



LET'S FIX THE RECYCLING SYSTEM



Process Book

Glass Community-Supported recycling



Trends

things that are popular right now

EDDIE

sports education, wildfire protection, bike safety cyclists

NATHAN

Food packaging transparency, meat alternatives, urban density

MEHTAB

loneliness epidemic, the plastic problem

JAN

ocean cleanup, sustainable city, eliminating hunger





Pre-Research

We started doing research on different areas and we found our city had a big glass recycling problem.

RECYCLING NEWS IN THE UNITED STATES

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- TOP PICKS
- WATCH: Officer buys birthday cake for 1-year-old girl after giving mom with balloons a ride home
- Dog who spent almost 6 years at animal shelter gets forever home
- Thank God I was able to help her: Bus driver saves passenger's life with Heimlich maneuver
- This week in coronavirus news

Mt. Lebanon teen starts his own glass recycling route

75 Shares
Shannon Perrine
Evening Anchor
Updated: 6:24 PM EST Mar 3, 2020



RECYCLING NEWS IN THE UNITED STATES



HOME / NEWS / BEST STATES

Virginia Addresses Challenges of Glass Recycling

Fairfax County's successful program is leading other states and counties to consider ways to recycle glass efficiently.

By Elliott Davis, Contributor March 4, 2020, at 12:47 p.m.



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Hampton curbside glass recycling to end

TRIB  Natalie Beneviat

Tuesday, March 3, 2020 | 11:00 PM





Problem

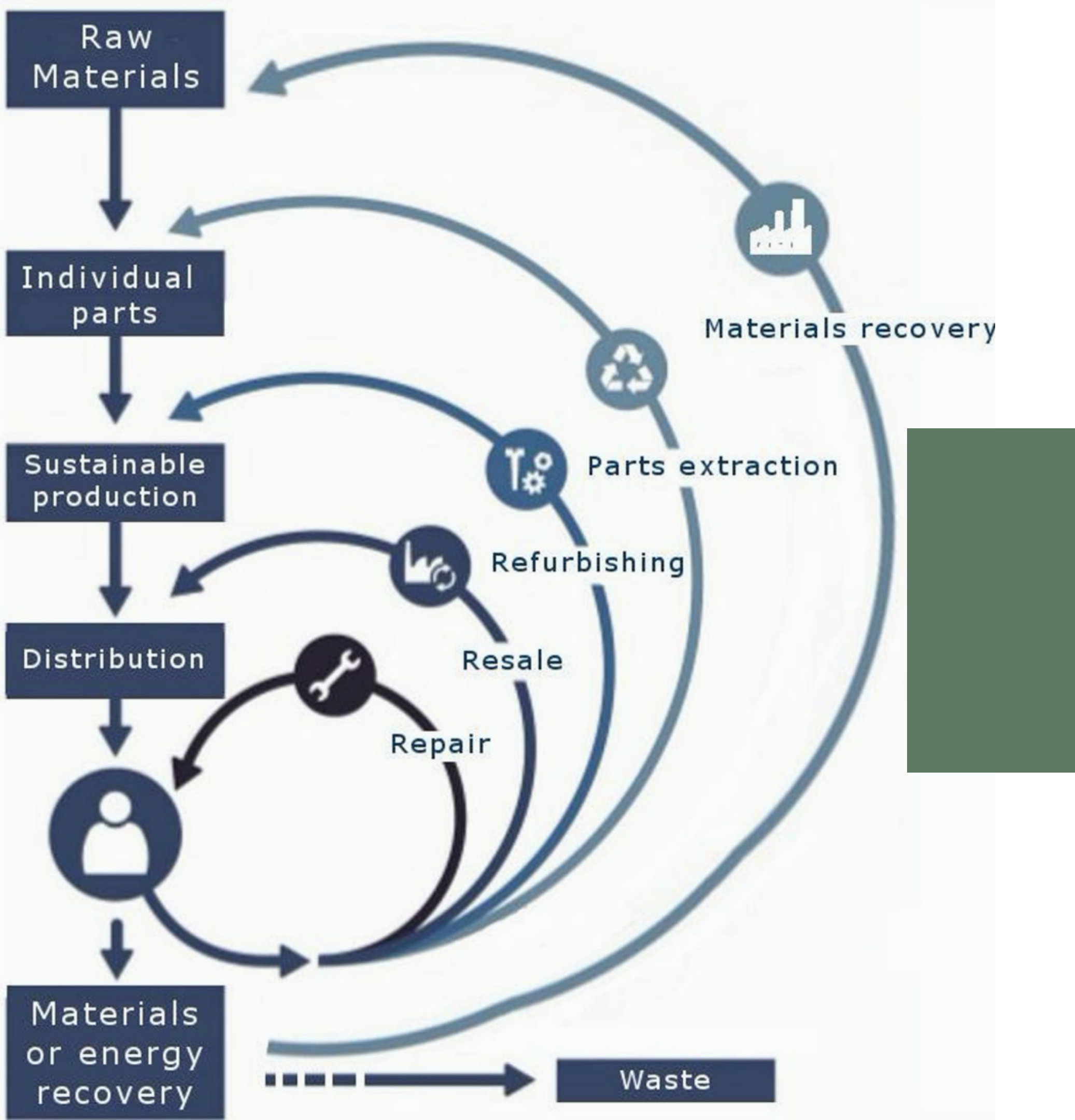
Problem

Savannah, like many other areas in the country, lacks a proper system to repurpose and recycle glass waste.

Intent Statement

HOW CAN WE USE CONTEXTUAL RESEARCH
TO IDENTIFY WAYS TO INCORPORATE A
WASTE STREAM INTO CIRCULAR
MANUFACTURING AND REDUCE THE AMOUNT
OF GLASS LAND FILL AROUND SAVANNAH AND
NATIONALLY?

**INTENT
STATEMENT**



How might we use contextual research to understand the product life cycle of glass and develop a circular economy for it?

How might we describe contextual research and contextual research methods?

How might we define the product life cycle of glass?

How might we develop circular economy?

GLASS FOR YOU

Every tonne of
RECYCLED GLASS
saves 670 kg of CO₂

WWW.FEVE.ORG

GLASS FOR YOU

More than
50% of glass bottles are
DELIVERED
to customers
within a 300km
distance

WWW.FEVE.ORG

GLASS FOR YOU

Glass is
100% RECYCLABLE
and can be recycled
time and time
again

WWW.FEVE.ORG

GLASS FOR YOU

87% of EUROPEANS
prefer glass

WWW.FEVE.ORG

FACTS



Glass

How recycling glass helps the environment ?

Reduces the amount of trash in land fill

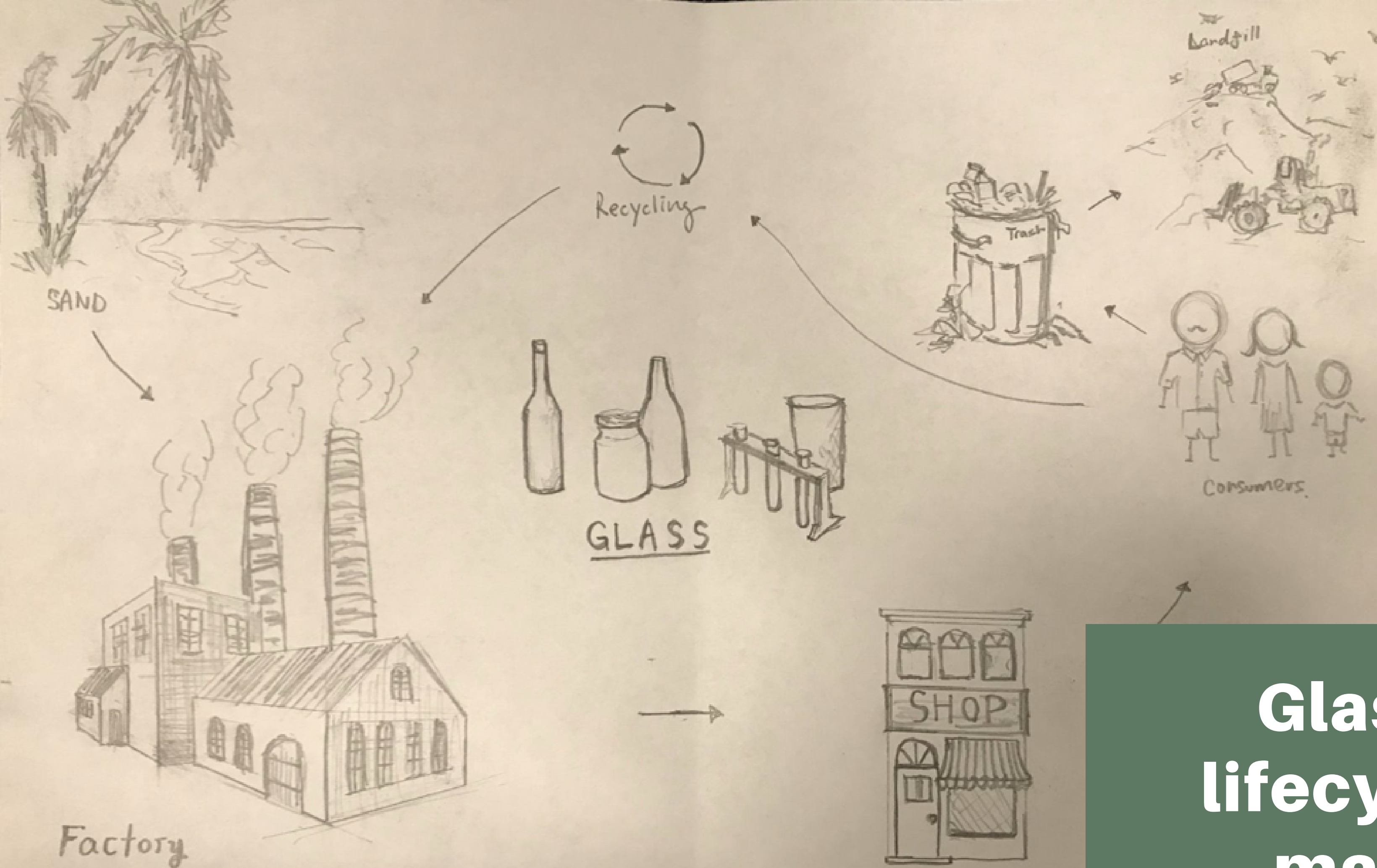
Reduces air pollution by 20%, land pollution by 40% and water pollution by 50%

Glass can also be repurposed without being processed



Secondary Research

we looked at different areas like markets communities and educational areas and brainstormed to see how people interact with the recycling world

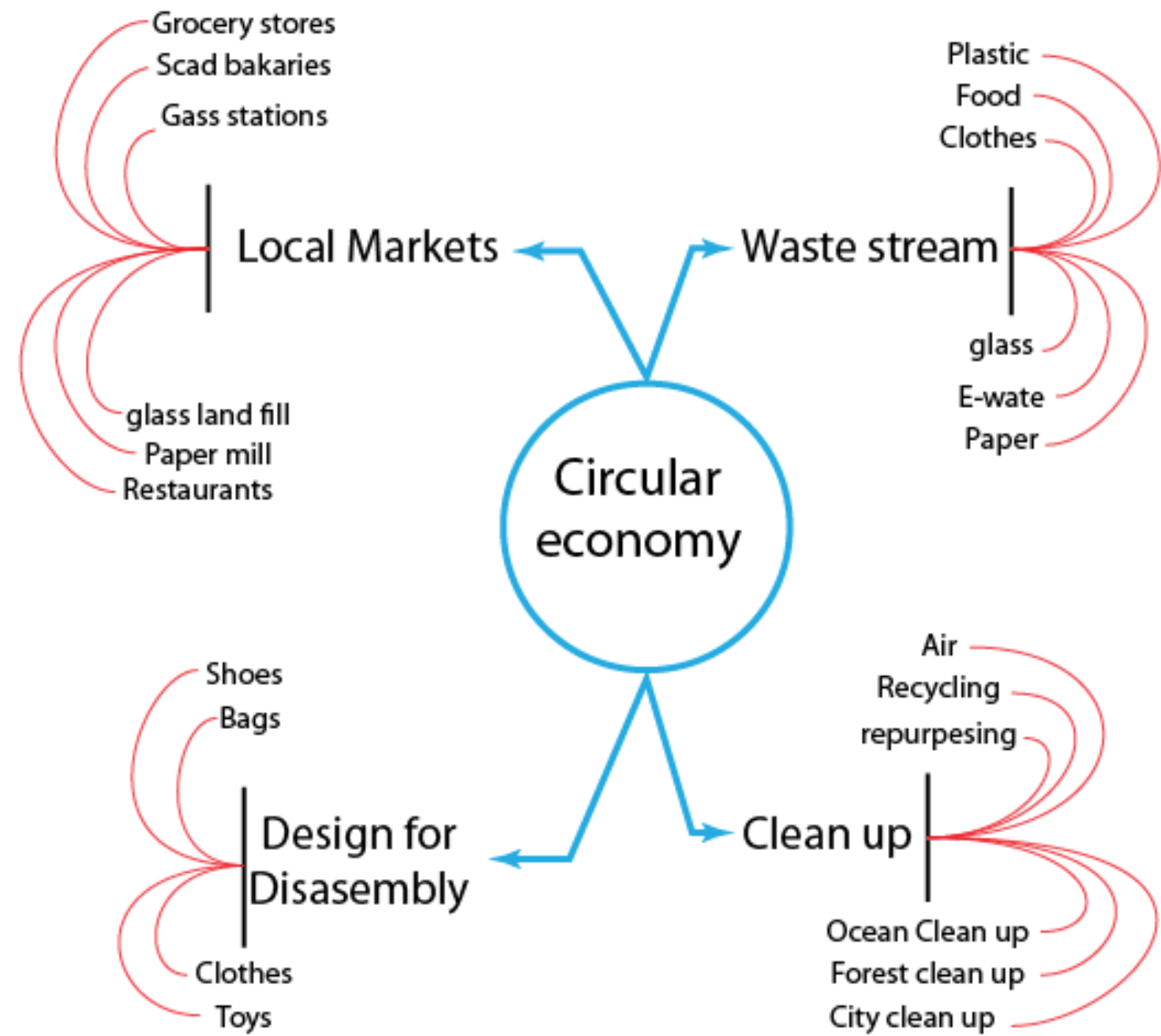


Glass lifecycle map



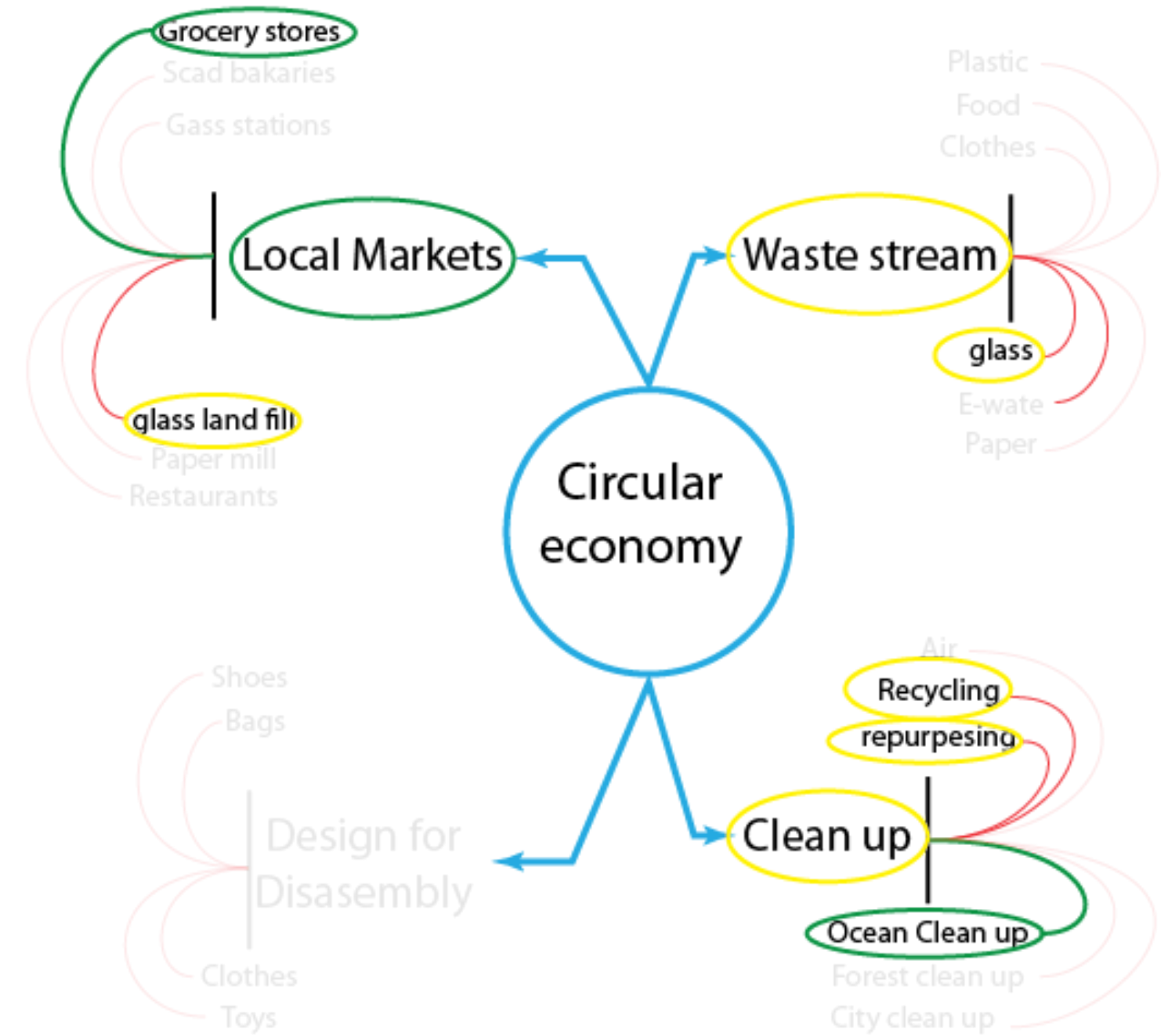


Mind map





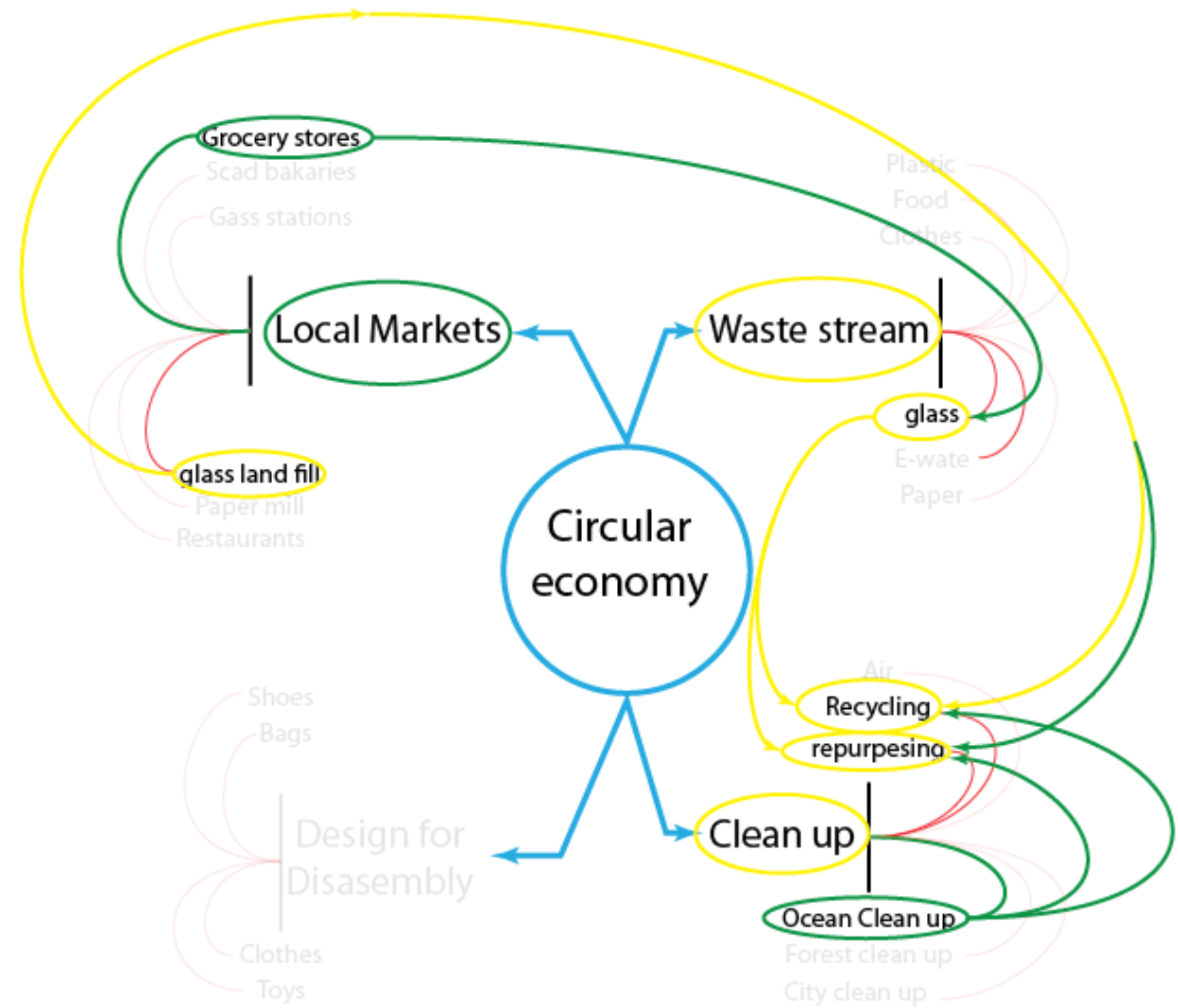
Mind map



- Primary Focus
- Secondary focus



Mind map



- Primary Focus
- Secondary focus



Mind map takeaways

Use glass from landfills and markets to repurpose, refurbished and recycle to give it a second life as a primary focus.

Recover glass from oceans and grocery stores for recycling and refurbishing as a secondary focus.

Opportunities



80% of recycled glass containers are used to make new glass containers

Recycling glass not only saves on the raw materials needed to make virgin glass, but it also reduces energy usage and extends the life of equipment, such as furnaces

Glass can also be used in tiles, filters, sand blasting, concrete pavements and parking lots

It takes 30 percent less energy and creates 50 percent less pollution to use recycled glass to make new glass than it does to make new glass from scratch.



New Values

CURB WASTE AND
WASTE EDUCATION ADD TO THE
CIRCULAR ECONOMY IDEA
WITHOUT EXCESSIVE OVERHEAD
COSTS.

NEW
VALUES





FAILURES

There are no specific buyers for glass recycling.

Lack of buyers means recycling costs more than landfilling

Single-stream recycling is costly to separate



Risks

Risks

Recycling Glass creates dust which can carry glass particles that can be harmful to respiratory health.

Weak market pricing makes recycling glass a financial risk.



CITY MARKETS



FACTORY OWNERS



LOCAL CONSUMERS

AUDIENCE

Primary Research

TO SIMPLIFY OUR RESEARCH PROCESS
WE NARROWED DOWN OUR FOCUS TO
INTERVIEW PEOPLE IN SAVANNAH TO
SEE HOW WAS THE LOCAL GLASS
RECYCLING





interviews

15 PERSONAL INTERVIEWS

29 QUESTIONNAIRE
RESPONSES

60 CULTURAL
PROBE RESPONSES

Interview Questions

Which item material do you prefer ? Glass or plastic?

Would you be willing to give a second purpose to a glass product after its served its purpose?

Would you recycle glass?

How would you compare glass and plastic products?

Do you recycle plastic?

Which products you buy in glass and which you buy in plastic and why?

survey questions

HOW OLD ARE YOU?

UNDER 16

16-25

26-35

36-50

OVER 50

DO YOU USUALLY RECYCLE GLASS?

YES

NO

DO YOU KNOW WHERE YOUR GLASS RECYCLING GOES?

YES

NO

IF YOU BUY ANY OF THE FOLLOWING, WOULD YOU PREFER TO BUY THEM IN GLASS OR PLASTIC?

JUICE MILK. SODA

KETCHUP/CONDIMENTS

JAM/JELLY. SYRUP

TUPPERWARE PLATES AND

BOWLS DRINKING GLASS

SELECT THE STATEMENTS BELOW THAT YOU AGREE WITH.

GLASS FEELS MORE PREMIUM
THINGS TASTE BETTER IN GLASS
GLASS IS INCONVENIENT
GLASS IS DANGEROUS

WOULD YOU BE WILLING TO PAY MORE FOR A PRODUCT MADE OF GLASS INSTEAD OF PLASTIC?

YES

NO

DEPENDS ON THE ITEM
DEPENDS ON THE PRICE

WOULD YOU BE INTERESTED IN A PRODUCT THAT PROVIDED AN ALTERNATIVE REUSE AFTER IT HAS BEEN USED, AS IN THE EXAMPLE IMAGE BELOW?

YES

NO



Cultural Probe

we conducted a cultural probe in Savannah's Forsyth park farmers market





CULTURAL PROBE QUESTIONS

Would you pay more for glass over plastic?

Would you be interested in products with a second use?

If you buy any of the following, do you prefer to buy glass or plastic?

(Ketchup, Milk, Juice, coke, jelly)

Data points & insights

Finding patterns

We added our mind mapping post-its from our secondary research and brainstorming to brand-new post-its from our primary research. Then, we pulled insights from those data points. From those insights came various small solutions, which we illustrated with sketches.



Awareness/ Consciousness

Education

Glass > Plastic

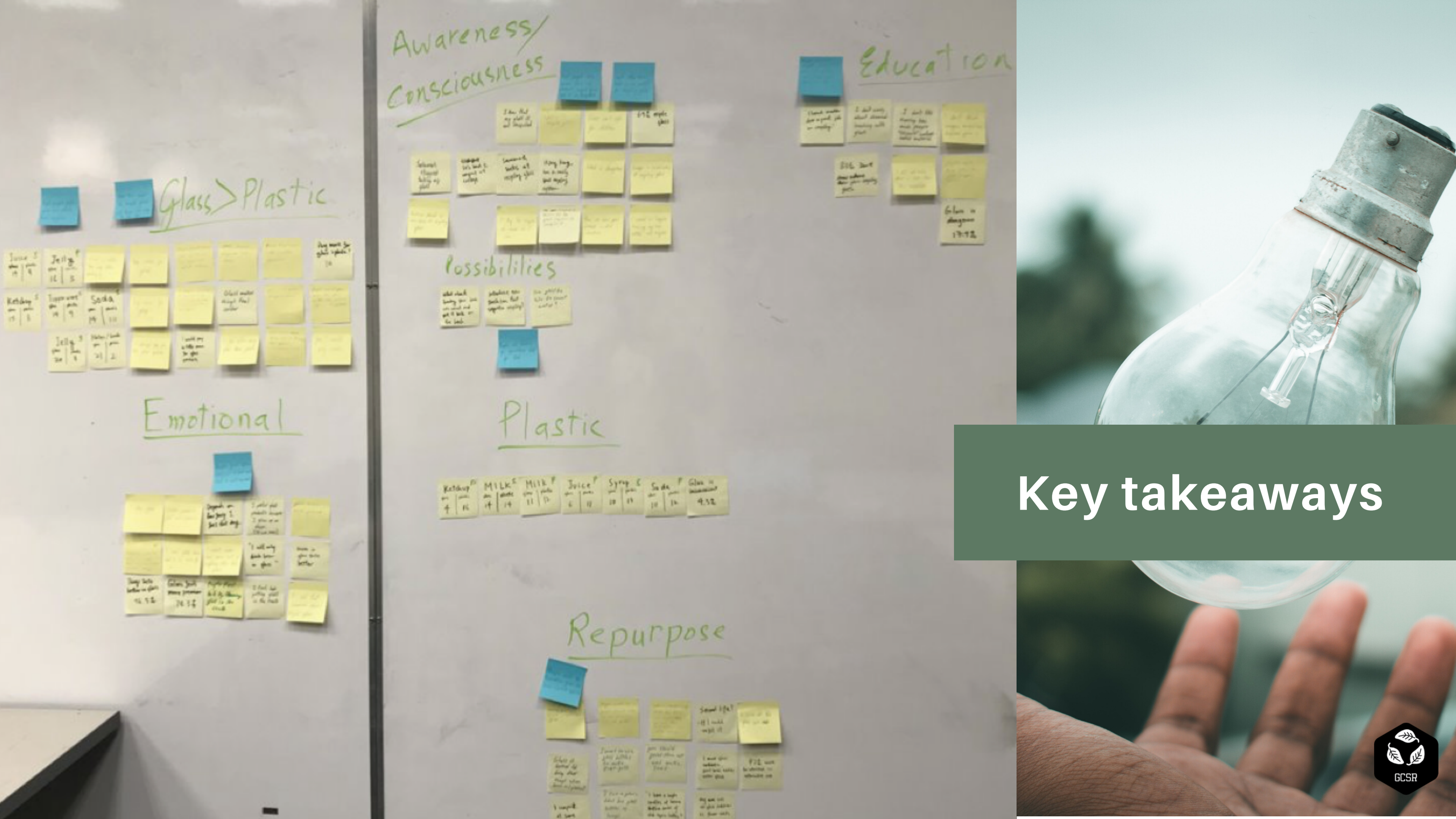
Possibilities

Plastic

Repurpose

Emotional

Key takeaways





Key takeaways

People want to recycle glass and know it is possible but don't know how to.

Most people are aware the city doesn't recycle glass but it is recyclable.

People also know there is little market for recycling glass.

People want to repurpose glass but have limited options.

People are looking into speculative uses for glass.

People feel better using glass and feel bad that it isn't recycled.

Over 90% want to recycle glass but there is no way to do so.

Most people prefer glass over plastic because it is more hygienic.



PRINCIPLES

WE COMPILED OUR
INSIGHTS INTO THREE
MAIN PRINCIPLES.

THEN, WE EXPLORED WHAT
THOSE PRINCIPLES
COULD LOOK LIKE IN A NEW
PRODUCT.





Principles

EDUCATION

We found out that people are not that educated on recycling glass so we want to find a way to address people who don't know about glass recycling.

NEW LIFE

We found out through our research that glass can be used for things like construction, art and design, but it's not being done because there's no glass recycler.

NEW PARADIGM

Finally we learned that after the glass has served its purpose it gets thrown into the trash because it's not being recycled, so we want to give a second use to glass products.



Concept Development

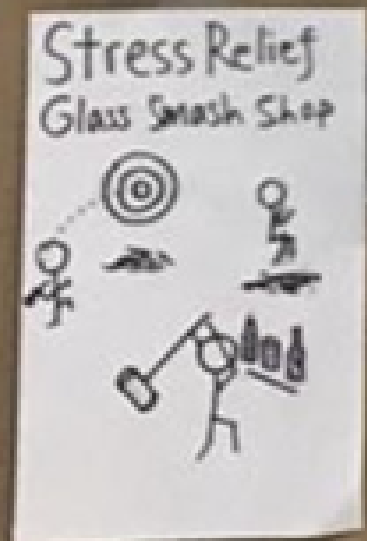
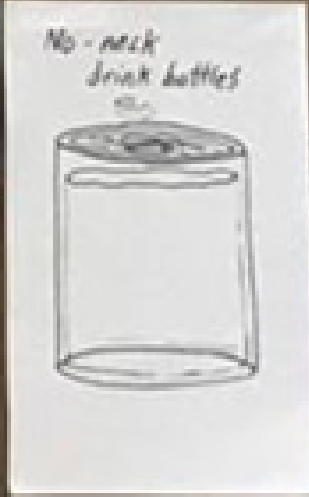
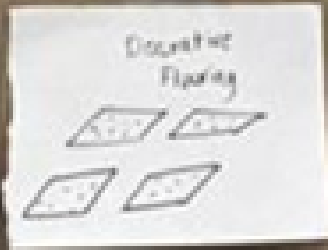
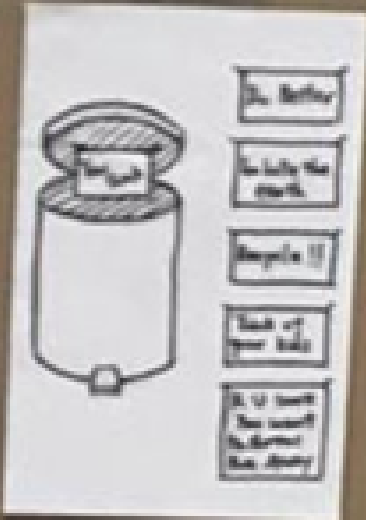
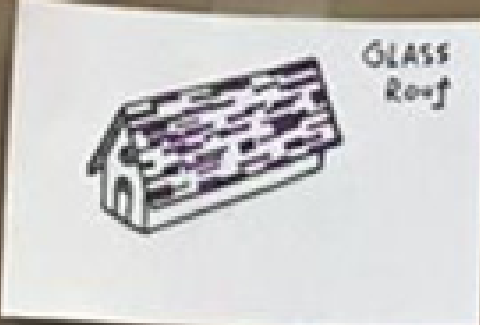
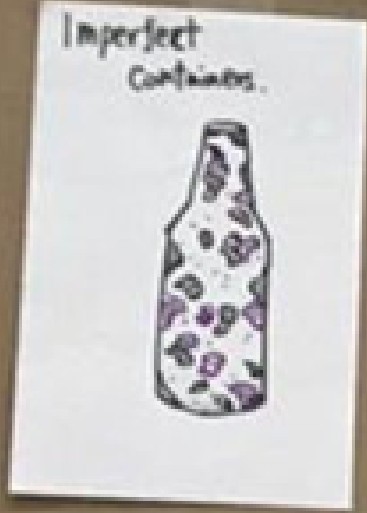
TAKING RESEARCH INSIGHTS FORWARD
INTO NEW IDEAS



Education

NewLife

New Product Paradigm

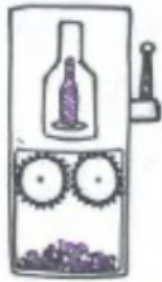


Conceptualization



Conceptualization

Education



Advertising on TV commercials / ads on mobile computers

glass waste



Stress Relief Glass Smash Shop



Mixable animation recycling demo

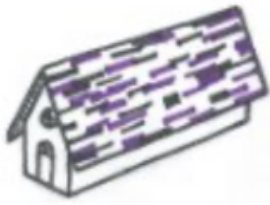
gives like people take glass of a different use people in the factory use

How do you feel about what you throw away?



NewLife

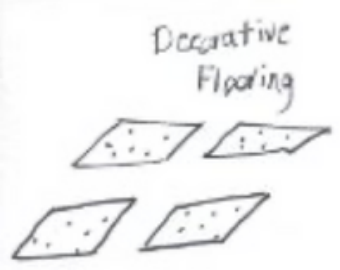
Imperfect Containers



GLASS Roof



TUMBLE SMOOTH WITH SALT WATER



Decorative Flooring



Glass for beach remediation



Polished Glass Pool Bottom



New Product Paradigm



No-neck drink bottles



GLASS TOOTH PASTE DISPENSER



Sell jars as nesting bowls



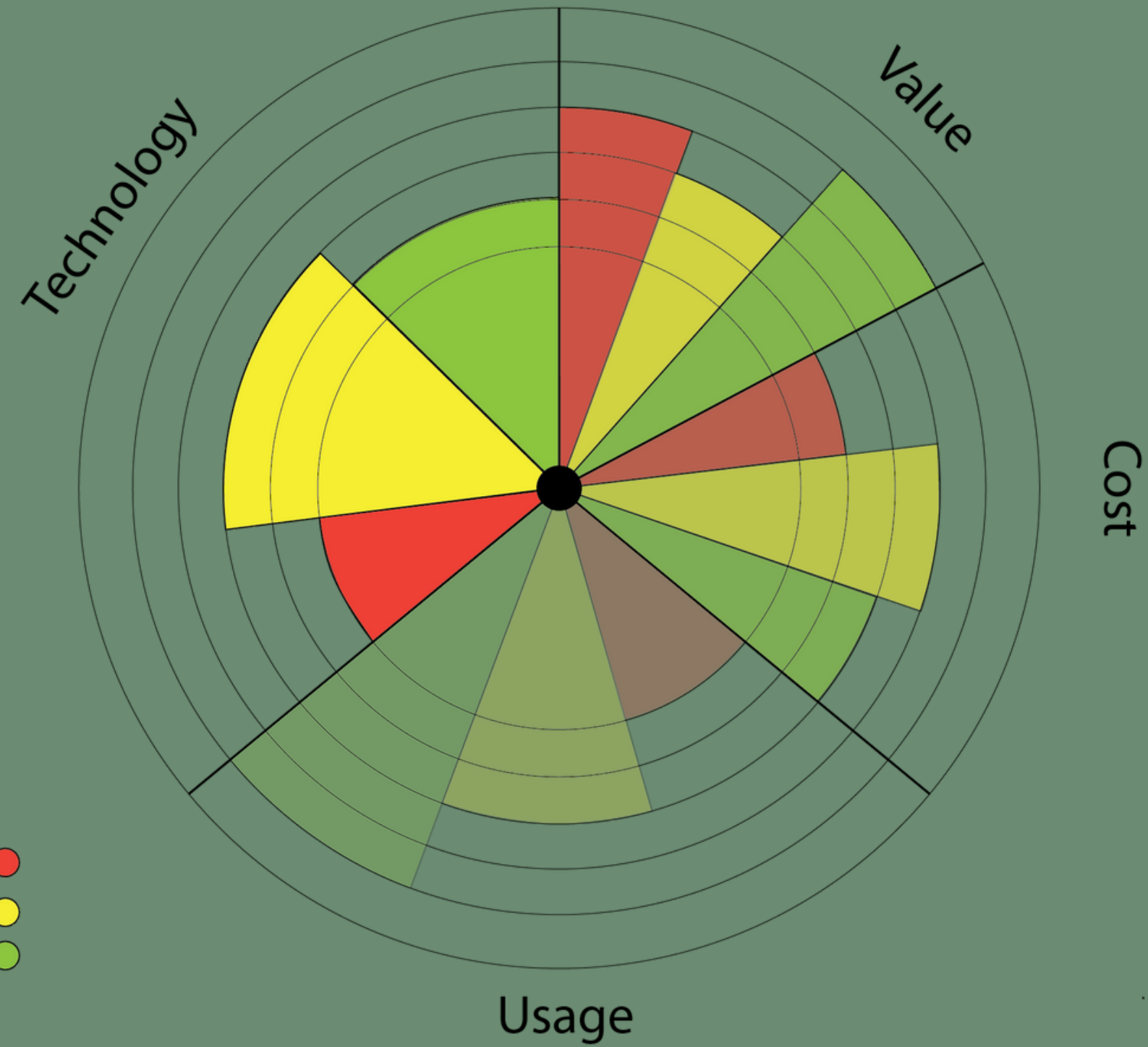
Seed packet under label



Turn bottles into instruments



Chart 1: Social Education

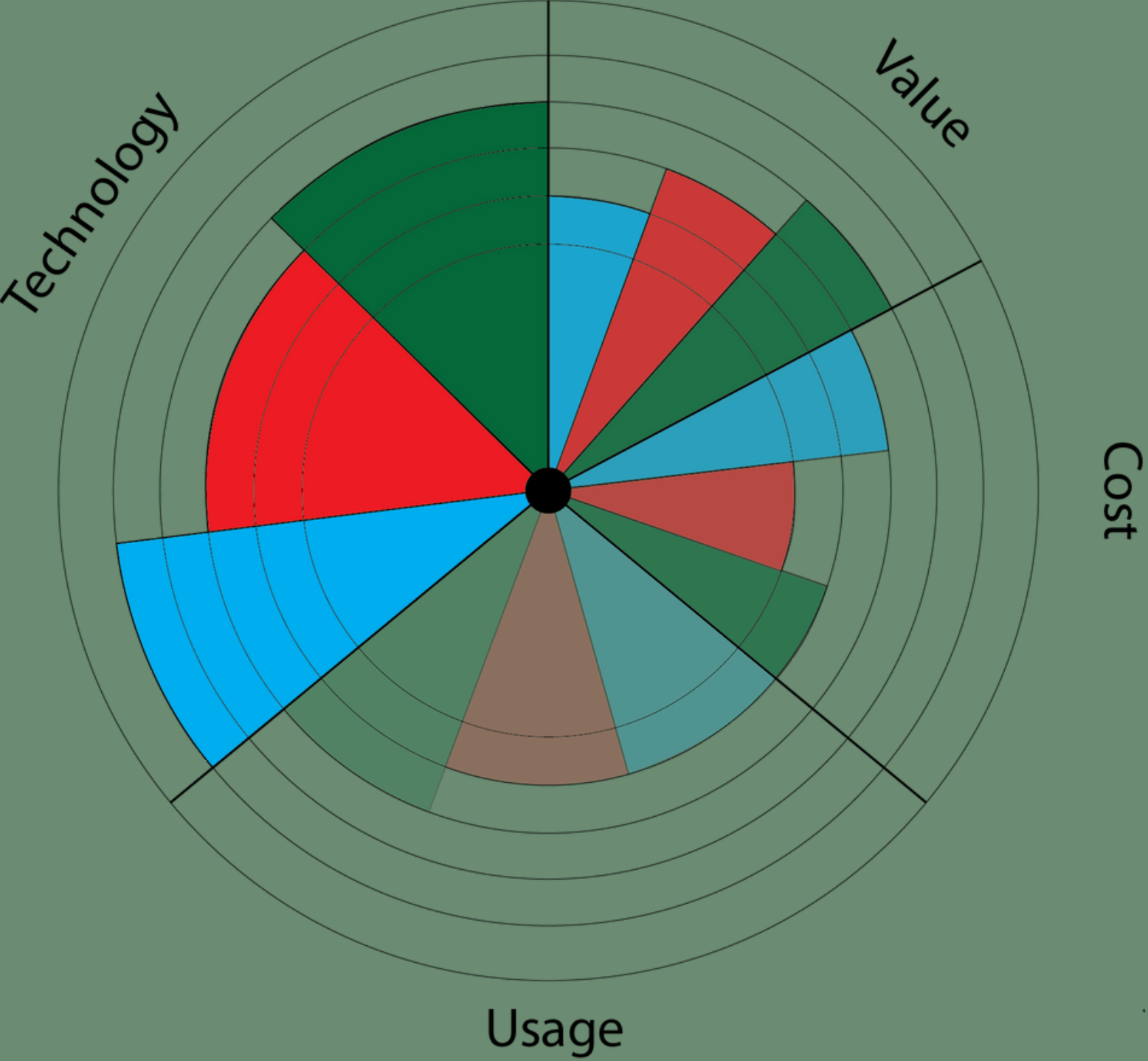


Seminars ●
Advertisement ●
CSA ●



PRODUCT TESTING

Chart 2: NEW LIFE

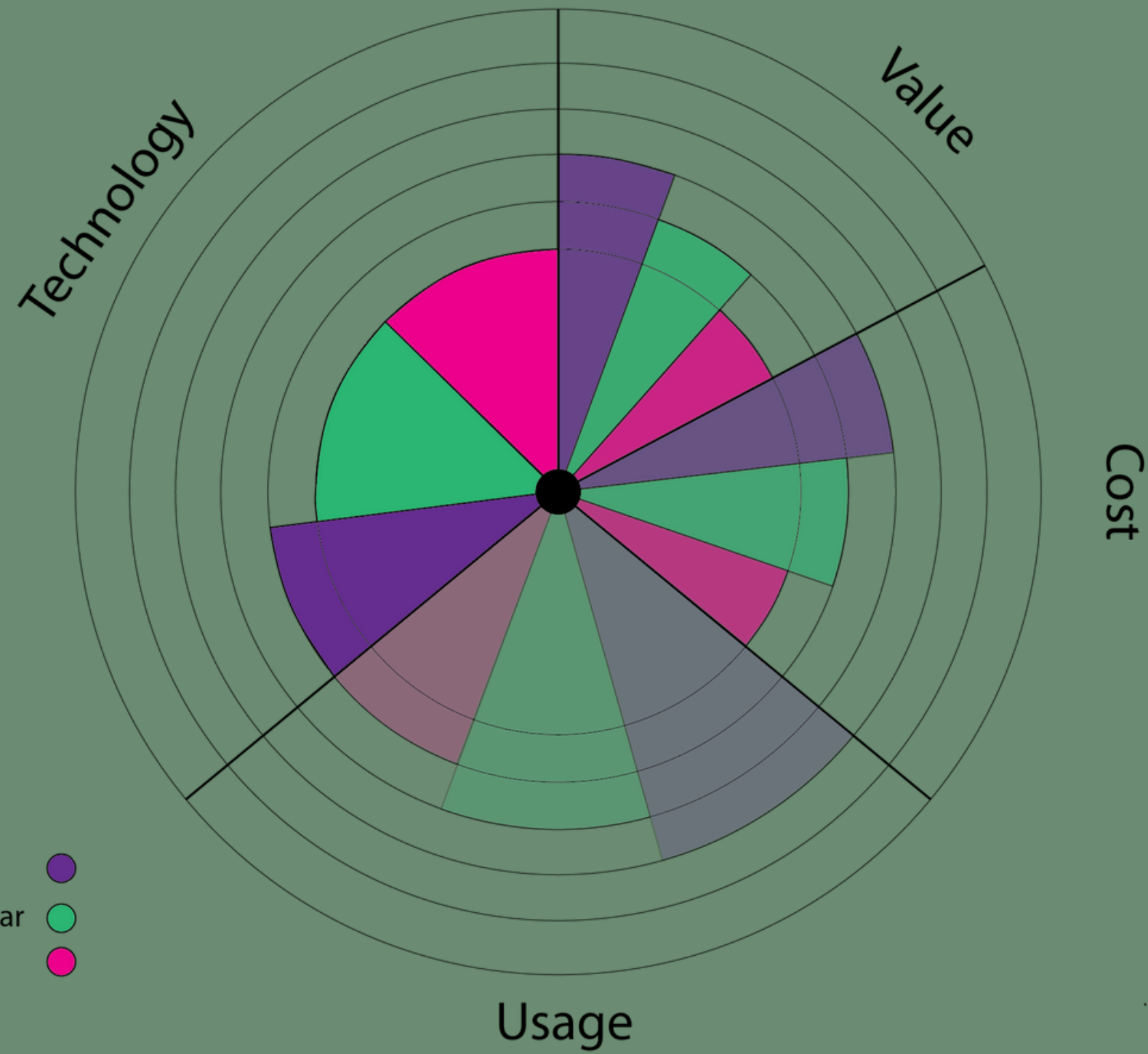


- Glass Bricks ●
- Sea glass ●
- Glass powder ●



PRODUCT TESTING

Chart 3: New Product



- Bottle To Glass
- Esay Beer to Glass Jar
- Glass Instruments



PRODUCT TESTING

POEMS

People

Object

Environment

Message

Service

Residents

Glass tumbler

Households

Glass is 100% recyclable

Pick up and drop off from households

Facility Managers

Bottle crusher

Glass recycling facility

We will run out of white sand in 20 years

Dropoff at recycling facility

Facility workers

Glass waste

Supermarket

Sanitation staff

Glass collection bin

Glass recycling reduces the use of raw materials up to 95%

Incentivized beverages and condiments in glass bottles or jars





Solutions

We decided to go with a business plan and advertisements as primary and as secondary a glass tumbler and a glass bottle crusher to collect the glass around the city and local markets.



Community-Supported Glass Recycling

A PROPOSED STEP TO HELP SOLVE
RECYCLING'S PROBLEMS

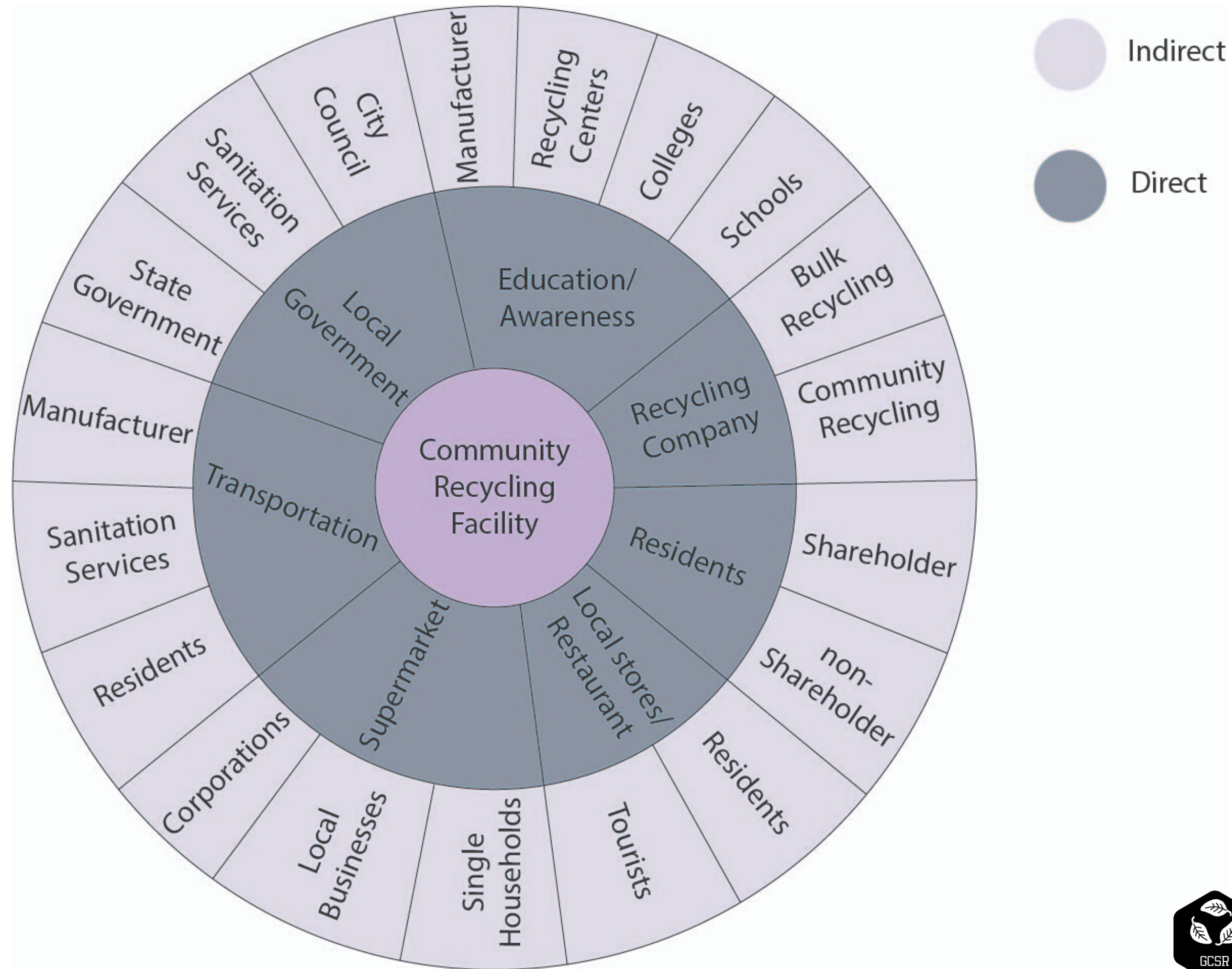
Testing our concepts revealed that no single solution stood to make a big change on its own. Yet despite the scale of the problems in recycling, many people were still passionate about their part in it and some people were still confused about it.

We propose a new community-supported service to help educate the community and enable those who are concerned to do more.

This would allow the community to benefit while creating a model to demonstrate how glass could be more viable on a large scale.



Stakeholder map

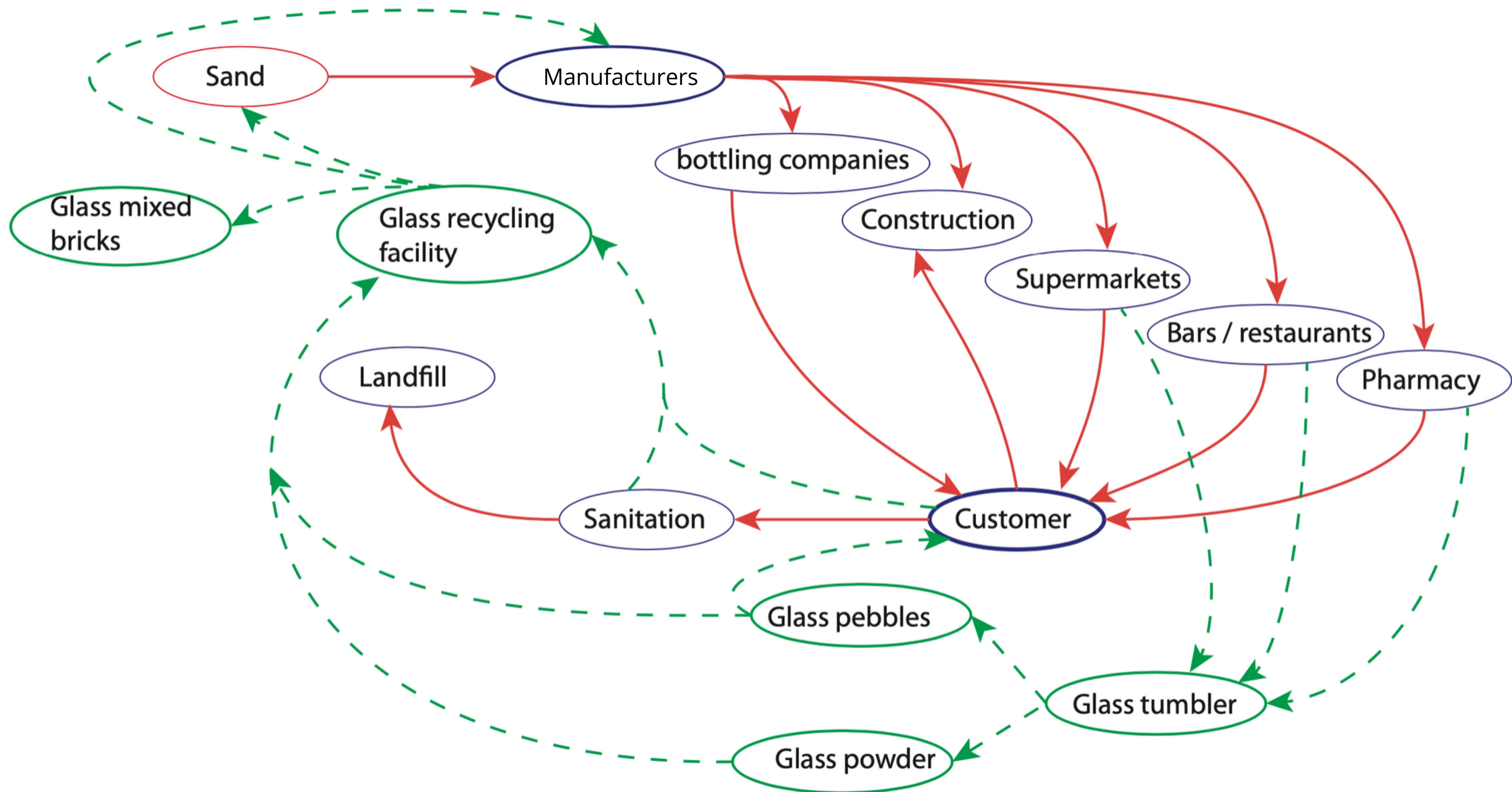




New Circular Economy

We developed a business plan to create a new circular economy with glass recycling where everyone can benefit from it. Our business plan would be our primary focus incorporating bus stop ads, web ads and transportation ads. In our secondary focus is our glass collecting stream where this would be a bottle crusher machine in bars and restaurants, a glass tumbler that will go around the city and collect the glass and break it down at the same time

Circular economy





CSGR Business Model

VALUE PROPOSITION

For **environmentally concerned individuals** that are unhappy with throwing away glass products or for **community members who want to know more** about how to recycle, this service will allow for more recycling, produce recycled goods for the community, and help to educate people on recycling with demonstrations close to where they live.

Traditional recycling

New products for the community

Education for the community





CSGR Business Model

THE GLASS RECYCLING SERVICE SHOULD FOCUS ON WORKING WITH THE COMMUNITY AS MUCH AS IT FOCUSES ON MATERIALS

KEY ACTIVITIES

- Collect glass at community drop-off points
- Partner with local businesses
- Educate the community
- Repurpose, recycle, and resell glass

KEY RESOURCES

- Glass
- Community partnerships



CSGR Business Model

REVENUE WILL COME FROM CUSTOMER SUBSCRIBERS AND FROM BUSINESSES

REVENUE STREAMS

- Subscriptions - community members who subscribe receive glass products produced locally using their recycling, discounts to local businesses, and newsletter updates from CSGR
- Local business sales - CSGR will partner with local businesses to use recycled materials and connect with consumers who are conscious about recycling
- Raw glass sales - CSGR glass arrives separated, making it a low-cost material for manufacturers to use

COSTS

- Recycling - all community members are encouraged to recycle glass, at no cost to them
- Facility - storage, transportation, handling, and a tumbler will all have cost
- Education and Advertisements - outreach to the community is not free
- Staff - the business will need some people to run it beyond volunteers



CSGR Business Model

REACHING THE COMMUNITY IS AT OUR CORE

CUSTOMER RELATIONSHIPS

- Dropoff points provide information to community members
- Subscribers receive products made in the community using their recycling. They see an immediate impact and have a connection to where their recycling goes
- Programs at schools teach children about recycling
- Business partnerships let local business owners show the community that they care too

CHANNELS

- Dropoff points
- Tumbler facility
- Email newsletter
- Community events
- School events





CSGR Business Model

CUSTOMER SEGMENTS

- Subscribers - users who are very concerned about recycling and are willing to pay to support a service that promotes recycling
- Community members - users who are willing to recycle but do not want to pay extra to do so
- Business owners - businesses that want to help the environment and also connect with customers who share similar values

Subscriber- Carol Johnson

Environmentally-conscious active retiree

PROFILE/INFORMATION

- 65 YEAR OLD
- RETIRED
- SUBURBAN HOMEOWNER

CONCERNS

ENVIRONMENT

4/5

CONVENIENCE

1/5

MONEY

3/5

RECENT EXPERIENCES

- Unhappy that glass is no longer accepted in curbside recycling.
- Took glass direct to a recycler until they stopped accepting glass as well.
- Reuses containers multiple times.
- Shops at a farmers market once per week.



“I remember a lot more glass when I was younger. I don’t like that there is so much more plastic than glass nowadays.”



Community Member- Ashley Smith

Busy but concerned student

PROFILE/INFORMATION

- 21 YEARS OLD
- COLLEGE STUDENT
- APARTMENT DWELLER

RECENT EXPERIENCES

- Bought a glass bottle cutter to try to make drinking glass and planters.
- Bought peanut butter in glass jars so she can reuse them.

CONCERNS

ENVIRONMENT

5/5

CONVENIENCE

4/5

MONEY

4/5



"I don't know how to recycle in this city. I feel bad throwing things away but I don't know a better solution."



Restaurant Owner Oscar White

Community-engaged proprietor

PROFILE/INFORMATION

- 46 YEARS OLD
- RESTAURANT OWNER
- APARTMENT IN DOWNTOWN

CONCERNS

ENVIRONMENT

3/5

CONVENIENCE

5/5

MONEY

5/5

RECENT EXPERIENCES

- I have a box full of broken glass in my restaurant and I want to recycle it but I don't know where to take it to.
- I tried to buy recycled glass for my restaurant thinking it could be cheaper but there's no place to buy it.



"I like that I can get a discount on some materials, while connecting to people in the community"



BUS STOP ADVERTISEMENT

Through bus stop posters we can try to catch peoples attention to be aware of glass recycling and how to do it. Also we can encourage them to go into our web page through QR codes and links to learn a little more about how to recycle and reuse glass.



POSTER AND WEB ADVERTISEMENTS

Through posters and web Advertisment we can also try make people interact with our web page to learn more about glass recycling and how to give it a second purpous.

The screenshot shows a web browser window with the URL budgetdumpster.com/blog/how-to-recycle-glass/. The page features a navigation bar with categories: HOME IMPROVEMENT, SUSTAINABILITY, COMMUNITY SPOTLIGHTS, IN THE NEWS, and RENT A DUMPSTER. The main content area has a large image of green glass bottles with the text "How to RECYCLE GLASS". Below this is the article title "How to Recycle Glass at Home the Right Way" by Meghan Paynter, dated July 24, 2018. There are social media share buttons for Twitter, Facebook, Pinterest, and LinkedIn. A sidebar on the right contains a call to action "Call 833-499-7507 or get instant pricing" with a "Get Pricing" button, and a newsletter sign-up form with the text "STAY IN TOUCH TO RECEIVE SPECIAL OFFERS" and "Sign up for coupons and our monthly newsletter: Enter Your Email Address: [input field] [Subscribe]". At the bottom, there is a GCSR logo and a "CLEANUP GUIDE" link.

The poster features a vibrant tropical beach scene with palm trees, a hammock, and turquoise water under a clear blue sky. The text "This white sandy beach will not exist in 20 years" is overlaid in a dark blue font. In the bottom right corner, there is a QR code, a yellow GCSR logo, and the text "Learn more at:" followed by social media icons for Instagram, Twitter, and Facebook.



GLASS TUMBLER AND ADDS

With the glass tumblers we can recollect glass disposal to break it down and spin it with salt water to convert it into sea glass. By doing this we can create a product that can contain multiple uses. Also we use advertisements to on the glass tumblers to show people what it is and how it works.



BOTTLE CRUSHER

With our bottle crusher we can turn glass bottles into sand which could be use for cunstruction or even filling up a beach again. This machine can be places any whare in the city or inside restaurants and bars. Also we incorporate our advertisements to show people how glass recycling works and make the go into our web page to learn more.



SWOT

STRENGTHS

- Leverage existing excitement in community
- Uses low cost waste stream
- Environmental benefit and economic benefit
- Local and regional activity - activities are scalable

WEAKNESSES

- Customers may find drop-off inconvenient
- Manufacturing may prove expensive
- Consumers may get bored of a repeated educational message

OPPORTUNITIES

- Glass is currently landfilled in many US municipalities
- Consumers are seeking alternatives to plastic

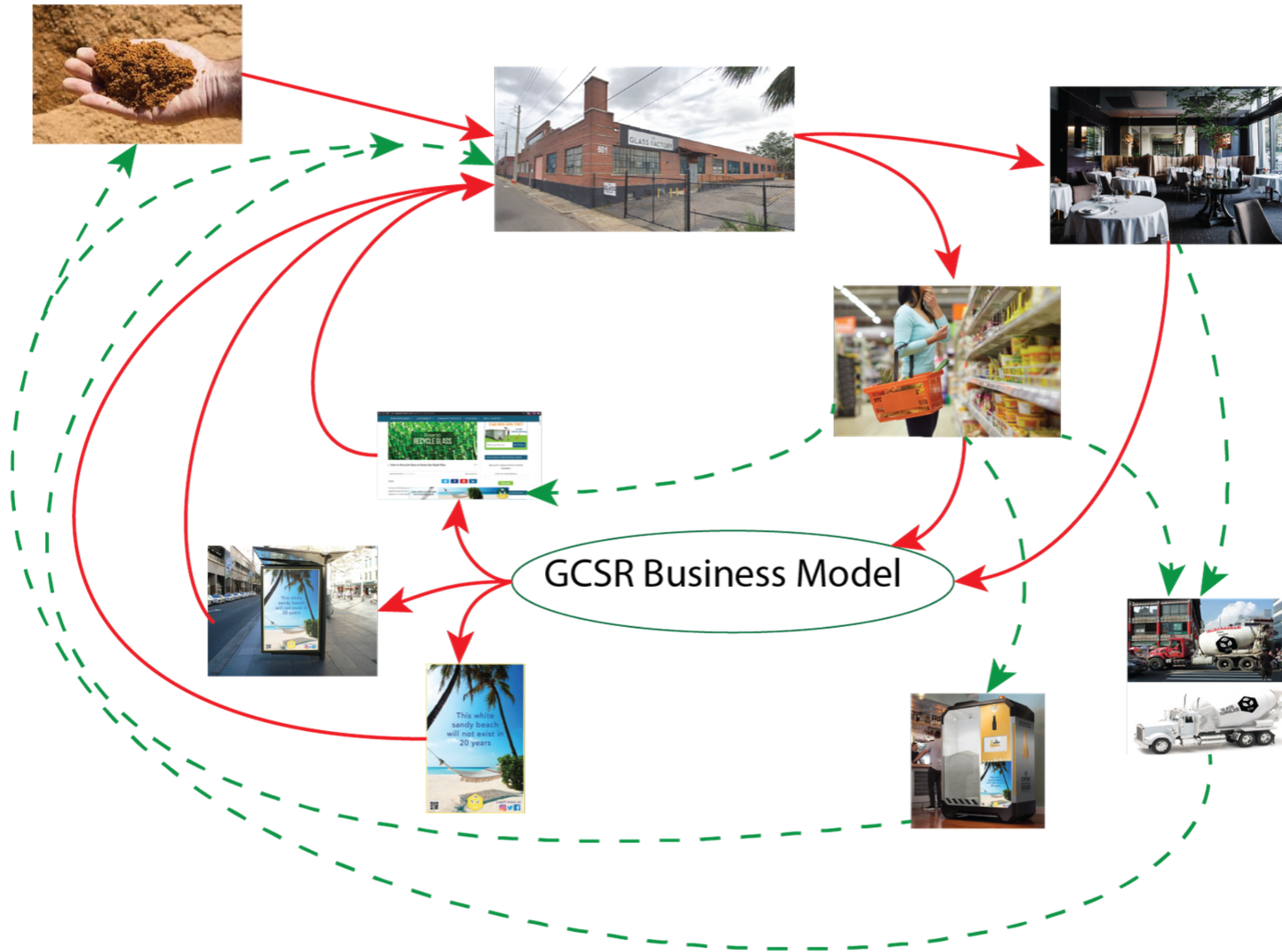
THREATS

- Changes to recycling industry make the future market uncertain
- Safety of products returned to the community may be a concern



NEW CIRCULAR ECONOMY

In this diagram we show how our new circular economy works and how our primary and secondary focus connect with each other to collect and recycle glass waste.

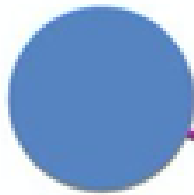

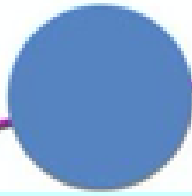
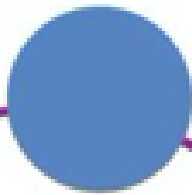



TESTING FEEDBACK

- 'I'm a curious person so if I see an add about glass recycling i will look up a little more about it.'
- 'If I can get something from it I will keep helping because i'm also helping the environment.'
- 'If i see how the machine actually works i would like to keep interacting with it.'
- 'I knew that glass could be recycled but i didn't know how so, it's good that adds can teach you stuff you didn't know.'
- 'I'm really concerned with the environment so its Good that these products can help the environment.'



Customer Journey Map

	Awareness of Product	Research of Product	Store Visit & Purchase	Customer Response and Feedback	Social Response
Customer Process	Customer gets to know about glass alternatives	Customer researches the alternatives	Customer gets to use the product	They like the product & using it they get a better feeling.	They hate that the product is not recyclable
Experience	Looks more appealing	There is a bit of extra cost over plastic	The glass feels more premium	The glass gives a longer lasting satisfaction	They feel bad that even after being recyclable it isn't done
Positive					
Negative					
Improvements & Key Learnings	Customers like Glass	Though most don't mind, the extra cost is an issue	They want to take the glass alternative	Even after the extra cost they like glass more	Recycling glass would cause more people to opt for glass





Glass Community Supported Recycling

We created a company that support
community glass recycling while offering
Glass recycling services.

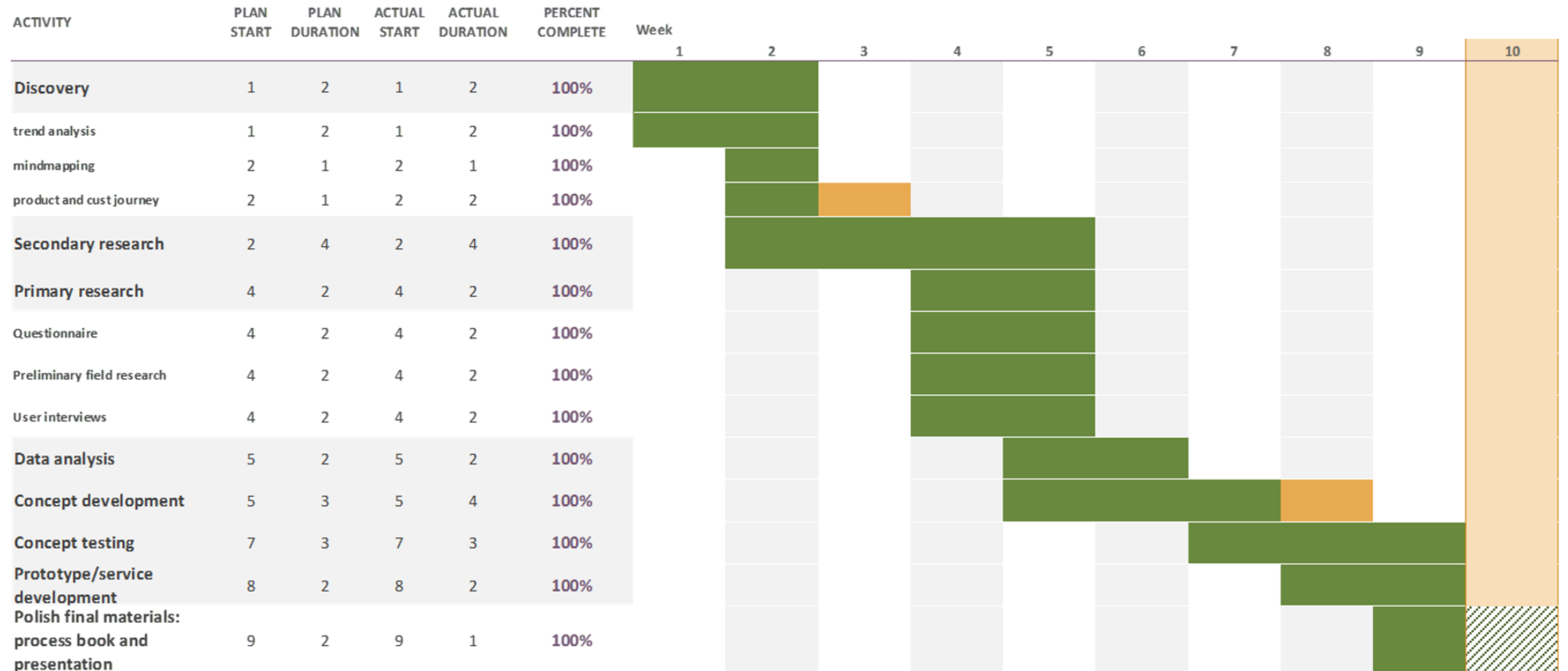


Timeline

704 Circular Economy

Period Highlight: 10

 Plan Duration
  Actual Start
  % Complete
  Actual (beyor)



Resources

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Resources

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THANK YOU

