De-Code

Understanding the nature of food labels through the lens of Information Design

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Abstract

As the seasons changed, so did the produce and the dishes. Or at least so it was, unlike now, how everything is pretty much available throughout the year. The manner in which our food is produced and consumed has drastically changed over the years and we are finding it harder than ever before to make choices of what to buy! Consumer behavior is largely a factor of the enormous marketing blitz, and every possible word is being used on food products that promote them as the most desirable. We are being bombarded with a combination of all these terms making it an arduous task for us to decipher what they mean. Despite all the marketing gimmicks, there is a truth to some of these labels that can inform us in making better choices.

One of the main problems for a non expert to decode the meaning of labels is the fact that it is distributed across multiple repositories and platforms making it inaccessible and hard to decipher. My thesis investigates pulling data from different repositories, organizing and designing all the labels in a visually cohesive manner as a Food Archive that addresses: what do these food labels communicate and mean? How can we distinguish between what is good and bad, which ones are truthful and reliable? And how can these labels be curated for addressing specific needs? In order to design the Food Archive, the thesis outlines the process (Ethnographic research, gathering the data, sorting the data to make sense of it, establishing a taxonomy and using this taxonomy as a navigation model in the archive.)

This is my journey in this Project, to interview, collect, investigate and analyze to try and find a plausible solution that can assist in its own small way, to a healthier living.
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Identifying the need

“The part can never be well unless the whole is well”
- Plato
Information organization plays a crucial role in most successful innovations. Let's take supermarkets itself as an example. The placement of every single item is carefully curated and planned based on consumer behavior. Starting from the produce section at the entrance, to the grab and go section at the back and the candies near the register. They are meant to encourage and persuade us in buying the product. The organization of the layout has a rational behind why every single item is placed at a certain location. With over 50000 items at a single supermarket, imagine navigating all of this without categorization or classification, that would be an arduous task, the whole had to be well! They are the first things that guide us in deciding which product is placed under which aisle. Billions of dollars are spent on information reorganization in this segment. I thought, what if the same rational is applied for the unraveling amount of information we come across on food packages. While seemingly trivial on the outside, can this have an impact on the effects of our health and guide us in making better choices based of this information.
Production

Standards
governed by

Industrial

Small scale

Primary processing

Transportation

Printing

Marketing and packaging

Distribution logistics

Retail Stores

Food Banks

Institutional Buyers

Consumer

Waste management

Federal agencies

Third party agencies

Unregulated

Regulated

Inspection

Food labels

Primary processing

Ultra processing

Marketing

and packaging

Primary processing

Distribution logistics

Retail Stores

Food Banks

Institutional Buyers

Consumer

Waste management

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Small scale

Primary processing

Transportation

Printing

Marketing and packaging

Distribution logistics

Retail Stores

Food Banks

Institutional Buyers

Consumer

Waste management

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Introduction

“We do not make food choices in vacuum. We may believe that we make informed decisions about food choice, but we cannot do so if we are oblivious of the ways food systems influence our choices.”

- Marion Nestle

The food supply chain in U.S. is extremely complex. When food travels from farm to table, the food is handled by various sectors before it can be consumed. These sectors involve various actors to make the consumption of a single product happen.

The figure on the left hand side shows a very brief snapshot of the different sectors which are a part of the system. However, when we look for information about our food from farm to table, there is little to no focus on food labeling standards and how they govern the entire system. As seen in the diagram, production, processing, distribution and retail store logistics are all governed by certain standards most of which can be seen as information on our food packages as information which is largely influenced by the marketing sector as well. My focus in this thesis is to focus on food labeling standards. To do this, it is first important to investigate all the information that exists on food packages as information. This can help determine the key standards that govern a certain product, the meaning of the label, if they are regulated or not, and in what way the labels interact with the socio economic status of the food system. To do this I have started by studying 10 different varieties of egg packages to extract different pieces of information.
What is an ethical egg?

I would like to take the case of Eggs at supermarket, as an example, and thus make my point with regard to what I see as a need.

Statistically, U.S alone produced 105 Million eggs, in the year 2017! An average of approx. 264 eggs per person! So, how does this piece of data help? Let’s move this to a holistic level! What is the role of food marketing strategy for such staggering intake? And what’s the impact of this on human health? Can my endeavor play a large role in enabling better decisions, in its own way? Thus began my thought.

In a large society, there are aspects of general concerns and also specific individual concerns. Food marketing plays a huge role in defining these concerns and the sales of a product. For instance in the making of one can of chicken noodle soup, 56 companies are involved including the printing of labels on packages. While we are bombarded by media blitz through these labels influencing our buying & consumption behavior, little has been done to address the above concerns! Mandatorily, there’s a lot of information that the Government stipulates to be mentioned on the packaging of every product. Now, can we read them all? Can we make sense of the 'language'? What if there was a simple way in which this could happen?


2 https://en.wikipedia.org/wiki/Grocery_store/Food_marketing
For instance, fresh eggs, apparently, are good to consume within 66 days.³ Do we know when the Eggs were put in the Carton? No! An Egg Carton shows a Julian Date as the Date of Packing. What is a Julian Date? What would a number 221 mean for a common man? 221 means 9th August which is the 221st day in the year. Now the Sell by September 6 becomes a little more relevant and useful. We know that it’s been a little over 25 days since packaging giving a buffer, probably over a month! Maybe you find something that’s just 10 days old and you prefer to pick that!

Let’s take a look at some claims made on the egg packages. Cage free which means that the hens were not caged but essentially they are kept in crowded barns with little to no access to daylight which do not inform us of their living conditions at all.⁴ This term is almost deceiving us to believe that they are humane. Free range or pasture raised is used when the hens are let out for just a few minutes. The standards only state that outdoor access must be provided but there is no mention of the time or amount of space.⁵ Rich in omega 3, Rich in vitamins and minerals means that the chickens were fed with flaxseed oil but how much contribution does this really make on our daily intake and is it worth spending money on eggs that claim to have this term? A consumer report survey conducted in 2015 claimed that 25 percent of shoppers were buying no antibiotic and no hormones meat and egg.⁶ No Hormones or no antibiotics used is another such claim which is not very valuable since according to federal regulations, the use of hormones for pork or poultry is prohibited. The list of claims such as these can go on and the expanse of this can increase when
we evaluate claims across multiple products. Most of these claims are not even regulated, which means there is never an inspection conducted to verify these claims. So how do we know if it’s reliable?

On the other hand if the claims are stated along with certifications they are inspected and audited by an inspector. This is usually seen as an inspection seal on egg cartons. Hence certifications are more reliable than food claims. Under certifications again there are various types, USDA organic, animal welfare approved, certified humane, naturally grown certified, etc. Along with this we have nutrition facts that inform us about the nutritional content of the eggs.

With a deluge of all this information, it is becoming challenging than ever to make sense of all this. Their standards are spread across multiple repositories making it hard to retrieve and compare what all of these mean. My main objective is to make all this information comprehensible through a single repository, the Food Archive. The purpose of this repository can also serve as a central database for identifying labels in real time at grocery stores. W

As quoted by Michael Pollan a simple question “What should I eat?” has become highly complex. The right to know the truth about what you eat, where it comes from, and what its impact is on our life and on the planet, can help us take meaningful action. The more we know, the better able we are to bring our food choices into alignment with our purpose.
Rich in vitamins and minerals
Pasture raised Cage free
All Natural Food Alliance Certified
Farm fresh
Hormone Free
Antibiotic Free
USDA
% Less saturated
Omega 3 enriched
AllNatural Certified
United Egg producers
American Humane Certified
Vegetarian fed
Animal welfare approved

Free range
Nutrition facts
Lot numbers
Expiration date
price code
Sell by date
UPC Code
Plant code
Julian Code
Certified Humane
**Existing**
Each label is organized but the whole isn’t

**What I want it to become**
Organize the whole for the parts to become accessible

Using information design methods

Understand the user
Gather the data
Define classification model
Organize and structure based on model
“Infoglut, when there is an abundance of information which is so poorly organized and cataloged that deriving any meaning out of it would be impossible.”  

This quote describes the very state of food labels. The highest temple of our modern food systems are supermarkets. Food travels along the distribution trail and eventually lands up on the shelves of the supermarket. This makes it an extremely rich territory for information out of which I am investigating one aspect of it, food labels. Although each label by itself is cataloged and organized by agencies in the form of guidebooks or standards, the ‘whole’ sum of all these labels is not taken into account resulting in a lot of confusion. According to a survey conducted by the International Food Information council only 5% of the total population is able to accurately identify what the language means. The rest are based on false assumptions.

“How can I address the problem above by creatively organizing the mess in order to make sense of it? To do this, I define a process that will guide me in organizing the parts together. In my thesis I aim to gather all the labels and analyze the different attributes of each label, classify them based on their nature, define the hierarchy of the labels and organize them in a form that can break down the information in an easy to read format. Bringing all the parts together in a cohesive form can help us determine the meaning, relationship and reliability of the labels.
We live in a time of information chaos and such is the case for this project as well. Either due to lack of awareness or misinformation, most of the information on food packages exists in a passive state. Of what point is it if information is futile when it is intended to communicate a meaning? My thesis investigates a method for decoding food labels to convert it from a passive state to an active state to help understand and comprehend the nature of them in a larger context.

I believe that using the principles of information design can help guide and bring order to this chaos. I have considered consumers who shop at grocery stores as my primary target audience. Consumers are impacted largely by interacting with this information and I wanted to explore how labels on food packages are perceived to make choices. For a project of this nature, I believe that information design operates at the intersection of research, information architecture and information experience. Research investigates the goals, motivation, pain points and why or how this intervention is going to be helpful to my primary target audience. This is followed by identifying what the content is and how it is to be gathered. Once the data is gathered, it is important to make sense of this content for which I used a process called Ontology. This helped establish a taxonomy for food labels. The significant contributions by Aristotle and Carl Linnaeus to Taxonomy has helped mankind for generations to distinguish and make sense of information. Currently, there exists no taxonomy for food labels and I strongly believe that developing a taxonomy will help us understand the nature of food labels in a larger context. The outcome of this would be to build a Food Archive to facilitate a personalized experience in grocery stores based on data collected by specific user needs. Chapter 3 dives deeper into discussing each one of them.
Passive information ~ Active Information

De-code

Understand the consumer

Research

Information Design

Experience

Architecture

Context

Identify and gather content
Make sense of the content
Establish a classification model
Build the archive
Identifying the problem

Food labeling information currently exists as

Confusion and false assumptions

WHY?
Identifying the problem

Data scattered across multiple repositories making it hard to comprehend

What they mean and how they can inform us

hence leading to of
Define a classification model

Defining the approach

1. Understanding

Consumer interviews

2. Gather and analyze data

3. Define a classification model

4. Organize as a Food Archive

Their interpretation of labels &
Factors that influence their grocery shopping

How? Defining the approach
Future of food transparency

We envision information in order to reason about, communicate, document and preserve the knowledge

- Edward Tufte
Design can fabricate new perspectives and new perspectives can evoke change and create transparency. Innovative initiatives are contributing towards this effort. Since one of my primary goals through this thesis is to contribute to food transparency by understanding food labels, I selected a list of projects that are driving towards creating transparency for the food industry. These projects have used a combination of Art, Design, Science and Technology to tackle complex problems of transparency. Contributions are being made by a diverse set of communities ranging from academic scholars to corporate retail companies. All projects in the following chapters discuss the notion of provenance, how the food is grown, how fresh or healthy the food is and what benefits do all of this have on health, which in a way is similar to what is being addressed in the thesis as well.
Retail Companies

Good and Gather, project by Target

“We know less about our food we eat today than at any other time in our history period,” Illuminate is a transparency solution and data platform that verifies the authenticity, quality, and safety of food.”

- Greg Shewmaker

A Boston-based organization, Food + Future mixes data, science, art, design and technology with a deep understanding of food to create greater transparency in the food system. Their tool called “Illuminate, a truth detector for food” is a spectrometer that determines how nutritious a vegetable is before you buy it. An example mentioned is that of an Apple. Most of us do not realize that the apple we buy from the grocery store has been sitting there for over a year and has probably lost all its nutrient value and flavor. It uses molecular spectroscopy, analytical chemistry and deep machine learning to verify the authenticity, quality, and safety of the food. Molecular spectroscopy uses a technology that shines light which in turn tells how nutritious the produce is. They use deep machine learning to accommodate for large expanses of data that can be analyzed. This correlation helps determine the freshness of the produce. This tool can see inside the food to evaluate everything from nutrient levels to contaminants. This is then represented as a visualization for the consumer to learn about the food.

A social experiment called Good and Gather was conducted using this tool at Target. They wanted to understand if consumers cared enough to know how long a fruit was sitting on the shelf. Would they be willing to buy this fruit for a lower price versus buying a freshly arrived fruit for a few extra dollars? Handwritten
signs above strawberries and raspberries were put up by research teams noting the arrival date in store. The signs indicated ones that arrived that day and ones that arrived a week ago. A 50-cent price difference between the two was established. They discovered that most preferred paying a few extra dollars for fresh produce. They also flipped the traditional food label on its head by boldly and clearly displaying ingredients on the front of packaging rather than in fine print on the back to determine if this made an impact on sales of a product. We often ponder over the quality and authenticity of a product. This tool was an innovative way to use a combination of data, science and technology to create trust amongst consumers.
Tracking Driscoll Berries

“Our main interest was knowing the status (of the product) with real-time alerts for location, temperature and security.”
- John Hennessy

Driscoll is an established company selling different types of berries having over 100 years of farming heritage. They use a temperature sensor and monitoring technology provided by Locus Traxx (RFID and RFID attached to a GPS device) to help them with supply chain transparency. It collects data regarding the berries temperature, the duration of time in transit and unloading time simultaneously allowing them to track real time visibility of truck delay times, location, security status and berry temperature. They also use this tool for assessing third party logistics since most of the transportation is handled by them. When a product is recalled, it detects flaws in the supply chain that caused the problem and avoids holding farmers accountable for all recalls. Using this system, they could trace back every single inch of the distribution trail.

Driscoll’s adopts a barcode-based inventory system which identifies the field and harvest date of all berries. This system was mainly employed to help consumers gain insights about the berries. QR codes are added to berry packages which are sold. Using this, consumers could use their smart phones to scan the code on the package into the company’s website or enter the alpha numeric code on Driscoll’s website to receive information regarding the berries.

https://www.driscolls.com/about/art-of-growing/food-safety
Frequentz, Supply chain tool

“As consumers become increasingly vocal about having access to information about the fresh fruit and vegetables they consume, the power of influence has shifted toward them and away from producers, manufacturers, and retailers. Made wary by a string of food recalls over the past few years, consumers are now demanding access to more detailed food verification and source information.”

- Charlie Sweat

Frequentz is a supply chain traceability tool which tracks fruits from harvest, through shipping, to broker. It traces the origin of products from multiple suppliers. It uses a platform known as information repository & Intelligence server (IRIS) to track and trace most of its products. Similar to the RFID employed by Driscoll’s IRIS helps them track the product through every inch of the distribution trail. This tool is used by various companies around the world to gain visibility ranging from business insights all the way to customer safety.

Data captured by IRIS projects data related to 5 main Who, what, where, when and why. The first component, who, specifies the business that holds the products possession. What assigns a unique number to the product that helps with tracking. Where and when shows the location of the product with the captured date and time. Why has a diverse set of information ranging from specific identifiers to user defined information. Michael Lucas, CEO of the company, says that the technology this system can help reduce mislabeling of products and labelling fraud.

http://frequentz.com/solutions/mobile/
Sage, future of food labeling to increase transparency

“These days, products travel all over the world to get to you and many products employ ingredients that come from many different places. Wouldn’t it be nice if the food label actually showed you where the product comes from: its farm, its manufacturing facility, its distribution center?”

- Sam Slover

Sage is a smarter food labeling platform that is re-imagining food data to make it more personalized. They have tied up with over 60 retail stores and they are on a mission to investigate their products and redesign the way their labels are read. Sam Slover the CEO of Sage quotes, “Consumers have more information than ever at their fingertips that helps them make decisions about their food and health. Yet more than half of people surveyed by the International Food Information Council Foundation this year said the abundance of information, some of it conflicting, makes them doubt their food choices.”

Sage uses a visual approach to make food data more transparent. Based on the user data sage personalizes preferences to each user’s unique interests. To deliver the information more dynamically sage is designed both for the mobile and the web. Sage gathers data about you like your unique background, restrictions, and tastes and then shows personalized information from correct nutritional percentages to dietary preferences, food allergies, and more. It then shows how much exercise it takes to burn the product. (fig)

The nutrition labels are designed on the assumption that people have some existing knowledge about how to read the values. The labels show percentage values for vitamins, minerals, fat etc. but
does not mention if these values are high or low.

“The existing label is basically a dump of information,” says Sam Slover CEO of Sage. To address this problem and make navigation easier the nutrient facts are categorized into three main categories. The platform contains information regarding serving portions, the amount of exercise required to burn calories, percentage of food additives present in the product, price to nutrient ratio, source of the product.

Dynamic Serving Sizes shows the nutrition at the amount of serving portion. This feature is personalized based on ones serving portion and users can see the data at different serving sizes. This feature according to Sage also boasts nutritional literacy. “With food additives becoming increasingly common in everything we eat, people don’t really understand them — at all,” says Sam Slover. Information regarding food additives is given by classifying them as safe, be careful and avoid entirely. Nutrient density and price-to-nutrient ratio shows how much nutrition a food has per calorie content and how much nutrition you’re getting for the price you pay. Products that costed lesser but were rich in nutrients like carrots and kale scored the highest while high calorie low nutrient foods like french fries scored the lowest.

Sage employs a user created collection method to navigate through the large data set. For example, someone who is vegan would access the content differently compared to someone who is on a paleo diet making it a personalized experience.
Exercise Equivalents
How much exercise does it take to burn off this product?

20
MINS OF RUNNING

You would need to run for 20 minutes to burn off this product at 1 serving

food data
made simple

GOOD NUTRITION FOR PRICE
HEART HEALTHY
VITAMIN PACKED

View full info for Driscoll’s Strawberries >
Open Ag, project on co production

“As climate change makes it more difficult to grow crops in outdoor farms because of heat waves, more frequent storms, and more pests and disease, the researchers envision that climate-controlled, tech-filled greenhouses (which they call “food computers”) could be an increasingly useful place to grow food. The technology could also eliminate food miles: Instead of shipping avocados from Mexico to China, a Chinese greenhouse could precisely recreate a Mexican climate in Beijing—or tweak it to create a climate even better for an avocado tree.”

The open Ag project led by Caleb harper at The MIT Media Lab focuses on reinventing future food systems using robotic open source ecosystems and Artificial intelligence. They have fabricated food computers that provide a micro climate for plant growth in a regulated controlled environment that uses data driven resources and sensor technology. For each cycle of plant growth, it produces around 3 million data points. The food computers are designed to operate at 3 different scales. The first one is a personal food computer designed for personal use. This table top size robotic system has a growing chamber in which variables such as temperature, humidity, air temperature, levels of atmospheric gases such as hydrogen, oxygen and carbon dioxide are controlled and monitored. The food computers have a do it yourself instruction kit which can be built using their open source data resources.

The second one uses hydroponic and aeroponic technology which is intended to produce food in large quantities when compared to personal food computers. They propose this to be useful in small scale cafeterias and restaurants. It is the size of a shipping container whose micro climate can be tweaked and adjusted accordingly.

The third one is an industrial scale version which is designed as a food data center. These are designed to serve large masses of

https://www.media.mit.edu/groups/open-agriculture-openag/overview/
people and can act as a resource for large scale farming. This proves to be an extremely useful resource in food deserts, disaster zones and other areas where access to food is a major challenge. It promotes sustainability, transparency, better quality and locally grown food that can be accessed by people who do not have access to healthy food. It would also eliminate the need to transport these crops across the globe. The future of food in digital farming is a booming field and attracts a lot of food enthusiasts and entrepreneurs. However, one of the main challenges digital farming faces is to think about yield, volume, and business models based on proprietary intellectual property.
Wrap Genius

“As our food systems become increasingly complex, the food we choose to consume affects not only our own health, but also the environment, our ethical framework, the Earth’s biodiversity, and so much more.”

- Sam Slover

This project visualizes food purchases over 10 weeks with the goal of providing consumers information related to food beyond food labels. It addresses food transparency and proposes better ways to display food labelling information. Sage, a smarter food labelling platform is an extension of this academic project. Over the course of 10 weeks, he purchased 290 products and visualized a product breakdown of his overall purchases and mapped the location of all products.

During his experiment, he found that he consumed 3,548 distinct ingredients, all present in food sourced from ten different countries. He identified which foods had the biggest impact on his diet, based on what he wanted to know, such as the highest nutrient-to-price ratio and saltiest product. In response to tracking his purchases, Slover grew more mindful of his eating and tried to buy more raw, local, and non-GMO products.

Data for this project was created based on logging food items on a weekly basis. Sam Slover analyzed the products he shopped at the grocery store. Since the data was not easily available, the process of data collection as stated by the author was tedious.

He looked at the best sources of nutrients and analyzed if he was getting enough of these nutrients. He analyzed the different types of food additives and their impact on the body. He looked at different food products that contained GMOs and most importantly questioned if he really cared if it contained GMOs. One of
the biggest challenges of this project was to communicate all of this in a way that was both visually interesting without encroaching into the land of information overload.
Data Overview
Over 10 weeks, I visited a grocery store 18 different times:

290
Total products purchased

$842
Total dollars spent

$47
Avg dollars spent per store visit

16
Avg products purchased per store visit

Product Breakdown (% of overall purchases)

- Cheese: 2%
- Beverages: 2%
- Canned food: 9%
- Staples: 11%
- Prepared Meals: 12%
- Snacks: 12%
- Fruits: 16%
- Veggies: 16%
- Frozen Meals: 19%

The least purchased category is Cheese, while the most purchased category is Frozen Meals.
Feedback

“A lack of transparency in the state of the world hinders our ability to properly evaluate the effects of our actions on the environment and make sensible decisions regarding it.”

- Jessie Richards

Feedback is a thesis dissertation project by Jessie Richards. This project is directed towards changing the perspective of food and deter it from being wasted. It explores and documents experiences and artifacts. It investigates how information experiences can be a conversation for self-reflection rather than presenting facts and figures. It investigates how daily routine engagement with information can have impact on our thoughts and actions. It looks at how information visualization can bring about a change in ideas or actions without direct persuasion. It explores the distance food travels to reach you, the difference in costs when bought from four main stores, two national stores and two local stores.

A series of design experiments to explore people’s perspective of food systems was conducted to test ideas about information, behavior and society. An ethnographic research was conducted in which the designer observed people in their kitchen and had conversations about their food. Waste bins were set up in the farmers market and the outcome of this experiment was that aesthetic imperfections of a tomato dictated choice and price of the tomato. Tomatoes with aesthetic imperfections were either thrown away or priced low. This conveys how much waste could be produced in national supermarkets if such is the case in farmers markets. Another round of experimentation was conducted within the community. Each participant was given an anonymous ID and a container that recorded and measured the amount of food wasted. According to the study, in total, the participants threw away almost 90 pounds of food in two weeks. The intention was to
create awareness of the wasted food daily and potentially calculate their yearly waste. This information was designed to be delivered through an app. Fridge magnets and grocery store bags were also designed to build relevant information into people’s everyday lives. At the end of the project most participants, 77 percent, reported changes in their thinking or behavior from before the study. All participants reportedly learned something in the experience, whether it was about themselves, how they compare to others, or the system they exist within.
How can I contribute towards the future of food transparency?

By providing simple to read information and designing food labels to be smarter and personalized

By providing an understanding behind the language of all food labels

By hoping to influence better food decisions based on food labels and reduce misinformation

By providing an understanding of what are good labels and what are to be avoided
A little more about my contribution

The projects discussed above investigates the idea of food transparency through different lenses and have created an impact and made a significant contribution in their respective fields. The body of work above discovers multiple facets of our food from a cultural, social and an environmental point of view. Gaining an understanding of our food from different angles not only opens new doors of perspective but also teaches us to be mindful of the food we eat.

Design and technology is used as a tool to communicate the complexities in a simplified manner. It’s natural and intrinsic approach to a solution almost makes it invisible to notice the use of design as a tool to solve a particular problem. The role of information design in these projects are diverse. Some look at the use of information visualization whether static or interactive, to redesign the way information about food is perceived. Some look at information as a way to instigate behavior change while others look at information design as a technological tool that can create awareness and bring about a significant change. The overarching goal for all the projects discussed above is to create transparency like this thesis. Although all works discussed above have contributed to the future of food transparency at various scales significantly, I noticed a lack of contribution in the area of food labels. In this thesis my mission is to study this area and create more transparency about them.
03
How
Methodology & Experiments

Simplicity of data and design = clarity of reading
- Edward Tufte
This chapter outlines the method I followed to design the archive. Following a series of steps helped solve the problem in a methodical approach. The chapter is divided in 4 sections. The first one outlines my process of understanding consumer behavior while they shop. Through this I wanted to understand what are some of the key pain points and opportunities. The second section outlines the data collection process and the various variables that are defined in order to understand the mandated nature of food labels. This also covers how the data was sorted and labeled. The third chapter outlines the importance of taxonomy to get a clear understanding of hierarchy. The taxonomy outlines the various classification levels that is used as a navigation model for the Food Archive. Section 4 demonstrates the Food archive which takes into account the above 3 sections. It also proposes its use going forward in the future.
<table>
<thead>
<tr>
<th>On a usual day at the grocery store,</th>
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<td>3. What do you buy when doing your next trip to the grocery store?</td>
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1. Understanding

**Ethnography**

With data spread across multiple packages and aisles, it requires viewers to rely on visual memory to recollect what a label is communicating. What kind of information do people look for while shopping at a supermarket? How important are food labels to them? Do they even look for food labels? If yes, why? If not, why? How much do they understand about food labels? Are they being misinformed? What are the primary factors that influence them in buying their groceries? What do they want to know about food apart from what they already know? And most importantly what is the value of decoding and designing an archive of such sort? To help answer these questions I chose to take the route of ethnographic research considering that it can qualitatively help unravel insights to certain problems.

I chose to primarily interview consumers of diverse age groups who shop at supermarkets, along with a small group of participants who either worked or volunteered at grocery stores. Considering the staff works with some kind of information, I wanted to get an understanding to the above questions based on their perspective as well. I split the research into two stages. The first was interviewing participants one on one to get a broader understanding and engage in a conversation. The second was conducted in a supermarket considering that this was my primary context for the thesis. I approached consumers, the staff, or the manager while they shopped or worked during different hours of the day at different stores. I handed out a post card sized questionnaire I designed and asked them to record their responses to the questions. In addition to this, I asked them to draw a food label they looked for and asked them to draw an image and explain what their ideal food label would be to get an understanding of what they expect.
The image on the left illustrates the sketches of food labels that demonstrate what they look for and their idea of an ideal label. This gave an insight on the most sort after food label which was nutrition facts panel. People also associated food labels with brands. It was interesting to note that people associated brand with food label. This question was intentionally kept open ended to receive a diverse set of answers to gain an understanding of what they associate food label with.

The image on the next page on the left hand side illustrates a specific conversation in my one on one interview. The answers to this particular questions were interesting since I had contrasting opinions. People who found food labels to be useful had very specific requirements while on the other hand people who lacked a sense of trust were questioning the reliability of labels and what it meant. Some people looked for specific information while some wanted to generally understand food labels. This was a key finding towards the development of the archive. This led me into coming up with a method to determine a trust score which I will discuss under designing the food archive.

The image on the next page on the right hand side illustrates what people wish food labels could tell and what they already know and look for. This map became the base for the development of navigation in my Food Archive which I will discuss under designing the food archive. Based on these two categories, I started to look for and collect the data. Is there an already existing label that tells us about the source? Is there a label that tells us if it is GMO or injected with chemicals? What other kinds of information can price of a product tell us? So on and so forth.
Are the food labels beneficial for you? If yes, how? If no, why?

“No, I don’t trust them, how do I know they are telling the truth?”

“Not really, I don’t know much about them”

“I don’t care much about labels. I’m not sure what to believe. and I’m usually a spontaneous buyer.”

“No, I think it’s all about marketing their product. I buy whatever tastes good at a good price.

“Yes, they are very helpful, since I am on a diet, I specifically look out for calorie content and organic. How would I know otherwise”

“Yes, I have celiac disease, I look for Gluten Free all the time.”

“I think so, I look at the nutrition facts panel but I sometimes get confused understanding the values with the serving size and I look for organic”

“Ya, for example when I buy my egg I pick up organic and cage free.

“To an extent I guess, Like I know what free trade is and I know there’s a truth to the movement but I want to learn more.”
What I wish to know

is the brand from a responsible company
is the brand aligned with my values
is it locally grown?
what is the source
where is my food grown
where was it made and processed
better nutrition information
clear information about nutrition content
good ingredients versus bad ingredients
what does it take for something to be called organic?
the meaning behind the label organic
difference between locally grown and organic
specific meaning of terms
what is the difference between cage free and free range?
what is organic? am I better off eating raw food?
what is real and what is artificial
Are chemicals used?
chemicals used?
ethnicity

What I look for

I look for particular brands
Preferred brand
look for price and decide
price of product
price
price
price of the product versus quantity
amount I get for price
price versus amount
organic
is it organic or not
organic
word of mouth information
I usually smell to check if it is fresh
Good flavor
smell to check freshness
I look for any defects and feel the produce,
for packaged I look for expiration date
expiration date
Is the egg broken or not
risk free
lactose free
Gluten free
health stats
calories
carbohydrates
sugar content
ingredients
high cholesterol
added preservatives
Complexity is a distinctive and inherent feature of our world: it should be embraced and not feared in an effort to simplify things that are naturally rich and multifaceted.\textsuperscript{16}

I started the process of data collection at my local grocery store where I conducted one of the interviews. Using a data collection form, I noted down labels I came across and took pictures of them. This was then converted into a digitized document. Based on the interview and secondary research I created a list of variables to record data pertaining to the labels which are mentioned below.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Label Name</th>
<th>Type of label</th>
<th>Purpose of the label</th>
<th>Who uses the label</th>
<th>Who assigns the label</th>
<th>Description of the label</th>
<th>Is the label consistent among products?</th>
<th>Is it a verified label or not?</th>
<th>Image of the label</th>
<th>Source link</th>
</tr>
</thead>
</table>

Interestingly, during the process of collection, if I did not know what a label meant, which was most times, I asked the staff to explain what it meant. For instance I came across a label called B corporation certified which claims to be a certification to ensure large scale food industries to ensure ethical standards for labor welfare and environmental welfare similar to how fair trade is to coffee. There are standards mentioned in their guidebook that
govern the businesses. Very few products were seen with this label, however none of the staff knew what it meant.

One part of the data was collected during my field trip at the grocery store, as a part of my one on one interviews I had requested participants to share an image of a label they wanted to learn more about. A part of the data was collected by this and a part of it was collected by secondary research. Who assigns these labels, the meaning behind these labels and if they are verified or not were the most challenging part of acquiring data. This required going through USDA, FDA and third-party certification standard guides and most importantly fact checking sources I came across. One important takeaway during the process of collecting the data was that, as a consumer to understand what these labels meant, I would have to scan through multiple sources to conclude on what ‘a’ label means. The screen shot on the next page demonstrates a few examples of the collected data. To see the full dataset please click on the link below the image.
<table>
<thead>
<tr>
<th>product Name</th>
<th>label name</th>
<th>Purpose of the label</th>
<th>Used by</th>
<th>Type of label</th>
<th>Assigned by</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eggs</td>
<td>Grades</td>
<td>Quality standards</td>
<td>Consumers</td>
<td>Certification</td>
<td>USDA</td>
<td></td>
</tr>
<tr>
<td>Eggs</td>
<td>Cage Free</td>
<td>Animal welfare</td>
<td>Consumers</td>
<td>Claim</td>
<td>USDA</td>
<td>Cage Free are technically small chickens that can lie flat on the ground.</td>
</tr>
<tr>
<td>Eggs</td>
<td>Free range or pasture raised</td>
<td>Animal welfare</td>
<td>Consumers</td>
<td>Claim</td>
<td>USDA</td>
<td>Free range or pasture raised eggs are eggs from chickens that roam freely or have access to pasture areas.</td>
</tr>
<tr>
<td>Eggs</td>
<td>Hormone-free</td>
<td>Functional claim</td>
<td>Consumers</td>
<td>Claim</td>
<td>x</td>
<td>Hormone-free or antibiotic-free eggs are eggs from chickens that do not receive hormones or antibiotics.</td>
</tr>
<tr>
<td>Eggs</td>
<td>Antibiotic free</td>
<td>Functional claim</td>
<td>Consumers</td>
<td>Claim</td>
<td>x</td>
<td>Antibiotic-free eggs are eggs from chickens that do not receive antibiotics.</td>
</tr>
<tr>
<td>Eggs</td>
<td>United egg producers certified</td>
<td>Animal welfare</td>
<td>Consumers</td>
<td>Certification</td>
<td>UEP</td>
<td>United egg producers certified eggs are eggs from chickens that are certified by a third-party organization.</td>
</tr>
</tbody>
</table>

Link to view full data set

https://1drv.ms/x/s!AjHqaYX_1bL_zgU4bbDErjwGRoZtQ
Grade determines the interior quality of the egg, the appearance and condition of the egg shell. Grade A eggs are those that are thick and firm. Grade AA eggs have whites that are thick and firm but are clean and spot free. Grade A eggs have characteristics of Grade AA eggs except that the former aren’t as tough and firm. A grade doesn’t mean cruelty-free. Chickens that are cage-free can have their beaks trimmed off, can be cramped into a huge flock in a small space, can have no access to the outside, and have all kinds of other nasty qualities. But no matter what, says Shapiro, cage-free is better than intensive. In that regard, the idea of “cage-free” is more important than the spirit of the label is borne out in practice. Cage-free augments cage-free by adding “access to outdoor space,” and pasture-raised implies that the chickens spend the majority of their time outside. “Pasture” is a lousy word here. “It doesn’t specify how legal to give hormones to egg-laying chickens in a country. They’re all hormone-free. So sure, you trust a carton with this label; it’s not technically true. But it’s not telling you anything you don’t already know.

Cheaper to doctor an animal’s food with medicine if it is to upgrade your farm to have higher standards, but antibiotic use is associated with the drive for “superbugs” wherein bacteria get stronger than the drugs we administer, leading us to use more drugs, leading the bacteria to become superbugs. Fortunately, this is a lousy label, says Shapiro. “It’s probably 9 out of 10 egg cartons in the country. It’s not, this is an effort to create the illusion for consumers that the animals are being cared for, but the reality is that they’re not. The guidelines allow...
A few examples of collected data

Inventory control versus Consumer use

PLU codes are a good example for this category. These codes are assigned by International federation for produce standards. PLU Codes or PLU numbers are essentially produce labels. They are usually 4 or 5-digit numbers and these come in the form of stickers, usually considered edible which are stuck on the produce. It is used as an identification number to make inventory control easier and faster. The PLU numbers provides information about various attributes which include the commodity, variety, growing methodology, and the size. Interestingly, this can also help consumers understand the growing methodology. A sticker starting with the number 9 followed by 4 digits suggests that the produce was organically grown. If it starts with the number 8 followed by 4 digits it suggests that it was genetically modified and if it has 4 numbers, it was conventionally grown with the use of certain pesticides. Certain PLU Codes also suggest vegetables that have been hydroponically grown.
Fantasy versus Reality

An example that can very well fall under this is the cage free claim on egg cartons. According to secondary research, the claim cage free is understood by most consumers as hens having outdoor access and being treated in a humane environment. The term ‘cage-free’ creates a fantasy in your mind that you are being mindful of choosing something that is being treated in a humane way. But in reality, cage free is a tricky claim. The claim suggests that the chickens are not confined in cages, which is true but instead they are confined in chicken houses or barns with nearly 50,000 chickens with a poor living conditions, may it be lighting or the space to move around. There are no standards for outdoor access and debeaking is allowed. Infact, according to the FDA they are not subject to premarket review and authorization. However, there are claims with third party certifications which according to standards allow a much humane environment for chickens to be raised.

17 https://www.fda.gov/Food/LabelingNutrition/ucm111447.htm
1st Experiment

2nd Experiment
Ontology
Making sense of the data

Now I have a dataset of labels with various attributes. But of what use is this data if there is no meaning assigned to it. To do this I am using a branch of study called Ontology. What is Ontology? In philosophical terms, ontology is the state of becoming or simply put when something starts to exist. In computer science and information science as: when a word or a concept defines the nature or properties of a specific context. It can also be defined as a group of categories in a particular domain that shows their properties and relations between them. Eventually when relationships are revealed they start to exist.

To establish the ontology I used a method of card sorting to carry out the experiments. I used a set of post it notes and wrote down the name of each label and started grouping them by their similarities. After grouping them by their similarity I assigned a word and defined the meaning of the word that describes the category based on their nature.

In my first experiment I sorted them by the type of label as seen on the left. This created 4 large buckets codes, claims, certifications and physical evidences. Each category having a similar nature. Considering the user interviews, I wanted the navigation to be more specific and this level of sorting would not enable the user to specifically get to what they are looking for. To solve this I tried a second experiment of sorting where I selected two products eggs and milk and followed a similar process. Under products much more specific groups started to form it started to make things more clear. Eventually products fell under the same hierarchy as the higher level classification except for physical evidences being replaced by nutrition facts.

18 https://en.wikipedia.org/wiki/Ontology
19 How to make sense of mess, Abby Covert
20 https://en.wikipedia.org/wiki/Ontology
After I was satisfied with the groups that were established I defined what each word assigned for the category means. This is the **lexicon** for the map above and for everything that follows here after.

**Codes and symbols**

Mainly used for logistics and internal use. They are used for inventory control, stock rotation, tracking product chain etc. However, some of these codes could also determine things such as what distance did the product travel to get to us? What was the method of production and where or when was it processed, etc. These give us a very tiny peek into parts of the food system.

*Example: PLU Code, UPC Code, Bread clips*

**Certifications**

Primarily certifications are provided to certify something as a ‘fact’ that is certified by an oversight agency that has the authority to certify. This helps manufacturers communicate to consumers about the ‘fact’. Certifications follow standards and guidelines and are regulated by Federal agencies such as FDA and USDA or by third party organizations.

*Example: USDA Organic, Fair Trade, Animal welfare approved*

**Food claims**

Most food labels are not regulated by the FDA. This means that there is not form of inspection carried out to verify the claim. Interestingly, according to a survey by IFIC, most people rely on food claims to make choices.

*Example: Cage free, Free range, Heart friendly*

**Nutritional content**

Determines the nutritional facts label which is regulated by the FDA.

*Example: calorie content, sugar, cholesterol,*

21 [https://www.foodinsight.org/research](https://www.foodinsight.org/research)
3. Establishing a Taxonomy

Defining hierarchy for navigation model

“We thrive in information thick worlds because of our marvelous and everyday capacities to select, edit, single out, structure, highlight, group, pair, merge, synthesize, focus, organize, condense, reduce, classify, aggregate, outline, summarize, itemize, review; dip into, flip through, browse, glance, skim through, refine, enumerate, glean, synopsize, winnow the wheat from the chaff and separate the sheeps from the goats.” 22

The history of taxonomy is as old as the origin of human language. 23 Philosophers started coming up with systems to organize things on earth to help us understand evolutionary relationships, distinguish groups from one another and bring order and structure to chaos. Aristotle, the Greek philosopher was the first one to extensively write on the topic and classify living organisms. With the rise and discovery of many more specimens, Carl Linnaeus, a Swedish botanist, known as the father of taxonomy came up with a binomial nomenclature system for plants and collected and documented over 40,000 specimens of plants, animals and shells during his lifetime. 24

Taxonomy helps humans us understand and see clearly. In the modern world, we use taxonomy for everything. It shapes our experiences and helps us draw meaning and sense from systems to objects. Such is the case for this thesis as well. In this thesis, my specimens would be equivalent to the collection of food labels, nomenclature would be ontology and using the ontology map, I want to establish a clear classification model that can be used as a model for navigating content in the Food Archive. The image on the right shows the taxonomy of the ontology map. The highest level of classification is by products and by labels. This will enable the user to navigate either on a generic level or
learn a label specific to a product. The second level of classification is codes, claims, certifications and nutritional content. Both labels and products follow the second level classification to filter further. The definition of the terms are outlined above under the ontology section. Under each of these are subcategories that can specifically be explored. The value of having the subcategories to an extent ties back to the interviews. Consumers were interested in learning which labels can tell me about ethnicity and most importantly if the label is associated with ethnicity, is it a meaningful label or not. This grouping of labels helped me determine trust scores and assign a badge as a symbol to labels that suggest if they are meaningful and reliable.

**Determining the trust score**

The 3rd level classification was the most helpful to determine the trust score. Let me take an example to talk about how I established a trust score and assigned a badge.

I will consider the example of the label **united egg producers certified** which is seen on most egg cartons at your grocery store. United egg producers is a certification that certifies that the egg has met standards for the laying birds to be treated in a humane environment. This label falls under the product: egg and subcategory: animal welfare. I had a list of other labels with a similar nature under the same hierarchy. To determine which of these labels are the most reliable for animal welfare, I created a matrix model in which the horizontal access has a list of key standards that determine what animal welfare.

In this example as seen on the image alongside, the horizontal axis lists the key standards that determine the welfare of an animal and the vertical axis lists the labels that fall under the category of ani-
mal welfare. According to this, the label united egg producers met 0 out of 6 which makes it the least reliable although it is the most commonly used label on egg cartons and the label animal welfare approved met 5 out of 6 standards which accounts it to be highly reliable. This label however is seen on very few egg cartons since they certify only family owned farms with a livestock limit of only 500 hens which makes it even more reliable in terms of animal welfare standards.26 This however was challenging to establish for all groups since a primary data source isn’t available and it requires going through standards for each label and comparing their terms. For this thesis it is proposed as a concept to that can be developed for all labels in the future. This will be a part of the food archive under subcategory section. Using the data, ontology, taxonomy and the trust score visualization I started to put together my food archive.

26 https://animalwelfare-approved.us/standards/
<table>
<thead>
<tr>
<th>Animal Welfare</th>
<th>Uncaged</th>
<th>Access to outdoor</th>
<th>Daylight access</th>
<th>Debeaking prohibited</th>
<th>Killing male chickens prohibited</th>
<th>Dust bathing material required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly reliable</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Certified Humane</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Not reliable</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>USDA Organic</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
What is an Archive? An archive is a place where people go to find information. According to the Cambridge dictionary, an archive is a collection of documents showing the history of a place, an organization, a family or the place where they are kept. Archives, over the centuries have existed in various forms. The definition of what an archive can be very broad. A Numismatist who collects and catalogs coins can be referred to as an archive. A personal journal recorded over time can be viewed as an example of an archive. Archives have been used as a method to make information accessible for centuries. The oldest form of archives can be traced back to ancient libraries that used methods to curate and store large number of texts cataloged and documented in a methodical way. One such example is the great library of Alexandria. It was one of the most significant libraries of the ancient world. They used the art of library science to categorize and catalogue around 700,000 scrolls by assigning meta data to the content to make it accessible.

Considering the scope of definitions for an archive, I want to clearly state the role of an archive in this thesis. In this thesis, the archive uses the insights from interview, the ontology map and taxonomy to organize and structure the content. The food archive is designed as a web platform. It aims to provide information about labels: Are they verified? Who assigns them? What is the description of the label so on and so forth for different groups of consumers looking for specific things. For example how can someone who wants to understand about ethnicity learn something from the archive versus how can someone who has a specific diet or a health condition learn about labels that meet their need.
The image contains a hand-drawn diagram of a user interface design for a food archive application. The diagram includes multiple levels of filtering and data organization, with notes on the left-hand side and a final note at the bottom:

"Think about where you can let the user navigate by labels that can be trusted."
The Food Archive Project

The food we buy matters.

The food products of today are using every possible word to promote their product as the most desirable. But how much of this language do we really understand? Does this align with our value? and which one of these labels can be trusted? The Archive houses a collection of food labels and breaks down the information of these labels into what do they mean, who assigns them, are they verified, are they reliable, so on and so forth. The Food Archive is designed with a simple goal of making this information more transparent, personalized and simple to read.
in the same archive. The collection of material organized using the classification model will foster this role. My initial experiment for designing the archive started by sketching out different option wire frames as seen in the image alongside.

The archive was designed keeping in mind 4 scenarios. These 4 scenarios were based on the user interviews. For the purpose of narrating the scenario let's consider a person named Sam.

1. When Sam has specific needs and wants to learn only about one product
2. When Sam generally wants to understand all the food labels that are there and what they mean
3. When Sam is shopping and is struck by a label he does not know
4. When Sam wants to learn what is reliable and what isn’t

The archive was designed based on this. It houses a collection of food labels and breaks down the information of what they mean. The archive is designed with a simple goal of making this information more transparent, simple to read and personalized. The highest level of classification is by products and labels as seen on the image to the left.

This is then filtered into the secondary level classification by certification, claims, codes and nutrition facts. When we navigate into the certifications page, all the food certifications show up. This can be further filtered by selecting on certification type. The same process applies for all. As discussed in the trust score section above, every label is assigned a reliability badge. Three reliability badges are assigned to all labels: Highly reliable, Neutral and Not reliable. Since symbols and icons can communicate faster and are easier to perceive these badges provide a quick overview of the reliability while skimming through all labels.
What are certifications

Certifications are guidelines that are outlined for food safety and welfare standards. The two largest federal agencies governing the food industry are FDA and USDA. Most products are certified by third party agencies. These third party agencies must be accredited by either of the federal agencies.

Since all certifications are regulated and inspected, they are more reliable than food claims. A reliability badge tells you the trustworthiness of the label.

Filter by: Certification type, Badges, preferences

- Animal Welfare
- Organic

Animal welfare approved
Certified Human
United egg producers
Nutrition Facts

What does the label mean?
This is a highly meaningful label. The program is backed by renowned food authors such as Michael Pollan and Peter Kaminsky. This however certifies only family farms with a limited flock size of 500 hens. They have specific guidelines for humane treatment of hens. According to standards, a minimum outdoor space of 4 sq. ft per hen must be provided. De-barking is prohibited, access to daylight and good air quality must be met.

Source Link
Certification standards
https://animalwelfareapproved.us/standards/layinghens-2018/
What are claims?

Food claims use every possible word to market a product as the most desirable. According to FDA, most food claims excluding a few exceptions do not even require any form regulation! However, most of us fall prey to these marketing gimmicks. The most reliable are certifications and nutrition facts displayed behind food packages.

FDA classifies food claims as health claims, nutrient claims and functional claims. Health claims are regulated while the other two do not require any regulations and most claims fall under the latter.

Filter by ▼ Claim type ▼ Badges ▼ preferences ▼

- Cage Free
- Free range
- Pasture raised
- Free range/pasture raised + Certified humane certification
- Farm Fresh
- All Natural
What are claims?

Food claims use every possible word to market a product as the most desirable. According to FDA most food claims excluding a few exceptions do not even require any form regulation! However, most of us fall prey to these marketing gimmicks. The most reliable are certifications and nutrition facts displayed behind food packages.

FDA classifies food claims as health claims, nutrient claims and functional claims. Health claims are regulated while the other two do not require any regulations and most claims fall under the latter.
What is a nutrition facts panel?

This is the most common label that we all know of. It provides nutritional information based on dietary guidelines. It is mandatory on most food products and is regulated by the FDA. According to the revised nutrition panel in 2016, FDA has divided the panel into two main sections: limit these and get enough of these. The lower the value of limit these nutrients the better of it is and higher the value of get enough of these the better it is. The following charts have followed the same classification and can be filtered in the filter panel.

Filter by

- Nutrition facts type
- Badges
- Preferences

70 Calories

3.5% of daily recommended 2000 calories

185mg Cholesterol

62% of daily recommended value of 300mg

6g Protein

12% of daily recommended value of 50g
Design for personalization

The final leg of the archive explores a conceptual experience that uses image recognition and machine learning to suggest products and brands based on personal preferences. This is designed as a mobile application that pulls data from the archive. The profile icon in the archive allows the user to set preferences based on dietary requirements, any health concerns or allergies, any social preference or environmental preference. The user enters personal stats such as height, weight, age and other specific requirements pertaining to diet such as vegetarian, health concern as high blood pressure etc. Based on these preferences the archive shows suggested labels and products to look out for or avoid.

The user then walks into a supermarket to buy groceries as per the suggestions provided by the platform. Being a spontaneous buyer, the user comes across an interesting product out of the suggestive list preselected for her. To be completely sure if this product fits her requirements, she opens the food archive app on the phone and points the inbuilt camera to the product. The app uses image recognition to identify the label or product and shows her if it is reliable or not according to her preference as seen in the image alongside. She can dive deeper into the descriptions of these badges to understand why it isn’t reliable and what the meaning of the label.
The market can never achieve a state of perfect information, but it can certainly get closer to perfection through the provision of better information.

David Sarokin and Jay Schulkin
Between Honesty, Integrity, Trickery, Treachery and Debauchery, Mankind is lost in it’s quest to find out who or what is genuine!! Data is it’s best answer. We are living, fortunately, in a world of Data and also right at the cusp of an explosion in the way data can be mined, utilized and delivered! In a highly mandated environment, I have striven to unravel the complexity of how information is displayed on products and make it comprehensible. Most often when we organize something, we try to analyze how the pieces fit together to cohesively convey something meaningful. Along with this we learn to understand the patterns and these patterns not only help us understand the bigger picture and systems it operates within but also help us see and question parts of the puzzle.
What was I able to achieve?

This thesis has presented a process of documenting and exploring a way of decoding and organizing food label information. The outcome of the thesis was a prototype of the Food Archive which breaks down information regarding food labels to its key factors. The food archive is the beginning to a long term goal. The archive is designed using a navigation model that governs the flow of the web platform. A model is derived to visualize what is reliable and what is not. This model can be used for food labels across the spectrum. The archive proposes to facilitate as a central database in the future that can be used by consumers to get real time information about food labels based on their personal preferences as they shop.

Given that Shopping is done by all age groups with diversity in languages, cultures, academic backgrounds, ethnicities, behaviors et al., my yearning is to bring all of this incomprehensible information, at the click of a button, to the consumer, at his point of picking, so that, he has made an informed choice that does not bely his individual health needs or his belief systems. My day of gratification would be to see this in real time, in a super market, used by every consumer!

Looking forward

In a scientific tone in a very vectorized world (I mean non-linear), every action could potentially create many unrelated actions, un-assumingly. This Project of mine is not an exception too. Going forward how can this be useful to the Industry? With intelligent use of technology, we could create a more mature and dynamic inventory management tool that can help the store manage to return its goods that are not consumer friendly! or put together more
stringent vendor norms for delivery! Using Artificial Intelligence, the Store could get much more specific information on consumer needs and behavior that it’s able manage it’s vendor communication so much more meaningfully. More interestingly, at some point stores can be committed to pro actively engage in the betterment of human health!

The effect of this would actually mean, healthier management of Supply Chain, hence better bottom lines and healthy financials! Through effective vendor management methods, there’s an indirect contribution to the way vendor process and package their food / produce and thereby robust financial health as well! Of course, hence, less food wastage. In a world that’s heading towards a resource crisis, globally, could it be more relevant? The food chain has many actors and going forward, I believe that a large population of these people in the food chain can contribute to the food archive.

The food system encompass many actors and going forward I strongly believe that various stakeholders who belong in this system can help establish a stronger reason for the archive to regulate in a much more meaningful manner. When food travels from producer to consumer, it is automatically influenced by social, economic, political and environmental factors. In the future, I propose to address the thesis in a larger context of nutrition and food system by broadening the taxonomy map with future stakeholders who could be a part of it.

Apart from the food archive being a benefit to the consumer alone, I believe that this can help create better labeling standards and policies in the future. Each stakeholder can benefit from the food archive to improve the culture of food in the future. Manufacturers or producers pay a huge deal of money to third party agencies or federal agencies to promote their brand and increase
Consumers rate their perception of food labels to improve their standards based on consumer and health advocate ratings.

Federal Agencies, Governing bodies: regulators, improve their standards based on consumer and health advocate ratings.

Third party agencies, manufacturers/producers, inventory control, is it worth paying a great deal of money to

Nutritionists, health advocates, food authors, rate and validate the authenticity of health information.

Grocery store staff, inventory control, stock rotation and placement of food.

Food Archive stakeholders, primary beneficiary, consumers, social, environmental, economical.

Social, environmental, economical.
loyalty of the product. But how much of this is really understood by the consumer? The food archive can help the manufacturers understand how consumers perceive the food labels and judge if it is worth spending on the label and if another certification would communicate better for their brand. It can help manufacturers use much more authentic labels to gain the loyalty of a consumer. On the other hand, there is no system currently in place that helps federal agencies or third party agencies assess and understand if the standards they are designing is helping the consumer understand the labels. The ratings given by a consumer can help the regulators to design better standards and policies. Health advocates or experts in the field who have knowledge about labeling standards can help provide what the labels actually mean and consumers can rate their understanding of a food label and also learn what they actually mean. This rating system can help all stakeholders to improve and make better decisions accordingly.

It is my desire to this food archive built in the future to help better the food labeling system by bringing all stakeholders in one centralized space.

Did I say I just did something in labeling! Well, so much for what Plato said!
References


De-Code

Understanding the nature of food labels through the lens of information design

Divya Srinivasan