



# Sustainable Living & Home Ownership

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# Introduction

## Overview

Buying a home is a big commitment, both financially and emotionally. Whether deciding to buy a new-build, an old home or take on a renovation project any home buyer will want to be certain they are purchasing a house that they can make into a home.

For this exploration, I am taking a look at several different systems approaches in sustainability to understand how a home can become more sustainable. Much of my focus will be on how to turn my "new" old home into a more sustainable urban abode.

*How can we minimize our impact on the land and resources we utilize daily while we make changes to ensure comfort, all while not breaking the bank?*





# System Exploration

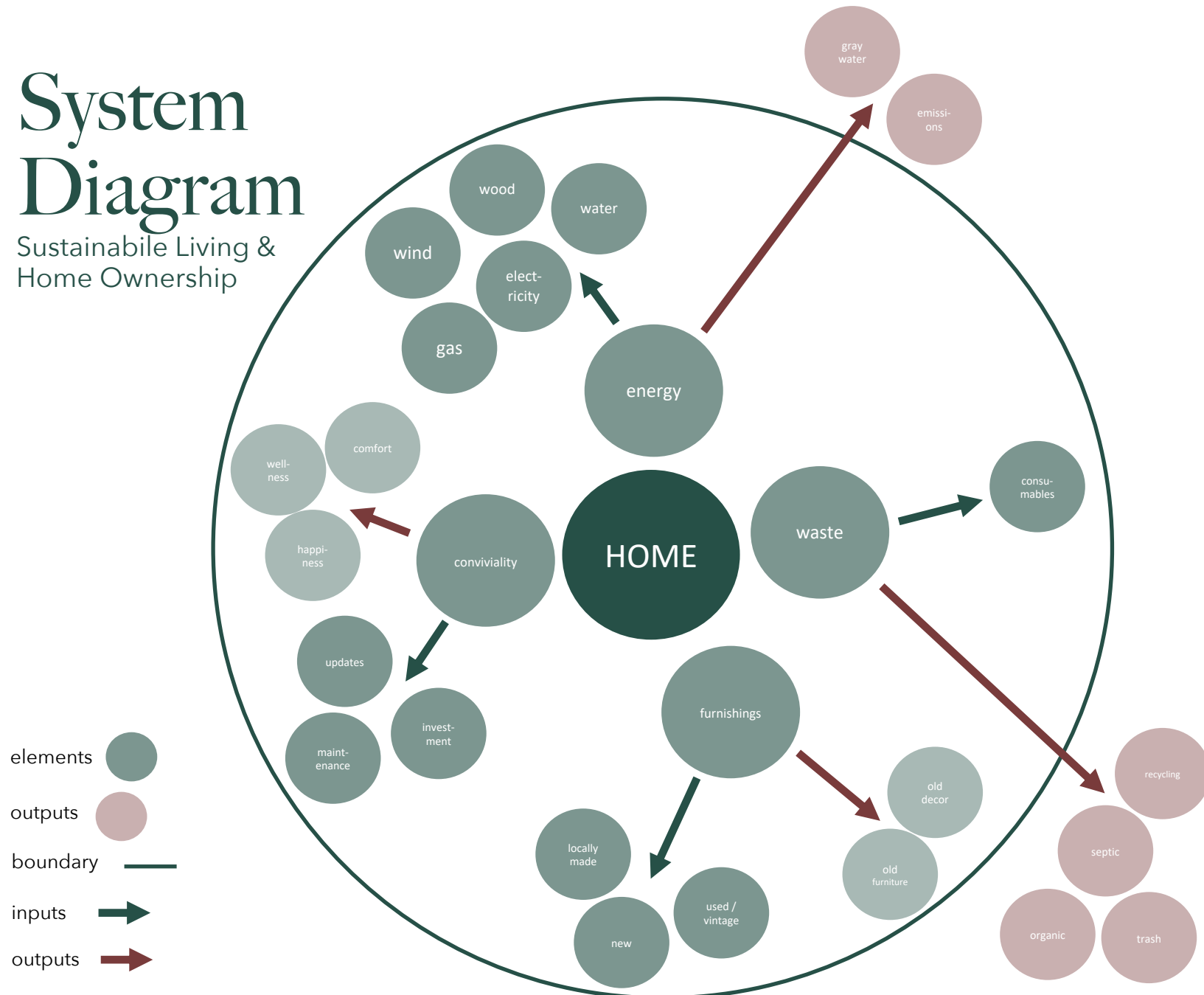
To fully understand a system, it is important to consider it from different lenses. Within this section I have created a system diagram and utilized the Biomimicry Institute's System Explorer tool to dive deeper into the interconnections of this system of Sustainable Living and Home Ownership.





# System Diagram

Sustainable Living & Home Ownership



## Boundary

The boundary of this system includes the physical property line and the boundary of the house itself.

Additional boundaries could include ideals and goals for making the house into a home.

## Elements

Included here are the systems within our home which include energy, waste, furnishings and conviviality. Inputs and outputs are labelled for each category.

## Relationships

System elements are related through the overall function of the house in creating a home.

We need energy in order to keep our lights on, to regulate the temperature of our home, and to maintain comfort. Waste is created through consumption - not only in the form of trash, but organic waste, and septic waste. Furnishings are used to elevate our space to a the desired level of comfort and conviviality ties all of it together.

## Environmental Connections

Energy, waste and furnishings directly impact the environment. Changes can be made through the sourcing of these resources and mindful consumption.

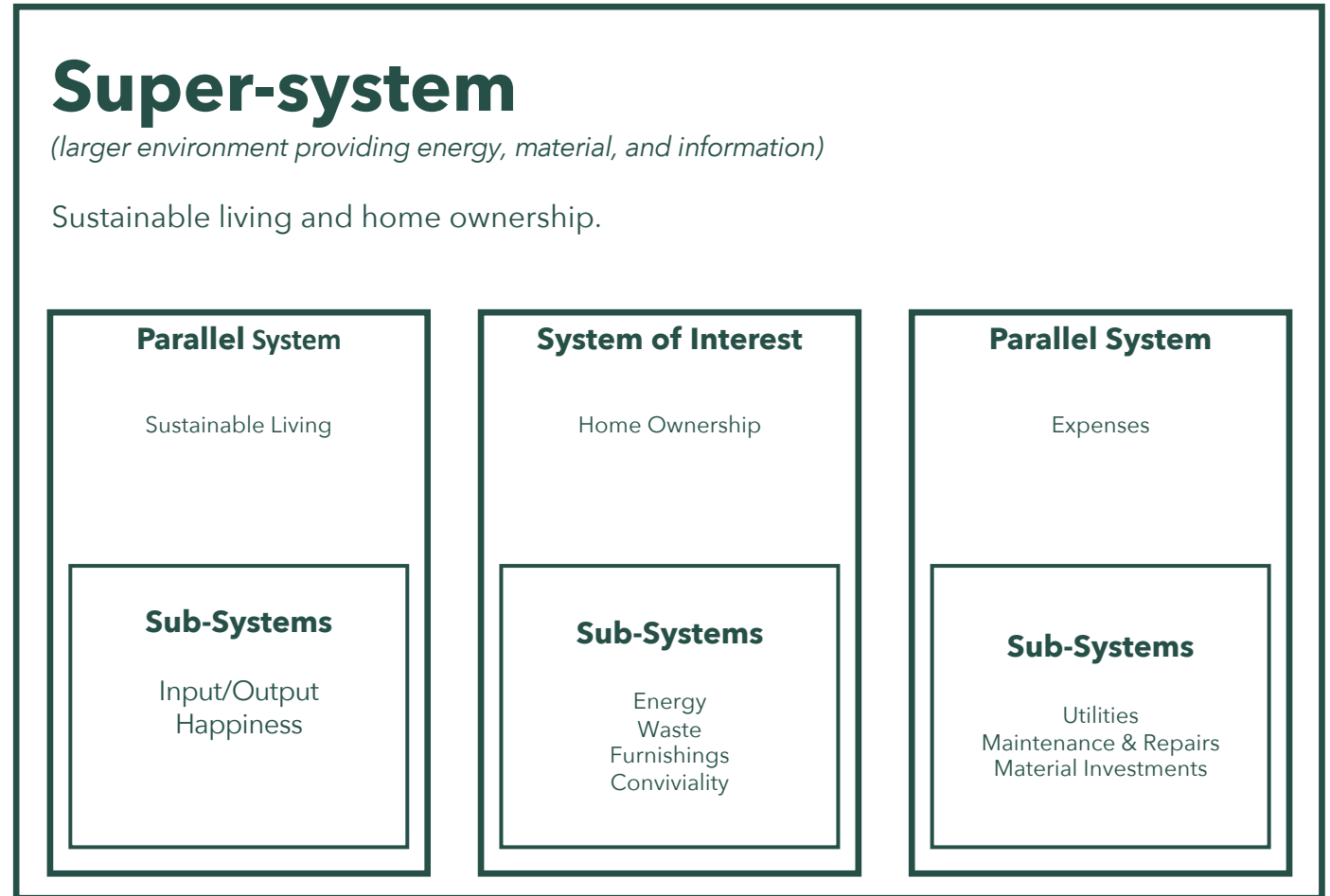
# System Exploration

System Explorer Tool - Biomimicry Institute

Utilizing the Biomimicry System Explorer tool, I have broken down the process of making sustainable choices in home ownership.

The purpose of this tool is to aid in the identification of possible interconnections, sub-systems and resources within a system of interest.

- Super-system is my original system – Sustainable Living and Home Ownership. My original **System of Interest** is Home Ownership. I was curious about how energy, waste, furnishings and conviviality contribute to overall satisfaction in home ownership.
- **Parallel Systems** include *Sustainable Living* and *Expenses*. How do choices in sustainable living affect home ownership through input/output and overall happiness? How do expenses add up within this home ownership system?

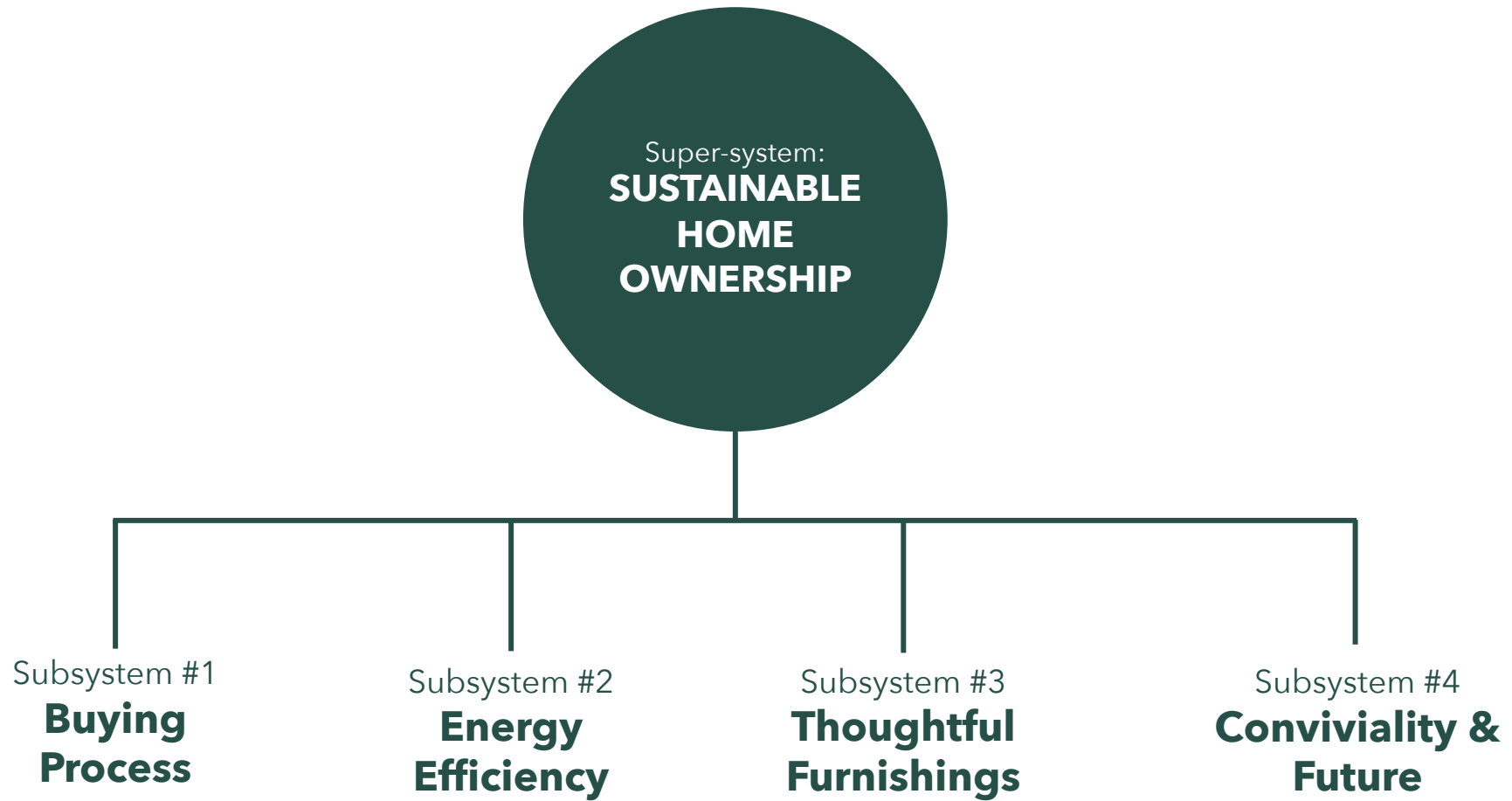




# Rich Picture

Applying visual thinking to systems is another helpful way to break them down and really explore how a system is connected. *Rich Pictures* reign in elements of a system such as the stakeholders, the environment, and relationships between the elements.

In this exploration, I've created a rich picture of my personal home ownership process including stakeholders as those who were involved along the way, understanding our energy consumption, how we will furnish our home, and what possible events lie in our future of home ownership.

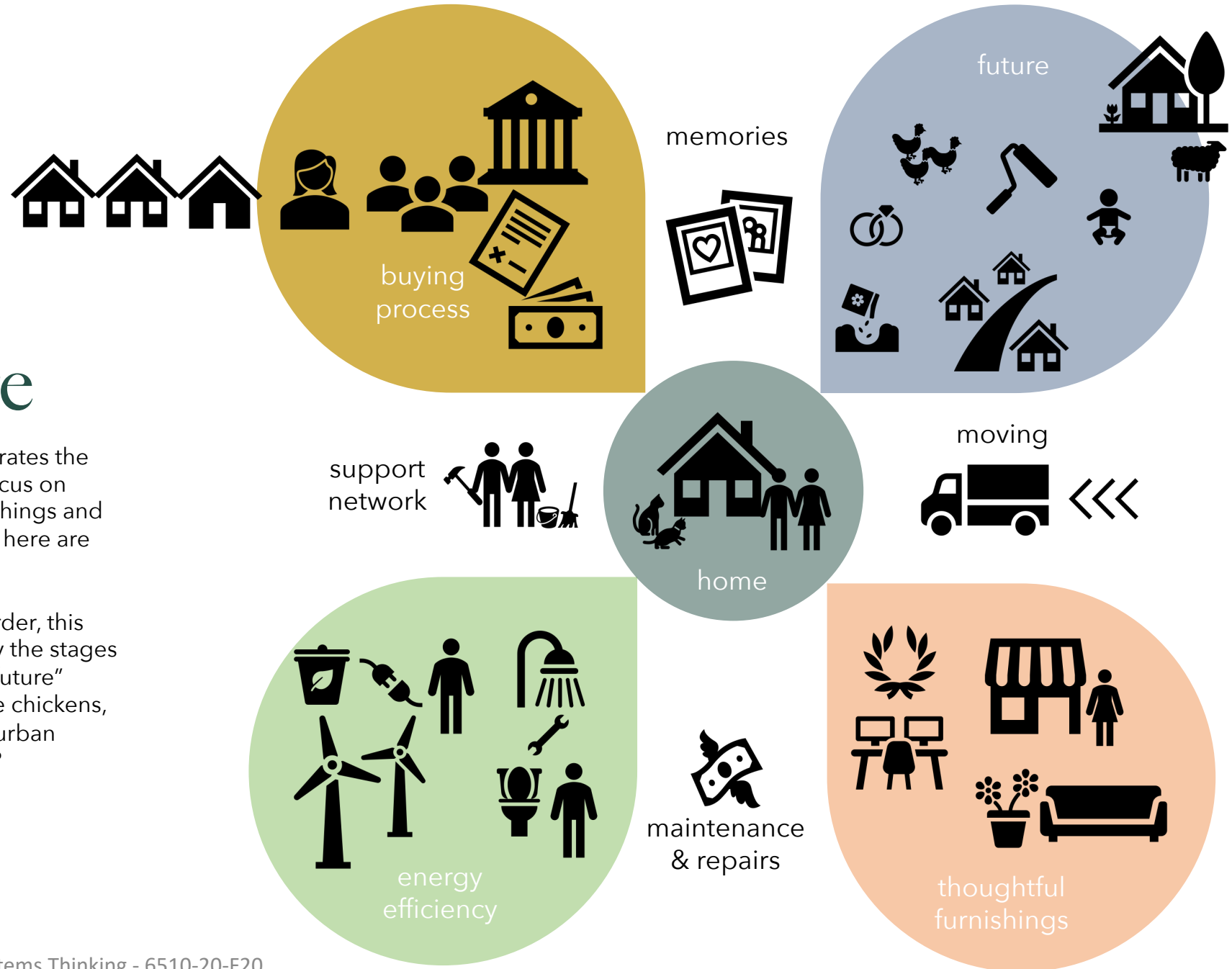




# Rich Picture

The iconography shown here illustrates the steps to home ownership with a focus on energy efficiency, thoughtful furnishings and future exploration. Also illustrated here are the actors involved in the process.

Not necessarily in chronological order, this rich picture is instead organized by the stages of home ownership, ending with "future" steps. Will we plant a garden, raise chickens, have a baby, or ultimately sell our urban dwelling and move to the country?





# CATWOE

As a branch of Soft Systems Methodology, a CATWOE more closely examines what a system is trying to achieve by identifying six interconnected elements:

- Clients
- Actors
- Transformation
- Worldview
- Owners
- Environmental Constraints

## Clients

*Who are the beneficiaries of the highest level business process and how does the issue affect them?*

Home buyers. Unforeseen expenses upon inspection and often higher cost up front, but longer lasting results.

## Actors

*Who is involved in the situation, who will be involved in implementing solutions and what will impact their success?*

**Involved in the situation:** Real estate agents, sellers, lenders, banks, inspectors, title partners  
**Involved in implementing solutions:** laborers (heating/cooling/plumbers, electricians, chimney cleaners, mason), contractors, support system father/mother/friends, community  
**Impacting success:** finances, climate, resources

## Transformation

*What is the transformation that lies at the heart of the system?*

Upgrades & maintenance for sustainability, investing in furnishings, *home*

## Worldview

*What is the big picture and what are the wider impacts of the issue?*

Owning a home and directly contributing to the local economy by purchasing vintage or pre-owned furnishings, employing family-owned businesses to complete maintenance and servicing our old home, and utilizing renewable energy sources where possible.

## Owners

*Who owns the process or situation being investigated and what role will they play in the solution?*

My fiancé & I (In this example where I am using my personal home buying experience). We own the process of transforming our home into a more sustainable dwelling.

## Environment

*What are the constraints and limitations that will impact the solution and it's success?*

Purchasing an old home and making updates for energy efficiency and supporting the local economy.

# Influences

Systems are built on a series of influences. With this section, I am exploring the system of Sustainability & Home Ownership through the influences that are occurring throughout the system. I'll look at both positive and negative effects and identify possible solutions for each. .

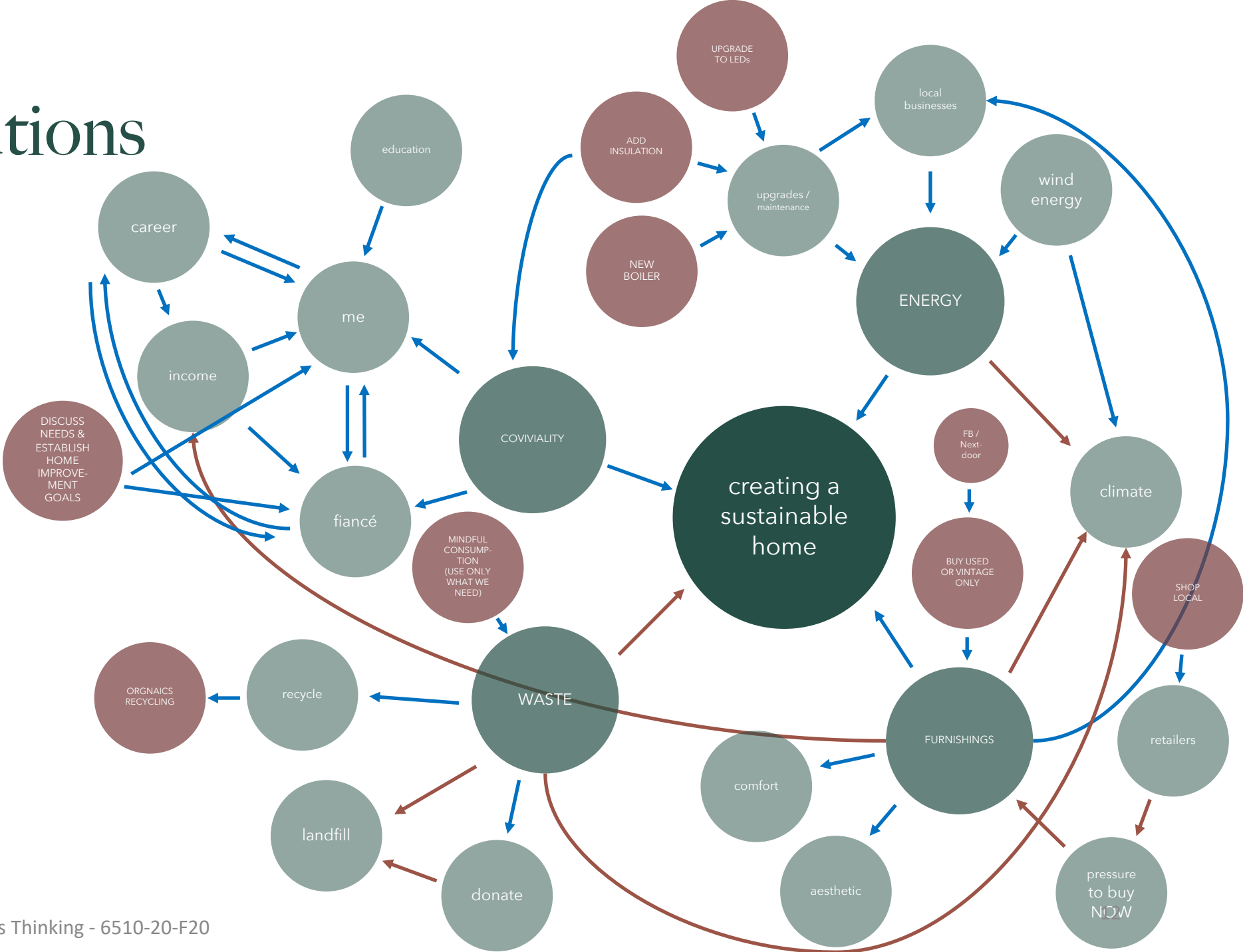






# Possible Solutions

Several possible solutions have been added to this influence diagram. Most notably, the solutions in the energy and waste systems will produce the most tangible changes, while those in conviviality and furnishings are more geared toward choice and behavior.





# Archetypes & Solutions

Systems archetypes are used to identify patterns of behavior within an organization or system.

I have identified three common archetypes that relate to sustainability and will explore possible solutions of each in the following slides.







# Limits to Growth

## Possible Solution #1

Upgrading outdated, inefficient appliances

The Archetype “Limits to Growth” can be applied to the system of creating a sustainable home due to the ever-present “set-up” costs that are associated with making updates to heating/cooling/electrical/plumbing to ensure proper, efficient function.

**Solution:** By gaining knowledge in the beginning of the home-ownership process, we can learn where our money can be best spent, while also exploring DIY options for added insulation etc. that could make immediate, low-cost updates with long-term benefits.

We could also reach out to friends and family who have existing knowledge and may be open to skill-trades.

*A list of goals and updated diagram are on the next slide.*



# Limits to Growth

## Possible Solution #1

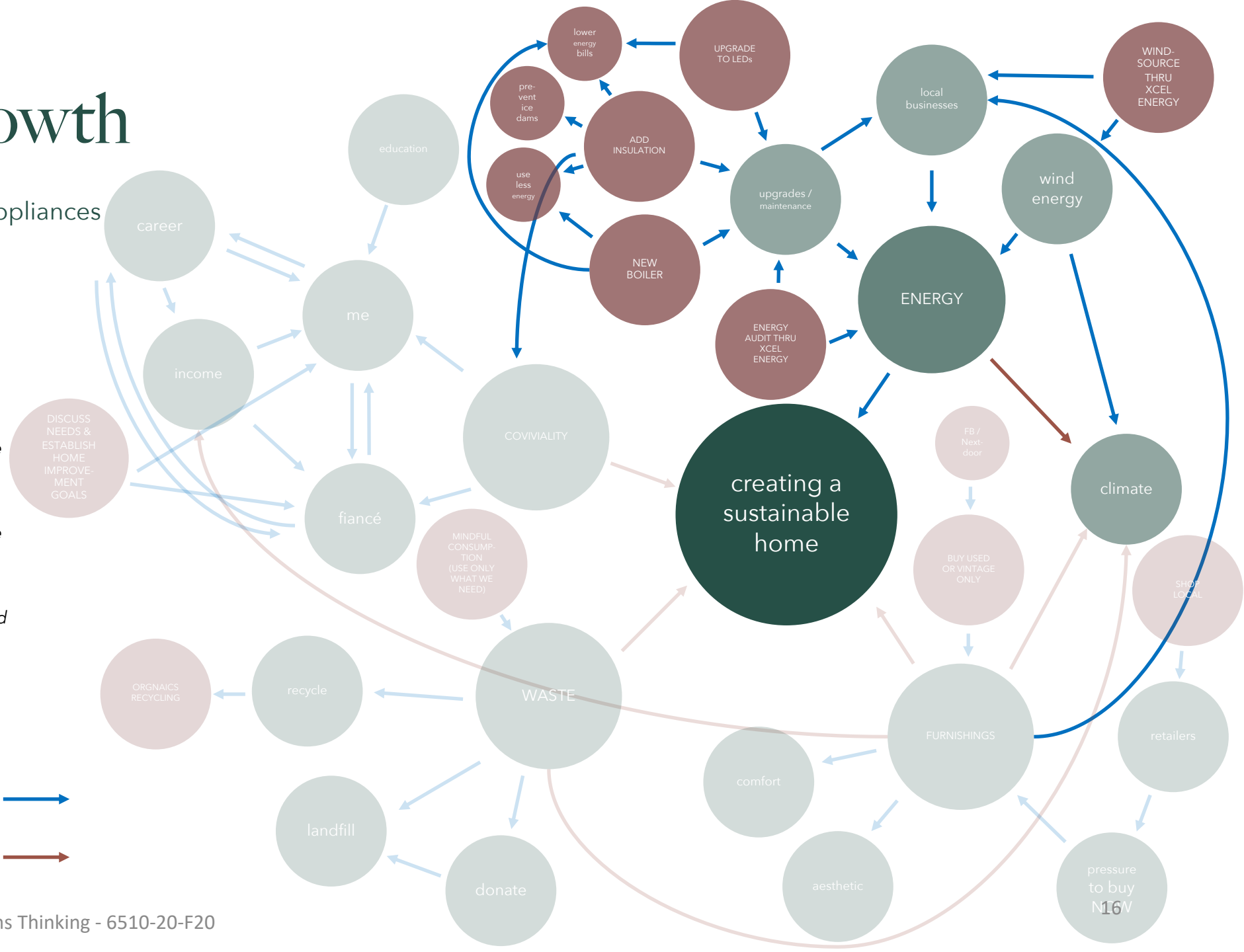
Upgrading outdated, inefficient appliances

### Areas of Focus: Energy

Identifying measures to improve energy use is the objective for this possible solution. An energy audit on our home addressed a few areas of improvement:

- Add insulation to the walls and attic
  - TASK - *identify a sustainable insulation*
- Use silicone caulk around windows for the winter months
  - TASK - *identify a sustainable option. Reusable option?*
- Further insulate doorways
- Upgrade to LEDs
  - TASK - *How to dispose of old lightbulbs? ID resources for new LEDs*

By making a few small upgrades, we will improve the efficiency of our home, reduce costs, and live more comfortably.



# Shifting the Burden

## Possible Solution #2

Furnishing a home

We could easily “shift the burden” and develop quick fixes, rather than long-term solutions. For example, we need furniture to make use of more of the space in our home. A quick fix would be to buy something from a big box retailer that will give us short term satisfaction, but will perpetuate the cycle of mass-produced products.

**Solution:** Fiancé and I will create mood boards for what we envision our space to look like, create a budget and guidelines for “new” goods that need a certain amount of justification for sustainability before purchase, and plan for the pieces we are willing to wait and invest in.

By taking these steps, we can work toward a more positive and beneficial space for the both of us, while easing the burden on the planet and supporting the local economy.

*A list of goals and updated diagram are on the next slide.*





# Shifting the Burden

## Possible Solution #2

Furnishing a home

### Areas of Focus: Furnishings

This proposed solution is directly related to the "Furnishings" category, but also has influence in Conviviality and Waste categories.

The goal here is to create more mindful purchases in our quest to furnish our home. To do this, our focus will be on creating a thoughtful plan and mood boards with our desired aesthetic and budget in mind. We will need to harness our own consumption behaviors (minimizing trips to Target) to ensure we are staying true to our goals.

Utilizing Craigslist, Nextdoor, Facebook Marketplace, as well as outings to estate sales will provide not only unique furnishings, but encourage mindfulness and be a fun activity for us to share together.

existing system



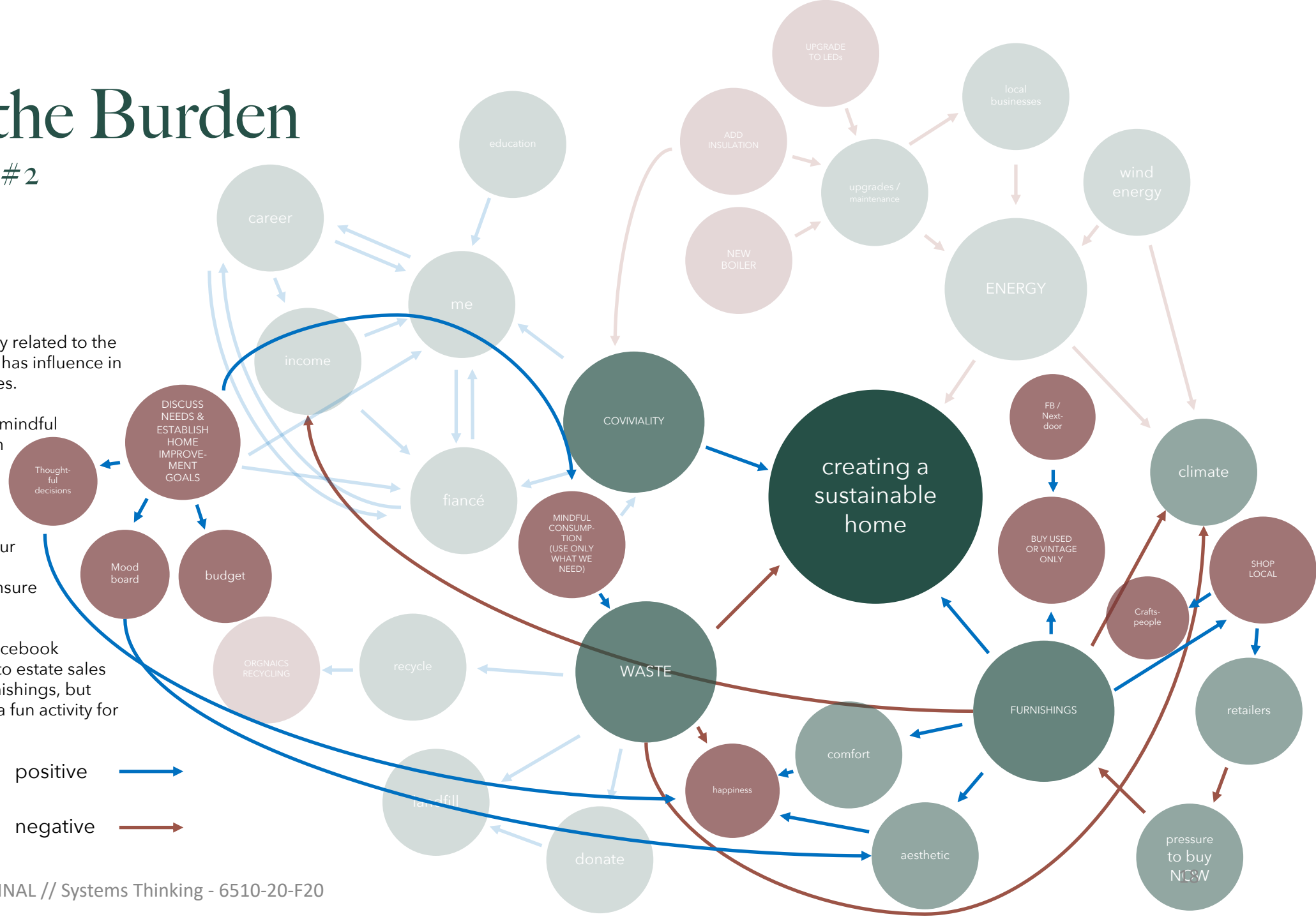
positive



improvements



negative



# Eroding Goals

## Possible Solution #3

### Maintaining Expectations

Symptomatic solutions are the result of the Eroding Goals archetype. By making sacrifices or settling for a mediocre solution, we could see poor performance as a result of less-thoughtful decision-making.

If we were to lower our expectations and sacrifice our initial plans to ensure sustainability within our home, we could see the effects in several areas, which would result in the destruction of our conviviality.

**Solution:** By creating a list of our top priorities we can focus on where we want to invest our time and money into our home to create a living space we are proud of and happy to live in. This way we can maintain our vision without sacrificing our goals.

*A list of goals and updated diagram are on the next slide.*



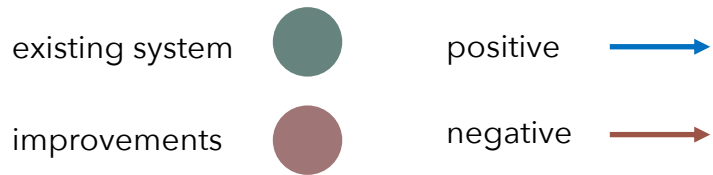
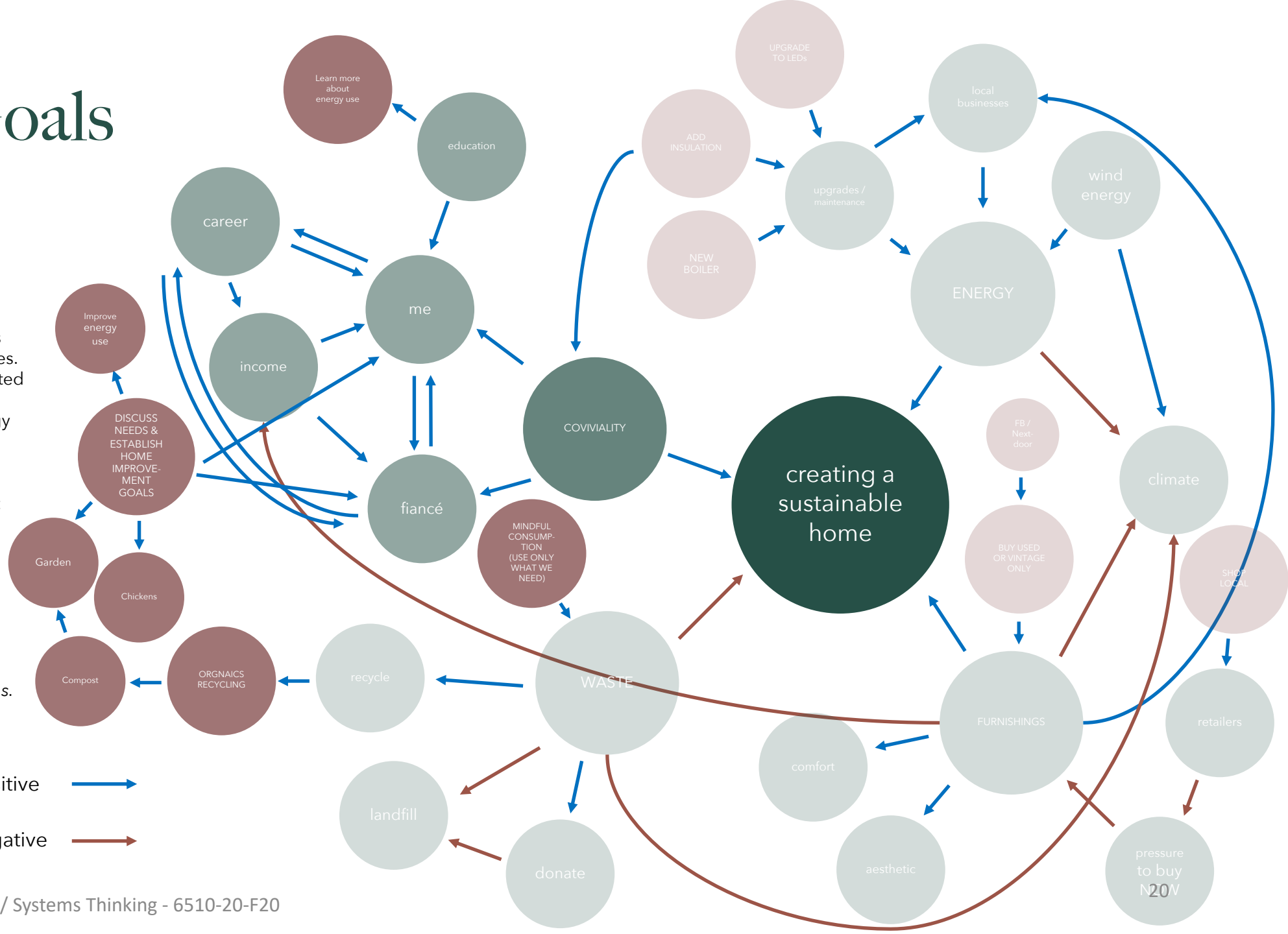
# Eroding Goals

## Possible Solution #3 Maintaining Expectations

### Areas of Focus: Conviviality

A possible solution to *Eroding Goals* is that of establishing a list of our priorities. Prioritize based on budget and projected benefit for sustainability.

- Understand and improve our energy consumption
  - Begin composting
  - Assess our backyard space for the potential to raise chickens (first, get fiancé on board!)
  - Create a garden
    - Begin composting
- Create a plan for bigger changes:
- Basement renovation
    - *How can this be done sustainably? Connect with businesses with have sustainably-minded missions.*
    - *Support local construction*





# Reflection & Updates

While exploring this relatively new topic of home ownership more deeply during Project 3, I've come to discover how complex even simple systems are [not that this system is such]. Beyond that, there are so many ways to interpret a system depending on your viewpoint, your situation, or your past experiences. From dissecting the system through a biomimicry lens, to drawing rich pictures, understanding influences and archetypes, it appears this system and [all others] are continuously evolving and can be approached from an infinite number of ways.

Comments from my peers were even more impactful this time around, as I felt rather lost in getting started with this project. My friend Hannah, asked for clarification on my CATWOE and rich picture, so I added more information about what their purposes were and clarified some details. Additionally, she didn't fully understand the models that were associated with the archetypes, so I removed those and focused on graphics and text. My friend Joy, provided feedback that encouraged me to further develop my formatting and asked for clarity in my diagram keys.

Feedback from my instructor and peers were helpful in regard to more clearly describing each section of my presentation, how it relates to the big picture, and fine-tuning the solutions that I identified in my influence diagram and archetypes. It was also noted that my influence diagrams were strong, so to utilize the information there and build upon it helped me to expand on my possible sustainable solutions.

In addition, I've added more thoughts on how to make upgrades for energy efficiency while using sustainable materials. I'm just touching the surface here, but I'm excited to explore more!

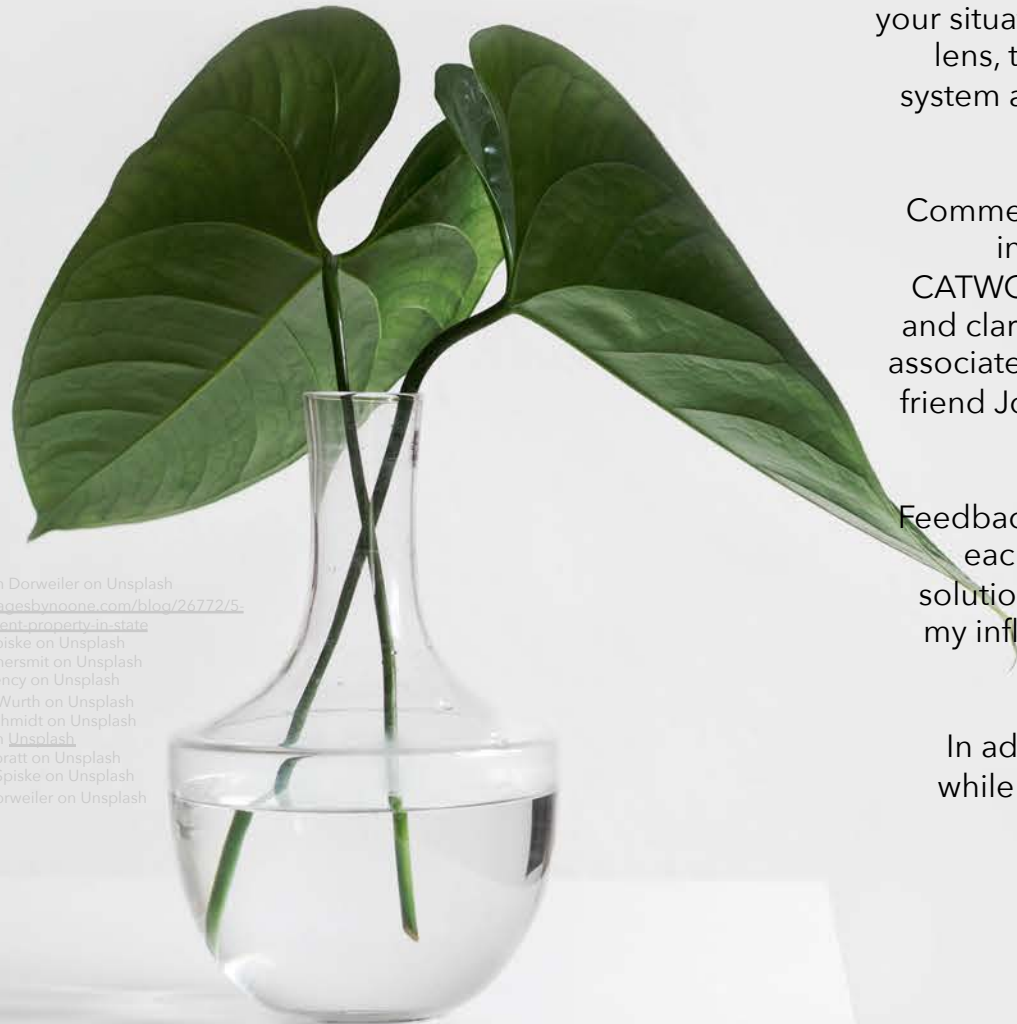


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