Prospectus

Revolutionizing Food Delivery Services with Home Cooked Meals
(Technical Topic)

The Social and Health Consequences of Relying on Food Delivery Applications
(STS Topic)

By

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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Introduction to the Problem

At the surface, on demand service applications are all about optimization and efficiency. Customers use services like Uber to get fast, individualized transportation to their destination of choice. Amazon and Walmart allow retail purchases to be made directly online and shipped within days, if not hours, straight to the household. Over the last few years, food delivery applications such as Grubhub and Uber Eats have allowed consumers to order meals, snacks, and groceries straight from their networked computer devices and their food arrives within the hour. These services are popular due to the convenience of ordering food on demand, food variety, and ease of use. These apps are especially popular among millennials and food delivery applications are among the top 40 top downloaded apps on the app store (Dunn 2018).

Yet, constant reliance on these applications brings to light several notable negative social implications. Some argue that food delivery services are spoiling society and driving laziness (Campbell 2015; Srinivasan 2018). Others say that it promotes isolation and removes an individual from the social atmosphere of eating out (Hobson 2017). Food delivery applications are not only disrupting consumers daily routines, but also indirectly effect the restaurants. Restaurants can lose more than 20% of revenue on orders placed through delivery apps, since they pay for the third-party software (Dunn 2018). However, with the traction that food delivery apps are gaining in the market, many businesses have no choice but to adapt and keep up with the competition.

These claims illustrate the growing list of unintended consequences of food delivery apps from various stakeholders' perspectives. To dive deeper into this topic, I will be researching the different social and health consequences, positive and negative, which result from the rapid adoption of food delivery applications. In addition to the research I will be carrying out, I will be working as part of team to develop a revolutionary food delivery application. This application

will differ from those on the market by solely focusing on homecooked meals. Together this technical project and research plan will give me a comprehensive understanding of food delivery apps and the market that they cater to.

Technical Dimension

Introduction

For our Capstone project, we are not working for a pre-existing organization but rather for our Professor who is acting as our client while we work on the HomeEats initiative. The HomeEats initiative is the default project pre-approved for our class.

System Design

Our team will be developing a web application called HomeEats, which will serve as a food delivery service, similar to UberEats and Grubhub, but tailor made for home-cooked meals. HomeEats will allow consumers to finally have the ability to access fresh, home-cooked meals without having to go buy ingredients or prepare the dish themselves. Unlike other food delivery platforms, this convenience does not come at a sacrifice of food quality or fresh ingredients. To use the platform, consumers create an account on the site, enter their location and instantly view a large selection of dishes being cooked by amateur cooks in the area. They can view all the ingredients in the dish, the type of cuisine it originates from, estimated preparation time, and background on the chef, including reviews from previous customers. Once they select the dish they want, customers purchase the dish directly online, at which point the chef will be notified that an order has been placed and begin cooking. Home chefs will be able to specify when they are online and available to cook, how many orders they can take at a time, and in the case of a

bulk order being placed in advance, they will have a few hours to choose whether or not to accept the order.

This application will be built using primarily Django, which is a popular framework based in the Python programming language often used for web applications of this scale. Our application will also connect to a PostgreSQL Database which will store all the information on the site from cooks and customer user accounts to dishes, reviews, and purchases. In order for our team to simultaneously contribute to the project, all of our code will be hosted in Github, an online software development platform. The project will be completed over the course of the Fall and Spring semesters of the 2019-2020 school year through our CS Practicum class and our client is Ahmed Ibrahim, the course professor. This is not a project for an external company, it is an internal project not meant for profit.

Our team will meet with our client bi-weekly at the end of each sprint cycle. For our purpose, a sprint cycle is a two-week development period where each team member is tasked with a feature to implement or work on, which can be seen in Figure 1 below. The purpose of the

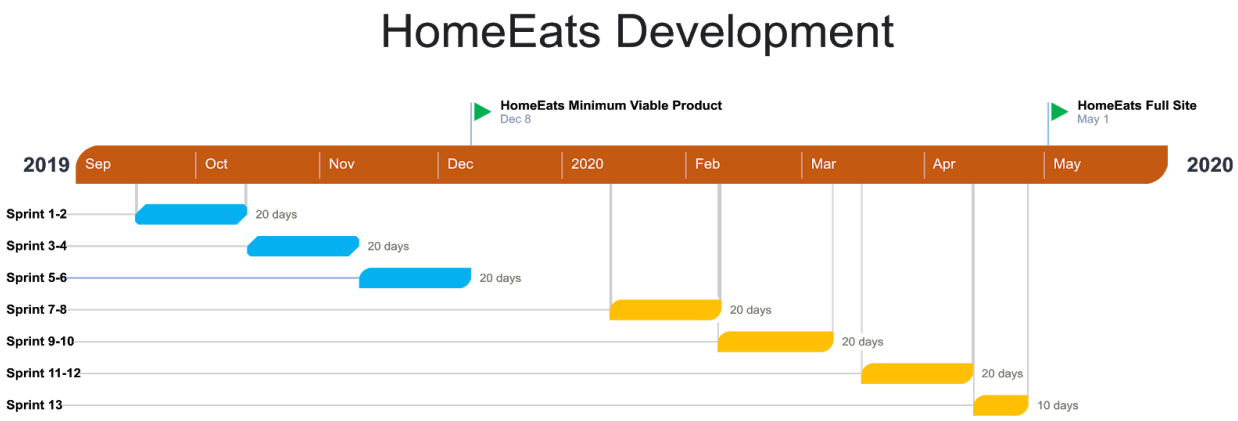

Figure 1: HomeEats Development Timeline (Created by Saboo, 2019)

sprint cycle is to allow for continuous planning, focused development, and short-term goals that the team can set and strive to reach. For example, a sample sprint goal may be implementing the customer landing page where they can browse through dishes. The following sprint goal may be adding filters to the dishes to allow for improved site navigation. These chronological short-term goals will lead up to the long-term goal of launching a fully functional site, allowing customers to order meals directly from cooks in their area, and give full administrative control to our client. HomeEats fits into the health and social dimensions of the food delivery app market by providing the same convenience and ease of use without sacrificing food quality.

System Requirements

Gathering system requirements are very important because it provides a solid foundation for the system and gives the project team a clear roadmap of the development cycle and how to prioritize tasks based on time and importance. For our application there are three main user categories: the cook, the admin, and the customer. Below are our requirements split up by category as well as necessity.

Minimum Requirements

Admin Users.

- As an admin, I want to approve any cook account before it is created, so that I can guarantee the customers a reliable experience
- As an admin, I want to make sure any updates to a cook's personal account information are reviewed, to maintain their accuracy

- As an admin, I want to be able to review reports and reviews, and potentially ban users or cooks, to keep the site safe from bad actors
- As an admin, I want to be able to view the orders that a cook has received.
- As an admin, I want to be able to view all accepted orders with total amount paid including amount going to the cook and HomeEats.
- As an admin, I want to be able to view cooks' cancelled order history with reasons.
- As an admin, I want to be able to set which reasons a cook can give for cancelling an order.
- As a system administrator I want to ensure that a payment option is selected prior to an order being processed, so that I can ensure meals are paid for before a cook begins to prepare the dish.

Cook Users.

- As a cook, I should be able to apply as a cook with my First Name, Last Name, Address, and Kitchen License
- As a cook, I should not be able to login to my account unless my application has been approved
- As a cook, I should be able to set what plates are available as soon as I log in, so that I can quickly get online and start receiving orders
- As a cook, I should be required to enter/edit my name, email, phone and address, so that I can be contacted in many ways
- As a cook, I should be able to add a new dish to my list of available dishes
- As a cook, I should be able to set a picture, ingredients, price, time to deliver, name, and type of food

- As a cook, I should be able to set which dishes I'm willing to make, so that I don't have to make dishes that I don't have their ingredients.
- As a cook, I should be able to report customers and their reviews, in order to protect my reputation from unfounded criticism and ban disrespectful or malicious customers
- As a cook, I should be able to make a separate account if I want to order through the site, so that I don't get confused between things I've ordered and things I have to cook
- As a cook, I should be able to set my own delivery range centered at my address, so that I am not pressured to deliver outside of my comfort zone
- As a cook, I should be able to tag food as vegan, allergy, etc. so that customers can choose foods which are suitable for them
- As a cook, I should be able to set a certain mileage I'm willing to travel so that I can have quick and efficient delivery service
- As a cook, I should be able to set a limit on how many meals I can make in a specified time frame, so that I don't get overbooked
- As a cook, I should be able to set when I am open and closed, so that customers can't attempt to order food from me when I am not available
- As a cook, I should be able to accept or reject meal orders so that I have control over what meals and how many meals I am making
- As a cook, I should be able to set an estimated cooking and delivery time, so that customers are aware of an approximate waiting time

Customer/Diner Users.

- As a customer, I should be able to see the ingredients in the dishes I plan to order
- As a customer, I should be able to see a picture of the dish I plan to order

- As a customer, I should be able to see the cost of the dish I plan to order
- As a customer, I should be able to see the estimated time of cooking for the dish I plan to order
- As a customer, I should be able to view the type of food I plan to order (e.g. Chinese, Thai, Indian, Mexican, etc.)
- As a customer I should be able to sort the dishes by price
- As a customer I should be able to sort the dishes by rating
- As a customer I should be able to only see dishes from cooks who can deliver to me
- As a customer I should be able to sort the dishes by the type of food I plan to order (e.g. Chinese, Thai, Indian, Mexican, etc.)
- As a customer I should be able to rate the food I purchase on a scale of 0-5 stars
- As a customer, I should be able to favorite a cook or a dish, so that I can easily find the cook or dish again
- As a customer, I should be able to review the dishes that I order, so that other customers are aware of the quality of that dish
- As a customer, I should be able to see a delivery status that indicates started cooking, on the way, and delivered so that I know when to expect my food
- As a customer, I should be able to set multiple addresses so that my food can be delivered to a location, even if I am not yet there
- As a customer, I should be able to see an average rating for each dish if the data is available
- As a customer, I should be able to cancel an order that has not started cooking yet so that I don’t waste food and money if I change my mind

- As a customer I want to be able to tip the chef preparing my dish so that I can reward and encourage my favorite chefs.

Desired Requirements

Admin Users.

- As an admin, I want to be able to view revenue reports that can be adjusted to a specific timeframe (week, month, quarter, semi-annual, annual, custom).
- As an admin, I want to be able to view cooks' online time and offline time per week.

Cook Users.

- As a cook, I should be able to set a limit on how many meals I can make in a specified time frame, so that I don't get overbooked

Customer/Diner Users.

- As a customer, I should be able to order at least 3 hours in advance

Optional Requirements

Customer/Diner Users.

- As a customer, I want to be personal information to be anonymous when messaging the cook, so that my information is kept private
- As a customer I want to be able to message my cook to be able to customize the order to my liking.

STS Portion

Human and Social Implications of Adopting Food Delivery Applications

Food delivery applications have been created to further optimize the consumer's life (Stern 2016). Ordering meals and groceries online is a convenience, that allows for more efficient allocation of time without worrying about transportation or preparation. On the other

hand, eating out is often a social experience and can be a time of relaxation, whether as a break from work or time to spend with friends and family. Physically leaving the house to do a simple task of buying groceries can be a mental break and a chance to interact with people. Social media and mobile phones, face to face social interaction has decreased. Loneliness and isolation are growing trends among the millennial and Z generations (Hobson 2017), and food delivery services may unintentionally worsen these issues.

The connection between the technical and social aspects revolves around the value that specifically homecooked meals provide. Not only is HomeEats another food delivery application, but homecooked meals are a relatively new segment of the market that adds a completely new health perspective. There are services, such as Blue Apron which provide the exact ingredients, portions, and instructions needed to prepare a healthy meal. These services allow customers to get only what they need, try new foods, and utilize time saved on other activities or exercise. HomeEats would go a step further and save more time by having amateur chefs cook the dishes directly. Health professionals insist that homecooked meals are often healthier and more cost effective as oppose to eating out (Thomson 2016). It will be interesting to dive deeper on how that could alter the perception of food delivery services. If people become reliant on these meals on a daily basis, are they avoiding the social interactions of going out? Does it even matter that people can capitalize on the benefits of eating homecooked meals without having to make these meals or physically leave the house to go grocery shopping? Will isolation worsen or will overall health improve?

To dive deeper into these issues, I will draw upon the socio-technical integration framework introduced in Michael Harrison's, "Unintended Consequences of Information Technologies in Health Care - An Interactive Sociotechnical Analysis". In the article, Harrison

stresses that there are always unintended consequences of developing technology, both in terms of technical infrastructure and the social systems that revolve around the implementation of the technology. He builds this argument using a case study on Healthcare Information technologies (HIT) and the sociotechnical system around it. He does this by progressing from how HIT alters the functionality of the existing social system and physical infrastructure, to how the systems already in place actually mediate HIT use, and concluding with how HIT can be redesigned and modified to better fit the systems in place. This highlights Harrison's key takeaway that it is important to not only develop a system for its technical capabilities but to see how it fits into the already present infrastructure surrounding it. In this case, food delivery apps may have unintended consequences for society as a whole but also from the perspective of each user. For example, restaurants may have an unintended consequence of reducing food preparation time for dine-in guests when online orders start funneling in. Furthermore, customers at home may become more isolated from the lack of social interaction when going out and dining in a restaurant. These perspectives must be considered when doing a complete analysis because it will ultimately effect both the enhancements made to the systems themselves and the long-term ability of the platforms to stick in the market.

Research Question and Methods

What health and social implications are resulting from the rapid growth and mainstream use of food delivery systems for the restaurant industry?

In order to gather data for this research project my plan involves utilizing interviews and surveys. As oppose to the case study method used by Harrison, I will be conducting interviews and surveys to capture meaningful insights directly from the stakeholders driving the industry today, from both a consumer and producer perspective. To capture the producer perspective,

interviews will be conducted with representatives from prominent food delivery apps such as Grubhub, DoorDash, and Uber Eats. I will be reaching out to employees from these companies via LinkedIn and setting up short video and phone calls. My goal is to gain their perspectives on the disruptions in the restaurant industry, how they adjust to the unintended consequences their apps are causing both restaurants and consumers, and their vision for the future of the market and industry. In addition to interviews, surveys will be built in Google Forms and sent out electronically to my fellow peers who use food delivery apps to capture the consumer perspective. The purpose of these surveys is to understand what changes, both positive and negative, consumers have seen in their lives from using these apps. I want to understand how consumers are making use of the time saved by ordering food via the app, the healthiness of the food being ordered, and if these services are in fact contributing to an overall healthy, or unhealthy lifestyle. Once all this data is collected, I will be utilizing thematic analysis and trying to identify trends in the data. I chose thematic analysis because I want to explore various themes and sub-categories such as food quality, the restaurant industry, consumer isolation, physical activity, social interactions, and body health. The socio-technical integration framework described earlier will be used to incorporate the data captured into how food delivery apps have disrupted the current restaurant and food delivery system. The ISTA framework Harrison uses details how Healthcare Information Technologies have disrupted the social system and the technical/physical infrastructure around it. Similarly, I will look at how food delivery applications have disrupted the restaurant and food delivery system (technical and physical infrastructure) and the social system of ordering food. The interviews described earlier will help me understand the existing food delivery and restaurant market, and more specifically the gap in the market that these apps were intended to target. On the other hand, the surveys and

discussions with my peers will allow me to understand the changes in the social system with the use of these apps.

Timeline

The overarching timeline for both the technical project and STS Research is from now until May 2020 (Figure 1). For the technical project specifically, the goal is to have the minimum viable product released in December. A minimum viable product (MVP) is a stepping stone for the team where all the minimum requirements are met, the site functions properly, and we are ready to officially launch the site online. Once the MVP is released, the team can spend the remaining months fixing any bugs that come up and working on implementing optional features that will add complexity to our app and separate ourselves in the market, such as ordering in advance or back and forth messaging between the chef and customer. The final HomeEats application will be released by May 4th, 2020. As for the STS Research portion of the thesis, the data collection will occur in January and February 2020, with a majority of content analysis happening into March (Figure 1).

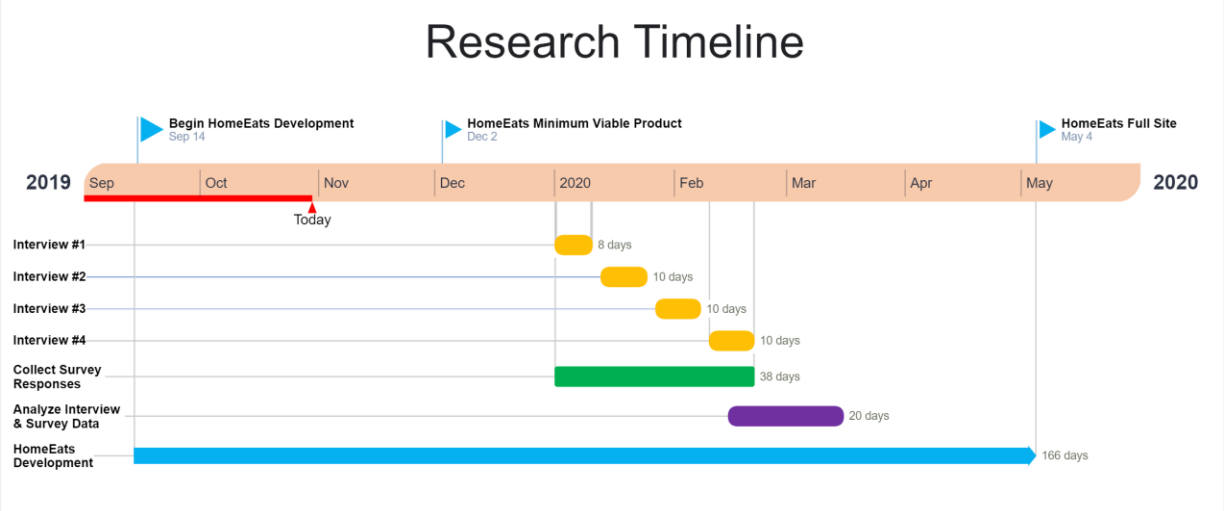

Figure 1: Research Timeline in the form of a Gantt Chart (Created by Karaky, 2019)

Conclusion - Expected Outcomes

Food delivery apps are revolutionizing the dated restaurant industry. This drastic disruption has created many benefits, primarily the convenience of ordering groceries and food straight to one's location. However, there are several unintended social and health concerns associated with relying on these applications. Furthermore, food delivery apps tend to discourage consumers from preparing their own freshly cooked meals. This is directly where HomeEats comes into play, filling a huge gap in the market by combining the convenience of food delivery apps with the healthiness of freshly prepared homecooked meals. In addition to the technical portion, I will take a deeper dive into the indirect consequences of food delivery apps from the consumer and producer perspective. My goal is to gain insights from various stakeholders in the industry and conclude whether or not food delivery apps are promoting healthy lifestyles, and positively effecting consumers' lives. I also want to analyze the tradeoffs between using the apps, eating out, and preparing food at home. Finally, I will be able to provide an outlook to the future on how the apps can be improved to address these concerns.

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