

HOW MIGHT WE
DELIGHTFULLY REDUCE
SINGLE-USE UTENSILS
AMONGST US URBANITES

Erin Tilley • Master's Thesis • Design Thinking Process: Phase One – Research

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WHAT IS • WHAT IF • WHAT WOWS • WHAT WORKS

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THE PROBLEM WITH PLASTIC

This summer, I spent time helping a marine biology lab group track endangered sea turtles as they nested. In our conversations, plastics and the effects on animal life and the environment were top of mind in conversation.

Upon returning home after tracking turtles, I read how plastics are being found in most of our water supply.¹ Microplastics, small pieces of broken down plastic, are seen as food by sea dwelling or adjacent animals, causing them harm and worse, to starve. Even if these animals are not ones we directly eat, they may act as food for those we do or help to maintain the environment from which we grow food; their early death is problematic. If they are prey to food we do eat, they become a conduit for plastic to make it into our own digestive systems.²

I am sensitive to the environment and try to be responsible with my consumption, but like most people, I use a fair amount of plastic without even realizing it. I am much more food-health conscious (as a Whole30 advocate with a dairy allergy), so understanding this impact to human food sources was particularly compelling.

We unnecessarily throw away plastic every day. 85% of all plastic used ends up not recycled, most making its way to the ocean and contributing to the 8.8 million tons of plastic added to it each year. Plastic bags, utensils, and balloons are identified as some of the deadliest items to marine life, just behind abandoned fishing gear designed to catch and kill.³

Many plastic items have sustainable alternatives, but they still are used and thrown away in abundance, with no end in sight. Why?



PLASTIC + FOOD

Understanding my connection to the plastic problem involving food health, I wanted to keep that element in my research.

Tackling plastic consumption is incredibly broad; to increase my odds of developing an effective solution, I picked one plastics group to focus on—single-use food utensils—with the intention to reduce their use in the US (one of the primary offending countries and where I live).

An estimated 40 billion plastic utensils are used every year, just in the United States; each US citizen on average throws away 1 utensil every third day.⁴ The disposable cutlery industry is doing well and projected to steadily increase over the next few years—disrupting the demand and diverting it to a better solution can be profitable.⁵

A consumer behavior change is imperative.

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WHERE DO WE BEGIN?

I recently began carrying a Life Without Plastic spork this summer. I had to remember to pack it and I felt self-conscious about using it. Whenever I took it out of my bag, it became a conversation that turned to ethics and the utilitarianism of the piece—while informative, it could be uncomfortable. Using it has not been fun, but I know it's the right thing.

France banned plastic utensils in 2015, as an action in support of the 2020 UN Paris Agreement.⁶ In China and Japan, there are new policies in place to reduce disposable chopstick production because of the direct effect of deforestation.⁷

Is legislation the only way to affect change? In Austin, the “bag ban” initially seemed successful, but user behavior hasn't altered significantly enough and businesses now provide more durable plastic bags that meet policy requirements, but end up being disposed of in the same way to greater detriment.⁸ For a sustainable change, new behaviors need to be preferred by the users.

The “bring your own chopsticks” movement has taken off in China and Japan and begs the question—why can't we do the same in the West?

Prior to beginning research, I looked at who might be most impactful to look at and in which context.



Accounting for age and environment—children and those who primarily eat at home are likely using durable cutlery—I hypothesized most disposable utensils are used by people eating out, with work week lunch time being the primary time of offense.

My assumptions were that:

- Delight is missing.
- Fast-casual restaurants are the suppliers.
- Adults eating out at lunch are my primary target.

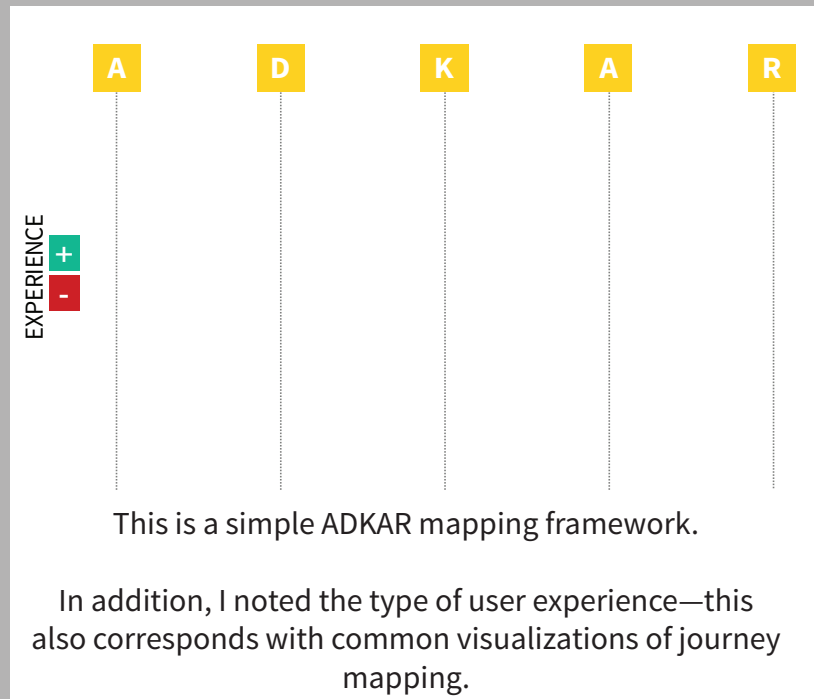
The core of my design research focus is a desire to change an engrained consumer behavior, not solely replace a product. Even biodegradable utensils have shown to act just like plastic utensils unless disposed in “industrial composting facilities,” which many of us do not have access to in contexts where we typically use them.⁹

A BASE FRAMEWORK

To map insights and help direct my research, I adapted the ADKAR framework¹⁰ as an anchor. A simple, flexible model traditionally used for organizational change management, I have found it often is useful in any context of trying to understand or design any type of change in human behavior.

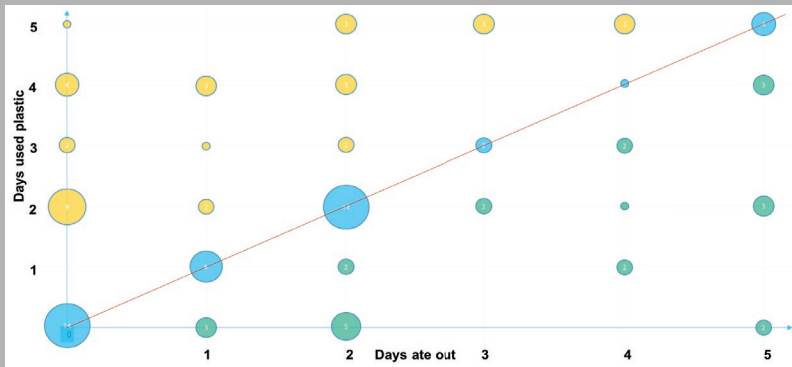
The premise is that each element is needed in order for leading through a sustainable change:

- **A**wareness that a change is needed
- **D**esire to make a change
- **K**nowledge of options and how to use them
- **A**bility, or opportunity to make a change
- **R**einforcement in making the desired change in behavior



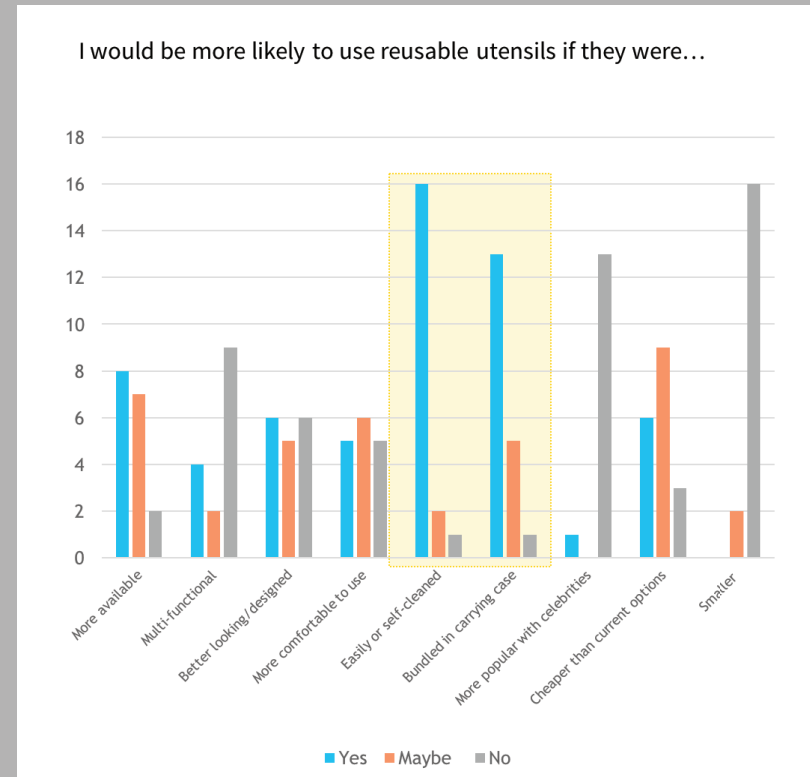
SURVEYING FOR PRIMARY DATA

Surveying 113 people, I asked about their lunchtime and commuting routines, figuring that convenience and availability at restaurants would be the most common response. I asked how often they had used plastic at lunch vs. the number of times they ate out to help validate my assumption that people eating out at lunch were the main culprits.



Surprisingly, it seemed that eating out was not a smoking gun in plastic utensil use, but general availability and convenience at the time of eating. There was not a huge differentiation in plastic utensil use between those who brought their lunch and those who ate out. And while convenience was the overriding theme in why people used plastic utensils, one of the top mentioned influencer in types of utensils used was the office supply drawer.

The understanding that plastic utensils have a large, avoidable environmental impact was also a gap exposed in my survey. In fact, one survey responder even stated that they did not worry about daily use because “the overall environmental impact of these things is actually really small.” Awareness is a gap.

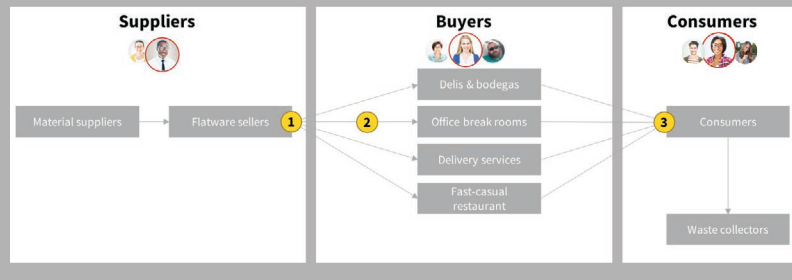


I conducted an additional survey amongst those who did not or only sometimes carried reusable utensils. Amongst those responses, the actual use of reusable utensils was preferred because of their weight and better performance, but the before and after use is what made them undesirable. Remembering to pack and the ease of carrying them was mentioned, but the resounding concern amongst almost all respondents was on cleanliness—either the perception of what is provided or the hassle of cleaning their own.

When asked to describe a person who would consistently use reusable utensils, most described a millennial male who is mildly pretentious, but kind, and generally environmentally-conscious and liberal in terms different than they used to describe themselves.

UNDERSTANDING THE PLAYERS

From the data collected, I created a simple stakeholder map to visualize how primary actors interacted in the decision to use plastic utensils.

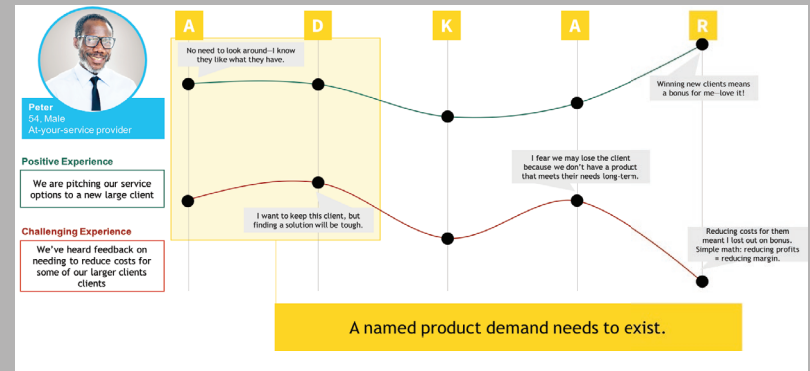
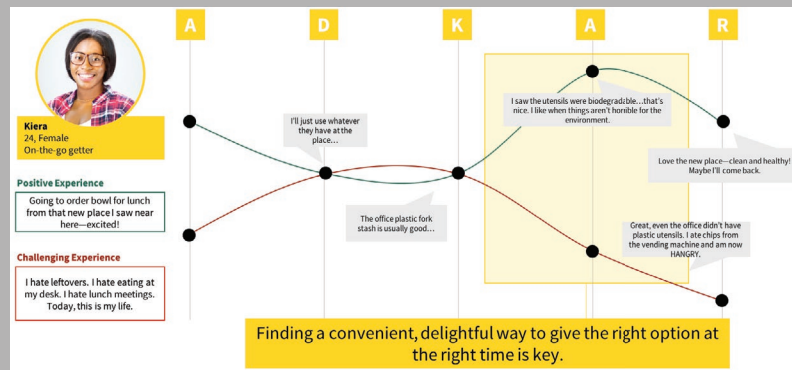


The stakeholders could be easily bucketed into three larger groups, based on drivers of utensil choice.

The Consumer. My stakeholder analysis centered on the consumer or end user, with them as the primary point of decision to consume or not. The decision lies with the user to carry reusable utensils, but the availability of other options makes the personal consequence of not doing so much less. Aware they would use what they were given when ordering food from a fast-casual restaurant or delivery service, I was surprised to find the most influential supplier was the workplace break room.

The Supplier. Tracking down those who worked within a manufacturing or major service providing company was difficult. Most of my understanding came from reviewing catalogues, looking at how items were promoted, and my own experience ordering from major vendors in the past.

I was fortunate to speak with a founder of Loliware, an edible bioplastics company, and their experience getting picked up by Aramark. Defendable price point and a clear demand/useful novelty are crucial to breaking into this space. Their edible cup, though simple in concept to avoid waste and delight the user, required a great deal of R&D in order to invent a new manufacturing process that was scalable from a kitchen incubator to a manufacturing plant.

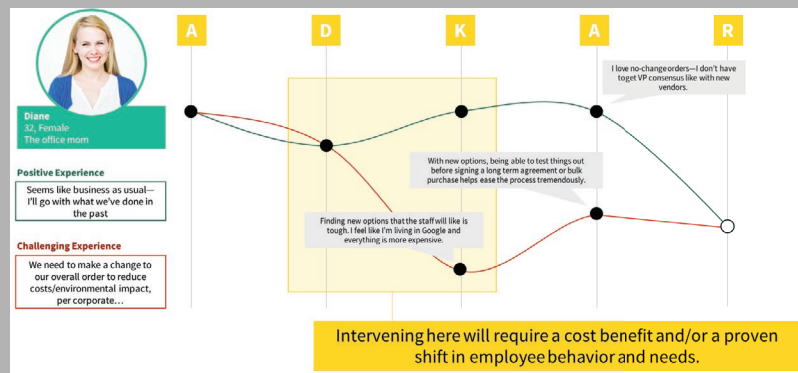


Without current consumer demand and the high price point of a new product, influencing the current catalogue directly may not be an effective first step.

Three inflection points are clear on the stakeholder map, one targeting each stakeholder group. With a systems and multi-phase solution view, keeping each in mind for ideation with an initial focus on inciting consumer demand may be a strong strategic decision for a viable concept.

The Buyer. Interviewing those who connect The Consumer and The Supplier and are in charge of ordering office supplies, the responsibility to provide eating utensils is clear, but the decision factors as to what is provided seems to vary with the company size and supply orderer interaction with budget provider. Small offices with tight interaction seemed to weight the use experience higher and real utensils were present.

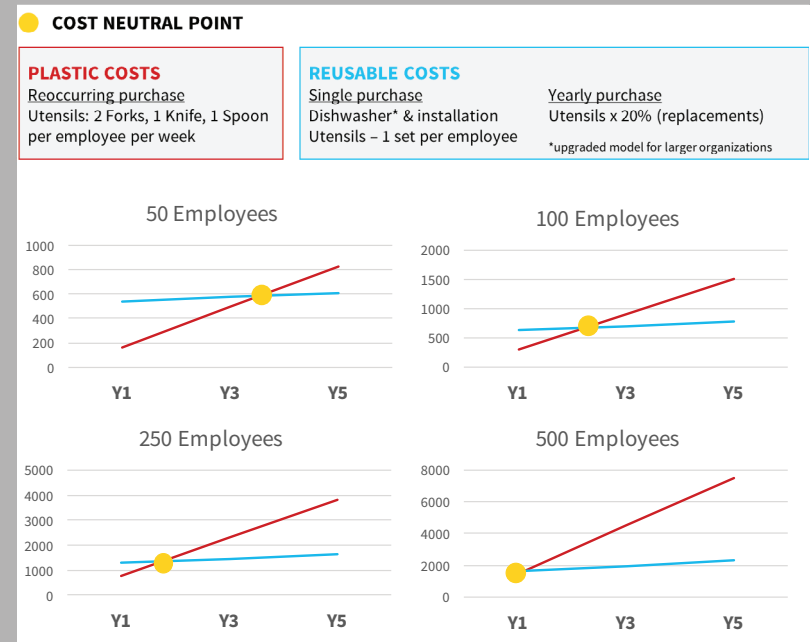
My personal experience with large purchase orders was reflected in an interview with a national automotive office planner: budget control and using legacy approved vendors takes precedence and disposables are preferred, though on an individual office basis, exceptions can be made if well-justified by cost and additional perk (PR, employee experience, etc.).



There is a compelling use case in Minnesota where the Minnetonka middle school district recently moved from plastic to metal utensils and found almost immediate cost savings.¹¹ They already had dishwashers—what about office providers who are not already equipped?

Understanding a strong user demand does not currently exist, I ran a simple analysis to determine if there was a cost incentive for offices without cafeterias to provide and wash metal utensils and if so, when would they see a cost benefit?

Though long term there is a cost benefit, it is one most offices won't realize until after a few years—a timeline most offices of this size do not accommodate. Working to establish a user demand and directly working with the office supply in a later solution phase may be a better approach to making a change for this stakeholder group.



INTERVIEWING THE USER

I wanted to understand a little more about consumer habits, validate the survey findings, and add color and was able to formally interview nine men and women between the ages of 19 – 50, all users and a few actors within the supply chain of food ware.

All consumers were aware of water bottle waste, but the impact of utensil waste was not a top-of-mind consideration when buying food. One user kept reusable utensils at their office and another was conscious to only eat where there were reusable or biodegradable utensils, but otherwise users stated their dependence on the eating context for their utensils. Like the surveys uncovered, the office was the primary mentioned place where people made that choice.

Understanding what “delight” meant in this context was crucial. The interviews validated experiential and survey data of a three part definition:

- **Clean.** When asked about what might sway a decision to choose reusable, the discussion centered around needing to solve for the experience of remembering to carry utensils and carrying them dirty, after eating.
- **Convenient.** Location of purchase or requested behavior pivot was emphasized: it needed to be the same as the point of food purchase. In addition, the actual utensil would need to be easy to carry.
- **Cute.** To sway a purchase of such utensils, key design factors were that they should be sturdier than plastic and full-sized on the fork or spoon end. The word “cute” was also used several times, but it became clear the intention was that it would be memorable to incite use, a functional purpose in designing an attractive alternative.

“...I don’t want to put a dirty fork in my bag.”

“...if there aren’t reusable available, I used whatever is there.”

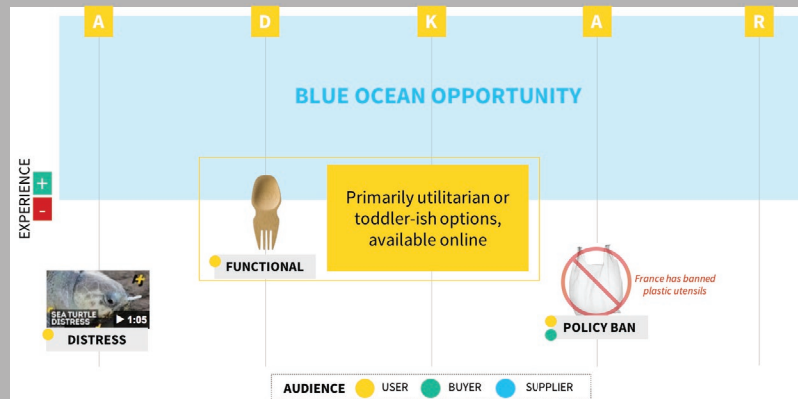
“...and I just didn’t think about the fact that I had my own utensils.”

WHAT ALREADY EXISTS?

This is not the first attempt to reduce plastic utensil use. Several options are out there, but they center on two themes, as noted by Bee Wilson in The Guardian: “bright plastic toddlerware and Swiss Army knives.”¹² What I found in my own exploration backed this up:

- Existing household utensils
- Bamboo travel utensils
- Silicon/durable plastic sets
- Sporks
- Travel utensil sets

Additionally, videos of straws and plastic utensils being pulled from sea animals have been used, and in France, public policy has been changed to ban their use. I mapped these, along the ADKAR behavior change framework to help visualize where there may be opportunity.



it My Fire . great
ble utensil for...



Reusable utensils. Cutlery Set



EQLEF® 3 Pieces Set Travel Portable Stainless Steel Reusable...



Designed and manufactured by Esbit, the Ultra lightweight...



Portable Reusable and Chopsticks set

Screenshot of [Pinterest board](#)

ANALOGOUS EXAMPLES

I researched analogous examples of food consumer plastic reduction efforts and products—basically, what were other recent innovative efforts that had shown some success?

Loliware¹³

- What: Edible drinkware
- Challenge: Eliminate plastic cup waste
- Method: An edible cup sold at a premium and distributed through hotel partnerships and online
- Success: Won Shark Tank and have large-name wholesale clients with early success

S'well¹⁴

- What: Designed water bottle
- Challenge: Eliminate plastic water bottles
- Method: Sleek water bottle design, distributed through department stores and Starbucks at a premium price
- Success: Are widely adopted and sold out of premium stores, such as Nordstrom and Starbucks. Seen as a responsible, high-end style icon.

Life Without Plastic¹⁵

- What: Plastic-free consumer goods line
- Challenge: Sell a non-plastic consumer experience
- Method: Developed functional-based alternatives, such as a collapsible spork, for common consumer items
- Success: Seen as functional and environmentally sound, known within the “environmentalist” market

My-hash¹⁶

- What: Reusable chopsticks
- Challenge: Reduce disposable chopstick use in Japan
- Method: Designer, contained pairs publicized by models and designers
- Success: Some success, though not widespread

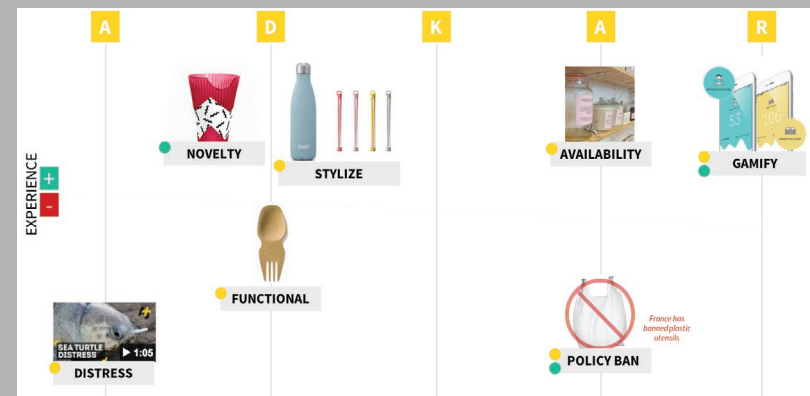
Package Free¹⁷

- What: Brooklyn store where only the goods are sold
- Challenge: Eliminate unnecessary package waste
- Method: Sell bulk items and environmentally friendly products on displays sans packaging. Any product tags can be recycled at checkout or home.
- Success: Newer, yet to be seen

Reefill.com¹⁸

- What: App-connected H2O refill stations
- Challenge: Reduce plastic bottle waste
- Method: Communicate the individual impact of water bottles saved through an app that tracks how much waste you've diverted
- Success: Newer, in introduction phase

Adding these to the ADKAR current solutions map, it became clear where the consumer opportunity may lie, as a single, comprehensive solution or series of efforts to target different areas of the gap.



PREPARING FOR IDEATION

Unlike scientific research, the purpose of this research was not to identify one right answer or prove out a hypothesis, but to set the stage with rich material for the next phase of the design thinking process: ideation.

Returning to the mission of changing an engrained and almost subconscious behavior, three thoughts summarized this phase well.



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1. To develop a minimally viable product, focus is best placed on the stakeholder to whom a change may be most immediately effective in the stakeholder diagram.

The broad consumer demand for reusable utensils does not exist yet, and installing dishwashers in all office buildings is only marginally cost effective for most small companies and organizations. While broad success in a behavior change will ideally make it into the workplace, building a **consumer demand with the user where they purchase fast-casual food** seems most effective as a starting point.

2. To incite a sustainable change in behavior, I would need to consider how a solution would address and interact with the user at **each point in the ADKAR journey**.

The blue ocean opportunity for a delightful user experience spans each stage of ADKAR and an effective solution will incorporate elements to address each. Concept creation should be mindful of what is needed to move a user through the journey in the order of ADKAR and test accordingly.

3. Delight for the user is a combination of **clean, convenient, and cute** (a term loosely defined as pleasantly memorable by design). To be effective, the solution should have elements of each.

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