down you own idea to start a new thread, or build on others ideas in existing threads, making them more detailed and comprehensive.

But, remember! **Only positive ideas are welcome!** This is the time for imagination and possibilities. Critical thinking and negative consequences can limit the imagination, and have no place in the brain writing exercise.

You have two options: Build on an existing idea or start a new brainwriting thread.

Start a new brainwriting thread:
1. Choose an interesting What If-question and place it on the wall
2. Think about what the society could look like if this was a reality, the norm
3. Write one **positive** idea related to this - what it could mean, be like or how it could work
4. Add your idea just below the What If-question

Build on existing brainwriting thread:
1. Find an intersting brainwriting thread
2. Write one **positive** idea related to the idea in this thread - what it could mean, be like or how it could work
3. Add your idea to the thread

Section 5

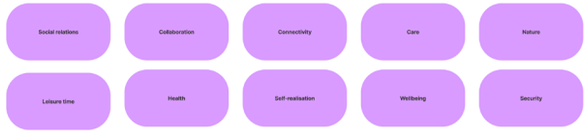
Mash up ideas - What could a positive future be like?

In this exercise, we imagine positive futures based on a chosen value and what if-question, combined into a How Might We-question.
How might ___ be enhanced if ____? What could that be like, what are the possibilities and ways to make it work?

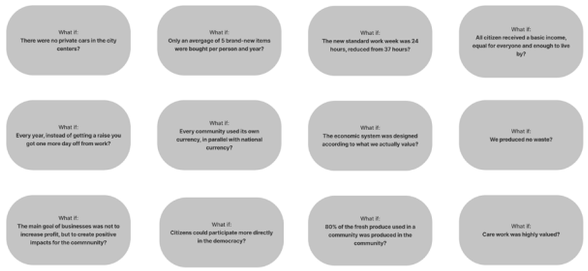
But, remember! **Only positive ideas are welcome!** This is the time for imagination and possibilities. Critical thinking and negative consequences can limit the imagination, and have no place in the brain writing exercise.

1. Choose a value that is important for you or your community, that you value highly and appreciate
2. Choose a What if-question that you find interesting, and think of how it can connect to your value
3. Combine your value and What if-question to create your How Might We-question
4. Think about how this could be done and write your idea

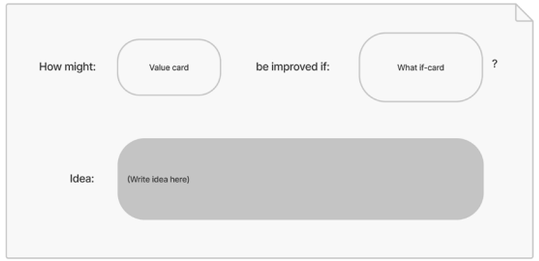
Value Cards:



What If-Cards:



How Might We-Question and solution:



Section 3

Seed based futures wheels - What could a positive future be like?

In this exercise, we imagine positive futures based on seeds - small initiatives that already exist, but in small scale.
Here, we pretend that the seeds exist in big scale, as the norm. What could that be like? What are the possibilities and ways to make it work?
First, we come up with first-order ideas and then, we can build on those ideas and come up with second and third order ideas.

But, remember! **Only positive ideas are welcome!** This is the time for imagination and possibilities. Critical thinking and negative consequences can limit the imagination, and have no place in the futures wheel.

You have two options: start a new futures wheel **or** build on an existing one.

Start a new futures wheel:
1 . Choose an inspiring seed and place it in the centre of one futures wheel
2. Think about what the society could look like if this was a reality, the norm
3. Write at least one **positive** idea related to this - what it could mean, be like or how it could work

Build on existing futures wheel:
1. Find an intersting futures wheel
2. Choose if you want to build on the seed or on an idea in the futures wheel
3. Write at least one **positive** idea related to this - what it could mean, be like or how it could work

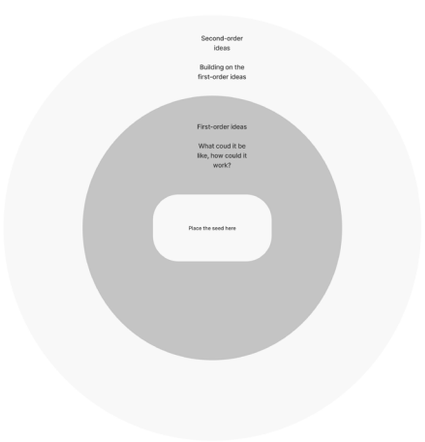
Cyclovia
Every sunday and holiday, a large amount of connected roads are closed for car traffic to create a cyclovia for cyclists, runners, walkers and skaters throughout the city.

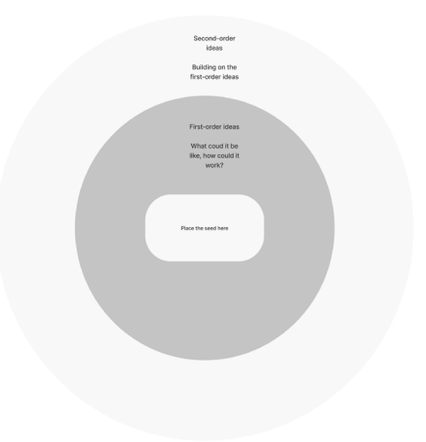
Reduced consumption
Only an averegage of 5 brand-new items are bought per person and year.

24-hour work week
The new standard work week is 24 hours, reduced from 37 hours.

Basic income
All citizen receive a basic income, equal for everyone and enough to live by. The basic income comes with no demands.

Locally produced fresh produce
A large portion of the community's fresh produce is locally produced, sustainably and affordably.





PROTOTYPES. ITERATION 2

What is most valued in the present society, and in an ideal future society?

Which of the two concepts do you interpret to be **most prioritized and highly valued by the present society**?
Mark the postition of the present society on the axis using a

Which of the two concepts do you think should be **most prioritized and highly valued by society in an ideal, utopian, future**?
Mark the position of the utopian future society as you would like it to be using a

Remember to think of **the future you would like to have if you can choose freely**, not what you believe it will be

Remember to mark what is **most prioritized and valued by the present society**

Consumption	Minimalism
Leisure time	Work & career
Relationships	Material things
Money	Time
Technology	Nature
Wellbeing	Productivity
Competition	Collaboration
Efficiency	Sufficiency
Care-giving	Producing
Economy	Ecology

What is important to you? Are your values similar to those of society?

The purpose of this exercise is to help you connect to your own values and recognize what is actually important to you.
It is also designed to help you recognize any differences between your values and the values of society.

Here's what others answered!

Is there a pattern? Are people's values and society's values similar or not?

The purpose of this exercise is to convey what is important for people, and to expose any difference between what people actually value and what is valued in society.
What if the society would value what humans actually value?

The limits of growth

The current economic system is foundationally dependent on economic growth. The pursuit of economic growth is linked to increased resource and energy use as well as waste generation, pushing the limits of the environment. The growth imperative also increases inequality and creates significant social costs. While being environmentally, socially and economically unsustainble, economic growth is also a poor indicator of societal develoment and welfare and, hence, a poor longterm societal goal.

The current dominating economic model fundamentally relies on economic growth – it either grows, or fails. In practice, economic growth is usually referred to as the same as GDP growth, but it can also be described as increased physical throughput in a given economic system. All economic activity requires energy and/or materials and creates waste. Hence, economic growth is directly linked to environmental impact, pushing us closer to ecological collapse.

While the economic system and its pursuit of growth is environmentally unsustainable, it is also socially and economically unsustainable. More is only better when there is not enough. When there is already excess, more creates problems and costs. Economic growth drives inequality and causes social issues, creating higher costs than it is worth.

Some argue that innovation and technical development will make 'green growth', economic growth without direct negative environmental impact, possible. But there is no research supporting that this will be possible in a sufficient timeframe, making it a risk too big to rely on. As economic growth is shown to be a poor indicator of societal development and welfare, it is a poor longterm goal of society.

Many scientists agree that infinite growth on a finite planet is impossible, and that the environmental constraints will force an end to physical growth in the 21st century – either as a collapse, or a smooth adaption. A transition to a new economic model that doesn't rely on economic growth is therefore necessary. An economic model that rather pursuits health, prosperity, equity and sustainability.

"Those who believe that economic growth can go on forever in a finite planet are either mad or an economist"
- Kenneth E Boulding

An example of economic growth:
A house that is burnt down and rebuilt contributes to economic growth as it demands material resources and labour. The house just steadily standing does not - even if the end result is the same, and the first is likely a tragedy, harming the welfare of the people staying in the house as well as increasing resource use, pollution and environmental impact.

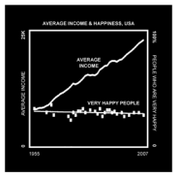


Illustration of the non-existing relationship between increased income and happiness in USA

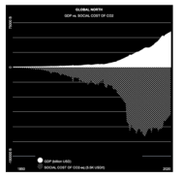


Illustration of the shadow of growth - the social costs of to CO2 emmissions related to economic growth in the Global North

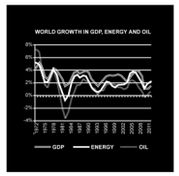


Illustration of the relationship between growth in GDP, energy use and oil use globally

Beyond growth economics

There are many theories and strategies aiming to create economic models that pursuits sustainability and prosperity rather than growth, such as degrowth, steady state, post growth, wellbeing, agrowth, doughnut and ecological economics. While they have some differences, they all insist that a systemic transformation from the focus on economic growth is necessary to create a better, sustainable society. This is why we call them 'beyond growth' economics. Their fundamental goal is to create a safe and just global society where humans thrive in balance with nature. Beyond growth economics has no aim to reduce GDP, but accept this as a possible consequence of leaving the growth imperative behind and reducing resource use and waste.

Characteristics of beyond growth futures

While nobody knows what a beyond growth future would be like, some concepts and characteristics for a beyond growth society are mentioned in beyond growth literature. In general, a beyond growth society would enhance what humans actually value, and development would be in focus rather than growth. Harmful industries would be scaled down, while sectors that improve wellbeing would be scaled up.

These characteristics create a basic understanding of possible beyond growth futures, and a basis for discussion. The important part is to engage in the future rather than try to predict it. Instead of asking what will be, asking what could be and what we want to be.

Social justice

In beyond growth economics, a just global distribution of resources, income and wealth is fundamental and has positive effect both socially and environmentally. As said by Herman Daly: "How could we fight poverty without growth? We might have to share!". The income and wealth of the richest will be reduced and used to make sure everybody has enough to cover their basic needs.

Sufficiency

While green growth is focused on increasing efficiency to make further growth possible, beyond growth uses sufficiency to ask the question of what is enough. Sufficiency is defined as the possibility of having enough of something, for a certain purpose. In this context it usually concerns reducing material production and consumption and 'living well on less'.

Resilience

The beyond growth society should be resilient. Resilience is about sustainability and aspects as decreasing consumption and material use and staying within the limits of the ecosystem. But it is also about decentralization and making communities less dependent on the outside world. It's about shorter supply chains, increasing the local production and creating local livelihoods.

Local communites, global network

A beyond growth society is likely to consist of strong local and somewhat independent communities, connected by large global networks. The local communities meet their own everyday needs regarding housing, work, activities, shopping and large parts of production and commodities.

Collaboration

The beyond growth future is characterized by collaboration rather than competition. Citizens, businesses and nations collaborate with each other to accomplish common goals and create positive impacts rather than increase profits.

Participatory democracy

In a beyond growth future, democracy is somewhat decentralized and participatory, and many decisions are made locally through direct democracy and referendums, enabled through digital tools. Open information systems contribute to a democratic decision process and many citizens are politically engaged, influencing decisions regarding their local community.

Work

In the future, innovation, technology and downscaling of harmful industries might reduce the need for labour. In a beyond growth society, the work the is needed will be shared amongst the population, reducing working hours. Additionally, productivity gains will be used to reduce working hours rather than increase profit. When spending less time working, people can spend more time doing leisure activities, sports, socializing and doing unpaid but meaningful work like caring for others, engaging politically, growing food or practicing handicrafts.

Care

In a beyond growth economy, unpaid or underpaid caring and care work must be higher valued, properly rewarded and scaled up because of its importance for wellbeing. Care should be public and cheap, allowing people to access what they need to live well. And in the care sector, where human contact adds value, labour policies should encourage more employment and less focus on productivity.

Did you know that...
In Bhutan, a 'Gross National Happiness' (GNH) is used to measure societal development and progress. This is prioritized over economic grwoth, which is seen not as a goal it itself but as a possible means to improve wellbeing.

Did you know that...
Amsterdam is working to implement a doughnut economic model, becoming the worlds frist 'Doughnut city'. This means that they will leave the economic growth imperative behind to delevop an economy where humans can thrive within a ecologically safe and socially just space.

What do you feel about beyond growth futures?

After learning this information about beyond growth futures, what do you feel?
What about beyond growth futures makes you feel anxious or hopeful? Does it make you feel something else?

Instructions:
1. Take the post-it note that best represents your feelings: hopeful, anxious or an empty one where you add your feeling.
2. Fill in the blanks, explaining why you feel hopeful, anxious or something else about post growth futures
3. Place the post-it in the section corresponding your feeling

What does the beyond growt future make you feel? Why?

Beyond growth futures makes me feel **hopeful** about/because: Rimlig lösning på många problem

Beyond growth futures makes me feel **hopeful** about/because: there might actally be a nice future to look forward to

Beyond growth futures makes me feel **hopeful** about/because: Kändes positivt och jag fick ett hopp om framtiden när jag läste.

Beyond growth futures makes me feel **hopeful** about/because: It can be a way for the countryside to thrive again. Local stores, "föreningar" and less travel.

Beyond growth futures makes me feel **hopeful** about/**because**: Our quality of life could increase while reducing environmental impact! Win-win

Beyond growth futures makes me feel **anxious** about/because: a lot of political partires are very far from these theories, and will makw them look extremist and use them to further divide people

Beyond growth futures makes me feel **anxious** about/because: Känns svårt i prakitiken pga för många människor som prioriterar tillväxt

Beyond growth futures makes me feel **anxious** about/because: Svårt att få människor att förstå att man behöver förändra sin livsstil. Många vill att det ska förändras men vill inte själva förändra sin egen livsstil.

Beyond growth futures makes me feel **anxious** about/because: I'm worried it might never happen. Politicians never talk about this :(

Beyond growth futures makes me feel: Because: Jag har gett upp på mänskligheten

Beyond growth futures makes me feel: Curious Because: I want to know more about what it could be like and how I can help achieve it!

Section 4

What if brainwriting - What could a positive future be like?

In this exercise, we imagine positive futures based on What if - questions.
What if the future is _____? What could that be like? What are the possibilities and ways to make it work?
You can write down you own idea to start a new thread, or build on others ideas in existing threads, making them more detailed and comprehensive.

But, remember! **Only positive ideas are welcome!** This is the time for imagination and possibilities. Critical thinking and negative consequences can limit the imagination, and have no place in the brain writing exercise.

You have two options: Build on an existing idea or start a new brainwriting thread.

Start a new brainwriting thread:
1 . Choose an interesting What If-question and place it on the wall
2. Think about what the society could look like if this was a reality, the norm
3. Write one **positive** idea related to this - what it could mean, be like or how it could work
4. Add your idea just below the What If-question

Build on existing brainwriting thread:
1. Find an intersting brainwriting thread
2. Write one **positive** idea related to the idea in this thread - what it could mean, be like or how it could work
3. Add your idea to the thread

What if
There were no private cars in the city centers?

What if
Only an avergage of 5 brand-new items were bought per person and year?

What if
The new standard work week was 24 hours, reduced from 37 hours?

What if
All citizen received a basic income, equal for everyone and enough to live by?

What if
Every year, instead of getting a raise you got one more day off from work?

What if
Every community used its own currency, in parallel with national currency?

What if
We would design the economic system according to what we actually value?

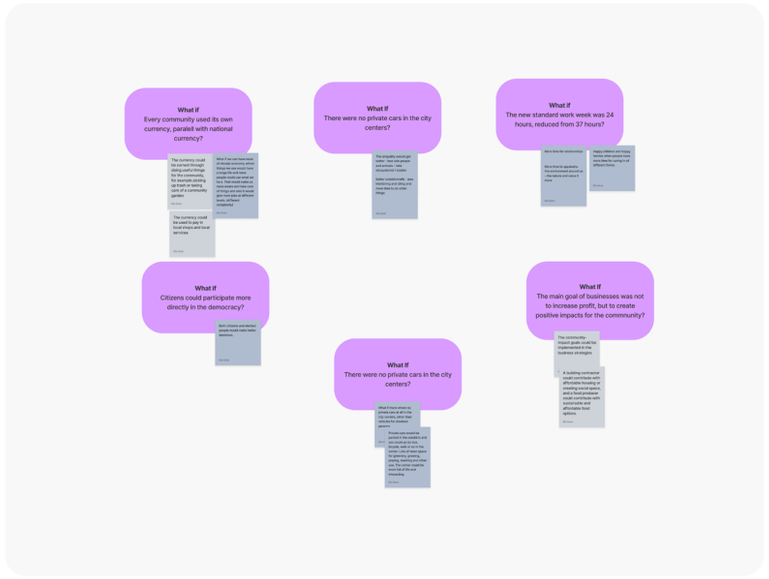
What if
We produced no waste?

What if
The main goal of businesses was not to increase profit, but to create positive impacts for the community?

What if
Citizens could participate more directly in the democracy?

What if
80% of the fresh produce used in a community was produced in the community?

What if
Care work was highly valued?



What would you like the future to be like?

In this exhibition, the problems connected to the growth imperative of the current economic model has been introduced, as well as the possibilities of beyond growth economics. You have been invited to contribute with your opinions and ideas and connect to your own values.

The goal of this exhibition is not to tell you what the future will be, because that's impossible. The goal is to open the door to this possible solution space for the future and help you understand and engage in beyond growth economics.

As a human on this planet, you have the power to help shape the sustainable future you would like to see. Rather than asking what the future will be, start thinking about what you would like it to be and make decisions that supports it. Discuss it with others. And consider how your true values can be proritized in you life now and in a beyond growth future.

Please, grab a card and bring it wit you. Fill in the blanks, now or later.
If you are curious to learn more about this topic, scan the QR code for access to several resources.

Rather than asking: what will the future be like?
Consider: **what can the future be like?**

In a beyond growth future,
I would like to...

D TOOLS. FINAL SOLUTION

Welcome to this participatory exhibition about possible futures!

This exhibition is designed to help you understand beyond growth economics and engage in desirable futures.

You will have the possibility to contribute with your values, opions and ideas. This information will be used in the process of creating better futures.

You can choose freely how to interact with this exhibition. Participate and engage in the exercises or just have a look. We hope that you find the exhibition interesting regardless of how you prefer to do it!

What is most valued in the present society, and in an ideal future society?

Which of the two concepts do you interpret to be most prioritized and highly valued by the present society?
Mark the postition of the present society on the axis using a

Which of the two concepts do you think should be most prioritized and highly valued by society in an ideal, utopian, future?
Mark the position of the utopian future society as you would like it to be using a

Remember to think of **the future you would like to have if you can choose freely**, not what you believe it will be

CONSUMPTION ⟷ MINIMALISM

LEISURE TIME ⟷ WORK & CAREER

RELATIONSHIPS ⟷ MATERIAL THINGS

MONEY ⟷ TIME

Remember to mark **what is most prioritized and valued by the present society**

TECHNOLOGY ⟷ NATURE

WELLBEING ⟷ PRODUCTIVITY

COMPETITION ⟷ COLLABORATION

EFFICIENCY ⟷ SUFFICIENCY

CARE-GIVING ⟷ PRODUCING

ECONOMY ⟷ ECOLOGY

What is important to you? Are your values similar to those of society?

The purpose of this exercise is to help you connect to your own values and recognize what is actually important to you.

It is also designed to help you recognize any differences between your values and the

Here’s what others answered!

Is there a pattern?
Are people’s values and society’s values similar or not?

The limits of growth

The current economic system is foundationally dependent on economic growth. The pursuit of economic growth is linked to increased resource and energy use as well as waste generation, pushing the limits of the environment. The growth imperative also increases inequality and creates significant social costs. While being environmentally, socially and economically unsustainble, economic growth is also a poor indicator of societal develoment and welfare and, hence, a poor longterm societal goal.

"Those who believe that economic growth can go on forever in a finite planet are either mad or an economist"
- Kenneth E Boulding

An example of economic growth:
A house that is burnt down and rebuilt contributes to economic growth as it demands material resources and labour. The house just steadily standing does not - even if the end result is the same, and the first is likely a tragedy, harming the welfare of the people staying in the house as well as increasing resource use, pollution and environmental impact.

The current dominating economic model fundamentally relies on economic growth - it either grows, or fails. In practice, economic growth is usually referred to as the same as GDP growth, but it can also be described as increased physical throughput in a given economic system. All economic activity requires energy and/or materials and creates waste. Hence, economic growth is directly linked to environmental impact, pushing us closer to ecological collapse.

While the economic system and its pursuit of growth is environmentally unsustainable, it is also socially and economically unsustainable. More is only better when there is not enough. When there is already excess, more creates problems and costs. Economic growth drives inequality and causes social issues, creating higher costs than it is worth.

Some argue that innovation and technical development will make 'green growth', economic growth without direct negative environmental impact, possible. But there is no research supporting that this will be possible in a sufficient timeframe, making it a risk too big to rely on. As economic growth is shown to be a poor indicator of societal development and welfare, it is a poor longterm goal of society.

Many scientists agree that infinite growth on a finite planet is impossible, and that the environmental constraints will force an end to physical growth in the 21st century - either as a collapse, or a smooth adaption. A transition to a new economic model that doesn't rely on economic growth is therefore necessary. An economic model that rather pursuits health, prosperity, equity and sustainability.

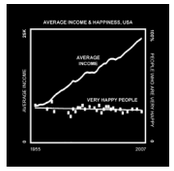


Illustration of the non-existing relationship between increased income and happiness in USA

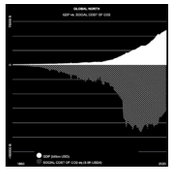


Illustration of the shadow of growth - the social costs of to CO2 emmissions related to economic growth in the Global North

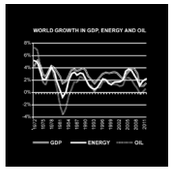


Illustration of the relationship between growth in GDP, energy use and oil use globally

Beyond growth economics

There are many theories and strategies aiming to create economic models that pursuits sustainability and prosperity rather than growth, such as degrowth, steady state, post growth, wellbeing, agrowth, doughnut and ecological economics. While they have some differences, they all insist that a systemic transformation from the focus on economic growth is necessary to create a better, sustainable society.

This is why we call them 'beyond growth' economics. Their fundamental goal is to create a safe and just global society where humans thrive in balance with nature. Beyond growth economics has no aim to reduce GDP, but accept this as a possible consequence of leaving the growth imperative behind and reducing resource use and waste.

Did you know that...
In Bhutan, a 'Gross National Happiness' (GNH) is used to measure societal development and progress. This is prioritized over economic growth, which is seen not as a goal it itself but as a possible means to improve wellbeing.

Characteristics of beyond growth futures

While nobody knows what a beyond growth future would be like, some concepts and characteristics for a beyond growth society are mentioned in beyond growth literature. In general, a beyond growth society would enhance what humans actually value, and development would be in focus rather than growth. Harmful industries would be scaled down, while sectors that improve wellbeing would be scaled up.

These characteristics create a basic understanding of possible beyond growth futures, and a basis for discussion. The important part is to engage in the future rather than try to predict it. Instead of asking what will be, asking what could be and what we want to be.

Social justice
In beyond growth economics, a just global distribution of resources, income and wealth is fundamental and has positive effect both socially and environmentally. As said by Herman Daly: "How could we fight poverty without growth? We might have to share!". The income and wealth of the richest will be reduced and used to make sure everybody has enough to cover their basic needs.

Sufficiency
While green growth is focused on increasing efficiency to make further growth possible, beyond growth uses sufficiency to ask the question of what is enough. Sufficiency is defined as the possibility of having enough of something, for a certain purpose. In this context it usually concerns reducing material production and consumption and 'living well on less'.

Resilience
The beyond growth society should be resilient. Resilience is about sustainability and aspects as decreasing consumption and material use and staying within the limits of the ecosystem. But it is also about decentralization and making communities less dependent on the outside world. It's about shorter supply chains, increasing the local production and creating local livelihoods.

Local Communities, global networks
A beyond growth society is likely to consist of strong local and somewhat independent communities, connected by large global networks. The local communities meet their own everyday needs regarding housing, work, activities, shopping and large parts of production and commodities.

Collaboration
The beyond growth future is characterized by collaboration rather than competition. Citizens, businesses and nations collaborate with each other to accomplish common goals and create positive impacts rather than increase profits.

Participatory
In a beyond growth future, democracy is somewhat decentralized and participatory, and many decisions are made locally through direct democracy and referendums, enabled through digital tools. Open information systems contribute to a democratic decision process and many citizens are politically engaged, influencing decisions regarding their local community.

In the future, innovation, technology and downscaling of harmful industries might reduce the need for labour. In a beyond growth society, the work the is needed will be shared amongst the population, reducing working hours. Additionally, productivity gains will be used to reduce working hours rather than increase profit. When spending less time working, people can spend more time doing leisure activities, sports, socializing and doing unpaid but meaningful work like caring for others, engaging politically, growing food or practicing handicrafts.

Care
In a beyond growth economy, unpaid or underpaid caring and care work must be higher valued, properly rewarded and scaled up because of its importance for wellbeing. Care should be public and cheap, allowing people to access what they need to live well. And in the care sector, where human contact adds value, labour policies should encourage more employment and less focus on productivity.

What do you feel about beyond growth futures?

After learning this information about beyond growth futures, what do you feel?
What about beyond growth futures makes you feel anxious or hopeful? Does it make you feel something else?

Instructions:
1. Take the post-it note that best represents your feelings: hopeful, anxious or an empty one where you add your feeling
2. Fill in the blanks, explaining why you feel hopeful, anxious or something else about post growth futures
3. Place the post-it in the section corresponding your feeling

Beyond growth futures makes me feel **hopeful** about/because:

Beyond growth futures makes me feel **anxious** about/because:

Beyond growth futures makes me feel: about/because:

What does the beyond growt future make you feel? Why?

HOPEFUL

Beyond growth futures makes me feel **hopeful** about/because:

it seems like a reasonable solution to many issues

Beyond growth futures makes me feel **hopeful** about/because:

it seems like a reasonable solution to many issues

Beyond growth futures makes me feel **hopeful** about/because:

The quality of life could increase while reducing environmental impact. Win-Win!

Beyond growth futures makes me feel **hopeful** about/because:

it seems like a reasonable solution to many issues

Beyond growth futures makes me feel **hopeful** about/because:

There might actually be a nice future to look forward to

Beyond growth futures makes me feel **hopeful** about/because:

There might actually be a nice future to look forward to

Beyond growth futures makes me feel **hopeful** about/because:

It can be a way for the countryside to thrive again. Local stores, 'Försörjning' and less travelling

Beyond growth futures makes me feel **hopeful** about/because:

It can be a way for the countryside to thrive again. Local stores, 'Försörjning' and less travelling

Beyond growth futures makes me feel **hopeful** about/because:

It felt positive and I got a feeling of hope for the future from reading it

Beyond growth futures makes me feel **hopeful** about/because:

The quality of life could increase while reducing environmental impact. Win-Win!

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ANXIOUS

Beyond growth futures makes me feel **anxious** about/because:

A lot of political parties are very far from these theories, and will maybe never obtain enthusiasm and use them to further divide people

Beyond growth futures makes me feel **anxious** about/because:

It seems difficult to achieve in practice because too many people prioritise growth

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Beyond growth futures makes me feel **anxious** about/because:

Difficult to get people to change their lifestyle, many people prefer change, but not to change themselves.

Beyond growth futures makes me feel **anxious** about/because:

Im worried it will never happen. politicians never talk about this :(

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OTHER

Beyond growth futures makes me feel: about/because:

I have given up on humanity

Beyond growth futures makes me feel: about/because:

I HAVE GIVEN UP ON HUMANITY

Beyond growth futures makes me feel: Curious about/because:

I want to know more about what it could be like and how I can help achieve it!

Beyond growth futures makes me feel: Curious about/because:

I want to know more about what it could be like and how I can help achieve it!

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What could a desirable beyond growth future be like?

In this exercise, we imagine positive futures based on What if - questions.
What if the future is _____? What could that be like? What are the possibilities and ways to make it work?

The premade what-if questions convey ideas and concepts that could be part of sustainable beyond-growth futures. They are based on beyond-growth literature and sustainable initiatives and ideas, and are choosen to help you imagine and engage in such futures.

But, remember! Only positive ideas are welcome! This is the time for creativity, imagination and possibilities.
Critical thinking can limit the imagination and creativity, and have no place in this brainwriting exercise.

You have two options: Build on an existing idea or start a new brainwriting thread.

Start a new brainwriting thread:
1. Choose an interesting What If-question and place it on the wall
   Or: write your own What if-question on an empty What-if note and place it on the wall
2. Think about what the society could look like if this was a reality, the norm
3. Write a positive idea related to this - what it could mean, be like or how it could work
4. Add your idea just below the What If-question

Build on existing brainwriting thread:
1. Find an interesting thread with a what if-question and ideas on the wall
2. Think about what the society could look like if this was a reality, the norm
3. Write a positive idea related to the ideas in this thread - what it could mean, be like or how it could work
4. Add your idea to the thread

Did you know that...

Humans makes decisions based on their beliefs and expectations of the future. Hence, visions and stories about the future can become self-fulfilling prophecies and actually influence the future. This is why it's important to provide visions of positive futures!

What could it mean?
What could it be like?
How could it work?

Remember,
Positive ideas only!

What if
There were no private cars in city centers?

What if
Only an average of 5 brand-new items were bought per person and year?

What if
The new standard work week was 24 hours, reduced from 37 hours?

What if
All citizen received an unconditional basic income, equal for everyone and enough to live by?

What if
We removed all advertising from public spaces?

What if
We stopped flying?

What if
We were part of strong local communities?

What if
?

What if
Every year, instead of getting a raise you got one more day off from work?

What if
Every community used its own local currency, in parallel with national currency?

What if
We would design the economic system according to what we actually value?

What if
We produced no waste?

What if
Products were designed to last longer?

What if
The highest income was only ten times higher than the lowest?

What if
All debts were cancelled?

What if
Fruits, berries and food grew in the parks, for everyone to access?

What if
The main goal of businesses was not to increase profit, but to create positive impacts?

What if
Citizens could participate more directly in the democracy?

What if
80% of the fresh produce used in a community was produced in the community?

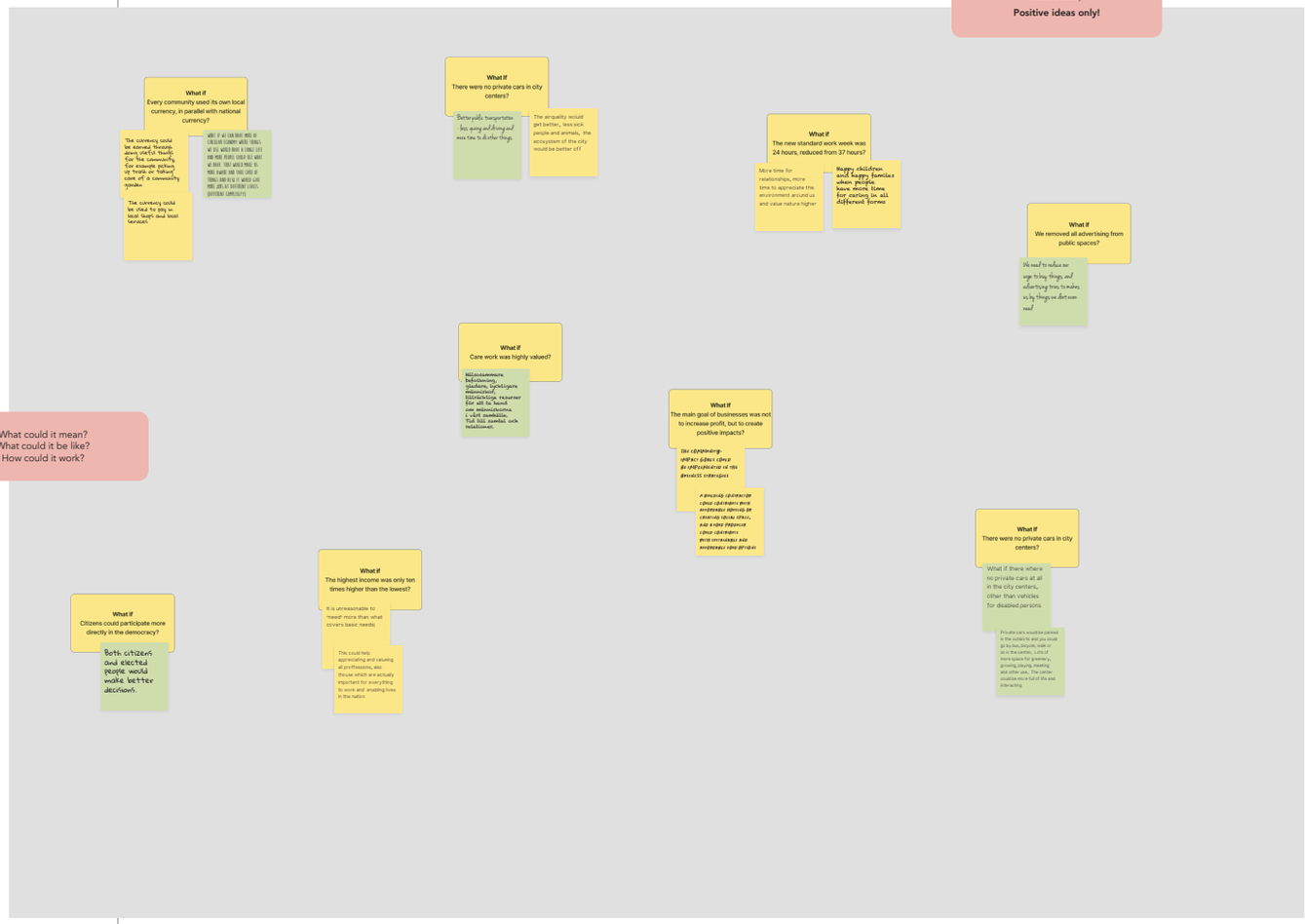
What if
Care work was highly valued?

What if
There was no food waste?

What if
We shared what we have?

What if
You got support to do care work in your household or community? (Such as taking care of sick, elderly or kids, doing services for others)

What if
Open-source designs and local collaborative workshops were used to allow everyone to produce spare parts and repair their products?



Rather than asking: what will the future be like?
Consider: **what can the future be like?**

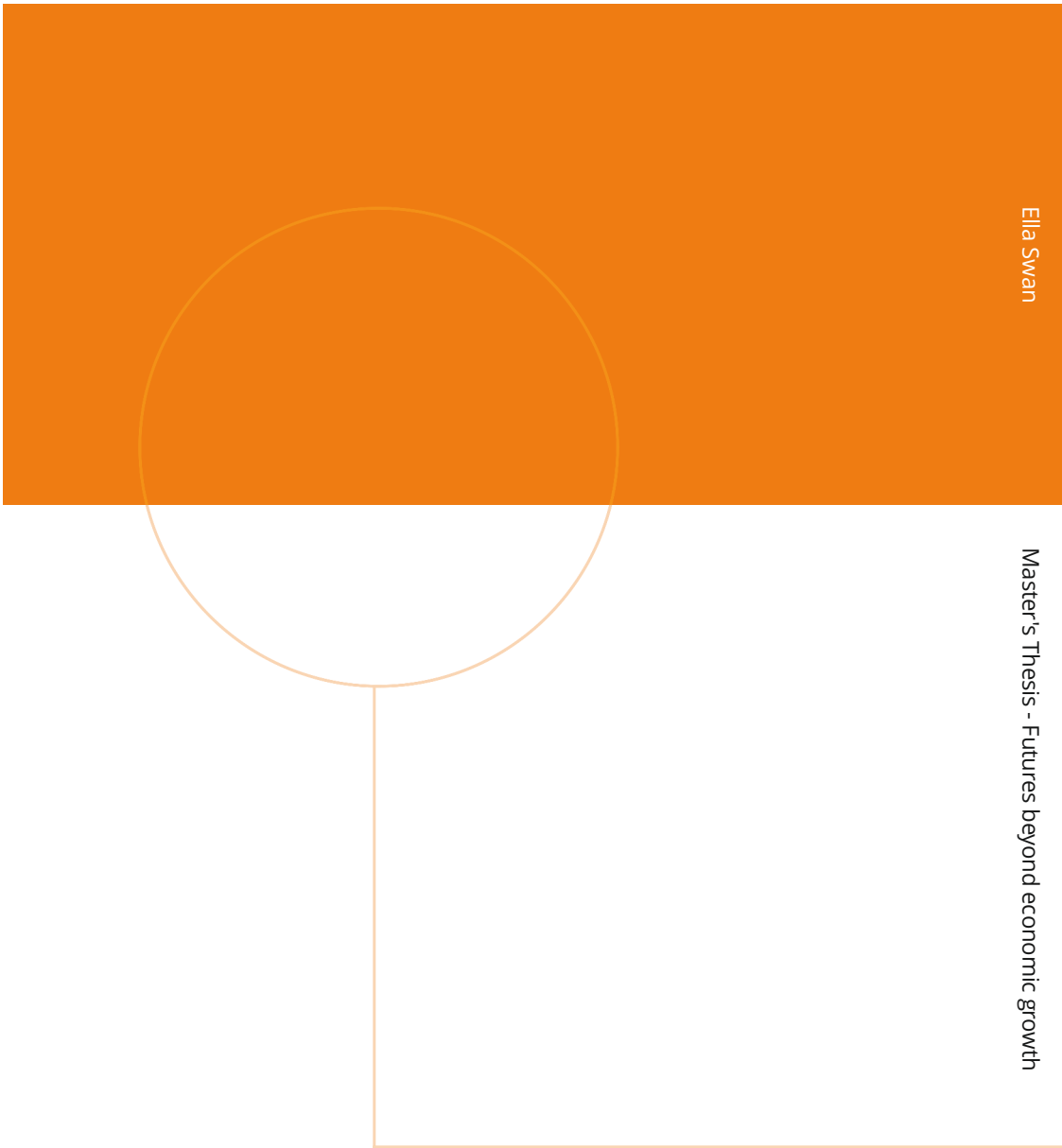
What would you like the future to be like?

In this exhibition, the problems connected to the growth imperative of the current economic model has been introduced, as well as the possibilities of beyond growth economics. You have been invited to contribute with your opinions and ideas and connect to your own values.

The goal of this exhibition is not to tell you what the future will be, because that's impossible. The goal is to open the door to this possible solution space for the future and help you understand and engage in beyond growth economics.

As a human on this planet, you have the power to help shape the sustainable future you would like to see. Rather than asking what the future will be, start thinking about what you would like it to be and make decisions that supports it. Discuss it with others. And consider how your true values can be proritized in you life now and in a beyond growth future.

Please, grab a card and bring it wit you. Fill in the blanks, now or later.
If you are curious to learn more about this topic, visit the link on the backside for access to several resources.



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