

Civic Food

**Designing for food citizenship in
a food system characterized by
mutualistic resilience.**

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*"You cannot understand a system
until you try to change it"*

-Kurt Lewin, 1946

Abstract

This thesis explored design's role in transitioning the Swedish food system to one that is more resilient to the shocks caused by climate change and in the context of the project duration, COVID-19. The project's central question was: What does food citizenship look like in a resilient food system, and what design process is necessary to facilitate such a solution?

The project collaborated with a local food ecosystem startup, Harvest, which has the mission to improve the local food supply chain so everyone can eat deliciously and sustainably. Together with Harvest, the project developed a vision of what the local food ecosystem will look like in a viable world. It proposes that collective action around food is a possible vehicle for systems transition.

The resulting design is the proposition of a network that connects urban communities to local food producers while facilitating the support required to expand the production capability and stability of the local food ecosystem. The network is grounded in the design principles synthesized from the research conducted with the creative communities in Sweden that are working towards a resilient food system. The ideas of mutual aid and the permaculture ethics of people care and fair share have been guiding forces as supporting

those living in transition is an essential element of food systems transition. From this proposition the project sets to explore what disruptive innovations need to occur in order to reach this vision. By framing the project in this way I aim to not only illuminate what the preferable future looks like and how it will function, but also illustrate how it is possible to reach this future.



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Times they are a changing.

Human centered design (HCD) is ill prepared to tackle the upcoming challenges posed by climate change because these challenges are system level in nature and will require an evolution of methods that go beyond the usability of a product. There are multiple directions in which HCD can evolve. During this thesis I will be exploring these directions through a case study within the Swedish food system.

There have been attempts by HCD to address such challenges through sustainability and empathy based approaches, but these practices are insufficient because sustainable design does not inherently challenge what it is that you are sustaining and you cannot empathize your way out of a bad business model. I set out to explore what methods, theories, and practices designers need to be better prepared to take on the challenges posed by climate change in the near future. By utilizing elements of participatory design, speculative design, mutualism, metadesign, transition design, and cybernetics methodology it was my goal to understand how designers can plan and execute design projects for social impact and systemic transition.

Where do we go from here? Methods inspiration

My exploration of how human-centered design can evolve in order to be in a position to tackle the design challenges presented by climate change has been inspired by existing developments in this effort. My thesis exploration is informed by these design approaches and I attempt to draw from them to varying degrees during the course of the project.

While human-centered design is ill prepared, that does not mean that the foundation that it stands on is broken. I intend on taking a participatory design approach that relies on qualitative research and design ethnography to inform the research phase as well as organizing workshops with the stakeholders that I will be designing for. In addition to this I involved

the feedback of the actors within the system that I was designing during the final concept development. Empathy driven design is vital, but designers need to also be aware of who is benefiting from the value produced by the final design solutions. In this way human-centered design can evolve to answer the challenges posed by climate change.

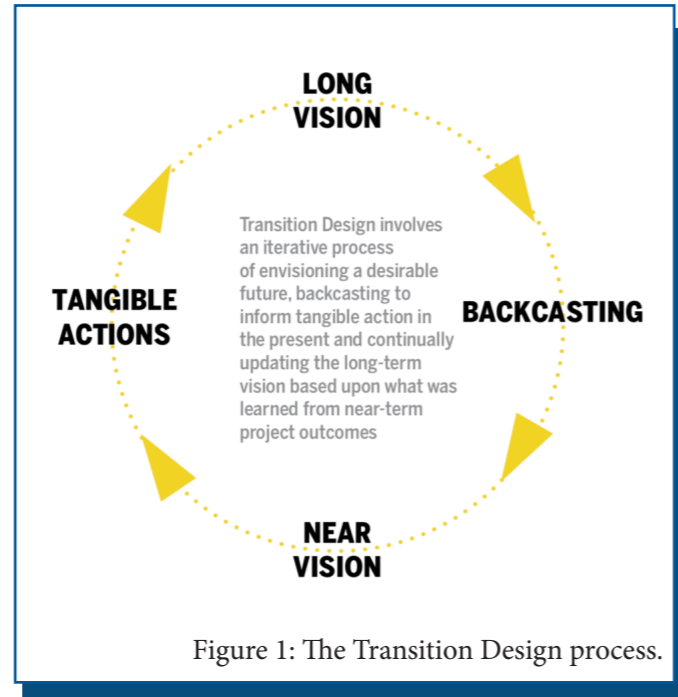
Transition design acknowledges that we are living in 'transitional times' and takes as its central premise the need for societal transition to more sustainable futures. This kind of design is connected to long horizons of time and creating compelling visions of sustainable futures. Time is an element that will be featured in my project as a transition inherently implies a passage of time, from one system to another. For the context of this thesis, evaluation of interventions that are intended to increase resiliency or sustainability in the future is a primary challenge and starting from a design position that is grounded in addressing system transition and theory of change is a good place to start.

An additional motivation for me to situate my project within a transition design approach is it provides a methodological foundation. The iterative process of long vision, backcasting, near vision, and tangible actions will be helpful when exploring how future civic food-related behaviors will manifest in a resilient food system. I am exploring this way of designing rather than service design because of: (a) its deep grounding in future-oriented visions; (b) its transdisciplinary imperative; (c) its understanding of how to initiate and direct change within social and natural systems; and (d) its emphasis on the temporality of solutions

– they have intentionally short or long lifespans. (Irwin 2015).

Speculative Design is about presenting visions of alternative futures and exploring what these futures would look and feel like. In *Speculative Everything* Dunne and Raby argue that visioning is crucial; it creates spaces for discussion and debate about alternative futures and ways of being and it requires us to suspend disbelief and forget how things are now and wonder about how things could be. I am inspired by the ability of this approach to translate complex, abstract, or difficult topics into objects and experiences that embody potential futures. I drew inspiration from speculative design when I wrestled with the question of what a ‘deliverable’ is within a systems transition project.

During the course of this thesis exploration I have been heavily influenced by the ideas espoused by metadesign. Elisa Giaccardi describes metadesign as dealing, “with the creation of context rather than content; it is a mode of integrating systems and setting actions in order to create environments in which people may cultivate “creative conversations”” (Giaccardi, 2005). Metadesign has been an influence in understanding how I as a designer can design for conditions and the facilitation of sustainable behavior. This design approach has informed decisions made during both the research, ideation, and concept evaluation phases.



“Any place based project or initiative that promotes self-organization, participation and mutualism in everyday life, by recovering control of the satisfaction of needs, will help the transition process”

Gideon Kossoff, 2011

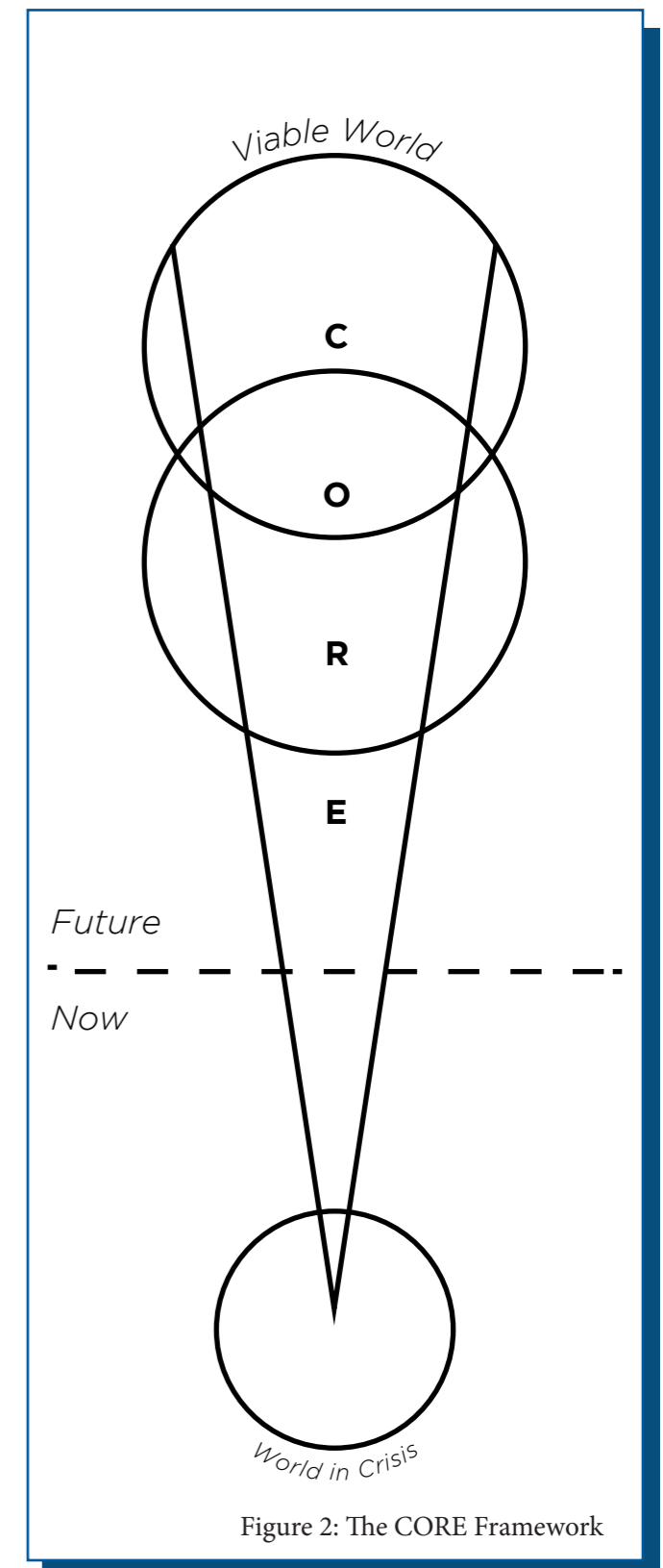
Developing a framework

During my thesis I have been exploring what ways in which human-centered design can evolve and through this exploration I have found a process that has helped me as a designer to engage with systems transition. The CORE Framework owes inspiration from three primary sources: Bill Sharpe's 3 Horizons Framework, transition design visioning, and speculative design practice. It is a tool for designers to identify, explore, and evaluate propositions for systems transition.

A tool for designers when approaching systems transition

The framework is not intended to replace human-centered design, but rather provide another tool by which I as a designer could focus my attention on facilitating systemic change. One of my initial research questions was: What tools do citizens need now to enable and support the transition to a resilient food system. Through the course of my project it became clear that in order to design tools that facilitate transition, I as a designer needed a better set of tools. The CORE Framework is a proposition for how designers can work in order to be better prepared to address systems transition.

The CORE Framework describes an approach that designers can take to identify what a viable world is, explore possibilities within this world, and evaluate these possibilities based on how they serve the core values of the viable world that is the aim of the transition. It is made up of two sections: now and future. The now section of the framework is primarily focused on building the core that will guide concept development and future propositions through design ethnography, participatory design, and speculative design practices. The future section is focused on the creation and evaluation of propositions and visions that embody the core values of the viable world.



Exploring futures

In order to create concepts that work towards transitioning a human system it is paramount to understand what it is as a designer you are facilitating transition to. This process involves being able to envision multiple potential futures and explore the space they enable. The future which has been successfully transitioned to is what I am referring to as the viable world. Seffan and Rockström describe this future as Stabilized Earth.

Through the use of the 3 Horizon Framework, speculative design practice, and transition design visioning designers are potentially able to gain better insight into the composition of this viable world.

The 3 Horizon Framework

The 3 Horizon Framework, created by Bill Sharpe, is a tool to understand how system or cultural transformation can potentially occur. It utilizes time and three horizons to describe how such transformation can occur.

Horizon one (H1) describes the current way of doing things or the predominant way of doing things. This is the horizon that the current industrial food system falls under. Horizon two (H2) describes disruptive innovations that have the potential to serve as a bridge to horizon three (H3) which refers to the vision of the preferable future (Sharpe, 2016). The beauty of this framework is that it describes a continuous and circular process. Once the system has reached horizon three it will inevitably become the new horizon one and then start the process anew as it faces a new challenge.

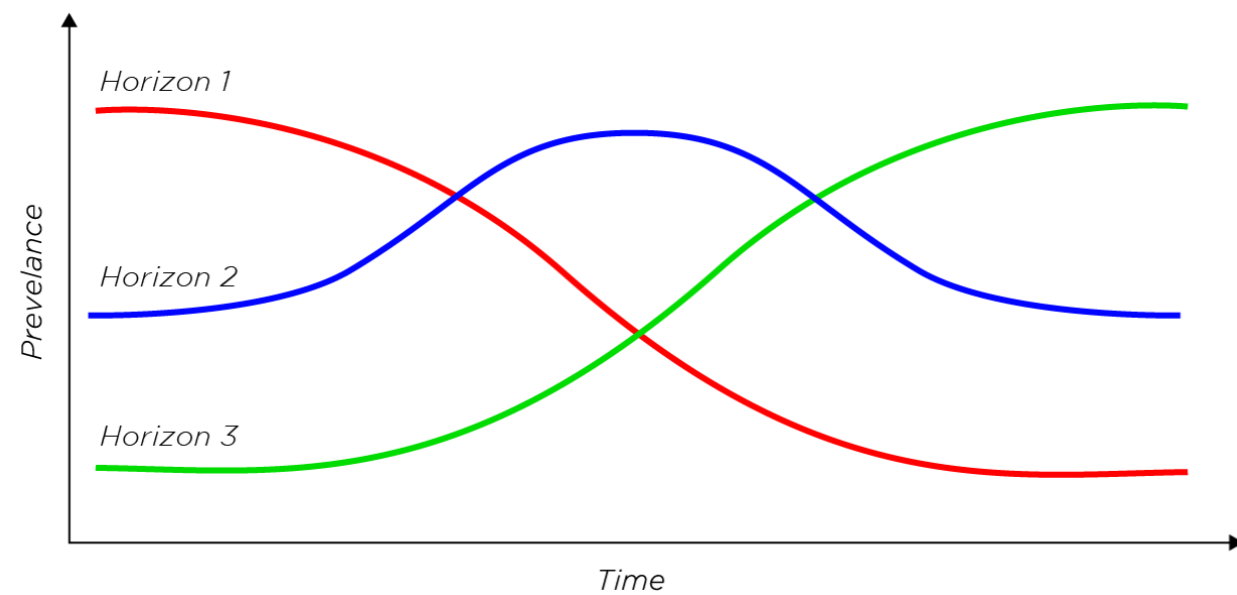


Figure 3: The 3 Horizons Framework

Vision and practice

Speculative design practice is characterized by the creation of potential futures and exploring those futures through the creation of objects or artifacts that embody various elements of that future. This is often done to highlight a potential conflict or challenge that will arise in this imagined future. This practice of making an abstract future tangible through the creation of experiential objects is an inspiration for the core identification and direction.

An excellent example of how to make tangible a problematic element of a future reality are the experiential evidences created by Superflux in their project *The Future Energy Lab* (Superflux, 2017). They created objects that serve to shift the perspective on how various current development paths affect the future reality. Such an object is the device created that produces air that contains the level of pollutants that would be present if no action was taken and the 'business

as usual' development path was followed. Such objects are helpful in communicating why certain behavior change will be necessary as well as explore what types of concepts would potentially be needed in the future reality communicated by the artifact.

Transition design has a focus placed on visioning and then backcasting to better understand what tangible actions need to take place in order to reach this vision. The process of identifying and understanding the targeted viable world has also been an influence on my development of the core finding process.

The CORE Framework is drawing from these two design practices and attempting to combine elements of them into a design process that is geared towards constructing design propositions that contain within them elements that explore futures and how designers can facilitate the transition to them.



The Future Energy Lab, Superflux

The Now: forming a core

The now is set in a world in crisis. It is a world that is facing environmental and socio-economic challenges as 'business-as-usual' is leading human systems toward the brink of collapse.

This portion of the framework is made up of the core finding process and explorations into how everyday life in the viable world could look and feel. This space consists of building the core that will be guiding the direction of the concepts created for the preferable future. Core formation corresponds with the construction of a vision of the viable world that is the target of transition. In order to build this core & vision, design ethnography and participatory design

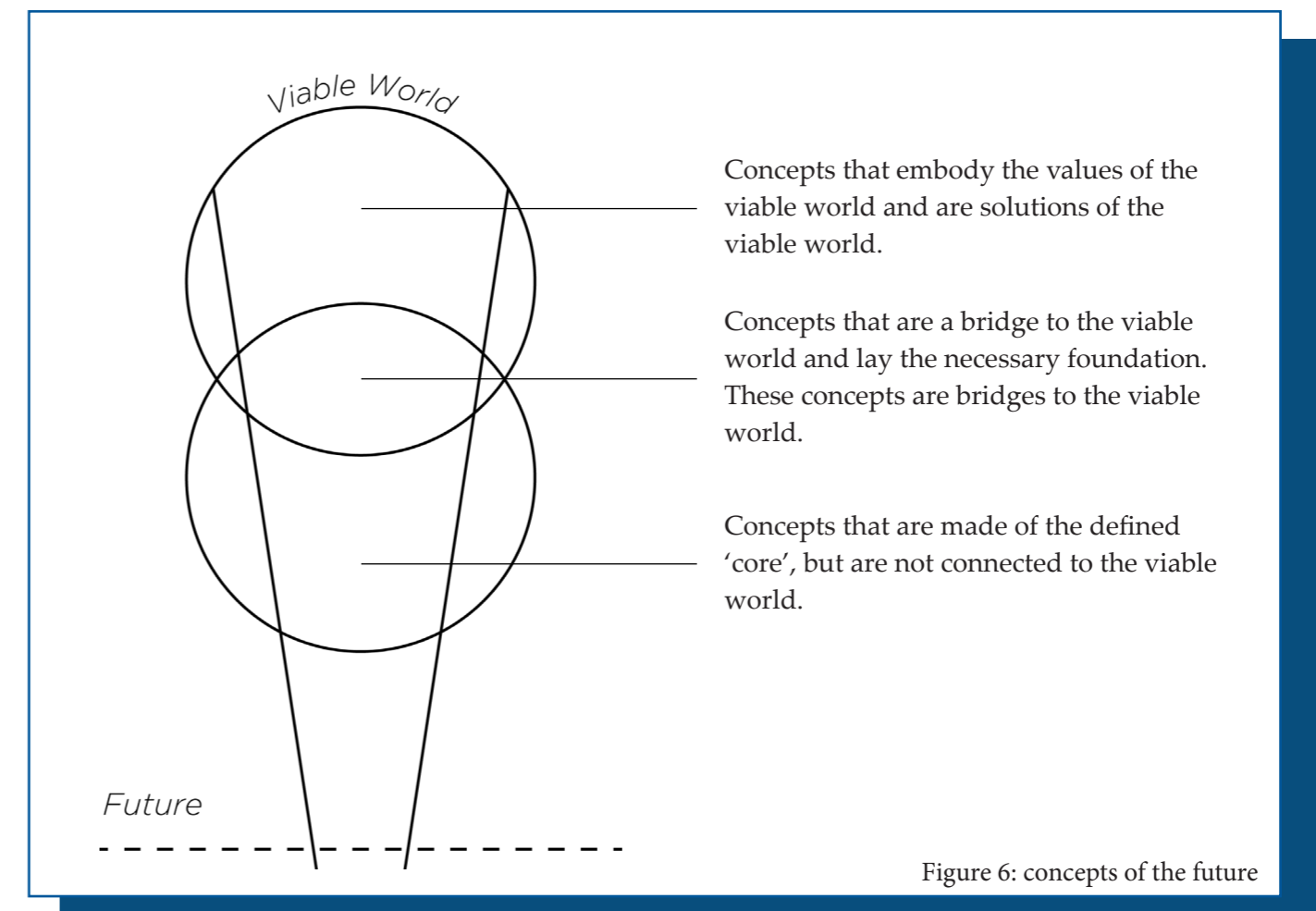
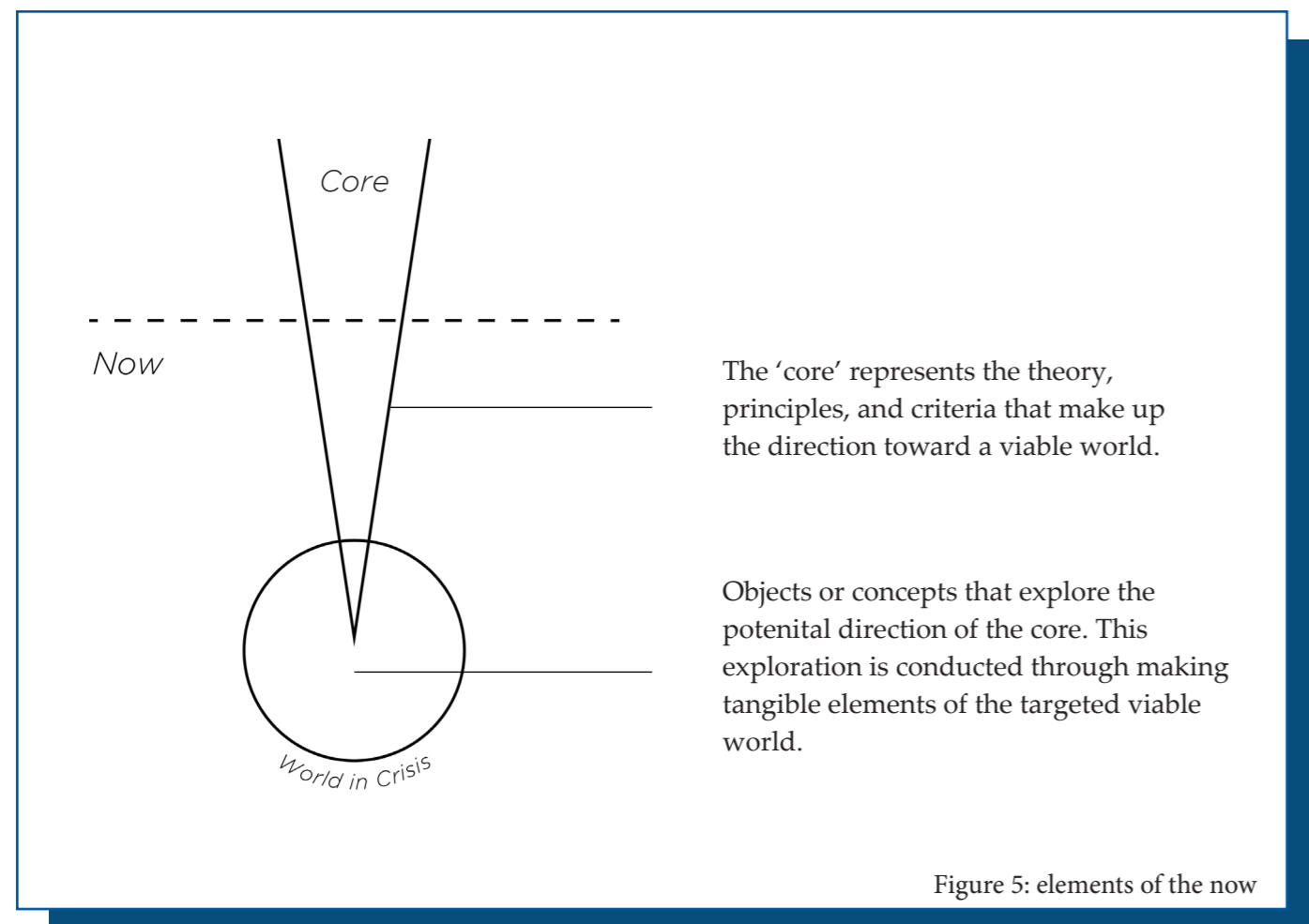
practices within the creative communities that are currently recombining and reconfiguring the system are used. These practices ground future concepts in current innovations and practices. In addition to this community driven research this is also the space where an understanding of planetary boundaries and relevant theoretical models can be applied as guides. Once this core is identified, it can begin to be explored through the creation of objects that enable the experiencing of the viable world. These objects serve to explore what conditions will potentially need to be designed for, tell a story of why concepts are needed, and begin to visualize elements of such concepts.

The Future: evaluating and envisioning propositions

The future is made up of concepts and designed solutions that represent an experience of the viable world. There are three different types of concepts: ones that have elements of the core but are not connected to the viable world, ones that are bridges to the viable world, and ones that are concepts of the viable world. These concepts can be viewed as a trajectory of innovations and not necessarily as rigid entities. It is this fluidity that can allow for an existing organization to understand how they fit into the transition process. Not all ideas are H3 concepts, but it is important to understand why this is not so and map a path to get there.

The three types of concepts guiding the way towards concepts of a viable world are inspired by the horizon 2-/+(H2- and H2+) and horizon 3 (H3) concepts described by Daniel Wahl (Wahl, 2016). Wahl distinguishes a difference between the different types of concepts/disruptions in order to understand whether the innovations or solutions are building bridges toward the viable world.

Bill Sharpe describes a 'Triangle of Change' which inhabits the space where H2 rises in prevalence and is characterized by the falling H1 and growing H3. It is within this triangle that understanding the distinction between H2- and H2+ concepts is vital for a designer working towards system transition. By understanding this distinction a designer will not only be able to build a better description of concepts



of the viable world, but there will be an easily followable logic as to how to get to this concept.

Through the course of this thesis I found that the future portion of the CORE Framework was a very useful tool in evaluating concepts and ensuring that any concept created was tuned towards addressing the systems transition I was attempting to design for.

Applying this framework to explore food system transition

The human system I am using as a case study for this design exploration is the Swedish food system. Food systems are a particularly interesting human system to explore the evolution of HCD because there is a long tradition of the type of collective action (permaculture, food cooperatives, regenerative agriculture, etc) that will be necessary for humans to take on the type planetary stewardship role needed in a time of climate catastrophe. By placing this thesis exploration in the context of the Swedish food system I hope to draw inspiration from this tradition and understand what design practice can learn as the challenges and technologies become more ecosystem-like in nature.

During this thesis I explored how the CORE Framework could be applied to such a system transition with the aim to better prepare myself as a designer to tackle the challenge of designing human systems transition in preparation for the climate shocks they will soon be experiencing.

Research questions to begin exploring what design process is required to address systems transition.

What does food citizenship look like in a resilient food system in Umeå?

What tools do citizens need now in order to enable and support this transition?

Forming the Core

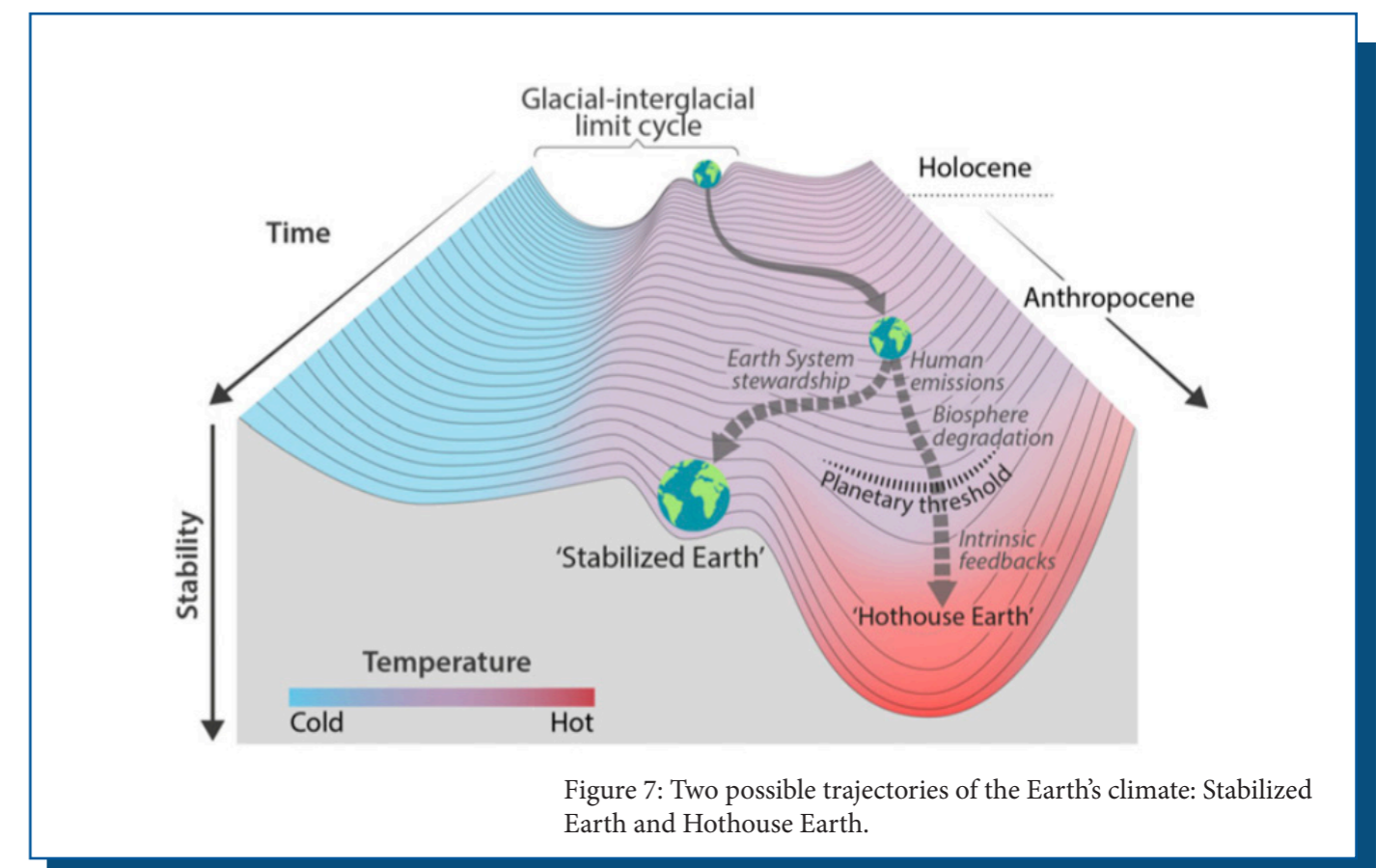
Research shows that climate shocks like extended drought or flooding could lead to a stagnation of international trade, which could in turn lead to a spike in food prices in Sweden or reduce the quantities of certain food products. This raises the design question of how might we transition the Swedish food system to one that is more resilient to such climate shocks? What does food citizenship and civic participation look like in this more resilient system and how can design facilitate this behavior? What is meant by food citizenship? What is the project's definition of resiliency?

What is the trajectory of the climate?

As there is an increase in global temperatures, there will be an increase in the frequency and intensity of extreme weather events like droughts and floods due to higher energy in the atmosphere (Herring 2018). These more extreme weather conditions have the potential to disrupt a global food supply chain that is difficult to quickly transform in a time of crisis. One can see an example of how slow moving this change can be in how the food system has responded to the shock caused by the outbreak of COVID-19. There are scenes of milk farmers in the USA letting milk run into gutters and plowing crops back into the soil as the demand for the goods they produce, namely large quantity purchases like those supplying the National School Lunch Program,

is reduced(ABC, .

Steffan and Rockström describe two potential trajectories for the Earth's climate, Hothouse Earth and Stabilized Earth. For my thesis these two scenarios are simple enough to understand within the complex scientific research on climate change, while also providing both backdrop for why the transition to a more resilient food system is needed and a suggestion as to how to avoid the worst case scenario. Steffan and Rockström describe Hothouse Earth as the result of the climate crossing the planetary threshold of an increase in global temperatures by ~2 degrees Celsius from pre-industrial levels. A visualization of these trajectories can be seen in Figure 1. Hothouse Earth is a trajectory in which global temperatures rise rapidly as cascade effects and tipping points are triggered. This scenario likely exceeds the limits of adaptation



of human systems and results in a substantial overall decrease in agricultural production, increased prices, and even more disparity between wealthy and poor countries (Steffan and Rockström 2018). Essentially this trajectory is a very dangerous path as while the scientific community can project what the impacts of triggering such tipping points can have, the ways in which human systems will respond to such shocks is not. If anything can be learned from the shocks experienced during the COVID-19 crisis it is that the impacts will most likely be drastic.

The Stabilized Earth trajectory is one in which through deep cuts in greenhouse gas emissions, protection and enhancement of biosphere carbon sinks, and efforts to remove CO2 from the atmosphere the Earth's climate is returned to interglacial-like climate conditions (Steffan and Rockström 2018). In order to guide the Earth's climate towards this trajectory humanity will need to play an active planetary stewardship role in maintaining it in this state. While this will require drastic behavior change on a large scale it is possible. This fact is a

fundamental reason as to why I am pursuing this thesis topic. I believe it will be the role of designers to design conditions that facilitate planetary stewardship behavior. As a society, we need to bend the curve away from the Hothouse Earth trajectory and one of the most impactful ways this can happen is through food system transition.

What is the state of the current Swedish food system?

Before giving more insight into the current state of the Swedish food system it is important to understand what is being described when referring to a food system. In the most basic sense, a food system refers to all processes that are involved with keeping humans fed. This is made up of a complex set of relationships and actions including: growing, harvesting, packaging, transporting, marketing, consuming, and disposing of food waste (Johansson 2005). This thesis will be focusing predominantly on elements that involve production, harvesting,

and transporting food within a local context. It will not go into detail on food consumption and food waste management, which while these topics came up in primary research and are important factors in transitioning to a more resilient food system, they fell outside of the scope of this project.

Sweden relies on industrial farming practices for the vast majority of its food. Industrial farming is described by The Union of Concerned Scientists as:

"Viewing the farm as a factory with "inputs" (such as pesticides, feed, fertilizer, and fuel) and "outputs" (corn, chickens, and so forth). The goal is to increase yield (such as bushels per acre) and decrease costs of production, usually by exploiting economies of scale."

This approach to farming accounts for 25-30 percent of carbon emissions globally, degrades soil condition, uses water at unsustainable rates, and synthetic fertilizers pollute water systems. These shocks have the potential to drastically impact the ability for citizens to access food. Swedish communities are in need of a more resilient source of food in the increasingly unstable climate future.

The impacts of climate change outlined in the last section are already surfacing in the agriculture sector. This increase in extreme weather has reduced growth in crop yields by 1-2 percent per decade over the past century (Wiebe, 2015). This study also highlights that a possible impact of climate change is a significant rise in the prices of agricultural products. While this is a complex issue that goes beyond the scope of my thesis, international trade policy has

the potential to either mitigate the impacts of climate change on the price of goods in the event of an increase in trade or exacerbate it in the event of reduced trade.

This factor is important to consider in the context of my thesis based on the fact that Sweden's current food system is quite reliant on the importing food from outside of its borders, roughly 45% (Stockholm Resiliency Center, 2019). By importing such high quantities of food, the Swedish food system is not only adding to the impact on the climate in the form of transportation, often described as food miles, but it is also susceptible to the shocks described in the previous section.

Current food system innovations

At the start of my project I used alternative food networks and civic food networks as a way to begin to frame my exploration into what a resilient food system would look like and more importantly what types of roles, relationships, and interactions would be present within such a system. These roles and relationships can be described as food citizenship which I will go into more detail in the following section.

Alternative food networks (AFN) is a broad embracing term to cover newly emerging networks of producers, consumers, and other actors that embody alternatives to the more standardised industrial mode of food supply. These networks are emerging as the impacts of industrial farming become more apparent. Examples of AFNs include farmers markets, urban farming, cooperative grocery stores,

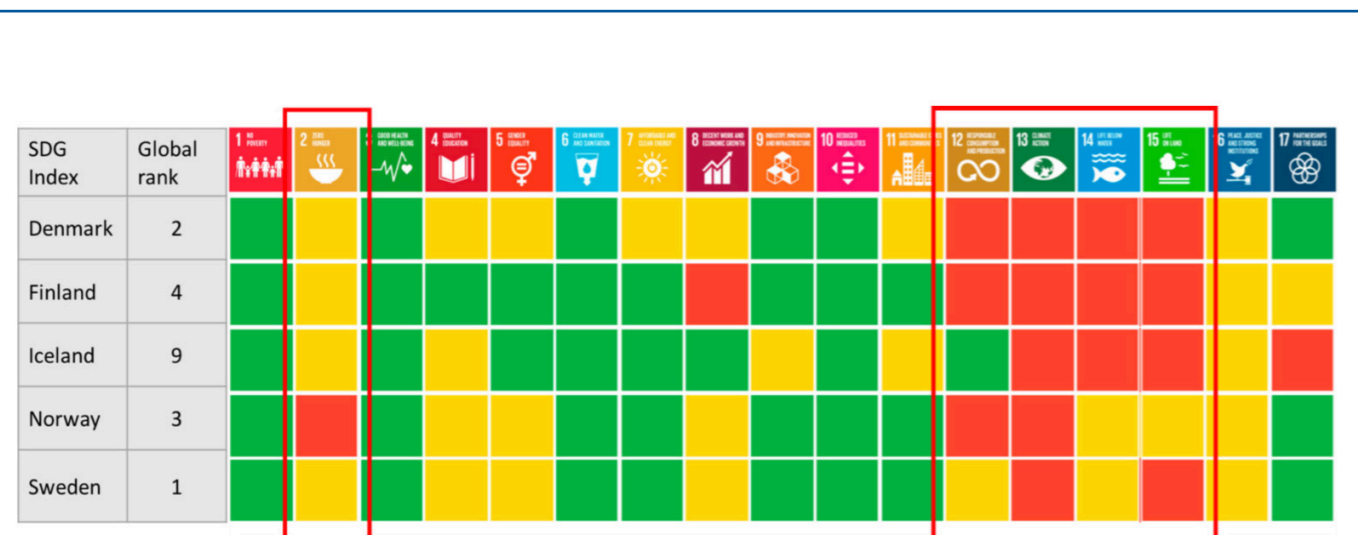


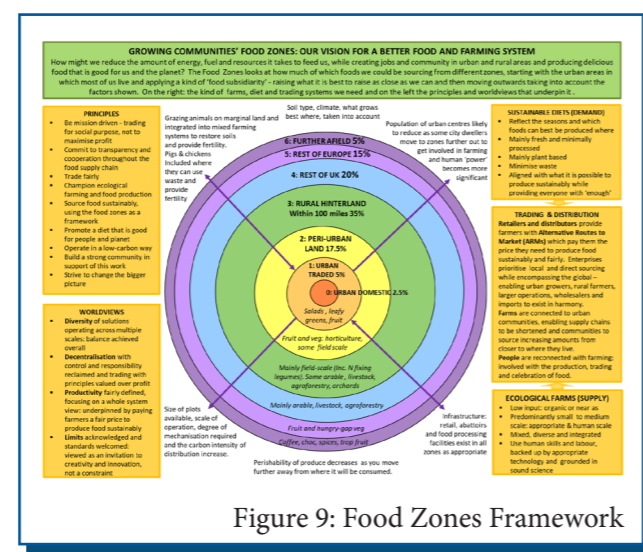
Figure 8: Analysis of progress towards meeting SDGs by Stockholm Resiliency Center

REKO, and community supported agriculture to name a few. During my primary research I interviewed members of these communities in order to better understand the challenges that they face as well as understand how design could facilitate conditions for more universal adoption of these types of innovations. This term is useful in understanding what food system innovations already exist, how they are used, and the limitations they may have.

A civic food network is a more targeted version of an AFN. Broadly speaking, civic food networks (CFN) refer to new relationships that are developing between consumers and producers, who engage together in new forms of food citizenship. CFNs as a conceptual framework take the civic nature of new agri-food networks as a starting point needs to go beyond the terminology of ‘consumer’ and ‘producer’, which intrinsically defines and limits citizen’s agency with respect to food by assuming that it forms part of a material and economic transaction. There are two primary roles in a civic food network, citizen-consumers and citizen-producers. They are both however described as ‘food citizens’ and how these relationships can be designed for and supported will be explored in this thesis. Henk Renting identifies the next step facing CFNs is to “develop further conceptual and methodological avenues to fully grasp the innovative potentials embodied in CFNs” (Renting, 2012).

Local food ecosystems are another way to frame innovations that are occurring in the transition to more resilient food systems. Gail Feenstra describes this type of system as “a collaborative effort to build more locally

based, self-reliant food economies – one in which sustainable food production, processing, distribution and consumption is [sic] integrated to enhance the economic, environmental, and social health of a particular place” (Feenstra, 2002). Growing Communities has developed a very useful framework for identifying how an urban center can feed itself and contributed to the definition of what constitutes a local food ecosystem.



Food citizenship is collective action

A food citizen is an individual that engages in behavior that supports alternative and sustainable food behavior and systems. This in essence describes anyone who has bought an organic tomato or shopped at a farmers market. This is why for the context of my project I wanted to focus on the act of food citizenship, which opens up a lot more space for exploration

in regards to interaction design. Food citizenship is a tool for extending the debate about the rights and duties of citizens to the field of food (Lozano-Cabedo, 2016). By framing the debate within a context where multiple stakeholders are all defined as citizens, food citizenship has the potential to promote the participation of these various actors in the governance of a food system.

Being a food citizen requires the individual to be conscious of the impacts of food production, distribution and consumption in addition to the assumption of responsibility over their own food behavior. Becoming a food citizen is a process of informing the individual that their food behavior in most cases is having a negative impact on the environment. This process of informing often falls into the realm of marketing and for the context of this project I am more interested in the relationships and interactions that drive the practice of food citizenship.

Jennifer J. Wilkins postulates that food citizenship goes beyond just being informed and is accompanied by certain responsibilities. She describes that, “in relation to our food choices, we have certain rights associated with living in a particular place, but that there are also responsibilities that go along with this kind of citizenship.” The responsibilities that Wilkins names here is the action and participation required of food citizens that Carmen Lozano-Cabedo describes in more detail.

“It is built not only through changes in individual’s actions, education and awareness, but also the defense of the common good and through participation in collective actions.” (Lozano-Cabedo, 2016).

Carmen Lozano-Cabedo is describing a collective striving towards a common good that is at the core of the practice of food citizenship. Striving for the common good through collective action is an inseparable element of food citizenship and this has been a guiding factor as I attempted to answer the question of what food citizenship looks like in a resilient food system.

Civic media could facilitate such action

Like food citizenship, civic media is a concept that has a wide range of definitions depending on how it is being applied. For the context of my project I chose to utilize the definition provided by Gordon and Mihailidis. They define civic media as any mediated practice that enables a community to imagine themselves as being connected, not through achieving, but through striving for common good. (Gordon and Mihailidis). This definition emphasizes the importance of a community to be able to imagine their connection in striving for a common good. The concept of civic media is used by this thesis as a way to inspire me to think about how digital technology can serve as a glue that facilitates collective action toward a common goal.

Designing for mutualistic resilience

Resiliency is currently something of a buzz word within the design for sustainability transitions community. It is being applied in varying ways as a way for human systems to cope with the impacts of climate change. The concept of resiliency can be described as a system's capacity to cope with stress and local failures without collapsing (Manzini 2016). It can also be described from a psychological perspective as the process of adapting well in the face of adversity, trauma, tragedy, threats or significant sources of stress (American Psychology Association, 2018). These two definitions describe resilience as mechanisms of coping or adapting to stressors or shocks. Manzini employs the concept of resiliency to develop the idea of proactive resiliency which is not to 'bounce back' to the way the system was before, but rather to promote a new system characterized by diversity, redundancy and continuous experimentation (Manzini, 2016).

During this thesis I will be applying a working definition of resilience that draws heavily on the ideas of diversity and mutualism. Mutualism describes an ecological interaction between at least two species where both partners benefit from the relationship. This differs from symbiosis in the sense that two actors in question do not have the close association during a large majority of their life cycle and can be a one sided interaction (Holland, 2008). An example of this difference is comparing pilot fish/shark symbiosis with the mutualism of pollinators and flowers. While mutualism is defined by interspecific interactions, or interactions between

different species, it has cooperation at its core. The father of the concept of mutual aid Peter Kropotkin states that, "the species in which peace and mutual support are the rule, prosper, while the unsociable species decay" (Kropotkin, 1902). Mutual aid describes voluntary reciprocal exchange of resources and services for mutual benefit. I am using these concepts to inform my definition of resiliency because I believe that a resilient system is one that consists of a diversity of actors that work together to reorganize the system that they are currently a part of.

In short, my project's working definition of a resiliency is the cooperation or collective action between a diversity of actors that proactively adapts to or copes with stressors or shocks to a system. By asking the question what does food citizenship look like in a resilient food system, my thesis is exploring how design practice can facilitate system transition through the promotion of a form of food citizenship characterized by mutualistic resilience. It is the project's hypothesis that promoting collective action can be a vehicle for systems transition.

"The ability to self-organize is the strongest form of system resilience. A system that can evolve can survive almost any change, by changing itself."

Donella Meadows, 1996

Creative Communitites

I took a design ethnography approach to getting insights into the state of the Swedish alternative food network(s). I did not synthesize my research findings into personas that I would then use as the 'user' that I would then be designing for. My design question necessitated an ecosystem style understanding of the relationships between various actors within these food system constellations. Rather I mapped where these individuals fit into a community of eaters in contrast to individual eater relationships. By drawing a distinction between community and individual food behavior roles I was able to better understand the conditions that facilitate collective action around food.

Designing for communitites and ecosystems, not just individuals

By focusing on communities that together proactively reshape their everyday relationship with the food system they inhabit rather than individuals I was able to better understand the nature of how alternative food networks function and develop. Communities are made up of individuals and each individual has a story to tell that influences the way in which the community is shaped and functions. I fully acknowledge that it is important as a designer to get direct information from the experts within their field. In the context of my thesis these experts include those who are participating in solidarity buying groups, food cooperatives, or community supported agriculture farms. By focusing on community rather than individual I do not mean that designers should neglect to conduct in depth interviews, because it is vital to understand the challenges that these communities encounter as they attempt to reorganize the food system that they are existing within. Where HCD needs an evolution in its approach lands more on the synthesis of the user research in the form of a community and ecosystem perspective rather than a consolidation into personas.

This is a point in which human-centered design begins to break down when attempting to design for solutions within the systems transition space. Rather than merge user insights into constructed personas, I chose to look at how these communities interrelate with each other and the process through which an individual moves from individualistic food behavior to cooperative food behavior. In the context of my thesis personas would not have been a helpful

exercise in the synthesis process. My research question of what food citizenship looks like in a resilient food system is reliant on facilitating collective action around food and as such viewing the generative research material through an individually framed lens would have missed how these stories work to build cooperative food systems.

I approached my user research from an ecosystem perspective with the attempt of understanding how creative communities interrelate with each other when reorganizing the food system they currently exist within.

From users to creative communities

A tool or framing that I found useful when approaching my design ethnography was the concept of creative communities. Anna Meroni describes creative communities as people who invent and enhance solutions to everyday life problems by recombining and reconfiguring factors that already exist, giving them new functions and meaning and achieving results without waiting for wider changes in the system (in the economy, in institutions, in large infrastructures) (Meroni, 2007). In a nutshell, groups like REKO, andelsjordbruk, urban farmers and food cooperatives are inventing an alternative food infrastructure with a strong focus on place and local solutions. They are all at their core collaborative and promote collaborative solutions. Manzini describes these solutions as systems of products, services, and communication capable of empowering people and communities to collaboratively solve

everyday life problems.

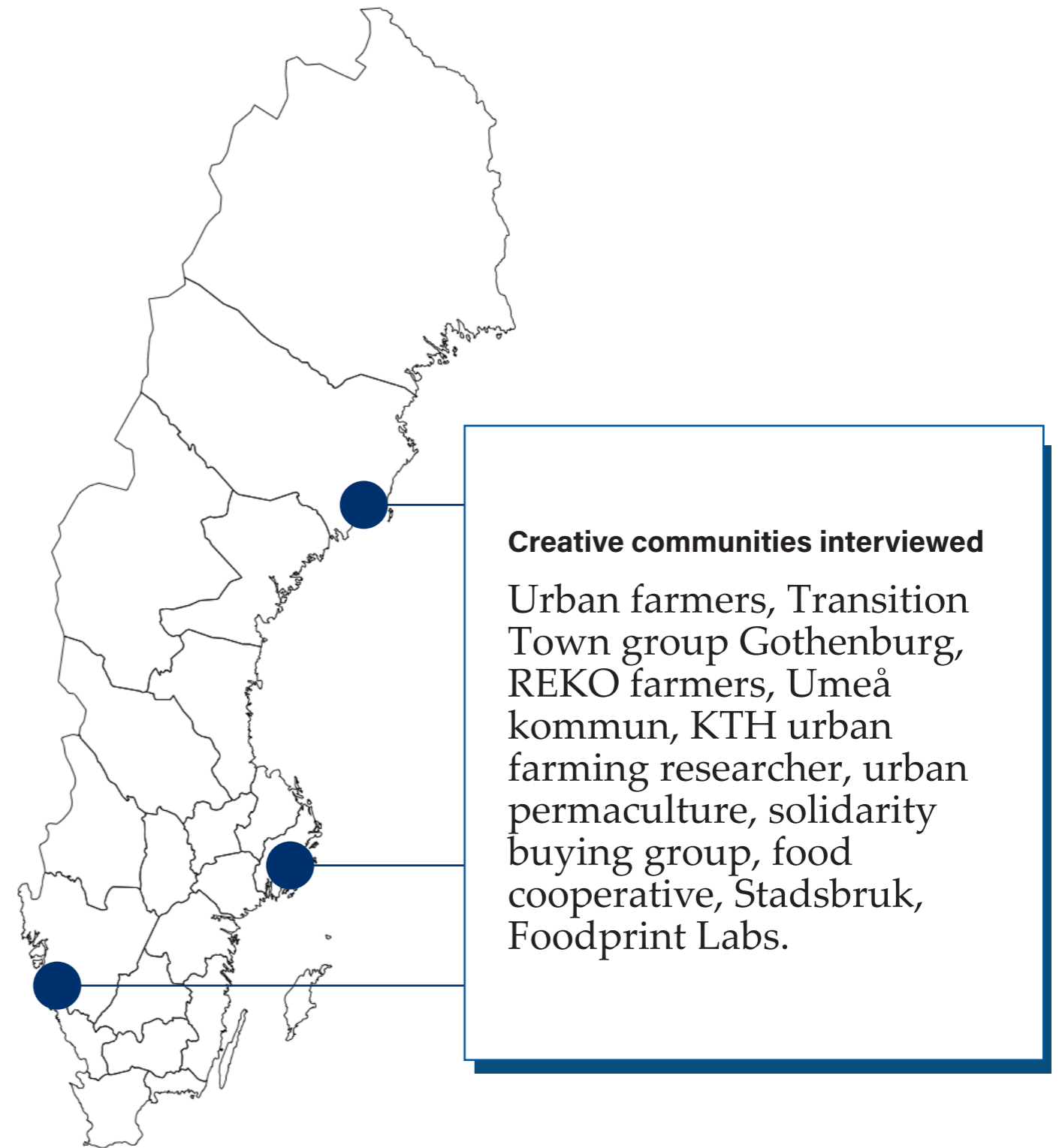
Framing the communities that I got in contact with as creative communities helps me better understand what mechanisms I as a designer need to help promote. According to Meroni these communities are deeply rooted in a place, they make good use of the local resources and, directly or indirectly, they promote new ways of social exchange. The research I did in talking with local farmers, food cooperative members, transition town movement, andelsjordbruk volunteers, and urban farmers backs up this statement. All of these groups were creative communities within the food system transition.

Stories of those living in transition

Once I became more familiar with the theoretical definitions of alternative food networks and food citizenship during the desk research of my project, it became important to understand how these theoretical frameworks and definitions manifested themselves in the everyday life of individuals in Swedish alternative food networks. I was curious if the types of relationships and roles described by civic food networks (citizen-consumer and citizen-producer) manifested themselves in the day-to-day lives of Swedish food communities. The goal of this research phase was to understand how these individuals organize themselves and what challenges they face.

I conducted a research trip to Gothenburg and Stockholm in addition to conducting interviews in Umeå and others remotely. During

this time I was able to gather stories from the creative communities that were currently recombining and reconfiguring their lives in order to create change in the food system that they are a part of. Here I would like to illustrate how I shaped my understanding of the various actors involved in the food system transition that is already underway in Sweden. From these stories I was able to glean insights in the challenges that they face and then synthesize the insights to design principles in addition to a community of eaters system map. The names in these stories have been changed to respect the privacy of the individuals that were interviewed.



Anna the urban permaculturist

While in Stockholm I had a chance to meet Anna who was the organizer of a permaculture urban garden in central Stockholm. Her garden began with only a few garden boxes on a construction site and has grown to include a portion of public space within a popular park. She had since quit her job as an architect and was committing to the challenge of making a career out of being a part of transitioning to a more sustainable method of food production and education. She viewed her work as an investment in a set of skills that will soon be in higher demand. What her story informed my research was that not only does change start from small interventions, it is also a terrifying leap of faith on the part of the individual trying to create the transition that they dream of.

"I left my career as an architect and am trying to make this my full time job. I am investing in a skill that I think will be needed"



Franc the solidarity buying group organizer

Another individual that I met while on my research trip in Stockholm was Franc. He was a driving member of a solidarity buying group in the Italian model of Gruppo d'Acquisto Solidale (GAS). He is originally from Slovenia and the shift in food culture between his home country and Sweden was quite drastic. His motivation for starting a buying group was to gain access to a higher quality of food at a reasonable price. He described a longing for a food and farmers market culture that he misses from his home country and viewed such a cooperative as a way to connect more with others in his community.

Two of the main things I learned from his story was that space is absolutely vital if a buying group like his was to exist and that while quality of food is a driver for him, it is about more than just food. He described multi-generational interaction as each member of the buying group had a different role to play. An example he gave of this was how retired members could receive the order while others were at work. He did also highlight some challenges that his group faces when he described how having a space to receive and sort the orders and how some members eventually viewed the group as a service and became 'free-loader' members.

“Our coop is multi-generational. An elderly woman in the house can receive the order during the day while we are all at work.”

Beth the community supported agriculture volunteer

I had the privilege to interview Beth once I had returned from my research trip as I got her contact from my interview with Anna. Beth is a great example of a story that I heard echoed through many of my interviews. She is someone who is attempting to live in transition under what Rob Hopkins of the Transition Town movement calls the 'tyranny of volunteerism'. Essentially food system transition is currently being done on the back of privileged volunteers. These people, like Beth, work full time jobs but have the ability to volunteer some of their extra time to support initiatives like a community supported farm. She was frustrated that in order to support an initiative that she believed in, she had to add extra work or reduce her paid work in order to make it happen.

“I have two kids and have a full time job, but I have been able to go down in my working hours in order to have a dedicated 'farm day'. I want to learn as much as possible.”

Umeå REKO-ring community

During the course of my thesis the REKO ('REjäl KOnsumtion', meaning 'fair consumption' in English) community was a source of inspiration and creative community I was able to connect to (Ehrnström-Fuentes, 2019). REKO-ring, as it is referred to in Sweden, is a scandinavian adaptation of a farmers market. In order to get around local selling regulations, farmers post what produce they have available to sell on a Facebook page and community members order by commenting on the farmer's post. There is then a 'market' in which the farmers have a pick up of these pre-ordered goods. This oftentimes happens in a parking lot and the exchange of goods is done from the trunks of cars. This community was the closest and most direct creative food community that I was able to get in contact with during the course of my thesis. I conducted multiple interviews with participating farmers, conducted a survey with REKO-ring consumers, and included members of this community in a workshop I conducted (which I will describe in more detail later in the report).

I conducted a survey with REKO-ring consumers in order to better understand their motivations for taking part in such a food network and if they had any challenges. I also was curious what their dream scenario was for REKO-ring and local food in Umeå. The responses about their motivation for participating were overwhelmingly because they wanted to support local producers around Umeå. Most of the challenges that these consumers faced were related to what was available and

how to order it. It was identified that scrolling through an endless list of produce on Facebook was a chore. There was also a strong desire to have a broader range of goods available through REKO, things like staple goods. In essence it was hard for consumers to match their demands with the supply available from local producers.

“Matching my demand with the supply. It's a challenge to find what you actually want. Search option would be great, or a wider variety of items on their sales list.”

“I wanted to shop local, eco produce and support local farmers.”



Ebba the goat farmer and REKO organizer

Both during my research trip and throughout the ideation and final concept development phases I have been in contact with both urban and traditional farmers. During the generative research interviews they were able to provide insights into the production side of alternative food networks.

Ebba is an active member of the REKO-ring community in Umeå. She told me about how her goat farm is run and the relationship she has with the community of Umeå. After talking with her it became extremely clear how important a strong connection with a consumer group like those available in REKO is to small scale farmers. This close connection to the customer speaks to one of the most important skills, beyond producing excellent goods, a small scale farmer needs to have: selling. Whether this is knowing your target user group inside and out or having a solid social media presence, which you then have to take orders through, being a good sales person is vital in order to succeed as a small scale producer. What was communicated to me by multiple farmers was that if the selling aspect of their daily work could be shifted to the consumer it would allow them to focus on what they do best, produce high quality goods. If there was some way to have a visualization of the community demand for goods they would dare to produce more than they otherwise do. There is a large deal of trust required between consumer and producer within local food ecosystems.

“I cannot afford to take a break from REKO. When the volunteer group of non-farmers wanted to take a pause for winter I took over the admin role so that the market would continue.”

“I need to trust that the consumers will buy what I produce. It would be great to have some sort of safety net so I don’t end up with 5L of yogurt extra.”

Everyone eats, an ecosystem perspective synthesis

The goal of my primary research was to better understand how the alternative food networks of Sweden were constructed and what challenges that they faced. Because my project's goal is to facilitate food system transition through the use of collective action, it became important to understand the roles and relationship within such systems. Rather than creating personas to design for I mapped the roles of buying, selling, and producing as they relate to how communities organized themselves around the activity of eating.

By mapping the various roles individuals have in a food system I was able to understand how one flows through the food ecosystem. An example of this is an individual starting in childhood as a non buying eater who is fed by their mother, a buyer producer. This child then grows to adulthood and becomes a buying eater. This current citizen most likely buys much of their food from a store that is operating outside of both the individual eaters as well as the community of eaters. I do acknowledge that there are some large scale examples of suppliers that have begun as cooperatives but their governance and innovation ability is not as mobile due to their current size.

An interesting insight that emerged from this exercise was the design opportunity or challenge of moving citizens from their current position or role in the system to a space within the community of eaters. This could be joining a food cooperative, starting an urban garden, or volunteering at a community supported farm.

These trajectories towards community of eater food system roles are what Beth, Franc, and Anna all struggled with when they described how it was to live in transition between one system and the one they preferred.

As a designer, this type of synthesis allowed me to understand not just how one individual's challenges affects them in their everyday life, but allowed me to begin to analyze these tensions as they relate to their role in a local food ecosystem. An example of this is how Anna views her role as an urban permaculture gardener as a skill that will eventually be in demand and take action in making this pathway for change viable for others. She began the process of moving over to the community of eaters space in the local food ecosystem and is a member of a local community supported agriculture (CSA) farm. These types of personal transitions are the ones that I believe will be the driver behind a greater food system transition.

This synthesis process led me to understand which types of food system innovations have the most overlap between the various roles. Farms with community support within urban centers are a good target for innovation due to their confluence of the confluence of roles within such communities of eaters. I pursued a collaboration with an actor in this space as a way to continue my exploration.

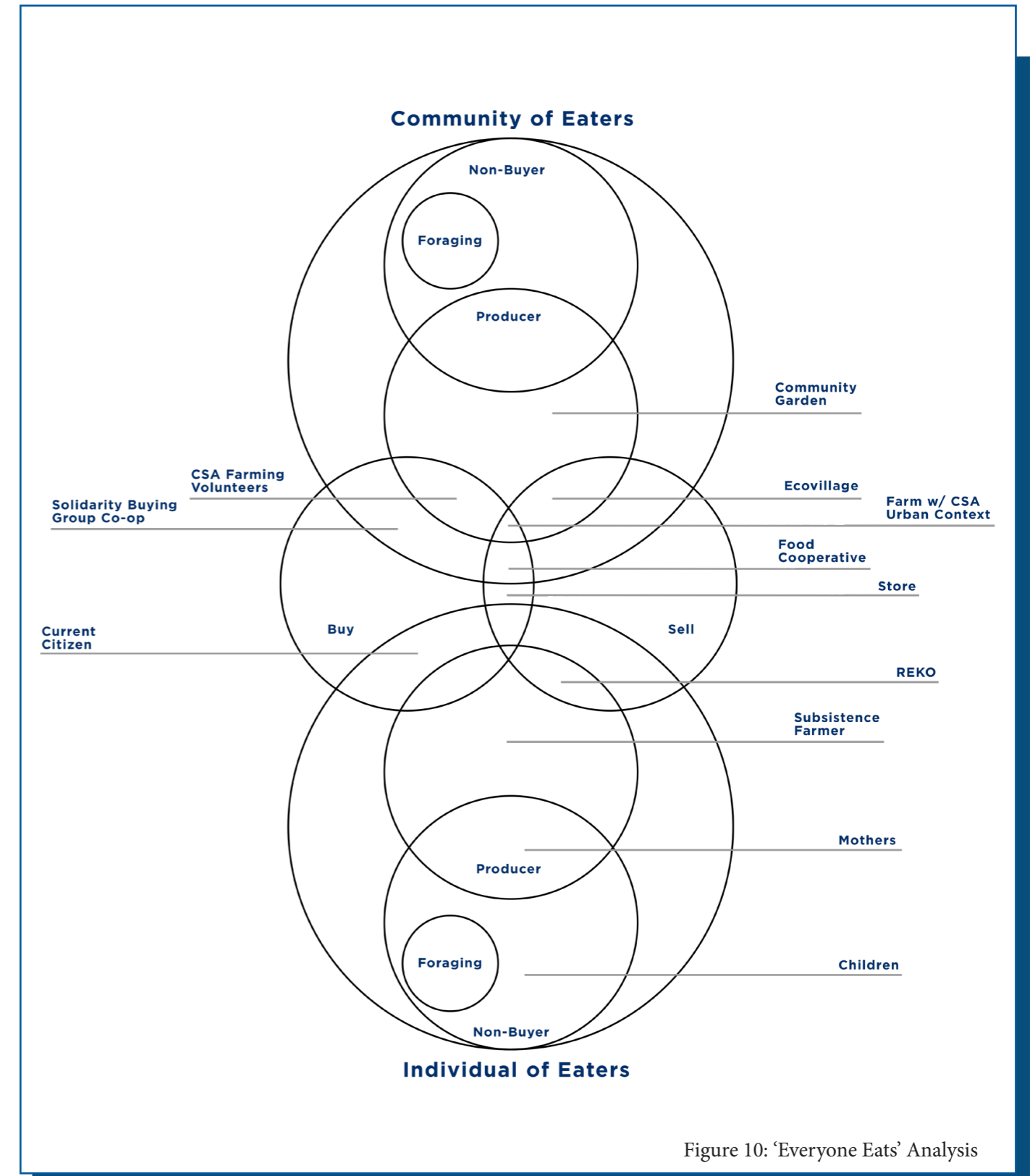


Figure 10: 'Everyone Eats' Analysis

Principles of Food Citizenship

From these stories and ecosystem synthesis I was able to distill my primary research phase into a set of design principles that would guide how I moved forward into my concept ideation phase. These principles spoke to the nature of food citizenship as I learned from the theory and informed by the design ethnography. These are the principles of food citizenship that will guide the core of my project.

Diversity of Options

A resilient food system is one that has and supports a diversity of local food producers. While urban farming is great, there is no silver bullet solution to creating a resilient food system. It requires the collaboration and support of multiple actors. This is part of the motivation to explore the definition of mutualistic resilience as a driving definition of how resilience should be applied to food systems.

Space is Vital

Space for forting a bulk order, time to talk about a fresh product, or a gathering place to learn about the local food ecosystem and others in the community. This principle surfaced when talking to solidarity buying groups and the REKO-ring community. Food citizenship needs a space to unfold. Relational goods are produced through social contact within the food community. Examples of this are in a building of a sense of community solidarity, belonging, and trust.

It's a Journey

Becoming an active food citizen is not something that happens overnight. It is a cycle of becoming aware, being inspired, and then taking action. With a longer timescale in mind, it is important that any solution takes into account how this journey flows and to create solutions that inform, inspire, and act.

Multiple Forms

There are multiple forms of food citizenship. A farmer has a different role than a city's energy company in how they practice food citizenship. Systemic change often happens from the bottom and local solutions can provide examples that inspire other stakeholders to see their role and change. Food citizenship is a practice that feeds into the other forms and roles.

Objects as illuminators

In order to understand what the impacts of a shock to the Swedish system would look like that is in line with the research conducted during the project, I created a speculative receipt from a Horizon 1 food supplier. This receipt is an artifact from the future food system and it is one that reflects a shift in the perception of what is 'cheap food'. Produce like lemons, garlic, feta cheese, and crushed tomatoes (all of which are currently imported to Sweden at low cost) have seen their prices increase. This is due to the slowing down of international trade as this future is suffering from prolonged droughts to the food producing countries of Italy and Spain. In an effort to respond to such climate shocks, the H1 supplier is now promoting local produce rather than environmentally friendly produce. A shift in what the supplier is promoting indicates a future that has a different set of values and priorities when it comes to what is considered the responsible action for the climate. It represents a shift toward an effort to localize food consumption.

By creating this artifact from a future that is experiencing a prolonged climate shock, I as a designer am able to understand what types of innovations will be needed in this future context. It also allows me to communicate and contextualize the concepts that are created for this context. One of the primary hurdles preventing the REKO-ring community from increasing the amount of their shopping they do through local producers is that it currently has the perception of being high cost and a luxury. By contextualizing the price of food in a way that reflects the potential of a climate shock allows

a deeper understanding of what is considered cheap or even affordable food. It also highlights the need for the building and strengthening of a local food ecosystem.



Harvest Collaboration

In order to test the future section of the core framework in a case study I began a collaboration with an actor in Umeå's local food ecosystem. Together with Harvest, a local food ecosystem startup, the project has developed a proposition of what a local food ecosystem will look like in a viable world. Through workshops and engaging with the actors within the local food ecosystem of Umeå the project was able to identify design criteria to guide the resulting proposition as well as ground the project in the everyday reality of those living within the Umeå food ecosystem.

A snowballed introduction.

During my generative research phase I came into contact with the Harvest team through snowballing from another interview. After meeting with the team it became clear that my thesis's research question was quite aligned with the vision that they had. At the time when we first met their stated mission was to change the way we produce, consume, and value food through the application of the three pillars of technology, cooperation, and social innovation. The team's plan is to build a vertical farming module and food service hub in central Umeå with the plan to expand these hubs across the city. The team also has acquired a piece of farmland 15 minutes outside of the city of Umeå and has the plan of including traditionally farmed produce to the greens that are produced at the vertical farm. Their mission has since evolved into describing Harvest as a local food ecosystem startup with a mission to improve the local food supply chain so that everyone can eat deliciously and sustainably.

Harvest as a connector between multiple actors in the ecosystem.

When looking at the community of eaters ecosystem Harvest occupied a space where multiple roles within the local food ecosystem converged. The hubs that they were in the process of developing enabled a space where buying, selling, and producing food in an urban context could unfold. This made working with them a great opportunity to apply the learnings



from both the desk and primary research. This combined with shared values on building a more cooperative and resilient food system made the collaboration a mutually beneficial endeavor.

Exploring social vertical farming

The starting point of our collaboration was to explore how the produce grown at the Harvest vertical farm would connect to and interact with the surrounding community. This was chosen as the starting point for the collaboration because the team's work with understanding their customer base had just begun. My project would serve as a way for them to explore this group through a participatory design perspective.

Workshop #1: Connecting to Vertical Farms

How do you connect to food that is grown in an urban area that has a short growth cycle? This was my initial question when exploring social vertical farming. What possibilities emerge when the community has a more intimate relationship with the food they consume?

Build it, Break it, Fix it.

Designed solutions have the ability to not only solve the challenge that they set out to address, but they also carry with them the potential to create controversies. This potential is magnified when the solutions are being projected out to an uncertain future. In an effort to identify such controversies, I ran a workshop with design students at Umeå Institute of Design to explore such scenarios.

Participants were asked to ideate around how they would connect to the food produced at harvest hubs with a set of objects from the surrounding area. These objects included bikes, roads, busses, and trees. From these ideas they were asked to pick one to build on as if it were the 'new normal'. Once they had a concept fleshed out they shared with a neighbor who then had the task to identify the potential controversies that would arise from this 'new normal' and suggest ways to fix or avoid these controversies. They then shared the results with the group and we had a discussion about the pitfalls and solutions the created concepts surfaced.

What was learned

The first thing I learned from running a workshop like this was related more to the nature of what activities produced the most rich content. The break and fix element of the workshop enabled the participants to explore what impacts their concepts would have and the suggestions to fix them brought forward topics that were necessary for me to take into account during my own concept development.

The nature of who shapes what is available at the hubs if the community dictates what is grown was a potential challenge that was raised. Can changing demographics impact how communities access food together? How does cultural food relationships affect the community? Another question that surfaced was that around ease of access and availability of certain types of food products. The question, "supermarkets have everything will I need to make extra effort to get local food?" brings up how local food hubs will not only have to compete with current suppliers, but also expand the availability of a diversity of food products.

Some emerging themes included:

- Community food data in planning and buying. What we buy affects what's available.
- There is potential for using vertical farming as a tool to teach about a climate friendly diet.
- Supporting a diversity of options. Urban farms are not a silver bullet.



Workshop #2: Umeå creative food community

With the help of the Harvest team I was able to organize a second workshop that included members of Umeå's creative food community and continue to explore how food produced in urban vertical farming hubs could connect to the community. Due to how well the first workshop worked in surfacing conflicts within potential concept directions, I chose to conduct a similar workshop structure. This time I had some more detailed areas that I wanted to explore within this community. Participants included: REKO customers, local farmers, an architect, a social worker, an urban farmer, and the Harvest team.

Introduce, teach, convince, and cooperate

During this version of the Build, break, and fix workshop I wanted to explore how the food grown could: introduce you to new people, teach you about a climate friendly diet, convince you that it was trustworthy, and help you cooperate with other local producers. These actions were all fragments of what I felt were directions that collective food action could take and I wanted to see not only what ideas came out of the session, but almost more importantly how those ideas were received, broken, and fixed.

What was learned

This workshop surfaced a similar question of who has access to the food produced at these hubs and how do we make sure that everyone is involved. Building on this, the idea of community negotiated principles and who has the power to decide these principles became an interesting way to frame this topic. The discussion around these principles revolved around the waste produced by the farming hub, the transparency of the food information, and the facilitation of cooperation between local producers.

From this workshop I continued to get a better understanding of how to be asking the right question when it comes to designing for food system transition. How do I as a designer create the conditions for food citizenship behavior and allow for this type of community organized principle and values negotiation? This led me to synthesize my findings from the workshops into a set of design criteria for any concept attempting to promote food citizenship.



Criteria for Food Citizenship

Once I had conducted workshops to understand what types of solutions and controversies were brought up by the creative food community in Umeå, I consolidated these insights into a set of design criteria. These design criteria differ from the principles that came out of the generative research phase in that they speak to specific traits that concepts must embody in order to be aligned with not only the research phase, but also the feedback I received on the directions presented during the workshops. These criteria ensure that any concepts that I produce have a strong link back to the primary research.

Promote cooperative food behavior

Learning from the primary research, solidarity buying groups and community supported agriculture, in addition to insights from the workshops conducted it became clear that any concept that attempts to transition Umeå's food system needs to be built on a core of cooperative food behavior.

Promote social well being

Any concept created needs to promote a community that is built on trust and an understanding of community solidarity. This can be achieved through facilitating connection points and channels of communication between the various actors within the system and promoting the production of relational goods.

Support those living in transition

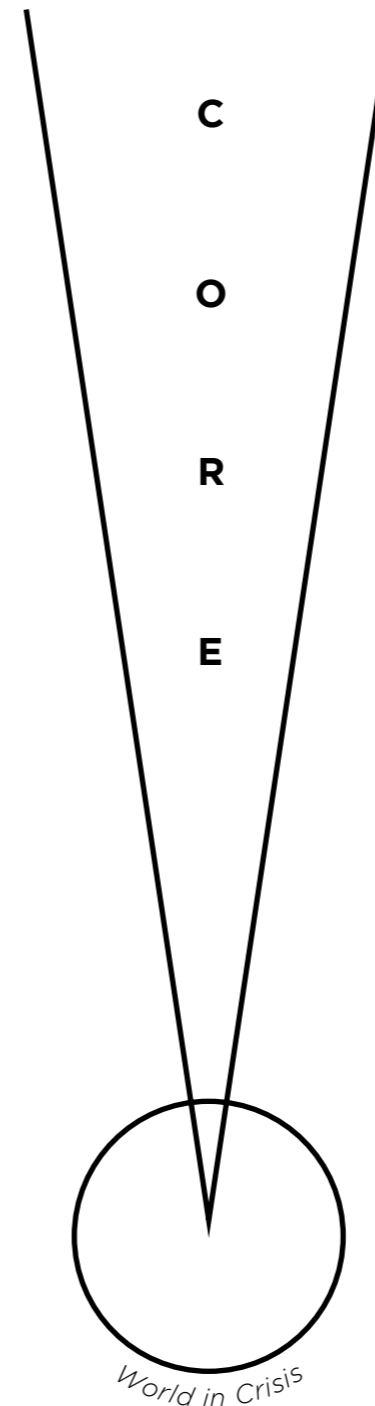
As seen in the primary research phase there are creative communities that are attempting to transition to a preferable food system while also having a foot in the current one. Any design proposition should serve to support those living in transition.

Promote food information transparency

Any design proposition should strengthen the connection between a community and the food that they consume. By facilitating a more direct connection, there opens the space for a better understanding of how actors fit into their roles within the local food ecosystem.

The core, identified

The process I have taken up until this point has shaped the core and vision of the viable world that I will be using during concept development. These two elements enable me as a designer to understand the vision or target of systems transition as well as the mechanisms through which this transition can potentially be achieved.



A vision of a viable world

A resilient food system is one defined and supported by a strong connection between a community and its local small producers. Such a system will be able to self-organize to adapt to the shocks caused by climate change.

The core to get there

Through the promotion of cooperative food behavior, food information transparency, and mutual aid the conditions for a food system that exists within planetary boundaries can be created.

Developing a system proposition

With a framework to approach designing the systems transition that will be necessary in the face of climate shocks I applied this framework to illustrate the type of design proposition that could be produced if such an approach was taken. The resulting proposition is called the Harvest Network. This next section will illustrate this framework in action and describe the resulting proposition.

Once the core was identified and the viable world began to show. My research question became more clear.

How might we create the conditions for collective action that support a local food ecosystem?

A journey through the Harvest Hub

With space being identified as a vital component of enabling food citizenship to unfold, I began my ideation process by creating a journey map through the space. I was interested in understanding what a week and month would be like for a community to interact with the hubs.

A criteria that I wanted to explore more was promoting cooperative food behavior. I developed the idea of a Harvest Cooperative in this initial journey map as the consumer facing side of the experience. A group of people that could be friends, family, neighbors, or even just members of Harvest would have a 'share' of the vertical farm. The container vertical farm

that Harvest is utilizing is divided into towers that can be split into shares. By grounding how people interact with the food grown at Harvest in groups begins to lay the foundation of collective action around food because it necessitates negotiation within the group around what will be grown.

Three concepts that serve various levels of transition

After I produced the initial journey I conducted a feedback session with the Harvest team. Through the feedback and evaluation through the core framework it became evident that the single journey contained elements of three versions of transitional concepts. If my

HMW was to create the conditions for collective food action that supports a local food ecosystem it was important that I understand what elements of the concepts I was developing achieved this in the fullest sense. The three concepts produced were: Harvest Greens, Harvest+, and Harvest Network.

Harvest Greens concept

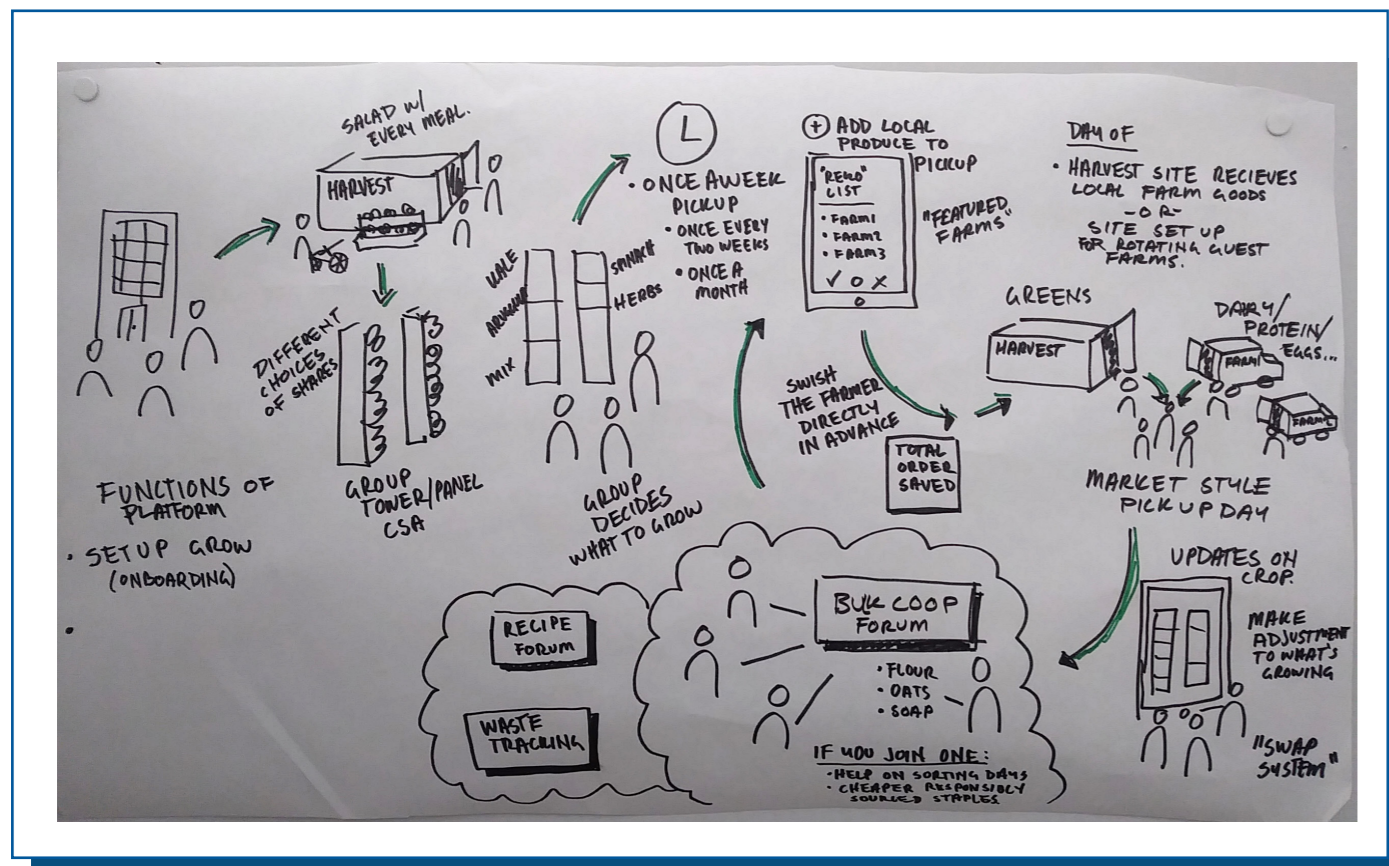
The Harvest Greens concept is grounded in the idea of consumer personalization of the produce they buy. As described earlier it consists of a Harvest Cooperative that decides what they would like to grow in their share and then picks up the harvest from that share once a week. In essence the core of this idea is having really fresh and tasty salad green at every meal during the week. The quick crop cycle of such leafy greens enables a weekly delivery of products.

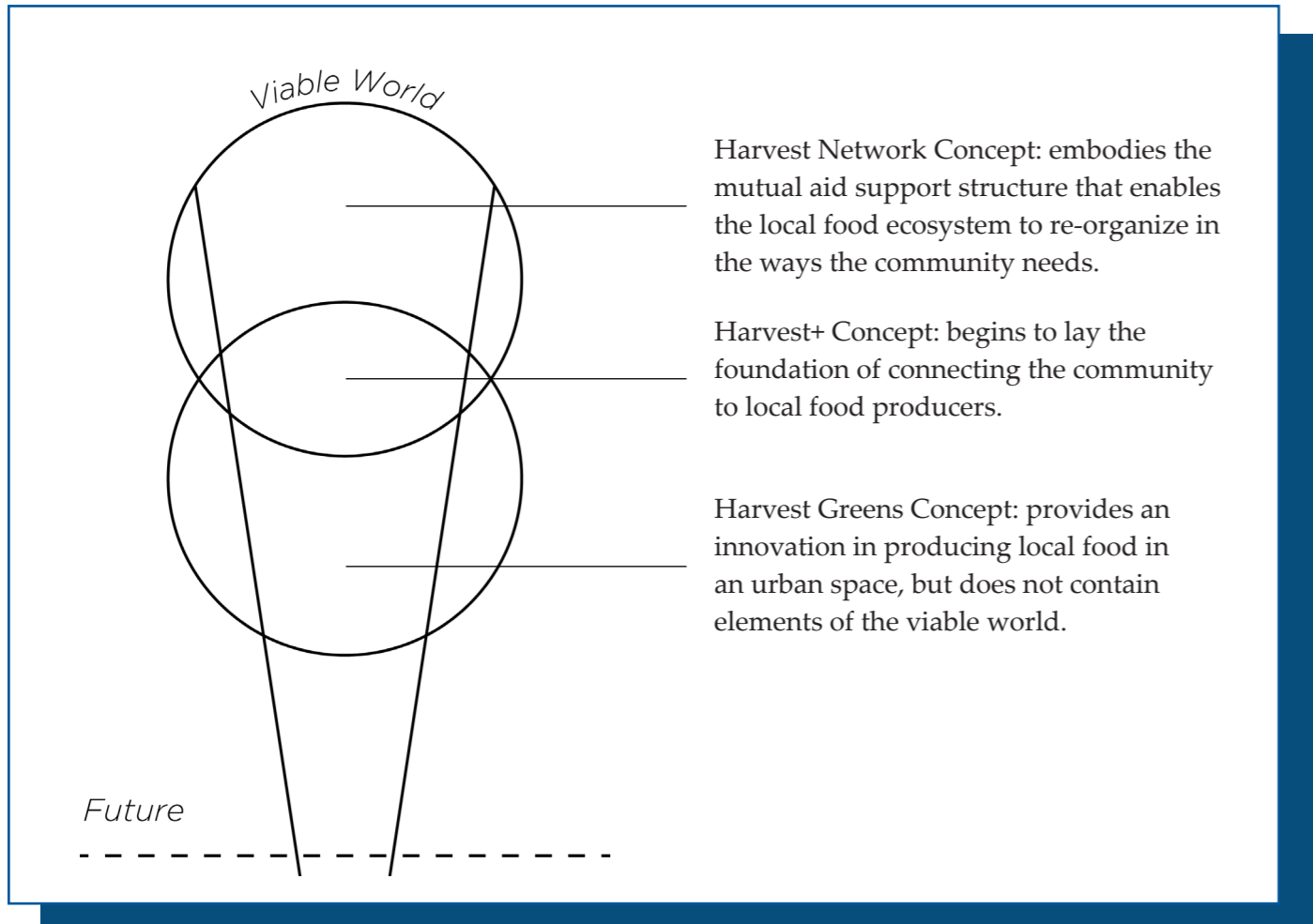
This concept focuses Harvest's attention on one thing, producing high quality greens and providing an easy way for the surrounding community to access these greens. While this concept is an innovation in the sense that communities are gaining access to fresh produce that is farmed close to the point of consumption, it does not facilitate or support the growth of a local food ecosystem. Vertical farming has its limitations when it comes to what type of produce it is able to grow. This is why this concept focuses on producing leafy greens like salads, spinach and kale. Understanding that vertical farms are only able to produce a small amount of an individual's diet led to the next concepts development within the journey through a harvest hub.

Harvest+ concept

In an effort to address the shortcomings of vertical farming and to further connect the community of Umeå to the small local producers in the area the Harvest+ concept was developed. This built on the Harvest Greens concept in the sense that after the Harvest Cooperative has decided what they would like to grow in their share they can also add produce from local producers to their 'order'. These 'orders' could be placed through a platform that showed the products from a few featured farms from the surrounding area. This list of farms could be a rotating group of partnerships and the products ordered would be picked up once a week in the style of a farmers market.

When this concept was shared with the Harvest team they shared their plan to get additional land 10 minutes outside of the city of Umeå and eventually include transitionally farmed produce to the assortment available to the Harvest Cooperatives. The concept was aligned with the long term plans of the team and it begins to form a bridge to the viable world in the sense that it lays the foundation for connecting multiple producers to a location and consumer driven cooperatives. This concept explores how such an arrangement could look in a mutualistically resilient food system. It does not however go all the way to the viable world because it does not address how to facilitate the growth and ability to re-organize that would define the food system of the viable world.





Harvest Network concept

The Harvest Network concept is a distributed network of Harvest Cooperatives, Harvest Hubs, and local farms that connects urban communities to local producers. It is facilitated by a platform that enables orders, logistics, and communication. It has the system goal of expanding & supporting a diversity of local food producers within the ecosystem by connecting urban communities with local producers, and transition to a more resilient food system in Umeå.

This concept builds on the foundation laid by the Harvest+ concept in the sense that it

facilitates the growth of the local food ecosystem. It does this through the use of the Harvest Hubs as a physical space for order delivery, sorting and events combined with a digital platform for visualizing demand and product availability within the local food ecosystem. It also facilitates consumer requests for new produce as well as farmers requests for the support of expanded production. Through the facilitation of such a mutual aid infrastructure the system is able to re-organize and evolve in the way that the community and local producers require.

Harvest plays the role of creating an infrastructure that provides shared storage of

orders and logistics that allow producers to have weekly drop off to their nearest hub, from which the products are distributed to the Harvest Hub that corresponds to the Harvest Cooperative that placed the order. The orders are sorted and picked up by the Harvest Cooperative in a weekly ritual not too dissimilar from a traditional farmers market.

Evaluating with Integrated Value

After I evaluated my concepts with the core framework, I looked for other ways to evaluate and strengthen my argument for pursuing the Harvest Network as a proposition that adequately answers my HMW. In this search I was introduced to the concept of Integrated Value.

Designers need a broader vocabulary when talking about their concepts based on qualitative research and translating them into viable business models or propositions. I found Integrated Value as a helpful tool to understand how my concept creates value. By having a better understanding of how this value is created I as a designer have better control over where and how this value is distributed. It also enables me to have a more vigorous argument in the defense of the decisions made during my design process.

Integrated Value describes the convergence of five pathways of innovation: secure, smart, shared, sustainable, and satisfying. When an organization or concept focuses on multiple of the 5-Ss as innovation pathways they are producing integrated value and have the synergy that is characteristic of transformative

change (Vissler, 2017).

Through applying Integrated Value as an evaluation tool, the Harvest Network is a concept that focuses on all 5-Ss. It is secure through building & supporting local food production capacity reduces dependency on the global industrial food system. It is smart because cooperatives and farmers are connected by a platform and through a Harvest Hub which forms a distributed socio-technical system that provides the infrastructure for the growth of a local food ecosystem. It is shared because food cooperatives with a strong connection to farmers allows for the support of new production initiatives through a system of mutual aid. It is sustainable because local production allows for shorter supply chains and a strong connection between community and farmers reduces food waste due to a better understanding of demand. And finally it is satisfying because cooperative food behavior produces a form of well being based on relational goods and more vibrant community interactions based on understanding and trust.

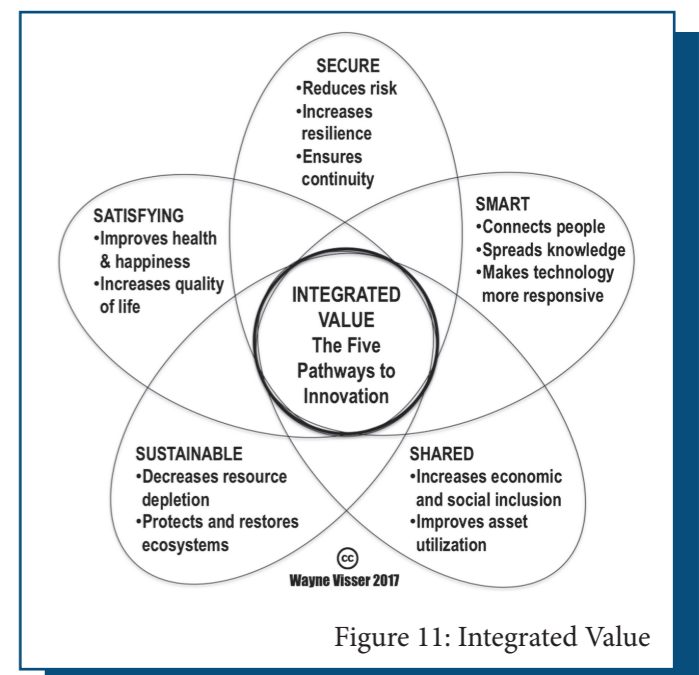
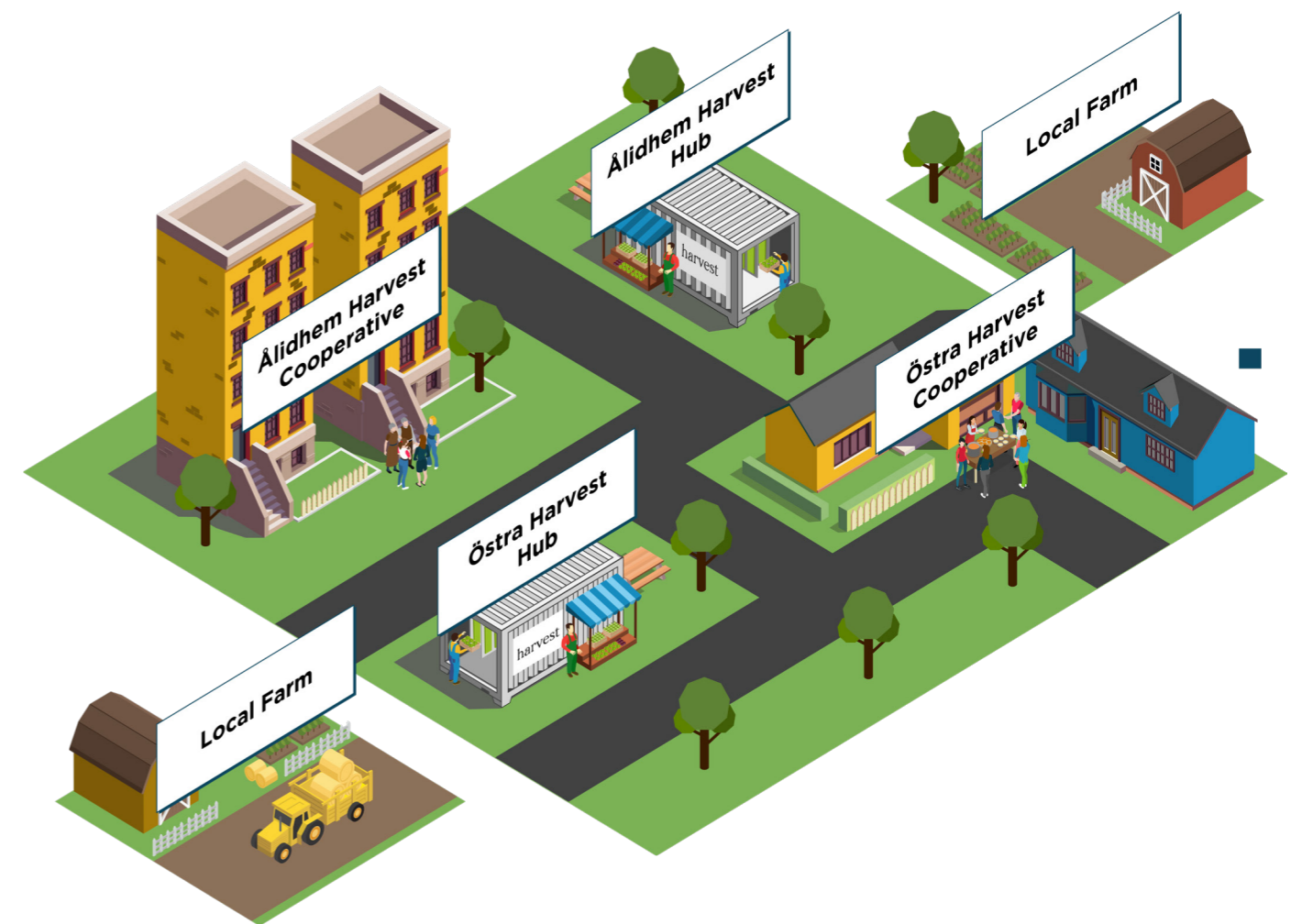
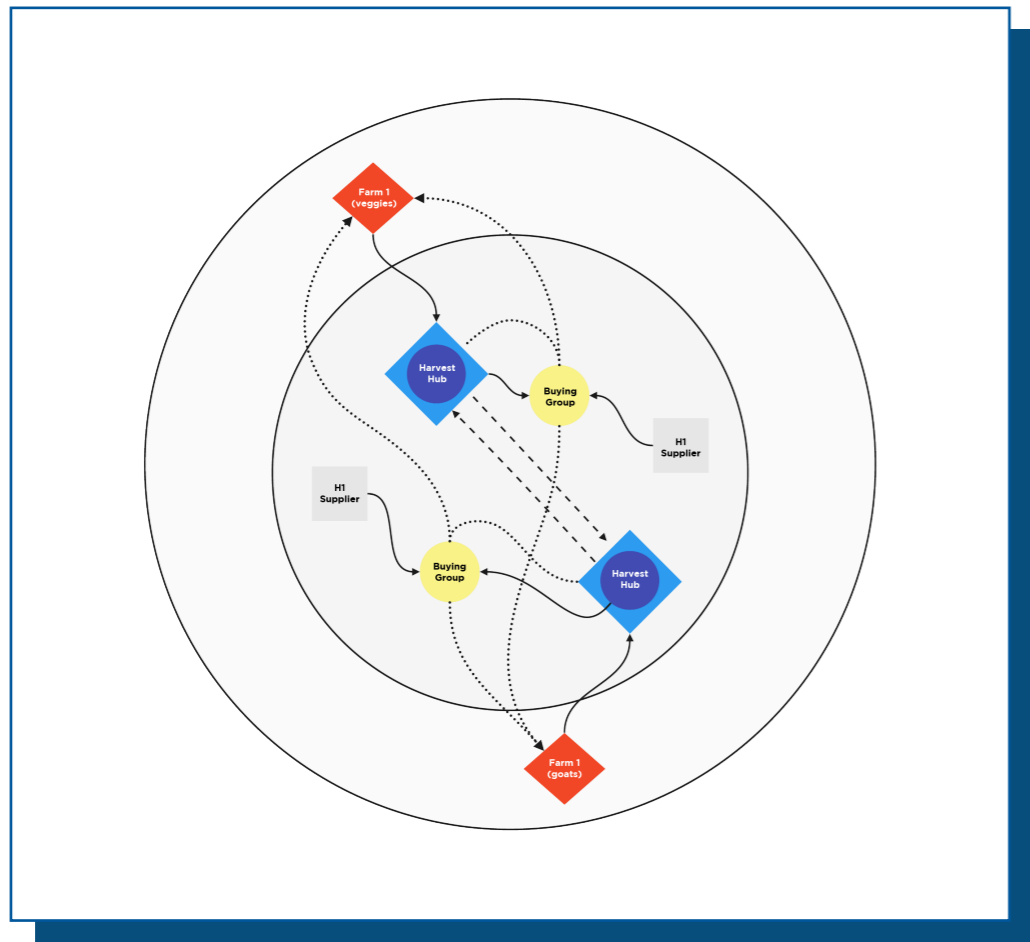


Figure 11: Integrated Value

The Harvest Network: a system proposition

After ideation and evaluation I chose to focus on exemplifying what a food system characterized by mutualistic resilience would look like by exploring how the various actors in the system would sense, reflect and act in relation to this food system. I did this through creating an artifact that provides a glimpse into everyday life in the system as well as exploring a few scenarios within the Harvest Network.





A network of actors & elements

The Harvest Hub

The hub serves as the space for food citizenship to unfold. With its vertical farming container it is able to produce leafy greens that are able to have a high crop turnover. It also serves as a connector and a space for interaction between those in the Harvest community.

Roles:

- Production of high quality leafy greens year round.

- Provide space and storage for the buying groups near its location to access their orders.
- Distribute produce between hubs to allow for access to farmer produce from around the region.
- Hold events that teach the community about practices that will help them live in transition.

Harvest Cooperatives

The way that consumers will come into contact with the system proposition is through Harvest Cooperatives. These cooperatives are made up of community members that are within

a close geographical distance of a Harvest Hub. Group creation can be both organic and facilitated by Harvest Network. These cooperatives order produce from local farmers together as well as have a share tower within the vertical farm. By organizing the Harvest community into cooperatives, the community is able to both pool resources that can be used to support local farmers as well as engage in the negotiation of principles around what food should be bought and grown. This is the type of collective action that will need to be encouraged for the longevity of the system.

Roles:

- Place orders from a directory of local producers. Payments made in advance.
- Send requests for new produce production, visualizing demand.
- Unpacking and sorting on one weekend day a month together with other buying group members.

Local Small Farms

Local farms in the surrounding area produce a wide range of produce including vegetables, dairy, meat, and grains. These farms will have the ability to expand production with the support of the Harvest Cooperatives. A better visualization of demand will enable them to focus on producing rather than relying on multiple sales and marketing channels.

Roles:

- Production of high quality produce which follows seasonal patterns.

- Drop off buying group order requests to the nearest Harvest Hub once a week at a set time.
- Send requests to the Harvest Network for support in expanding production capabilities.

H1 Suppliers

ICA, Coop, and LIDL are all examples of H1 suppliers that will still be present in the resilient food ecosystem.

Roles:

- Provide processed food products not available within the Harvest Network.
- Provide non-food products like cleaning supplies, kitchen accessories, etc.

The Harvest Platform

The platform is a digital tool that will be connecting and facilitating the logistics of the Harvest Network. This platform is a form of civic media in the sense that it enables the community to connect and strive together toward the common goal of supporting and building a strong local food ecosystem

Roles:

- Process orders and facilitate payment directly to farmers.
- Display in a sortable and turn-key way produce available from local producers.
- Posting place for buying group and farm requests. Facilitate communication between parties as request is fulfilled.

Visualizing the Harvest Network

Once I mapped out the various actors and elements of the system and defined what types of roles that they had within the system my next challenge became how to communicate this result. Drawing on speculative design's practice of making tangible artifacts and transition design's development of narratives and glimpses of the 'not yet' I explored what a design deliverable in a project addressing systems transition could be. I produced an object that provides a glimpse into everyday life within this system as well as some scenarios of how the system could function. The aim with these visualizations was to weave a narrative around what the Harvest Network could be.

Objects that provide a glimpse

As concepts begin to form, objects can also be used to provide a window into the

materiality of everyday life could look and feel like. The Harvest Network focuses on how the community of Umeå connects with local small producers. When exploring how this system shows up in the everyday life of those within it I began to ask the question: How do people bring home this produce and how is the space provided by the Harvest Hubs facilitate behavior that embodies the core of the transition?

In an effort to better understand the everyday life of the food citizens of Umeå's mutualistically resilient local food ecosystem I created a speculative artifact from this future. This object is useful in understanding the context of those inhabiting this ecosystem as well as beginning to tease out how the various actors in the system will respond in this future.

In exploring this, I created a skill share event around food packaging that takes place at a Harvest Hub. At this event Harvest has invited a local climate activist to come and speak about the

impact that the plastic packaging used to wrap food products is having on wildlife across the globe. Once the lecture concludes there is a skill share about crocheting your own market bag that can be used to carry home the non packaged produce they order from the Harvest Network. This market bag was started at the skill share and is being worked on at home by the Harvest member. During the skill share the community member that was leading the session was encouraging the Harvest members to be mindful of the time it takes to complete the bag in comparison to the time it takes for a plastic bag to decompose, around 1000 years. Creating this bag is both a practical and metaphorical task that the Harvest community is using to communicate the need for environmental responsibility and a proactive planetary stewardship role.

By creating this artifact I made a tangible element of the Harvest Network concept

that embodies the core of the food system of the viable world which is characterized by mutualistic resilience.

Sense, Reflect, Act: How do actors in the system relate to it?

Another method I used to illustrate how the various actors and elements in the system interact in order to achieve the system goal was to explore how each actor senses, reflects, and then takes action. By doing this exercise I was able to better understand the ways in which each part of the system related to their role in the system. To illustrate the outcome of this exercise I created two scenarios that exemplify the mutualism within the system. These two scenarios focus on how a Harvest cooperative and farmer sense, reflect and act within the system.

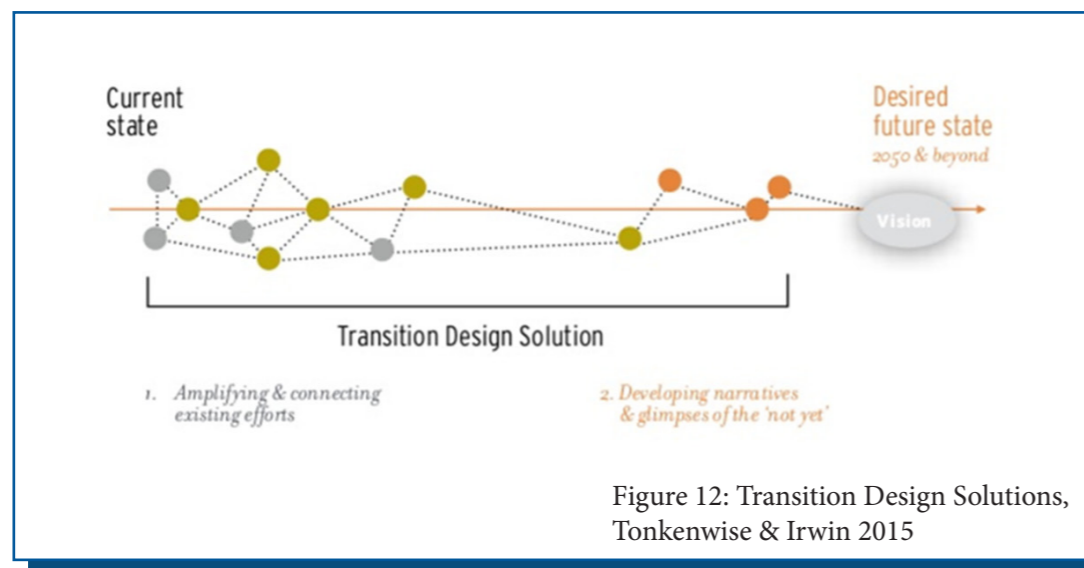


Figure 12: Transition Design Solutions, Tonkenwise & Irwin 2015



Overview of the Network: gaining a sense of what is there

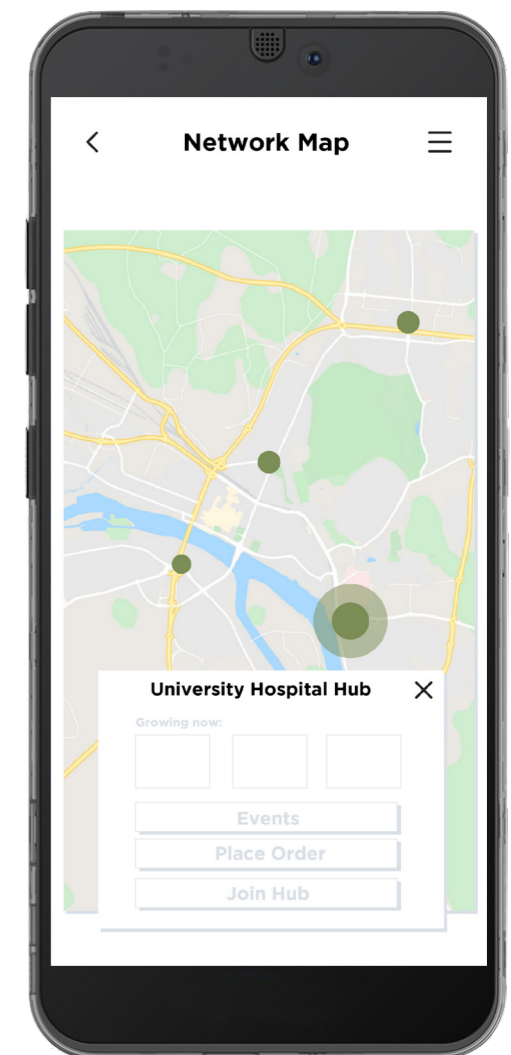
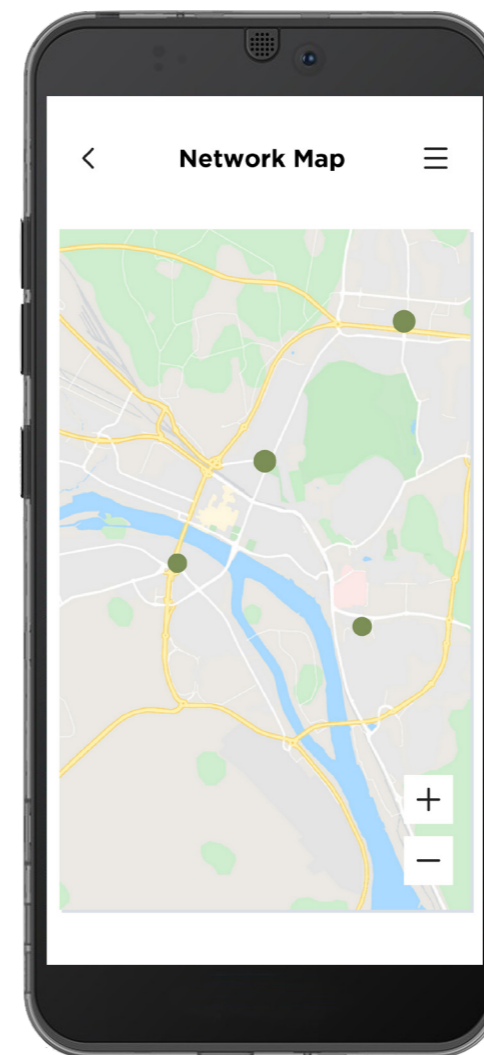
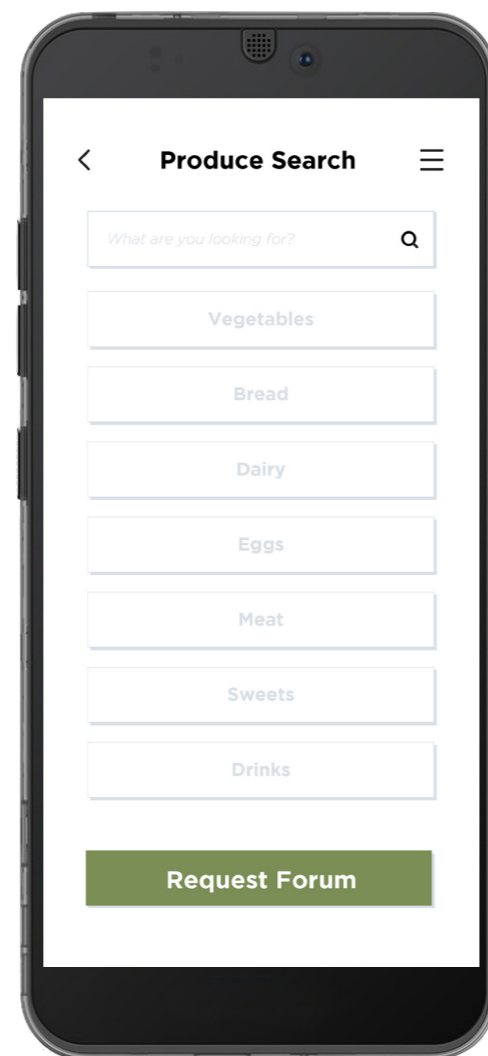
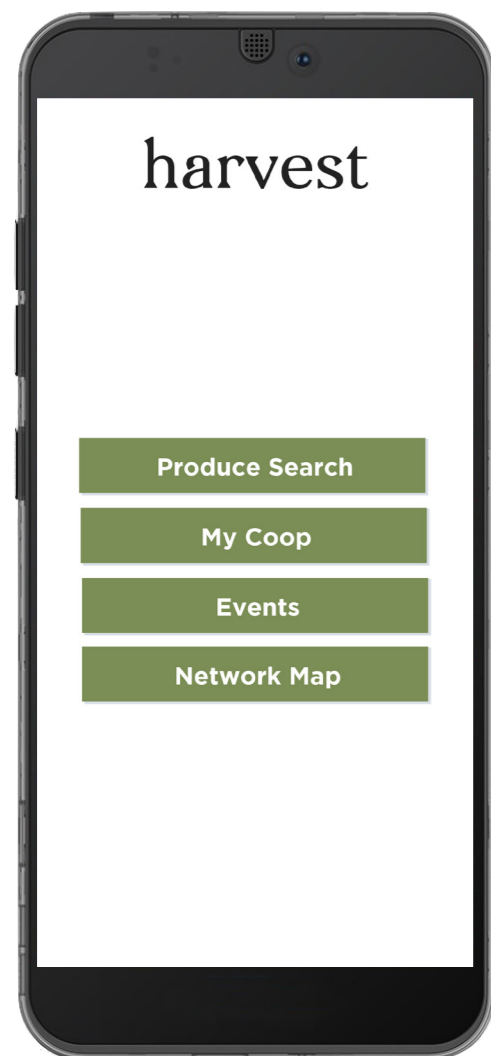
The Harvest Platform is the digital space where Harvest Cooperatives and local small producers can get a sense of what the current state of the system is. Harvest Cooperatives are able to see what produce stock is available in the system through a filtered search. Local small producers are able to see what demand is present through receiving orders from Harvest

Cooperatives. Both actors are able to view a quick overview of the network in the form of a Network Map. This platform is also where Harvest Cooperatives can manage the orders placed within their cooperative.

Network Map: what's happening and where?

The Network Map provides all actors in the system a way to see where others are located and find out more about what each actor is doing within the system. This is a space where Harvest Hubs and small local farmers can show what is currently growing and if there are upcoming events, like the market bag skill share described earlier. By having a digital space like

this producers are able to easily tell a story about their operation and potentially invite network members to participate in production activities. It also allows consumers to directly place an order that will be added to their Harvest Cooperative.



Network Requests: a mechanism for self-organization

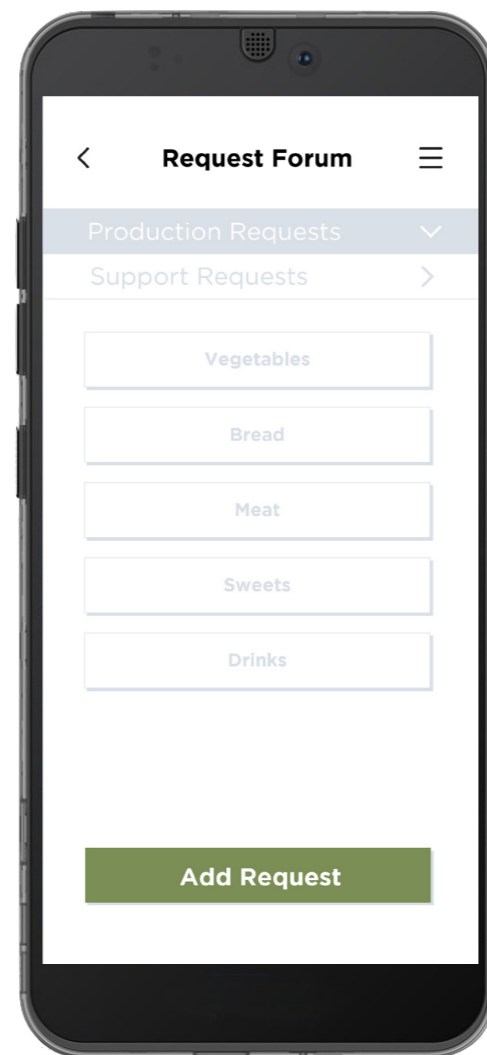
The system's goal is to support and expand the local food ecosystem of Umeå. As such, the Harvest platform enables a mutual aid support system that enables Harvest Cooperatives to request new produce production from the network of producers while farmers can request support from the network of cooperatives to facilitate production expansion. By having this capability the system is able to self-organize around what demand is in the system and respond to the shocks caused by climate change.

These requests provide value to both actors, making it a mutualistic interaction. A farmer is able to sense the demand that is currently existing in the system by gaining an understanding of what types of requests cooperatives are making. They are then able to reflect on what production they currently have or have the potential to expand into. They then can act accordingly now that they have a better understanding of what potential exists for their products to be bought. If the farmer sees that there is a request or multiple requests for a similar product they have the infrastructure in place to seek aid in expanding their production capability to meet that demand.

A cooperative gains value from this system interaction through an expansion of what type of local products are available in the marketplace. The harvest platform provides a way for a cooperative to sense what is currently being produced by local farmers, reflect on how this current stock fits their needs, and either place

orders from the farmers' existing production or request a new product be produced. As new produce is added to the network there is naturally an increase in the diversity of options available for all cooperatives to select from.

It is through such a constellation of interactions that a food system becomes mutualistically resilient. Harvest plays the role of facilitating such interactions through providing a platform in which the available produce is

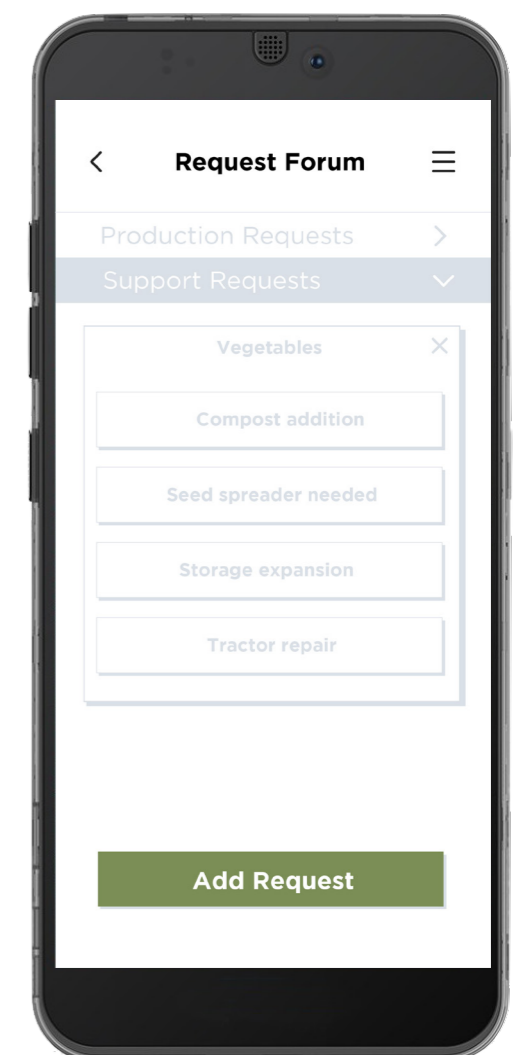
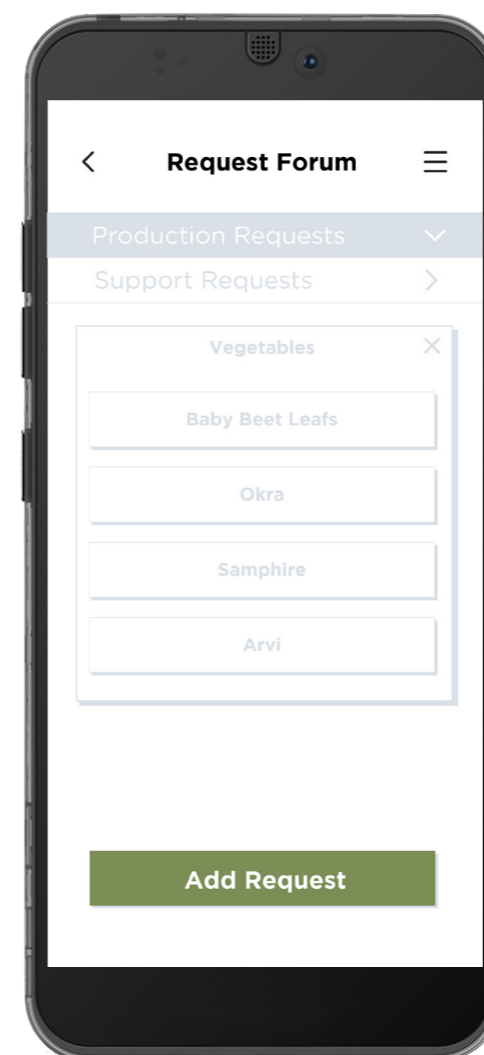


visualized and the requests are processed.

Such a potential system should be open and cooperative in nature. Harvest also provides the location, Harvest Hubs, through which produce can be organized and distributed across the city. By having multiple Harvest Hubs across the city that have a bike-truck distribution system, farmers would be able to deliver to a single drop off point and still be able to reach cooperatives throughout the city.

Request Forum: A visualization of demand

Both cooperatives and producers can see all requests currently present within the Harvest Network in the request forum. This is a space for actors to sense what demand is currently in the network and add or respond to requests based on their needs.



Network Requests: adding and filling requests

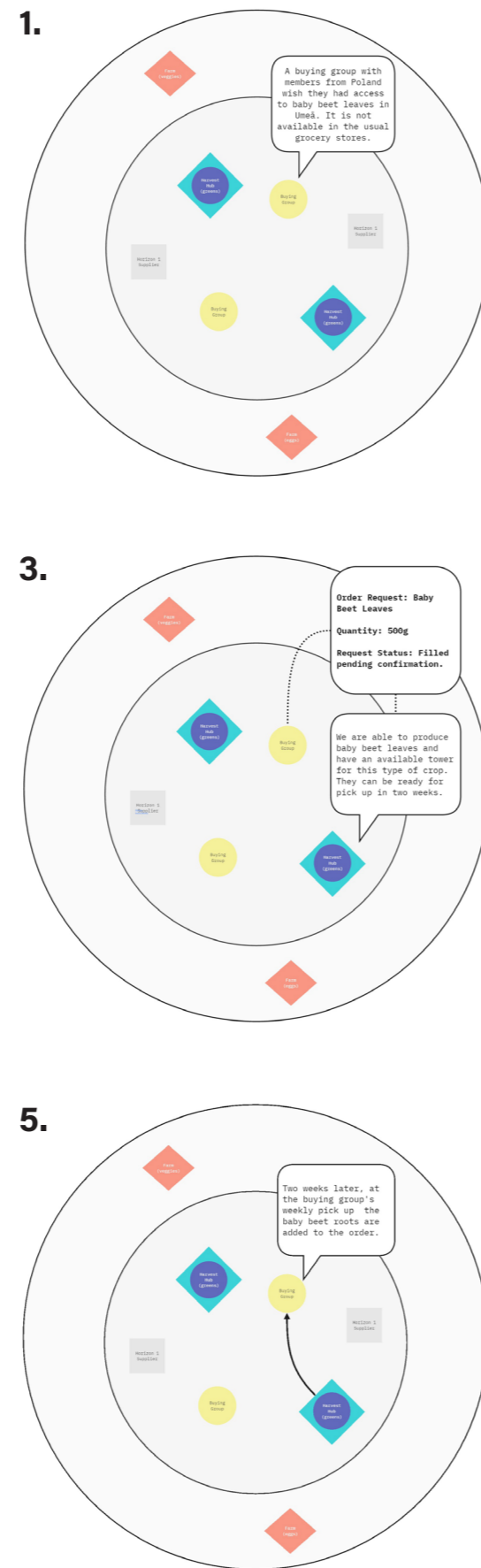
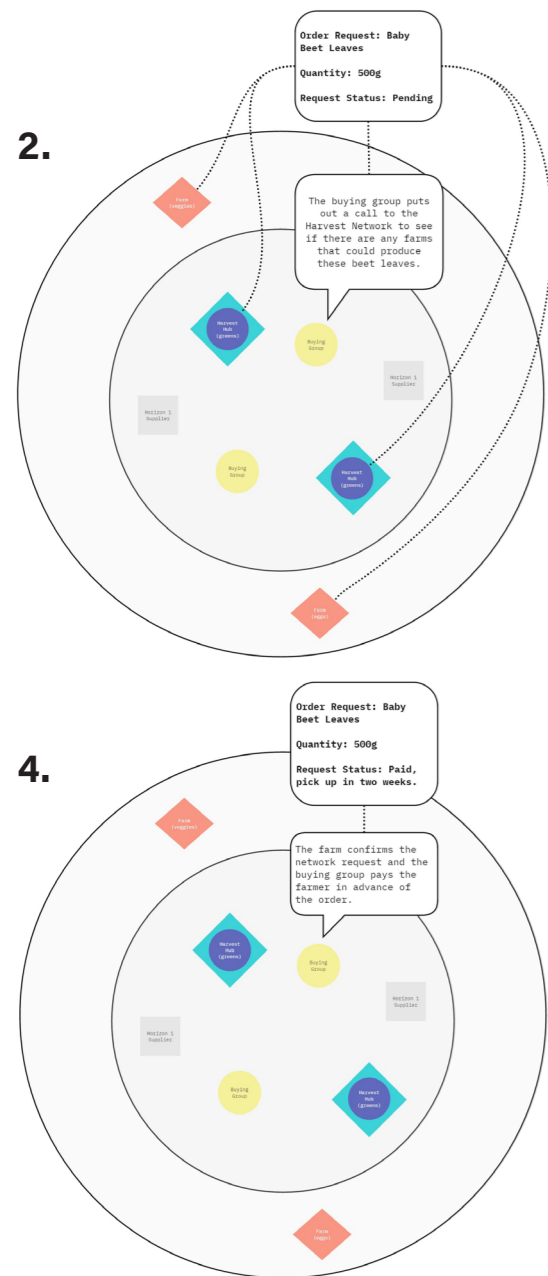
When a production or support request is necessary the actor creates a new request and fills in the required information. This includes the request type, product type, quantity, frequency, and location of the producer or cooperative. Once this form is filled out the request is sent to the corresponding section of the request forum.

The smartphone screen displays the 'Add Request' form. At the top, there is a back arrow and the title 'Add Request' next to a hamburger menu icon. The form is enclosed in a white box with a close button (X) in the top right corner. It contains the following fields: 'Request type:' with 'Production' and 'Support' buttons; 'Product type:' with a text input field containing 'enter product type'; 'Quantity:' with a text input field containing 'enter quantity'; 'Frequency:' with 'Once', 'Weekly', and 'Monthly' buttons; and 'Location:' with a text input field containing 'Which hub is your coop at?'. At the bottom of the screen is a green button labeled 'Submit Request'.

The smartphone screen displays the 'Request Forum'. At the top, there is a back arrow and the title 'Request Forum' next to a hamburger menu icon. Below the title are two sections: 'Production Requests' with a downward arrow and 'Support Requests' with a rightward arrow. A white modal box is open, showing a request being filled. The modal has a close button (X) in the top right corner. It contains the following information: 'Baby Beet Leafs' as the product name; 'Requested By:' with 'Ostra Coop' as the requester; 'Quantity:' with '1500g'; and 'Frequency:' with 'Once', 'Weekly', and 'Monthly' buttons, where 'Weekly' is highlighted in green. At the bottom of the screen is a green button labeled 'Fill Request'.

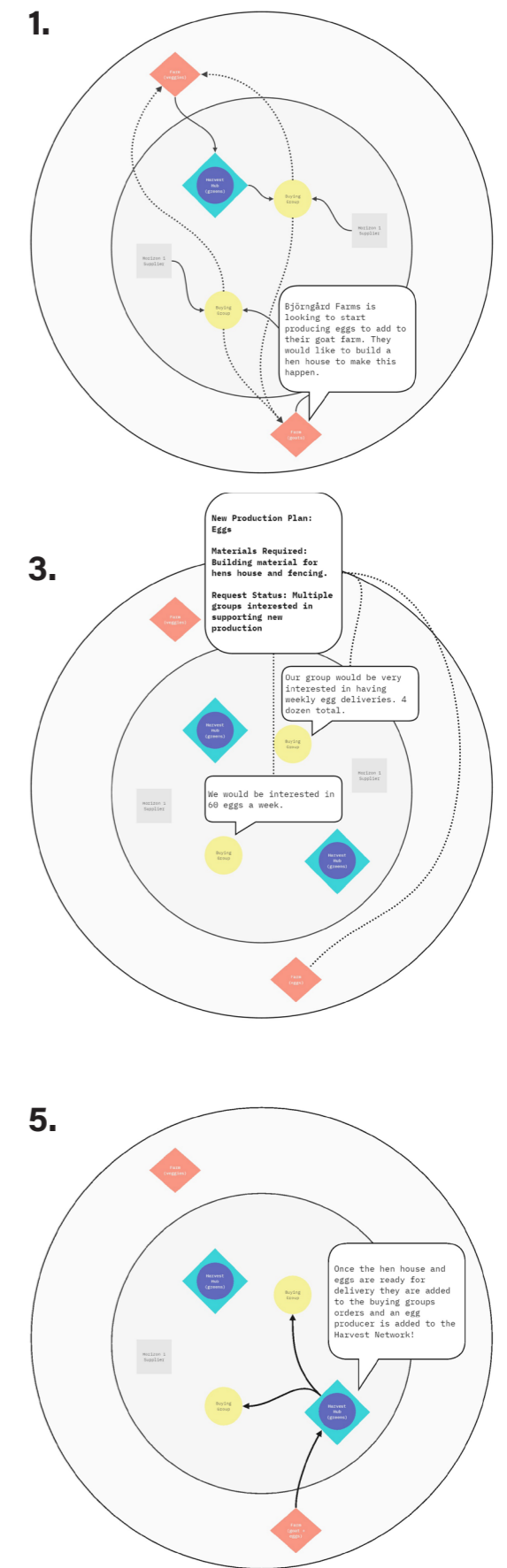
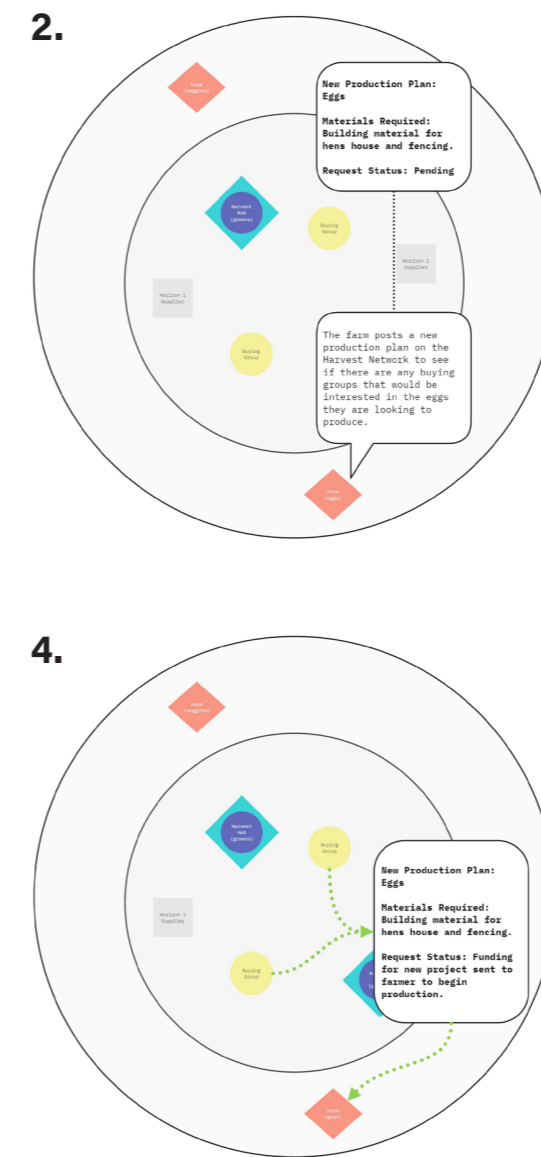
Harvest Cooperative Request: adding produce to the network

In this scenario a Harvest Cooperative, that has members predominantly from Poland, sends a production request for baby beet greens to the Harvest Network. This is an ingredient they need in order to prepare a soup that reminds them of home. A Harvest Hub responds that this type of product can be produced and it is added to the cooperative's order.



Local Small Producer Request: supporting producers expansion

In this scenario a local goat farmer has noticed that there have been a large number of egg orders and requests in the network. She sees this as an opportunity to expand her farm's production capability and sends a support request. Two Harvest Cooperatives respond to the request and together send the funds needed to build a hen house. Once she is ready to produce the cooperatives get eggs added to their orders and there are now more eggs available in the network.



A week in the life of the Harvest Network

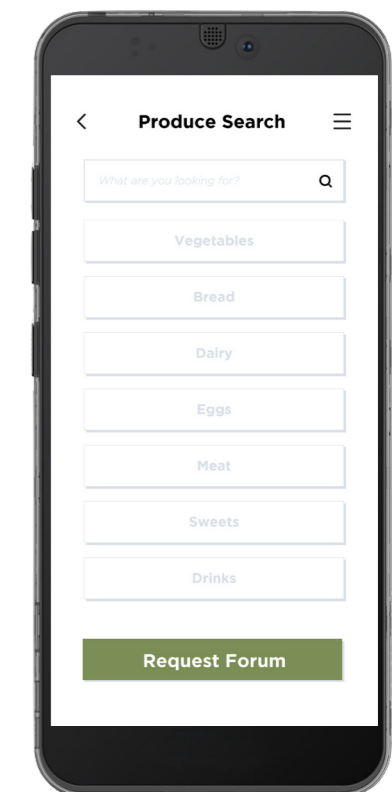
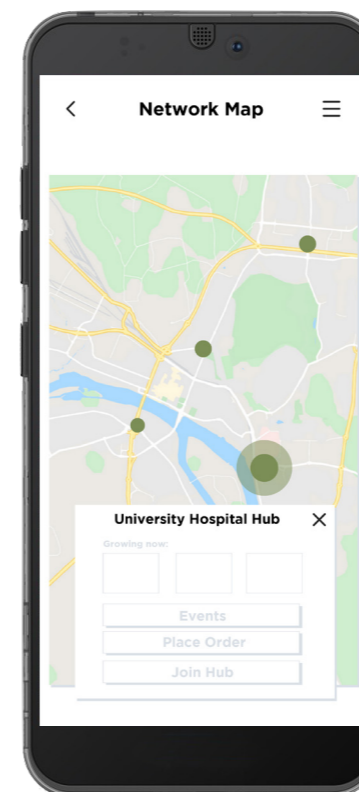
In order to exemplify how this network would show up in the day-to-day life of a citizen living in Umeå's future food system, here is a user journey of Maja as she discovers the network, joins a cooperative, participates in ordering, and sends a consumer request. Below each scene is where the activity shows up in the Harvest Platform.



Maja talks with her neighbor, Sarah, about her concern over the climate and how the food she buys is negatively impacting the environment. Sarah tells her about the Harvest Network and invites Maja to join the cooperative that she started with other members of the building. Sarah tells Maja about the other cooperatives and hubs that exist in the city and shows Maja them on the network map.



Maja joins the cooperative and before their next meeting she browses the Harvest Network Platform to see what she will want to add to the next order.





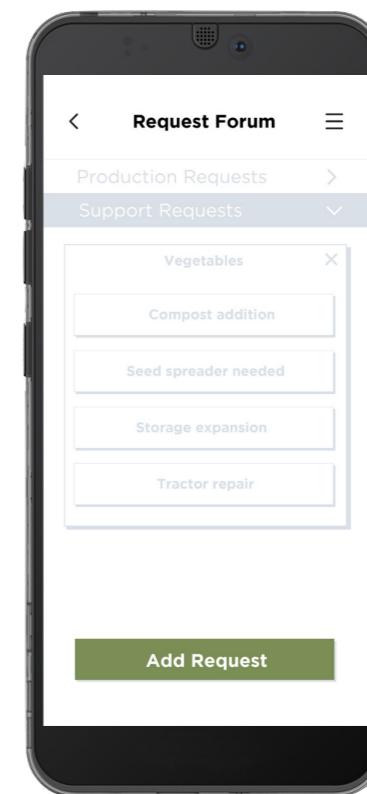
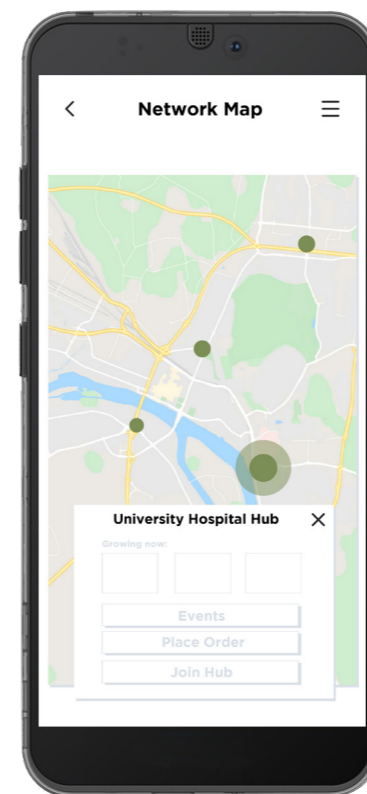
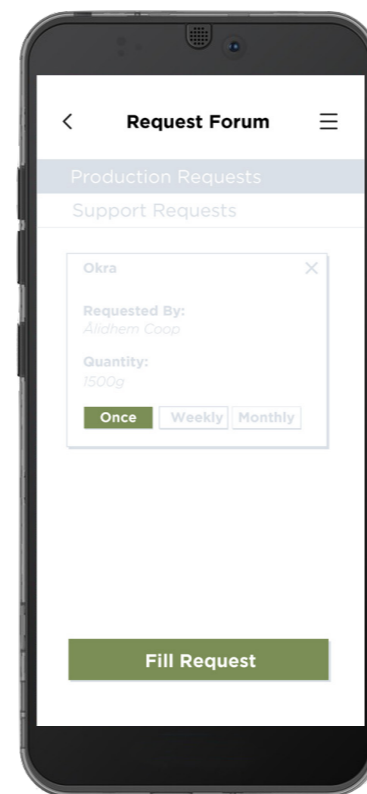
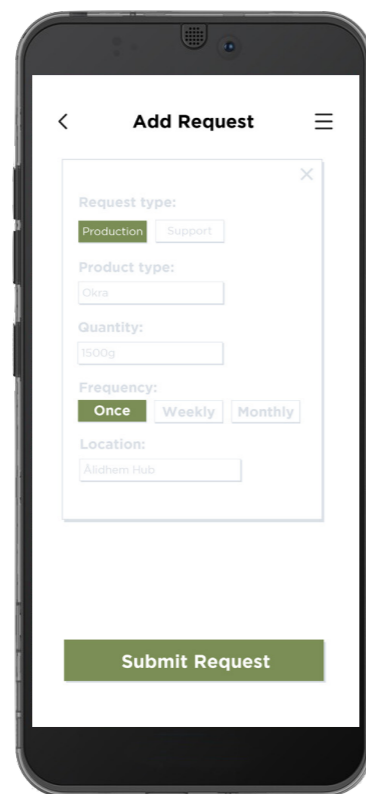
The cooperative meets at the local Harvest Hub for a planning meeting. At this meeting they first decide together what greens they want to grow on their tower share in the hub's vertical farm.

After they have decided what greens they will have in their order each week, the cooperative decides what other produce they will need to add to the order. They plan a group dinner and realize that they would love to make a dish that requires okra. Unfortunately okra is not available in the network so they place a request in the forum to see if a farmer is able to produce it for them.

A local farmer outside of Umeå named Jonas has some free space in his farm beds and is looking for what he will be able to grow in them so he can maximize his production. He looks in the Request forum and see's the request posted by Maja's cooperative. He responds that he will be able to fill the request and sends confirmation of production. The okra will be added to the cooperative's order when it is ready for harvest.

While studying for her next exam, Maja get's a notification about Jonas's ability to fill the okra request through the Harvest Platform. Curious about his farm, she looks up his farm profile and sees that Jonas has a request for support to expand his farm into egg production. She will suggest that the cooperative supports this request at their next meeting.

On Sunday morning Maja meets the cooperative at their local Harvest Hub and they together sort their order into their respective shares. Maja now has done most of her shopping from local producers and worked together with her neighbors to grow the local food ecosystem in Umeå.



Farmer feedback: Would this fit into your everyday?

In order to make sure that the concept I developed was grounded in the experience of those participating in it I had a follow up conversation with a farmer about the concept. The Harvest Network system proposition was well received and it was validated that the concept would fit into their current practice and allow local producers to have more confidence in increasing production.

Two interesting conflicts did arise during this conversation: have you considered the 'local trap' and how will this system change the power dynamics between consumer and producer.

The 'local trap' refers to the pitfall of conflating locally produced goods with environmentally friendly products. Take the example of an industrial pig farm that is

geographically local but is far from what the community would describe as environmentally friendly. Because of this feedback I emphasized the size of the local producers in the Harvest Network. The goal is to support local small producers, not local producers of any kind.

The second point the farmer brought up was a concern over how the power dynamics would change within such a system. Producers are able to remain in control of their production through requests being limited to products that do not currently exist within the network. By limiting requests in this way the likelihood of farmers competing to fill requests for common produce is reduced.

These are just two potential conflicts that could arise in such a system proposition and it is the responsibility of the designer to continue to test such propositions within the creative community.

"I can't help but smile when I hear your concept because I always assume that people don't want to help."

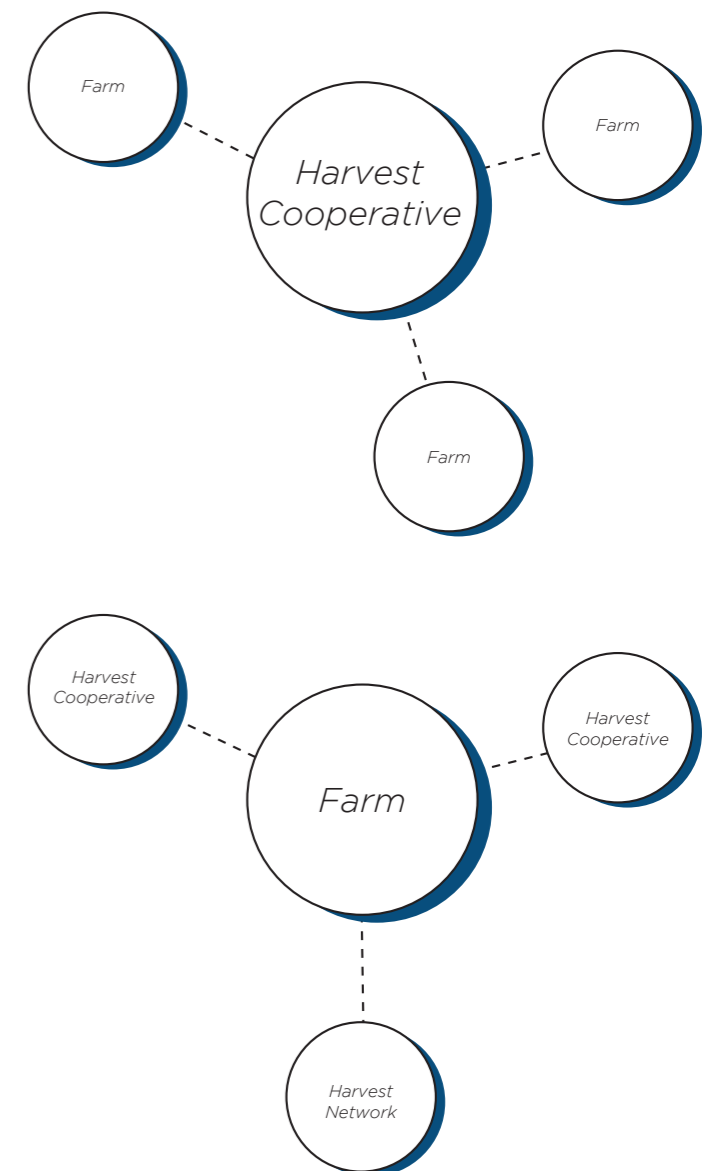
Local small farmer in Umeå

How could the system possibly self-organize?

The goal of the Harvest Network is to expand the local food ecosystem in Umeå. By enabling the community to expand the ecosystem as the community requires the potential for self-organization is created. In the feedback of the system proposition potential local food ecosystem constellations emerged. By using the request forum as the mechanism for mutualistic resilience and food citizenship relationships between cooperatives and local farms potentially form.

A Harvest Cooperative is likely to form a strong connection to a few farms that have fulfilled requests for them and then in turn the cooperative supports those farms. These constellations have the potential to form across the Harvest Network and form smaller food ecosystems. This close relationship provides the benefit of increasing cooperative investment in the farms they support.

From a local farm's perspective, constellations of a few consistent Harvest Cooperatives enables a certain sense of security in knowing there is a place for their produce to be sold. If a cooperative is not able to meet the farm's demand the farm has the rest of the Harvest Network as a safety net to sell their produce to.



Potential vulnerabilities in the system.

As I recieved feedback on the Harvest Network system proposition, there were some vulnerabilities that surfaced. While these vulnerabilities were not able to be fully addressed due to the time scope of the thesis it is important to highlight them as potential areas for further exploration.

Under production is a concern that speaks to the potential constellations that appear as well as how this system would respond to a potential shock which would cause a local farm to under produce. This challenge has been addressed in the past by instituting a CSA style upfront payment system. By using this model cooperatives in the network acknowledge the potential risk associated with under-producing and agree to share this risk in solidarity with the local farms.

The “local trap” highlights the need

for community negotiated principles and a community defined idea of local food. This challenge is addressed by having Harvest Hubs function as a meeting point for members of the network. In this space events and meetings can be held in order for the community to co-create what they define as the principles of their local food ecosystem.

The request forum enables community support of local farms, but it also has the potential to shift the power dynamic between producers and consumers. In an interview with a farmer about the Harvest Network proposition they voiced the concern that they would lose power and end up competing with other farmers over the demand produced by Harvest Cooperatives. In order to address this vulnerability a rule to the system was made in which only produce that is not currently existing within the Harvest Network can be requested by a cooperative. By having such a system rule, the scenario where three carrot farmers are competing over the sale of carrots to a cooperative is eliminated.

By applying the CORE framework to produce a system proposition that serves the transition to a viable world food system, it also surfaces the challenges that exist within this system proposition. The learnings from these system vulnerabilities can then be applied to the implementation of the bridge innovations that get us to a viable world.

Under production

Managing risk

What happens if a farmer experiences shocks caused by climate change? Who gets the produce they do manage to produce? Are certain cooperatives prioritized?

“Local Trap”

What is local food?

Geographical location alone is not an indicator of environmentally friendly food. This is why community negotiated principles are vital.

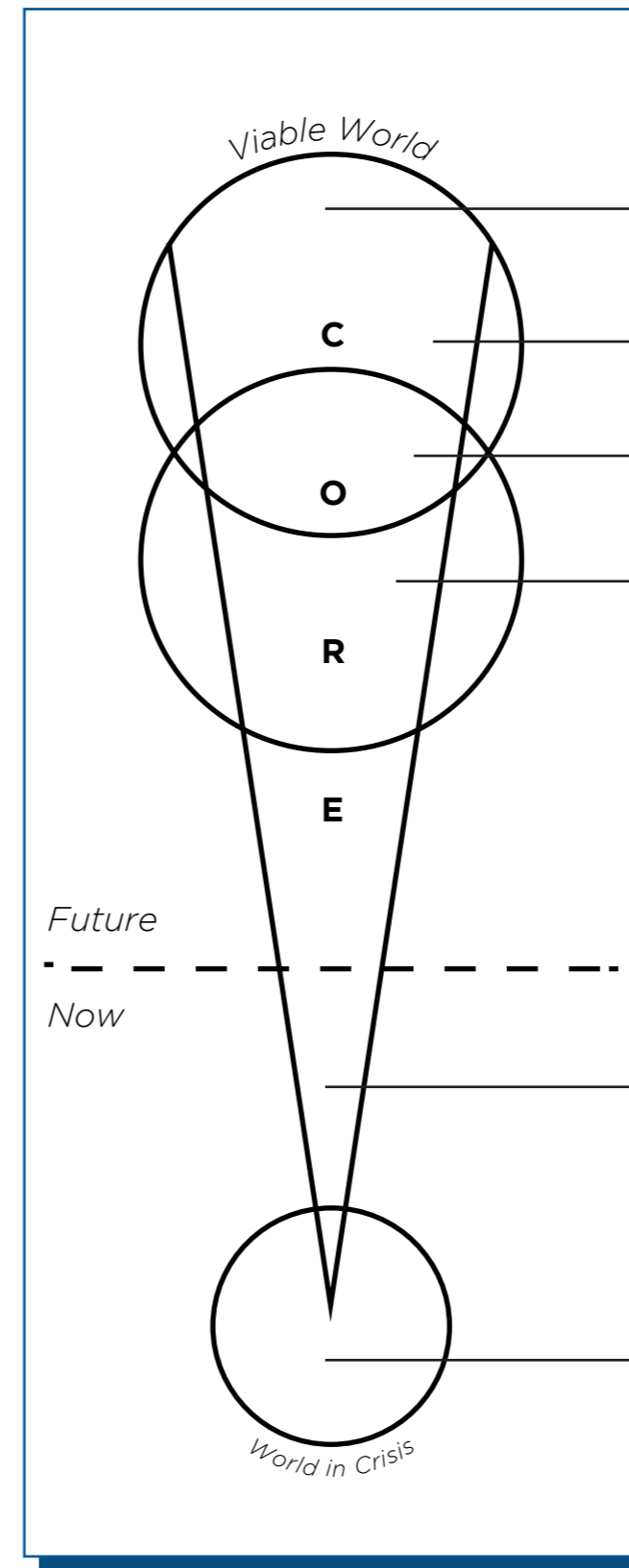
Shift in power

Who ‘serves’ whom

With requests to the Harvest Network how is the shift in power between producers and consumers managed? Only produce outside the network can be put up as a request.

Reflection, a process review

At the start of my thesis I declared that HCD was ill prepared to tackle the challenges that will face human systems as they experience the shocks caused by climate change. I developed the CORE Framework as a proposition as to how designers can address such challenges. Within the Harvest case study I applied this framework and I hope it inspires more designers to challenge what it is that they are sustaining through their designs and explore new business models that provide value to stakeholders rather than shareholders.



I developed a food system proposition, The Harvest Network, that is a possible result of a design process that applies the CORE Framework. While it is not a product ready for delivery it shapes a narrative of the types of roles and interactions that will be necessary in the food system of the viable world.

In order to develop this proposition I as a designer learned how to develop concepts that speak to the trajectory necessary to reach the final proposition. Being able to distinguish how concepts serve system transition based on the identified core will help me in the future when working with clients. I was able to test this type of designer-client interaction during my Harvest collaboration.

I built on my existing knowledge of design anthropology and participatory design to better tune these skills for designing for systemic change. I defined a core through desk research and design ethnography and fine tuned this core through participatory design practice. I identified that the food system of the viable world is characterized by mutualistic resilience.

I explored what a future could be if there was a shift in the perception of what constitutes 'cheap food' and a future with a shift in the definition of what is environmentally friendly by creating a receipt from the future. I learned that through the creation of targeted prototypes I could better understand the potential direction the core of my project could go.

Learnings about designing for system transition.

I began this report with a quote from the social psychologist Kurt Lewin, “you cannot understand a system until you try to change it”. This quote is extremely relevant as I reflect on the exploration I have conducted over the past few months. I would not say that I have a complete understanding of food system transition due to the multitude of rabbit holes that open up during the exploration of such a complex system, but I would say that through exploring where and how design interventions could be placed in an effort to change the food system I have gained a much better understanding of how to communicate such design efforts.

My goal at the start of my thesis was to build a better toolkit for designing for systems transition. Through my exploration I have further defined what I mean when I as a designer talk about sustainable design. I have developed a deeper understanding of how to frame my design propositions and argue for why they are valuable. I have developed a method that I can use as a designer to communicate concepts that challenge what it is I am sustaining through my designs.

The ideas of mutualism and cooperation have been huge inspirations and drivers for me during this project. Learning about how current food system innovations which apply these ideas can teach design practice in profound ways. I have learned that while there is energy in communities to support such endeavors, design needs to play the role of facilitating the transfer of such energy into active practice. It is my hope

that the process I have developed can aid in such endeavors.

Possible ways forward for HCD

As I said at the beginning of this report, human-centered design has multiple directions in which it can evolve. During my thesis I explored one possible direction of such an evolution. Through such explorations it is my hope that we as designers can play an active role in shaping the preferable future in a time defined by human systems coping with the damage caused by decades of environmental negligence on the part of the industrialized world. I am extremely encouraged by the amount of work being done in this effort, looking at you: more-than-human politics, posthumanism, life-centered design, design for sustainability transitions, transition town, SLOC scenario, and many more.

I feel that it is paramount that design education encourages such design explorations as it is a luxury that industry projects rarely have the freedom, budget, or time to do. I have been extremely fortunate to conduct an exploration together with a ‘client’ collaborator and have to communicate the theory and design practice in weekly meetings. I believe that my design methods and work have played a large role in shaping the direction Harvest will be headed in moving forward after my thesis concludes.

A word about COVID-19, how to not waste a crisis.

COVID-19 has had a profound and mostly negative impact on the world. It has changed how economies function as well as how we interact with our friends, families and surrounding communities. In the case of my project it has actually served as a good example of how society will respond to such a global crisis. It drives home the need for design explorations that test how we as designers can design human systems to be resilient in the face of such crises.

My project has experienced some limitations based on the social distancing practices that came into effect about at the halfway point of my thesis. I was lucky to be able to organize workshops to explore the core direction of my project before this type of gathering became impossible, but it was my plan to continue such practices once I had developed my final system proposition. I did not have access to the interaction design workshop at Umeå Institute of Design, so I adapted by creating 2D ‘objects’ and craft based prototypes. I do believe that while I have been extremely interested in developing design methods, this thesis took a more design method research turn once the school closed. Even in these unusual circumstances I feel that I was able to complete a thesis exploration that answered the initial questions posed during my research as well as allow me to grow as a designer.

Applying the CORE Framework moving forward

It is my hope that I will continue to develop and adapt the CORE Framework in my design career moving forward. I believe it builds on the best parts of HCD generative research practices and facilitates system transition evaluation of concepts.

When looking out on other human systems that will need to transition, like education, transportation, energy production, or health care, in the face of climate change it would be interesting to apply such a design method to tackle such challenges. When thinking back on some of the projects and industries I have worked with in the past, this CORE Framework could have been used to push design deliveries toward transitioning to a more resilient viable world. I would encourage any designer who comes across my thesis to apply some of the methods I explored. The easiest element to implement into current design practice would be using the framework as an evaluation tool during a concept development phase.

January February March April May June

03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23



Project Kickoff Research review HALF-WAY presentation PROCESS GATEWAY presentation Report Hand-in EXAMINATION presentation UID 20

Desk Research
Map current food system. Design for Resiliency, Community Studies, Collective Intelligence, CFN, Civic Tech...

Schedule interviews
Identify community members to talk to (REKO, Urban farm, Lokatten)

Remote interviews
First round of remote interviews to identify initial challenges/opportunities. Potential for survey as well.

Create Map of Alternative Food System Now.
What does future food system look like with current trends.

Prepare for research trip.
Identify areas of interest and focus of research trip. Challenge myself to make the theory manifest. Artifact of future. Also opportunity for initial ideation.

Generative Research Trip*
Talk to community identified in weeks 3-4. Have objects to talk around guide trip.

Synthesis of research trip.
What findings did I have from my generative research? How do people currently engage

Create Presentation
4 main points: climate future, current system, what are early adopters facing, and food citizenship.

Create Definitions
What is Food Citizenship in the context of my project?

Ideate on Concept Directions
Based on generative research, what opportunities exist?

Process Feedback
After research gateway, what gaps in process exist. Reflect/Adapt

Develop through building/workshop
Work on developing concepts through building prototypes of resilient food systems and roles.

Concept Development Trip*
Once concepts have been identified work on developing these concepts.

Early Concept Workshop
Once some directions are chosen, run through some exploratory workshops to get a feel for new concept space.

Defining Direction
Reflect back on initial theory desk research and see how what has been made relates. What direction is worth focus?

Create Presentation
At this point I want to show the theory exploration and the initial prototypes of future scenarios. What have I learned about Swedish food system and current roles and rituals. Identify the deep dive.

Half-way goal review.
At this point I hope to have identified the area I want to dive deeper into and build out further.

Plan out the manifestations
Take concept direction and begin to plan out the ways to make it real and engaging with people.

Direction Defined
Based on feedback given at half way presentation identify the core of what I want to say and where I want to stand.

Sync with theory dev.
What have the reactions been to the manifestations created?

Storytelling development
Work on how concepts and prototypes will be presented

Validation & Feedback Trip*
Bring concepts to interviewees in the generative research.

Presentation Prep
At this point I will have two rounds of building and reaction. This is where I will focus in on analyzing my results and direction to identify the final presentation of my explorations.

Create final manifestations
Identify areas of interest and focus of research trip. Challenge myself to make the theory manifest. Artifact of future.

Storytelling development
Work on how concepts and prototypes will be presented

Filming & Editing
Work on how concepts and prototypes will be presented

Prepare visual material
How will the exhibition of my work be presented.

Defend Thesis

Presentation Prep

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