

BarnRaise Research Report

Co-designing Sustainable Food Systems

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This report was created to stimulate discussion and enhance the BarnRaise 2017 experience. Included, is a high level overview of food waste in Chicago, a summary of our design research approach, an overview of the system complexity we uncovered and a call to action for the two and a half day event.

We are sharing this information to ensure all of our attendees have some exposure to the foundational challenges that come with the food waste system. Our aim is to support participants in co-designing sustainable food systems for the city of Chicago.

Co-created by

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What is BarnRaise?



An impact driven conference

IIT Institute of Design's BarnRaise is an impact-driven conference that connects designers, community-based organizations, topic experts, and participants to promote impact in the Chicago community.

In 2000, ID students created a student run conference centered around design research. In 2007, that conference was re-branded to be the Design Research Conference (DRC). These conferences brought together students and designers to advance the profession of design research and innovation.

In 2014 the DRC was re-imagined as BarnRaise. Turning the traditional conference model on its head, BarnRaise organizers created a hands-on, maker-oriented event to connect designers with real world problems faced by local communities. BarnRaise continues to inspire other universities and organizations to host similar events. Since 2014, seven BarnRaise events have been hosted throughout the United States and Canada.

Under this model, design firms partnered with community-based organizations and worked with registrants in interdisciplinary teams. All participants, from designers to community members, worked together to understand the user-centered mindset and prototype viable solutions.

This year, we are iterating on the previous conference model by focusing on a systemic problem to envision sustainable solutions, while creating a collective commitment to impact.

Thank you for taking the time to participate and remember that your experiences, skills, and knowledge will play a key role in designing a better future for the city of Chicago.

Co-designing for sustainable food systems

As simple as it seems, is as complex as it gets.

BarnRaise 2017 will accelerate the transition towards sustainable food systems.

Currently, Chicago does not have a public facility (nor a public system) for food scrap management. As long as we continue to generate food waste, sustainability will be a challenge. Thus, food waste poses a systemic issue that requires a systematic approach.

There are numerous inefficiencies in Chicago's food system, and therefore the same amount of opportunities for intervention. From agricultural fields to kitchens, from markets to tables, waste is being generated.

By understanding food waste as a critical path to increase environmental performance, lessen financial burden, and support social innovation, BarnRaise becomes a platform for (re)imagining sustainable futures for the city of Chicago.

Why is food waste a problem?

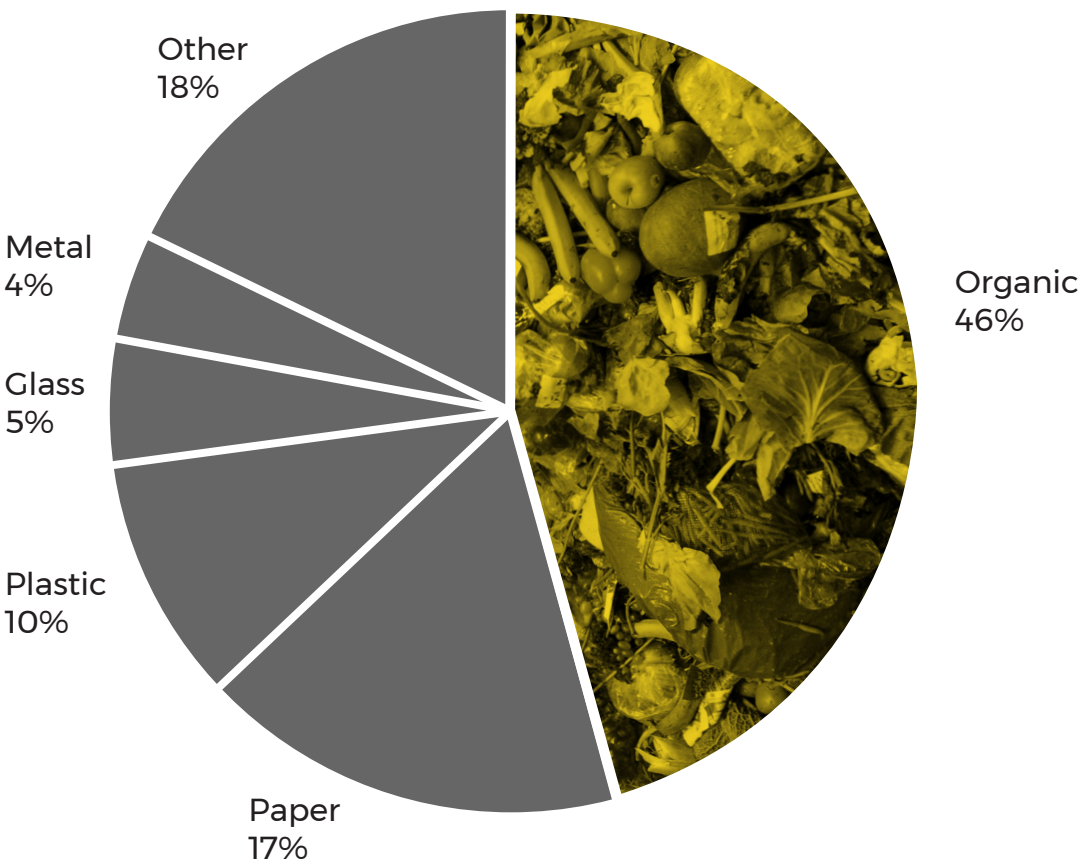


Amount of waste

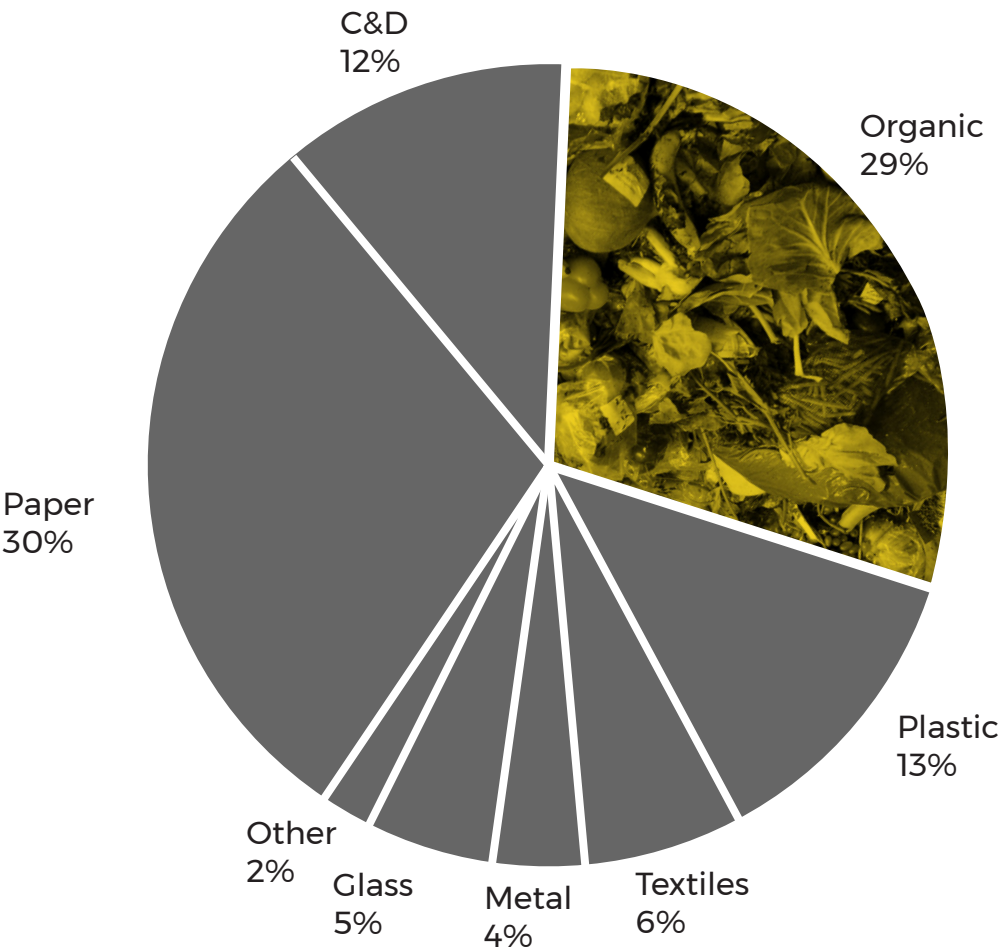
We live in a linear society structured by take, make, use, and dispose. The consequence to this linear process is a large scale waste. Organic waste is a large portion of the composition both worldwide and in Chicago. Organic waste composed of food and yard waste.



Worldwide composition of waste ¹



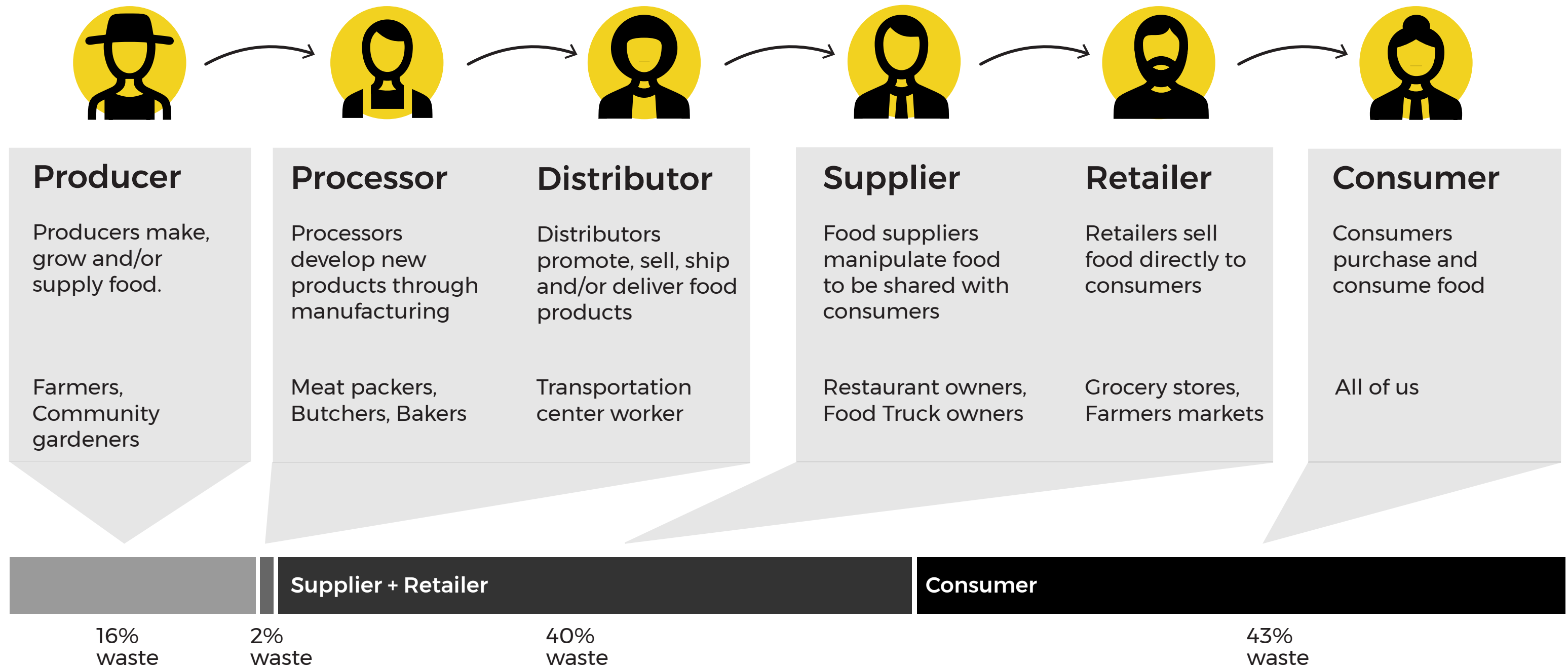
Chicago composition of waste ³



1. <https://www.theatlantic.com/business/archive/2012/06/26-trillion-pounds-of-garbage-where-does-the-worlds-trash-go/258234/>
2. <http://chicagotonight.wttw.com/2017/06/26/where-does-chicago-s-garbage-go>
3. https://www.cityofchicago.org/content/dam/city/depts/doe/general/RecyclingAndWasteMgmt_PDFs/WasteAndDiversionStudy/WasteCharacterizationReport.pdf

Food supply chain

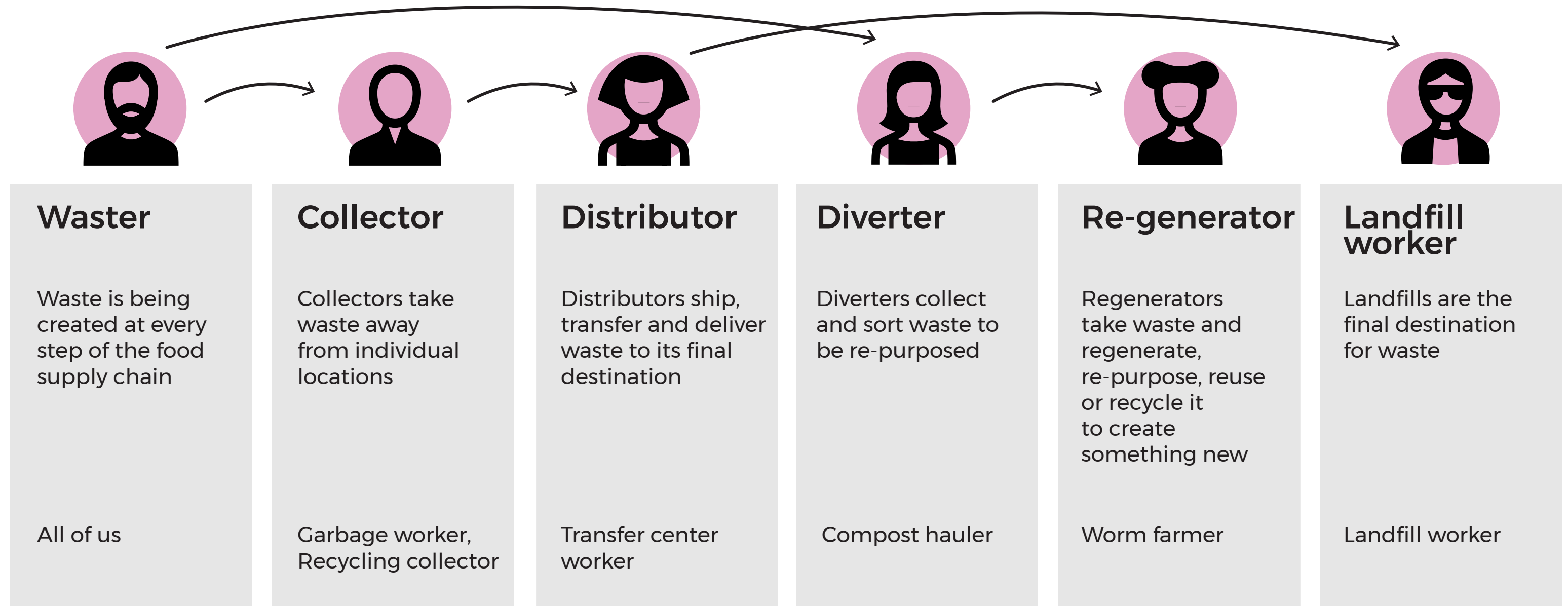
Food waste is made in every step of the food supply chain. However 83% of waste is created at the end of the food supply chain with suppliers, retailers, and consumers.⁴



4. <http://www.refed.com/?sort=economic-value-per-ton>

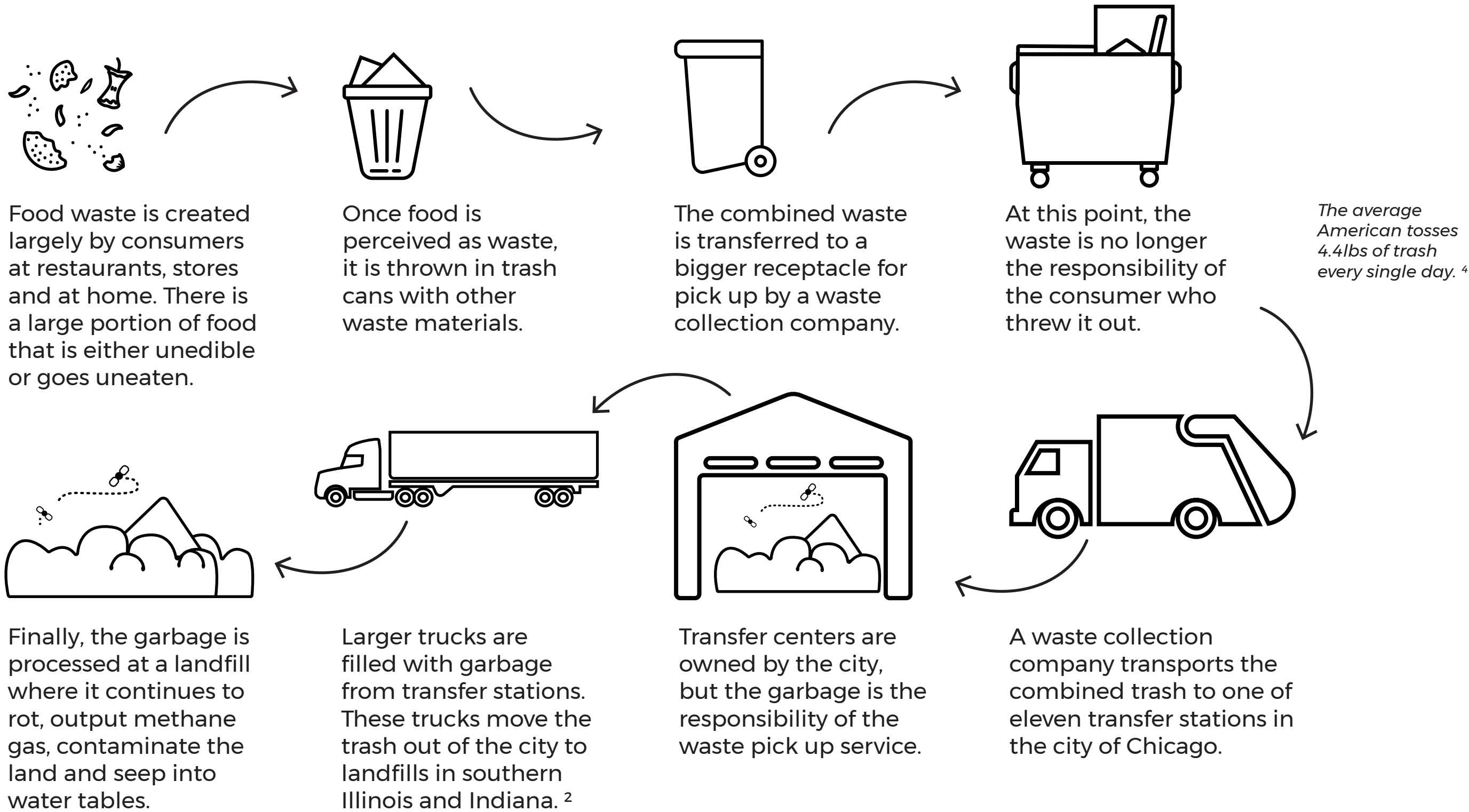
Food waste chain

Our food scraps continue through a different chain after being classified as waste. Since there is no public infrastructure designed for food scrap management, the majority of Chicagoans' food waste is transported to landfills. However there are other avenues for food waste that allow food to be diverted and re-generated. Both avenues are represented below.



Chicago food waste journey

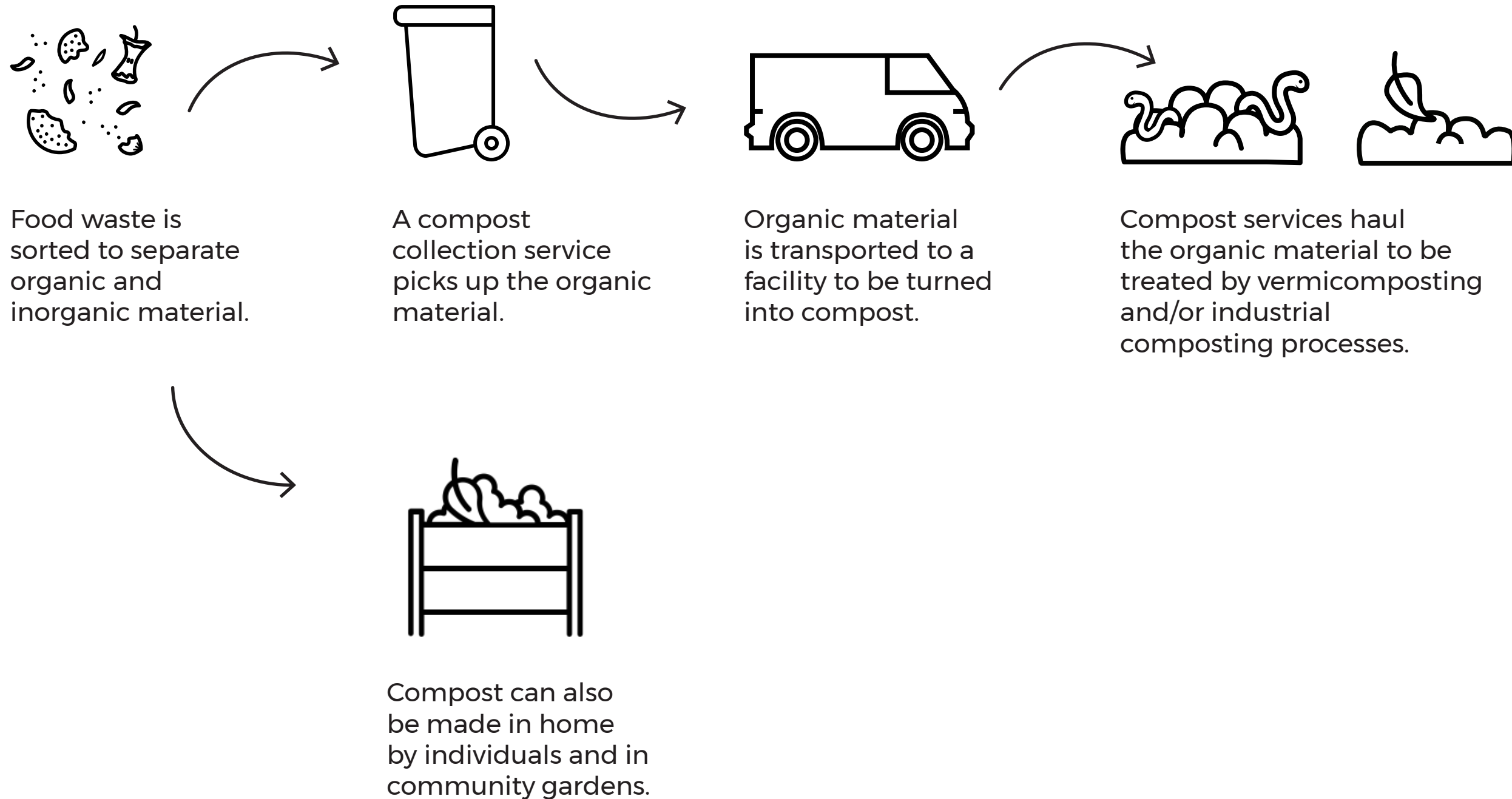
Here is an example of how food waste is transported once it is classified as waste. This journey from consumer to landfill is a common path for food waste, but not the only option.



2. <http://chicagotonight.wttw.com/2017/06/26/where-does-chicago-s-garbage-go>

Alternative journeys

There are other avenues in Chicago to get rid of food waste. Below is the food waste journey for consumers who use composting services in the city. Composting services are: Collective Resource, Resource Center, Healthy Soil Compost, Urban Canopy, and Wastenot Compost.



How did we research?



Design research

Institute of Design students requested Institutional Review Board (IRB) approval to interview Chicago area residents about their experience generating food waste.

In order to get a holistic perspective of food waste in Chicago, we spoke with 21 people about their relationship to food waste.

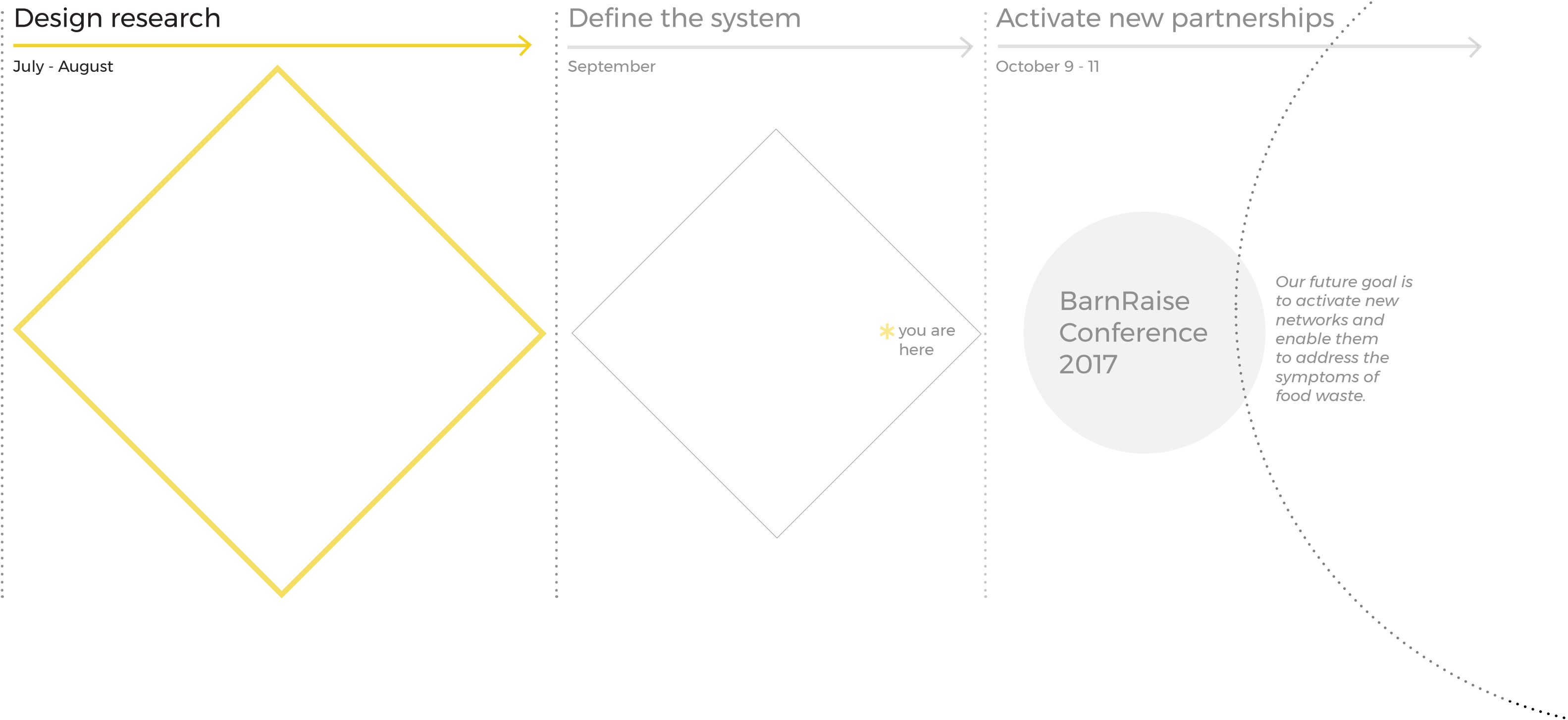
We visited different locations, from restaurants and farms to community centers and research institutions. We spoke with producers, dumpster divers, and chefs, to name a few.

Our participants were asked about their lives in relation to food, food waste, and the infrastructure embedded in the food industry of Chicago. Subject matter experts were also consulted.

This allowed us to gain a rich perspective of the food waste system and those who either directly engage or are impacted by it.

Initial phase

In July, we began by researching and interviewing native Chicagoans in order to understand food waste in the city. After completing our research, we analyzed our insights using the insight matrix framework. Our work lead us to three large themes, but they did not address all aspects of a system.



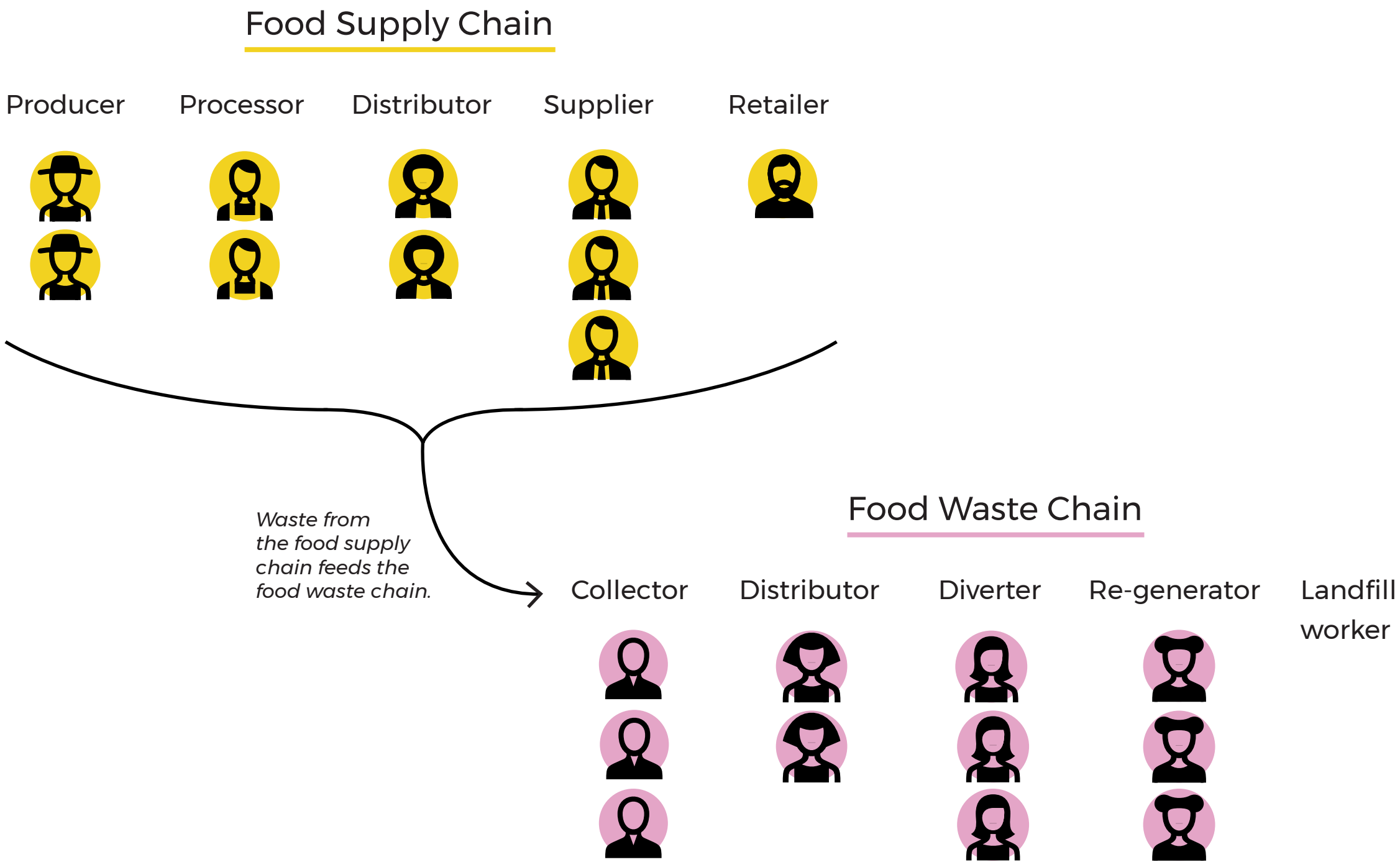
User interviews

Our goal was to speak with people from every section of the food supply chain and food waste chain.

All of our interviewees interacted with the chains differently. Of the 21 people interviewed, many were food waste experts or critics of the food waste system.

Here they are categorized by the section of the chains they interacted with most.

Remember that all of our interviewees also consume food and waste food. Every one of us is a consumer and waster to some degree. This adds to the complexity of our topic.



After analyzing our collected data, we generated 147 insights. An insight encapsulates a point of view and is an accepted interpretation of data and observation. Our insights informed patterns within the system and summarize significant points from our interviews.

Within the matrix, we scored the insights on a scale of 0-3 in similarity. Once complete we were able to visually see patterns within the information.

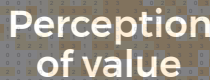
Not similar
at all

1

2

3

Very similar



Initiative

Education

How did we research?

Patterns to themes

Our design research allowed us to see patterns and uncover three large themes. However, these three themes alone can not completely summarize the system of food waste in Chicago. Through analysis and synthesis we were able to see the need to dive deeper into the complexity of the system.



Perception of Value

People do not acknowledge the impact of food waste in regards to the environment, resources, and or their budget.

"I lost about 75 lbs, and part of the way that I did that was never finishing the food in front of me. If I eat a meal I'll actively leave something on the plate."

-Supplier



Initiative

People are not motivated to change how they waste food. There is no infrastructure to support individual or communal change around food waste management.

"There is an economic case for fighting food waste. But it does require intention and thought. Why should it matter to me?"

-Diverter



Education

There are misconceptions around participating in, being aware of and communicating the benefits of food waste management.

"When I am at a coffee place, I don't like to ask about what part of the trash is landfill, recyclable, or compostable. It's confusing...It is more convenient to put in the trash bin."

-Retailer

Food waste as a symptom

Food waste is a pandemic that permeates our society. But we know it is not the first thing that comes to mind when speaking about sustainable action in Chicago. For example, shouldn't we be raising a barn about the recycling system? Or renewable energy? More efficient transportation?

The truth is, we have discovered that food waste is not a problem that needs solving, but a symptom of our system.

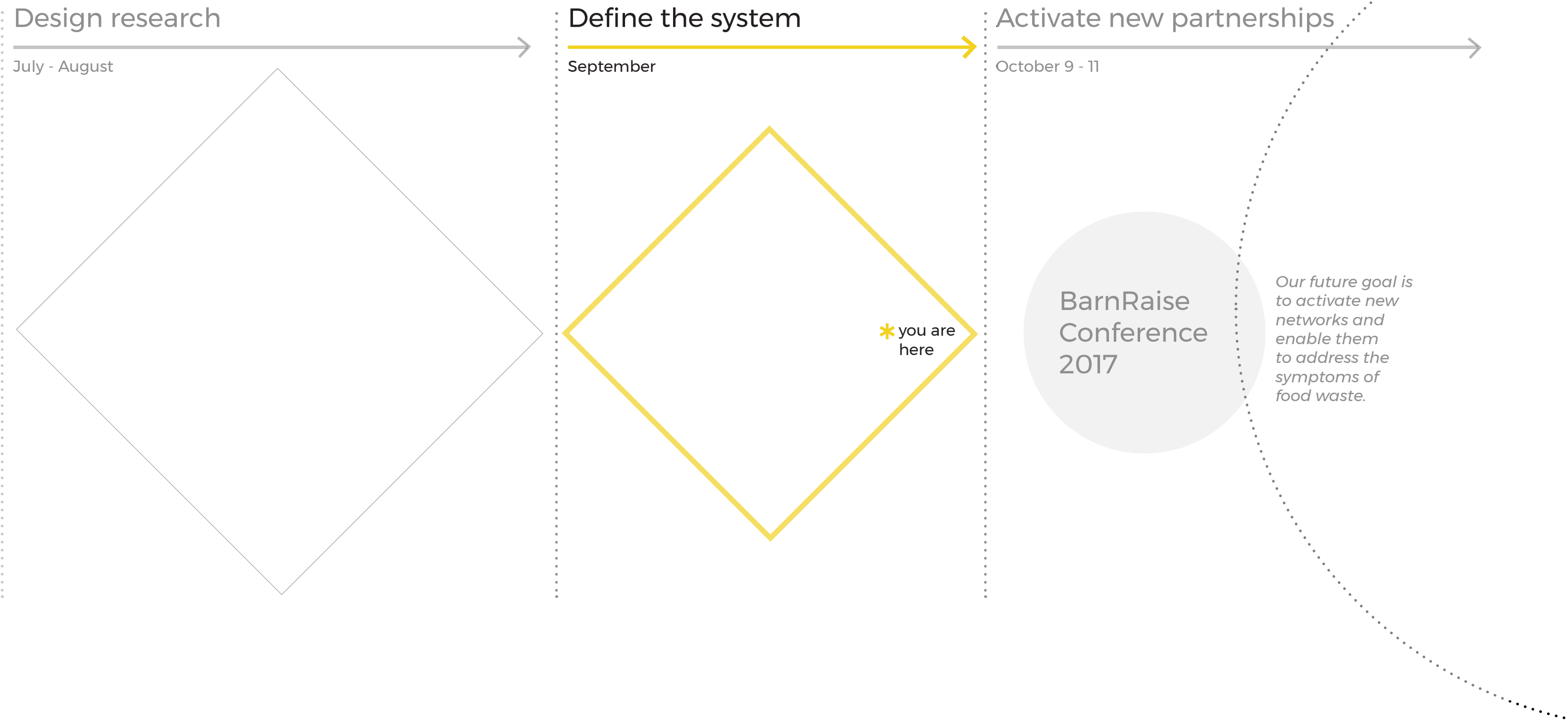
We believe, if we uncover the foundational problems in our system and work collaboratively we will find unique, innovative solutions that tackle the root cause of food waste.

What did we learn?



Secondary phase

Secondly, we expanded our knowledge to define the system. We shared our challenges with experts and applied systems tools to develop a system dynamics map. Through mapping the dynamics of the system we were able to make sense of the complex interactions regarding food waste in Chicago.



System framing

Upon uncovering three themes, we realized there was more to food waste than what we gained from our initial research. After several attempts in creating the system map, we applied the seven capitals. This framework allowed us to cluster multiple variables and understand their interconnectivity.

The seven capitals were developed by Flora, Flora & Fey in 2004 ⁵, and utilize the economic concept of wealth creation or capital.

Political

Structure of organizations in how we make decisions and structure power.

E.g. organizational hierarchy, leadership influence and diversity of decision making

Natural

Includes natural resources, both renewable and nonrenewable.

E.g. resources coming from nature like land or water

Financial

Monetary value or currency used to add or transition value.

E.g. financial investments and savings

Human

Includes the knowledge and well-being that is concentrated within each individual.

E.g. our health, knowledge and abilities

The seven capitals will be used throughout BarnRaise to aid in the co-designing for sustainable systems process.

Manufactured

Digital and physical parts of the human-made, built environment.

E.g. tools, components, data, and infrastructure

Cultural

Traditions and values that we believe as a society.

E.g. language, priority of values and tradition

Social

Network of people we interact with.

E.g. work, colleagues, family and friends

5. Emery, M., & Flora, C. (2006). Spiraling-up: Mapping community transformation with community capitals framework. Community development, 37(1), 19-35.

System dynamics

A system dynamics map allows us to visualize the interconnectivity between the variables that influence the system.

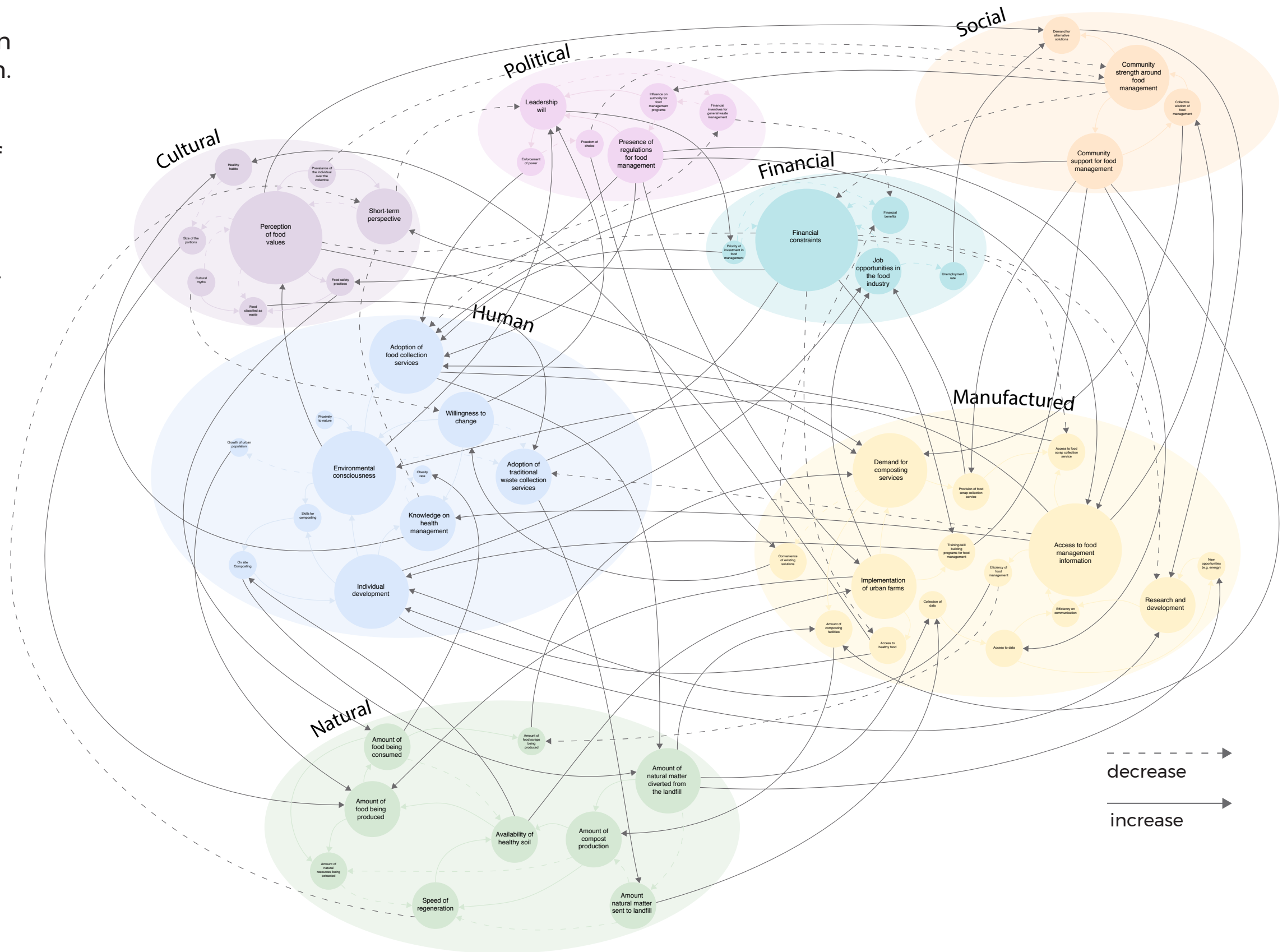
This system dynamics map relates the seven capitals with the our research of food waste in Chicago.

The size of the variable, is proportional to the interconnectivity we uncovered. This influence and connection is displayed through the arrows.

Throughout BarnRaise we will be referring back to the seven capitals and this system map to support new sustainable initiatives.

Please take a closer look,
by zooming in.

This map is intended to give you a broad understanding of the complexity of the food waste system.



Opportunity spaces

The waste system is not a sustainable system. However, by using the dynamics map as a tool we can highlight specific tensions and reimagine what a sustainable food system could look like.

The tensions are forces that influence the dynamics and can either prevent the system from achieving its equilibrium or they can accelerate a system's transition towards sustainability. They might represent forces of power, but also of weakness.

By surfacing some of the tensions, this report becomes a powerful tool to develop strategies for both incremental change and/or significant social transitions.

Rather than exhaustive, the tensions presented in this report are entry points to unleash proactive thinking towards sustainable futures.

The following tensions are intended to demonstrate and question the power of existing rules or social contracts, while also showing where they are most influential. We believe that they might inform opportunities to intervene within the system.

The tensions demonstrate areas of opportunity. Do you play a role in any of these tensions? If so, how?

“When dumpster diving, I was able to find all sorts of vegetables and fruits. I was definitely eating way better than I would have if I was spending the money.”

-Producer

Opportunity of growth – Concentration of wealth

If you give someone a fish, you will feed them for a day. If you teach someone to fish, you will feed them for a lifetime.

How might food waste be a critical component to just and equal food systems?

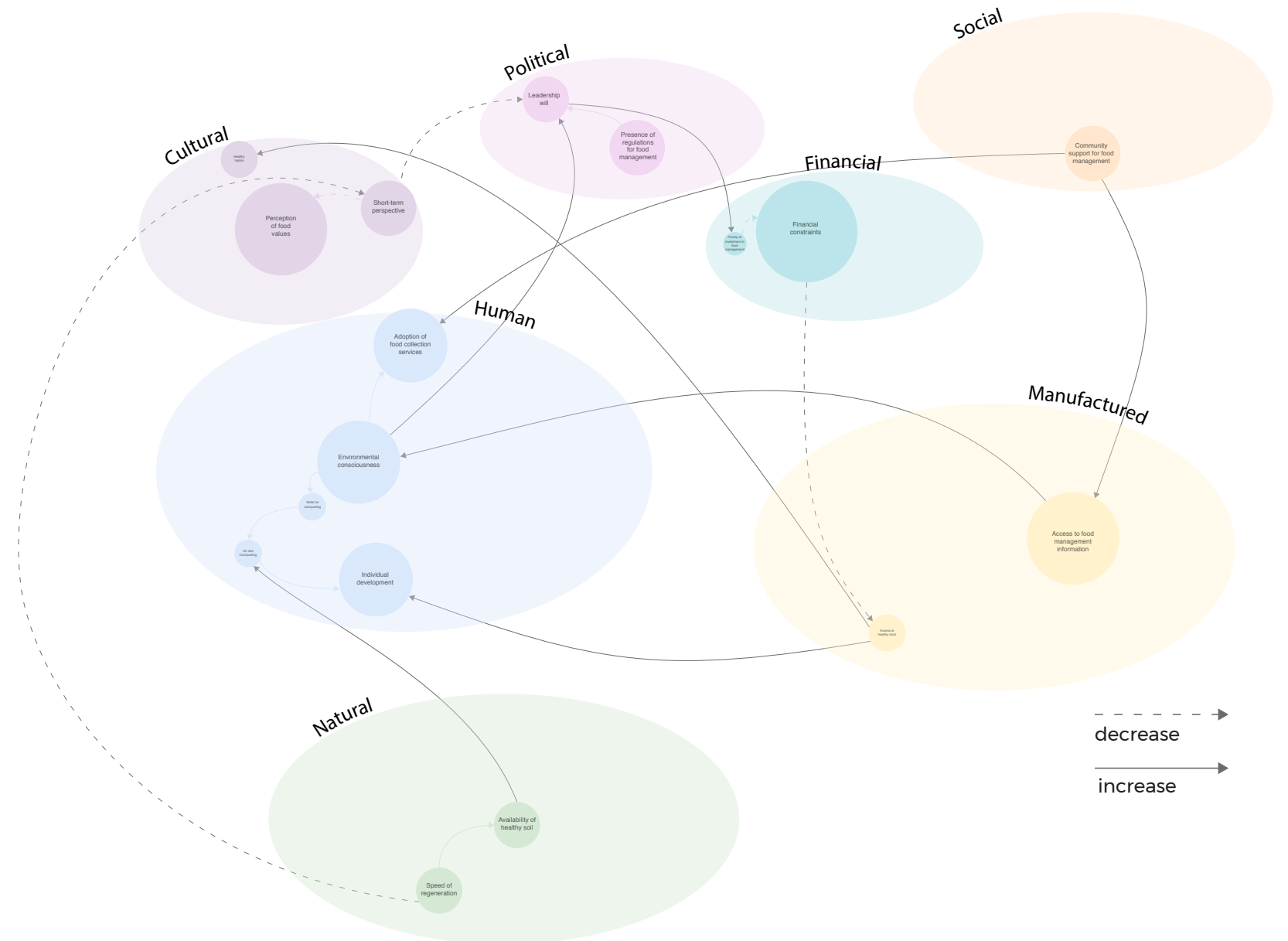
There is tension in the system between concentrated wealth and opportunity of growth. Under reinforcing conditions, wealth concentration in the City of Chicago limits access to the benefits of others, including access to healthy food. **When communities have access to healthy food, there is a greater opportunity for growth** and thriving communities can be created.

“Small restaurants, for example, can’t afford this as an extra investment, so this is a service limited for those who can afford it.”

-Processor

“Low-income communities usually have little access to healthy food...community gardens are trying to increase that access. So at the end of the day, compost increases healthy food access.”

-Distributor



“I was talking to a chef the other day and he mentioned he was diverting 95% of their food scraps. But who would know that? You don’t go to a restaurant because that restaurant composts.”

-Processor

Recognition of value – Wasteful thinking

One person's trash is another person's treasure.

What if there was no food waste in our system?

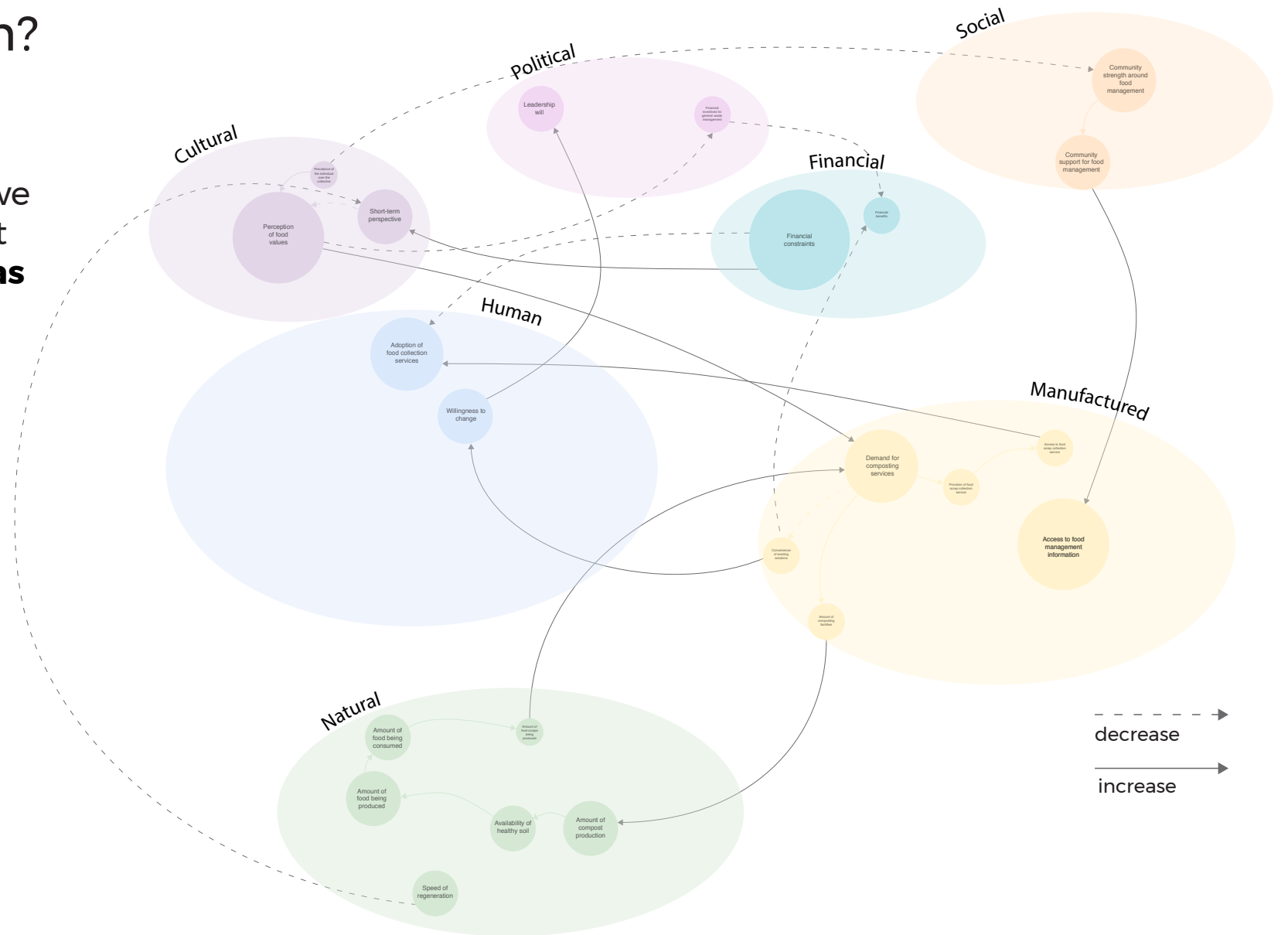
There is a tension between what we perceive as valuable and what we classify as waste. Humans take, make, consume, and dispose of what is thought to be no longer valuable. **The moment food is classified as waste, it loses its value in the linear food and waste chains.**

“Today we did the event. And I think we took too much... too much of everything. We didn't bring it back to the restaurant, and it all went to the garbage. But what can you do with it?”

-Retailer

“We had people complaining... they didn't get enough chips. We started giving people way more chips and we waste pounds and pounds of them a day, just from people's trays.”

-Supplier



“A lot of people are wondering if they are getting compost back from our service, but they are never wondering if they are going to get trash back from their trash service.”

-Collector

Collective responsibility – Individual will

If you want to fast, go alone. If you want to go far, go together.

How can we empower collaboration so that sustainable food systems can be put in place?

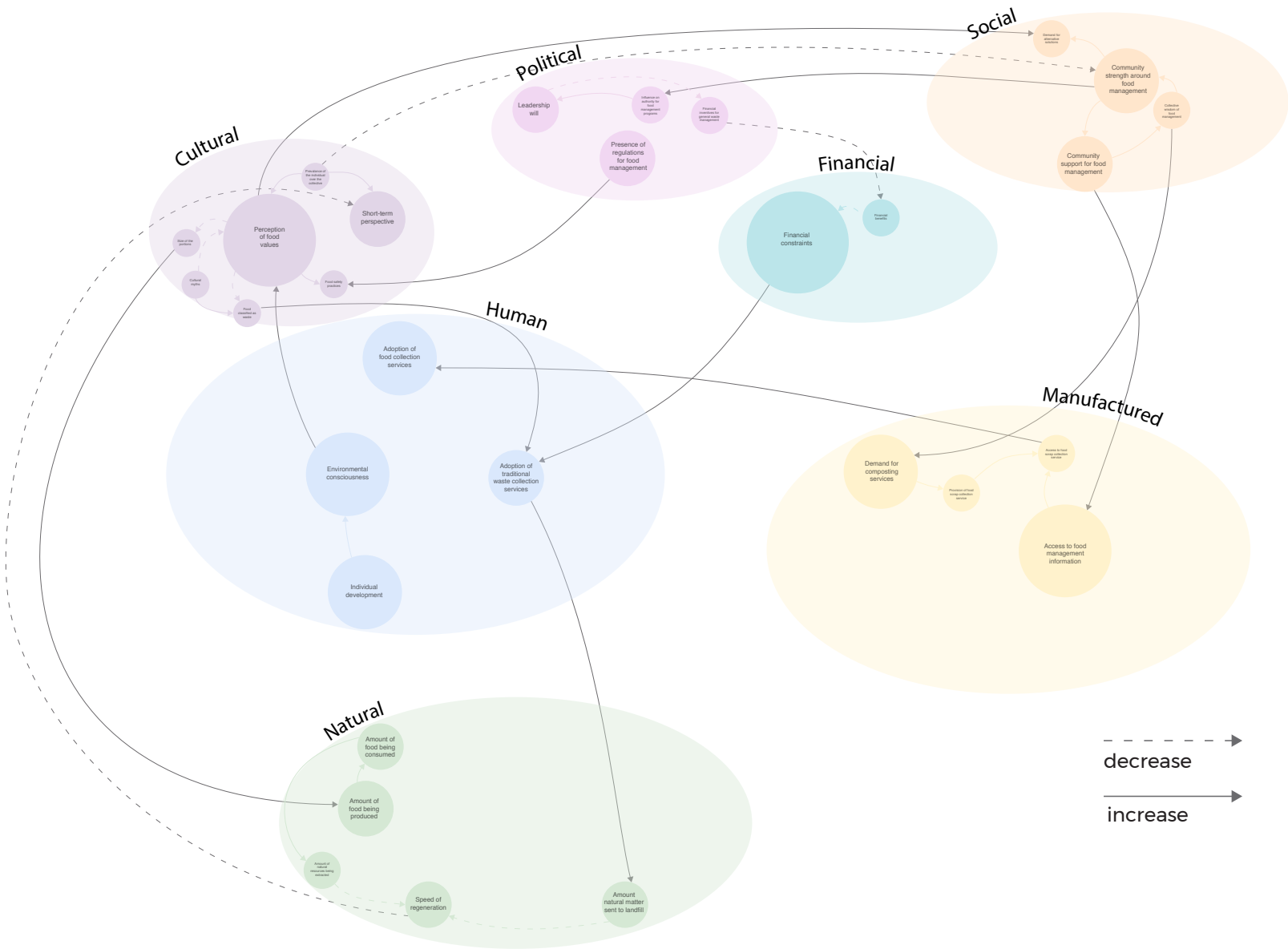
Food waste is a communal challenge. There is a tension between collective responsibility and individual will when it comes to managing food. Without explicit recognition of the value of food, sustainable solutions rely on individuals being knowledgeable and proactive.

“Composting is not glamorous, it’s not solar panels [a cool technology], so there needs to be a demand for compost [if you want to increase the diversion] like metal recycling.”

-Diverter

“As soon as we started to have a compost outside in our community garden, people started to bring their compost from home.”

-Supplier



“If somebody presented [an alternative for food waste] to me I would totally go after it, but it’s just not on my list...”

-Supplier

Long term impact – Short term convenience

Just because we can, doesn't mean we should.

How can we design systems so people realize the long term effects of convenience?

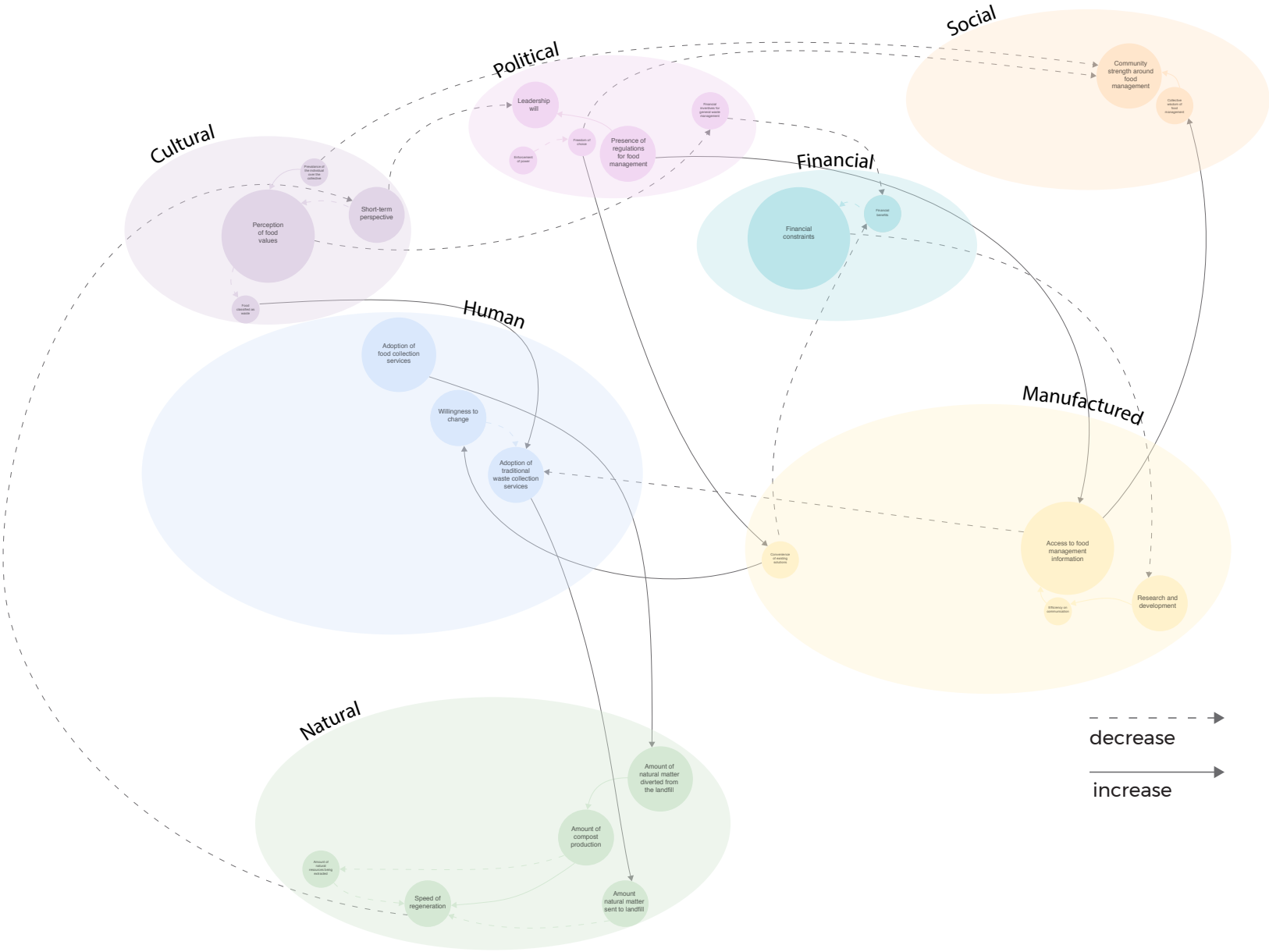
There is tension between the convenience of everyday life and the long term impact of daily choices. Currently, **individuals are protected from the systemic impact they are generating**. Wasting food is very easy, and the long-term effects are unclear and often unconsidered.

“I generate more [food waste] than I can deal with, and I am running out of space at home.”

-Diverter

Cooked food has to be thrown in the garbage... You can not recycle it or reuse it at all.

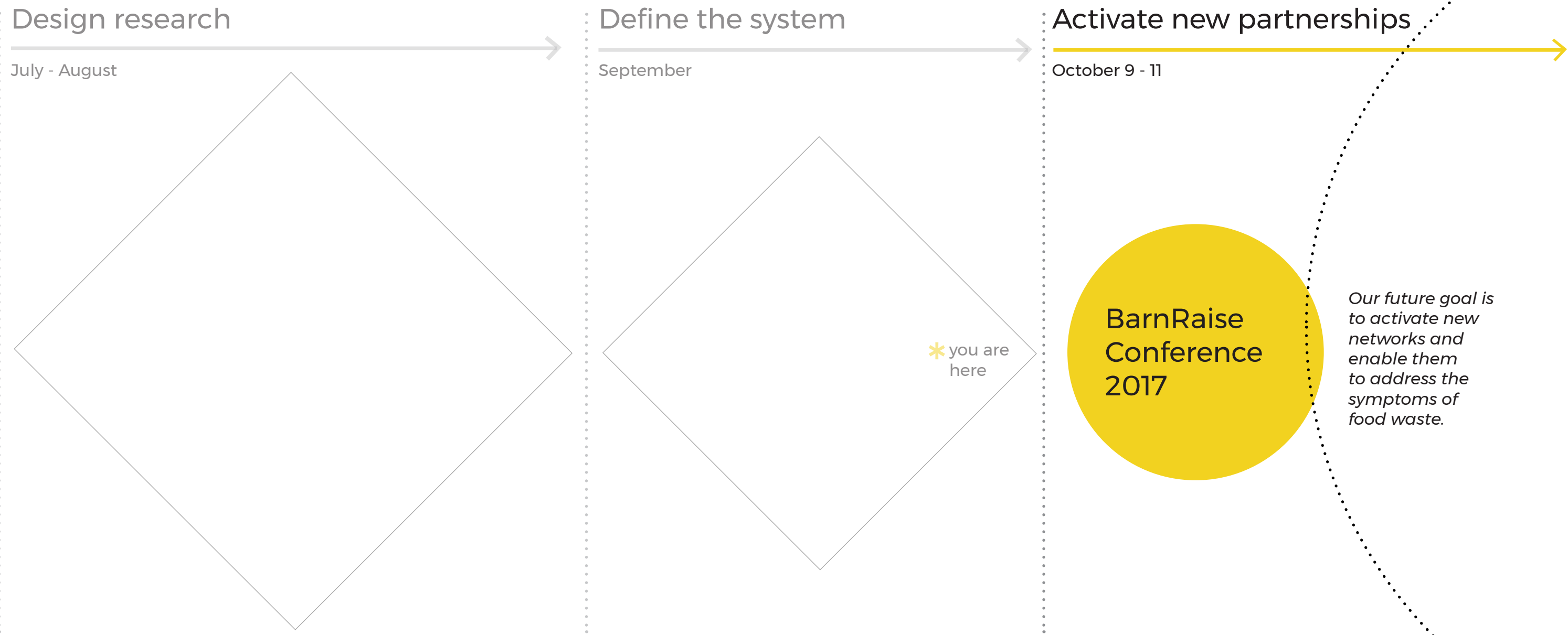
-Supplier



What's next?



BarnRaise 2017



Challenge

How might we accelerate the transition towards a sustainable food system in Chicago?

This year's BarnRaise challenge is co-designing sustainable food systems. By understanding food waste as a critical path to reduce environmental impact and inefficient financial investments, as well as a means for promoting social innovation, BarnRaise will become a platform for imagining a sustainable future for Chicago food systems.

Goals

Enhance and strengthen existing solutions to empower local initiatives

Invest in alternative organizational models for sustainable food systems to thrive

Explore new business opportunities based on food scrap management

Develop a culture where managing food scraps is a valued experience for increasing

- Education
- Social inclusion
- Environmental performance

Accelerate innovation in food scrap management considering novel ways to

- Grow participation
- Connect economic, ecologic, and social impact in food practices
- Develop new partnerships considering a wide spectrum of benefits for the agents involved

Enable the Chicago community to rethink collaborative models for sustainable systems solutions

Schedule

	MONDAY October 9	TUESDAY October 10	WEDNESDAY October 11
Morning		<div>8:00 am Breakfast</div> <div>8:30 am SPEAKER: Kristel Van Ael</div> <div>9:15 am Workshop</div> <div>10:30 am Break</div> <div>10:45 am Workshop</div> <div>11:30am Collective Share Out</div>	<div>8:00 am Breakfast</div> <div>8:30 am SPEAKER: Mats Lederhausen</div> <div>09:00 am Workshop</div> <div>10:00 am Break</div> <div>10:45 am Workshop</div>
Afternoon	<div>1:30 pm Registration</div> <div>2:00 pm SPEAKER: Erika Allen</div> <div>2:30 pm Workshop</div> <div>4:00 pm Break</div> <div>4:15 pm Workshop</div>	<div>1:30 pm Workshop</div> <div>3:30 pm Break + Activity</div> <div>4:00 pm Workshop</div>	<div>1:00 pm Exit for Neighborhood Tour of Chicago Food History in Transit to The Plant</div> <div>2:30 pm - 5:00 pm Set up at The Plant</div> <div>- 3:00pm First Plant Tour</div> <div>- 4:00 pm Second Plant Tour</div>
Evening	<div>5:30 pm Reception</div> <div>6:00 pm SPEAKER: Francesca Zampollo</div> <div>6:30 pm Panel</div> <div>7:30 pm Networking</div> <div>8:00 pm Adjourn</div>	<div>5:15 pm Pollinator Share Out</div> <div>5:30 pm Adjourn</div>	<div>5:00 pm Final Share Out</div> <div>7:45 pm Closing Remarks</div> <div>8:00 pm Networking</div> <div>8:30 pm Adjourn</div>

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BarnRaise

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