SOCIO-TECHNICAL REDESIGN

THE COOKIE JAR

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IS 543 SOCIO-TECHNICAL INFORMATION SYSTEMS

ABSTRACT

This paper covers a sociotechnical redesign for The Cookie Jar, a small cookie shop on the University of Illinois at Champaign-Urbana campus. The main systems we identified in this system were the ordering system, the kitchen system, the delivery system and customer relations management. We identified problems within each of these sociotechnical systems that hinder The Cookie Jar from being the most efficient business it can be. Our main solutions are:

1. Online ordering: implementing online ordering to make ordering easier and more convenient for customers

2. Delivery system: implementing a tracking system for delivery to be more transparent and convenient for customers

3. Customer relation management: implementing more advertising and marketing by better utilizing existing technologies and adding new technologies to improve The Cookie Jar's customer relations

With these proposed solutions we believe The Cookie Jar can thrive as a business and grow into a more profitable sociotechnical system.

TABLE OF CONTENTS

1. INTRODUCTION

The Cookie Jar is a small cookie shop on the University of Illinois at Urbana-Champaign campus. It has been opened since 1980. The current owner, Ed Brubaker, has owned it since 2000. The Cookie Jar serves a variety of cookies, brownies and other sweet treats. Their best-seller is the cookie cake, a personalized 12" or 14" cookie. It's goals are to make a profit while maintaining a loyal customer base and good reputation in the community.

Motivation:

Our motivation for choosing The Cookie Jar was to help it upgrade technologies in the shop and exploit its potential to move into an online market.

Methodology:

To complete our redesign we used a few different methods. We had multiple interviews with the owner, employees and customers. We asked about business processes, delivery processes, order processed, baking procedures, supply chain, human relations management, social media engagement, and equipment. We also use many UMLs to report before and after systems and XXXX principles to present changes we believe would improve the current systems in place at The Cookie Jar.

Actors:

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HUMAN/NON-HUMAN ACTORS BEFORE REDESIGN

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	Human Actors	Non-Human
Order System	Customers, staff, owner	Telephone
Kitchen System	Owner	Appliances
Delivery System	Customers, staff, owner	Telephone
Customer Relation Management	Customers, staff, owner	Website

Table 1 Human/Non-Human Actors Before Redesign by Zoe Kaler

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HUMAN/NON-HUMAN ACTORS AFTER REDESIGN

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	Human Actors	Non-Human
Order System	Customers, staff, owner	Telephone, GrubHub
Kitchen System	Owner	Appliances
Delivery System	Customers, staff, owner	Telephone, GrubHub
Customer Relation Management	Customers, staff, owner	Website, Social Media (Facebook, Twitter)

Table 2 Human/Non-Human Actors After Redesign by Zoe Kaler

2. DESCRIPTION

<u>Order System:</u>

The current ordering system (seen in fig. 3 below) at The Cookie Jar is outdated. The only method available is walk-in or calling the store directly. For a walk-in order, customers come into the store and are assisted by Cookie Jar staff or the owner. For a telephone order, customers call and are the assisted by Cookie Jar staff or the owner. The person taking the order will fill out a paper order form and gather the following informations: name, phone number, date and time of pickup, what they and what they would like to order. If they customer is ordering a cookie cake, sheet cake or sheet brownie they will also ask the size and what decoration they would like on the item. The order sheets are placed in a pile in chronological order by date and are made and packaged the day they are set to be picked up. The Cookie Jar work all on paper right now and this method excludes the entire online community.

Customer	Staff

- Place order → Take order
- Items requested available?
  - No → Tell customer item/s that are not avaliable
  - Yes → Ask for payment
- Paying with cash or card?
  - Cash → Tell customer payment will be collected at time of delivery
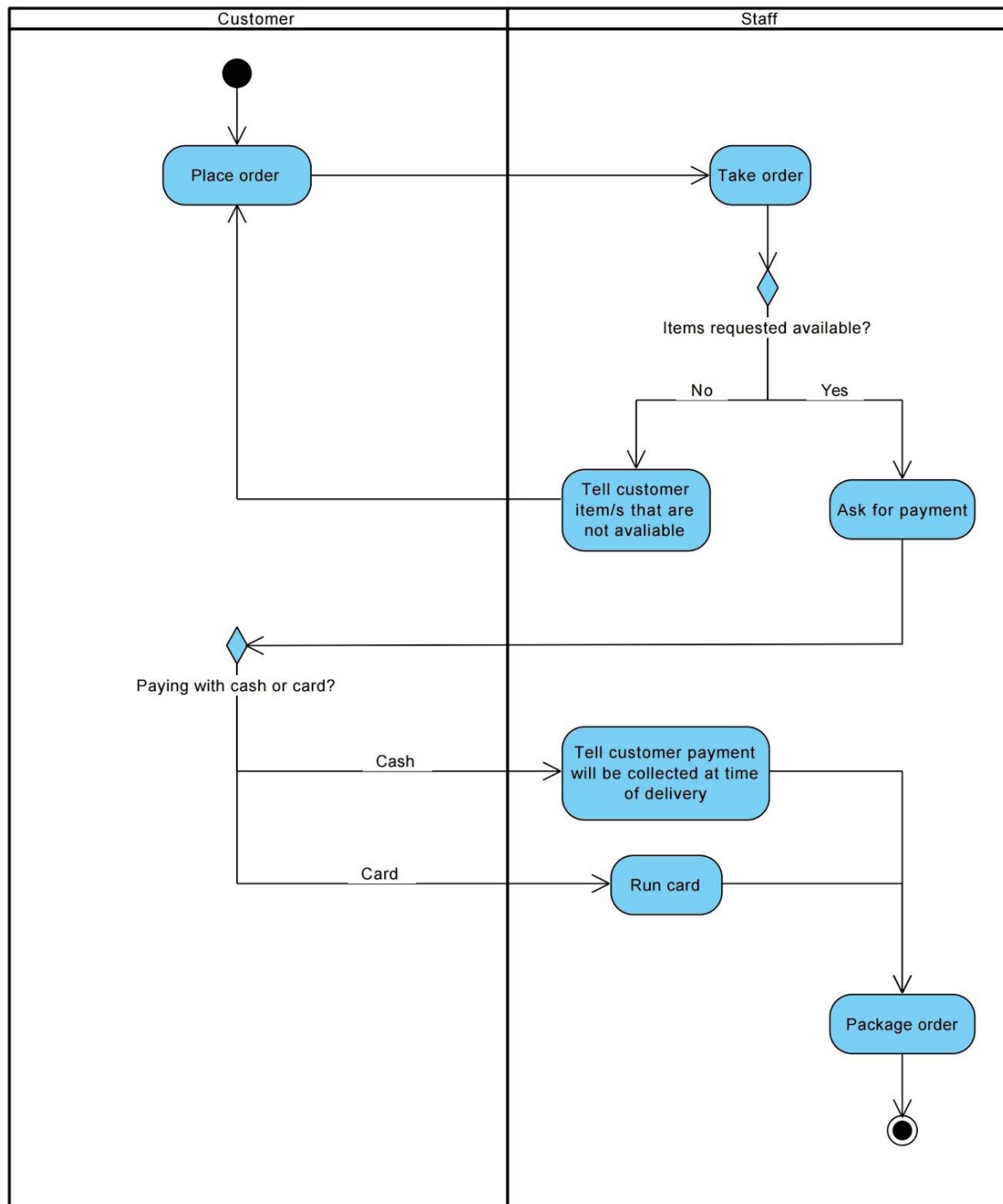 - Card → Run card
- Package order

Figure 3 The Order System by Zoe Kaler and Jialu Wang

Kitchen System:

The kitchen at The Cookie Jar consists of an oven, two fridges (one small and one large) and a freezer. Every morning the owner goes to County Market to get perishable ingredients like eggs and milk. He gets other ingredients as needed at Sam's Club. The owner is the only one who does baking. He estimates what he will need for the day, including call ahead orders in the stack, and makes it all in the morning. He'll start around 7 a.m. The owner leaves around noon each day, coming back only to make any later deliveries, leaving his staff to man the store alone without knowledge of his baking processes. If an order is called in later that day for items that are unavailable, the owner has to come back and make it himself.

Delivery System:

Delivery orders (seen in Fig. 4 below) at The Cookie Jar are all fall on the owner. He has a vehicle and the required delivery vehicle decal. When a customer calls in to place a delivery order, it gets filled ot packaged and then the owner drives to the location to make the delivery. He charges a $5.00 delivery charge for this service. When he gets to the location he calls the customer to let them know that he is there with the order. Sometimes parents, friends, etc. will call and place an order for a student and will give a rough time of when they think the student will be home. If they do not answer when the owner calls, the delivery cannot be made at that time. If this happens the owner will le the person who ordered know it could not be completed. It is on the person who placed the order to let The Cookie Jar know via telephone call when another good time would be. If the delivery order is going to a dorm or a building with a front office, the order can be left at the front office. Another problem is that if a delivery order is placed by an employee and the owner cannot read the handwriting, dates, times, addresses, phone numbers, or decoration instructions can get mixed up. If the owner is unable to contact the employee who took the order, it can result in an incorrect product or an inefficient delivery.

Again, since the only methods of communication are paper order sheets and telephone calls,

there is high probability for error and miscommunication. The Cookie Jar does have a website,

however it is also outdated. There is a number on the site that will direct people to ordering but

that website and word of mouth is the only way people could even find out about the business

and how to order. These are unreliable, volatile methods of communication.
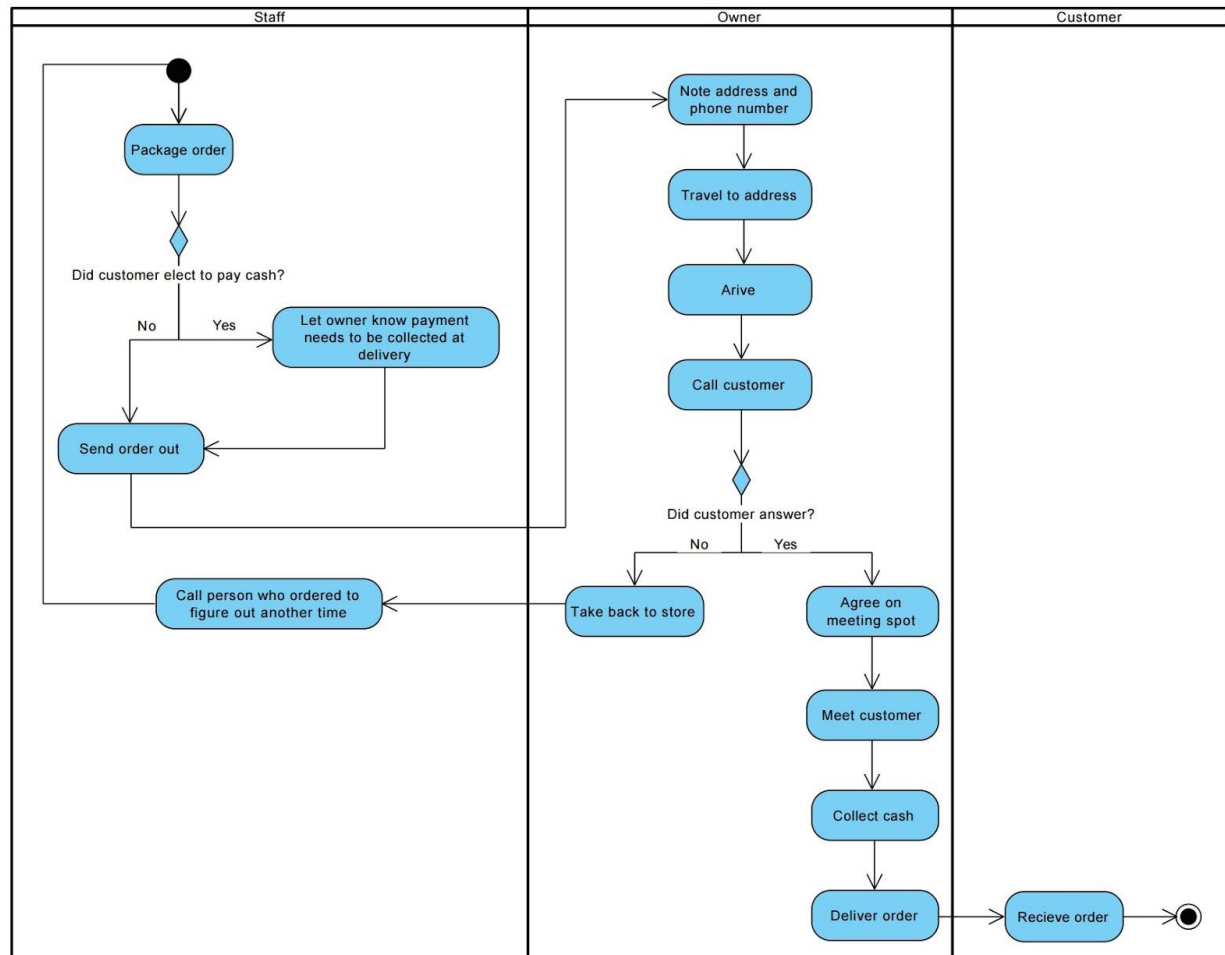

Figure 4 The Delivery System by Zoe Kaler and Jialu Wang

Customer Relation Management:

As mentioned before, The Cookie Jar marketing is pretty much an unmanaged website

and word of mouth talk, so there isn't much customer relations management. A former employee

created social media accounts but they are not currently being managed or maintained. Most of the last posts made are from 2015. There is much that could be done to market to new customers and existing customers. There are other interesting points of customer interaction. (Website/communication/order interface)

ANALYSIS

Analysis Strategy

Based on the operating status of the Cookie Jar, we decide to propose a business process reengineering(BPR). From the background of the Cookie Jar System, it is obvious that the whole system incorporates few IT infrastructures. Based on the goal of every business as customer satisfaction and profitability maximization, we recommend conducting the redesign project in a BPR strategy.

Requirement Determination

In order to perform the analysis and redesign process more functional and practical, we firstly determine the requirement of the Cookie Jar System in the Top-Down Interview method. Questions were posted to the owner directly during the interview from general to specific. Requirements are structured in functional and nonfunctional.

Functional Requirements (process-oriented)
Order System

- The system will allow staff to place in-shop, online and call-in orders.

- The system will allow staff to process payment through card or cash.

- The system will allow staff to record orders that have been processed.

Kitchen System

- The system will provide instructions on cookie recipes and baking procedures.

- The system will record information on inventory status and alarm for inventory restock.

- The system will record information on inventory re-stock such as time, amount and costs

Delivery System

- The system will contact delivery drivers and provide information such as address, phone number, order details and order charge.

- The system will track the progress of online delivery order and provide real-time information to online customers.

- The system will be able to contact clients and receive customer requests on changes to the online order.

Nonfunctional Requirements
Operational

- The system should run on iPad to be used by employee.

- The system should interact with APPs used.

- The system should connect to chip reader for credit cards

Performance

- The system should support daily orders, even at the busy time.

- The system should be updated with pending online orders within 5 minutes.

- The system should be updated with product information and customized options when available.

- The system should be able to generate and check monthly revenue and spending.

Security

- Only the owner, the on-duty staff and the driver for the order can access to customer contact. No certain information can be exported from the system for uses except for this transaction.

- Only the owner and the on-duty staff may approve customer offers.

- Credit card information should remain highly secure.

Cultural & Legal

- Customer personal information is protected in compliance with the Data Protection Act.

- Websites and social media will be updated regularly to expand customer influences. Loyal customers can receive rewards in the form of gift cards or free products. Customers will not receive explosive promotion or advertisement emails.

Requirement Analysis

For analyzing the existing system, we use strategies of problem analysis and root-cause analysis to address the problems and causes to make further changes.

Order System

- All orders are taken manually

Currently there is barely any IT infrastructure involved in the system. The business does have an iPad but it is only used as a clipboard. All orders are written down onto paper, which is not a good data storage format as the hand writing by one staff is sometimes difficult to be recognized by another.

Besides, the cash register is really in 1980s' and cannot even automatically add taxes. All payment activities for tax purpose are calculated manually by the owner's wife, which is both inefficient and inaccurate. Information is easy to lose and even frauded.

The cause of the situation is the resistance to technology of the owner. As he is an old-schooled person who has already reached the age of retirement and not uses much technology in his past years, the owner is reluctant to take time and effort in learning how to use a new system. Besides, he has some earlier negative experience in using a new cash register which also holds him back from modern technology.

- Not taking online orders

The business used to take online orders from the iPad but now stop the online business. The potential market for online orders is huge as the business is positioned on campus and university

students are right in the target markets of dessert, especially in parties and during busy and stressing time. There is only one competitor in the neighborhood, but it does take online orders. This is because the lack of technicians who can help with the upgrade and maintenance of the online ordering system and the old system is "shut down" as by the owner. It is suggested that either a new ordering system is incorporated in the business website or the business can sign up in third-party online ordering websites such as GrubHub. Eatstreet or Yelp, which will be further discussed in the next part.

- Transactions are not recorded in electronic form

As all order information is written up, information on paper is vulnerable to environmental factors, insecure and easy to lose. It is difficult to check or look back into past orders in the future. For instance, if a customer calls to request an order three days later, the owner may simply forget the order three days later. It is also inefficient to look back into the documentary paper if the customer later calls for changes to the order.

Currently there is no electronic storage device involved in the system. We suggest this function can be added to the order processing system so that the information is linked and can be updated timely and managed later. It is also helpful for assigning responsibility if errors are found later.

Kitchen System

- Only owner is involved in the kitchen system

The owner bakes cookies every morning and when a type of cookie is sold out. No other employee is involved in this step, so when the owner is out for delivery or purchasing inventories, the cookies are not baked even when sold out. This is an ineffective business procedure which leads to undesirable customer experience and loss of revenue.

We have asked the owner during the interview is it because the recipe of the cookies is secret, and the answer is no. He just thinks it troublesome to teach a employee how to make cookies. This is probably because no such recipe or manuals is recorded for staff to follow. As baking is the most routine task in cooking, with certain instructions to look up and follow, a staff can easily take the place of baking when necessary after several attempts. To be noticed, staff involved in cooking should pass specified food safety certificate online as by Illinois State Law.

- No inventory management system

The owner purchases fresh ingredients such as milk and eggs from the County Market every morning. The cost of retailing fresh products is high and the time consumed in making these purchases is avoidable. Besides, there is no control on inventory for the existing system. The owner cannot track how much spending are made on inventory, the amount of inventory used each day, the inventory in stock and when the next purchase of ingredients such as flour and sugar should be scheduled.

The daily purchase from the County Market is due to the malfunction of the refrigerator in the kitchen. It is difficult to imagine a food-related business has a broken fridge in the kitchen. The lack of inventory management system, which is incorporated in many existing accounting software, is the reason for inefficient purchase and lack of track of inventory.

Delivery System

In the existing system, deliveries are only made by the owner himself and requested by phone call. The owner has to leave the shop for delivery during which time cookies may be sold out. Another problem is that customers cannot estimate the arrival time of the order to arrange for receiving the order, which causes the problem that the customer happens to be busy and cannot be contacted when the owner arrives.

This is due to the lack of an online tracking system which can make the process more transparent and controllable for customers. The lack of driver is another reason why the owner has to make the delivery personally.

4. PROPOSED SOLUTIONS

The Cookie Jar's current socio-technical design is poorly implemented, and outdated. However, our proposed solutions were designed to not only benefit the owner, but the employees as well. We came up with socio-technical solutions that will help The Cookie Jar in the long run. With that being said, our solutions pertain towards increasing the efficiency between potential Cookie Jar customers, and how they go about ordering/receiving cookies. In addition, we redesigned the way The Cookie Jar advertises their cookies through the use of the Internet. Our proposed solutions are broken down into the following subsections:

1. Online ordering
2. Delivery system
3. Customer relation management

Online Ordering System:

The Cookie Jar's current online ordering system was essentially non-existent. Their current website does not allow potential customers to order cookies online. The only benefit of accessing their current website is to simply record The Cookie Jar's phone number, and order cookies by physically calling in. However, our proposed solution to this problem is to add the ability for customers to order cookies online through a newly updated website. This consist of a more proficient socio-technical system that allows for potential customers to interact with The Cookie Jar's website. To further elaborate, the newly developed website will allow for customers to interact with the website by viewing The Cookie Jar's current menu as well as having the ability to place an online order of which includes delivery. This will benefit the customers because it will provide a faster alternative of buying cookies instead of having to physically walk to the store. The newly developed website for The Cookie Jar is shown below:

Figure 5 The Cookie Jar Homepage - Redesigned by Te Lin

In addition to being able to order off of The Cookie Jar's website, we proposed another solution. We decided it would be a good idea to add a 3rd party ordering system such as GrubHub. GrubHub will allow for customers to be able to order from The Cookie Jar from their cell phones. This is important because many 3rd party ordering system applications are becoming more and more popular amongst restaurants. It also benefits The Cookie Jar because it doesn't have to provide an employee to make deliveries because GrubHub provides the delivery service. Hence, The Cookie Jar is already short staffed, therefore the store would not suffer one bit from GrubHub's service. Adding a 3rd party ordering system, as well as a newly renovated website will most definitely attract more customers due to the fact that customers will have multiple different mediums of which they can place orders through.

Delivery System:

      The Cookie Jar's current delivery system is causing a burden on the store. Thus, the owner is the only person in the entire staff who is capable of making deliveries. On top of that, the socio-technical system of deliveries is currently flawed because customers have no ability of tracking their orders. In other words, their order gets delivered whenever it gets delivered, meaning they have no way of tracking their order throughout the entire delivery process. A proposed solution to this issue is to implement an ordering tracking process within the socio-technical system. To further elaborate, customers will have the ability to track their orders while their order is being made, prepared, and delivered. This will be possible through The Cookie Jar's website. Once a customer's order has been processed they will receive a confirmation email containing their order number, and an estimated delivery time. Customers will than be able to go on the Cookie Jar's website and type in their order number given through their confirmation email. The Cookie Jar will than be in charge of updating their customer's order by stating what stage they are currently on in regards to their customer's order through their website. On the other hand, customers will be able to login at any given time during their wait time, and be able to identify when their order is being made, packaged, and on its way to being delivered. This is an essential solution because it gives The Cookie Jar's customers confidence, and assurance that their orders are being made and delivered in a timely manner.

Customer Relation Management:

      The Cookie Jar currently resides as an under the radar restaurant, of which relies heavily on its customer loyalty for business. It is evident through their lack of advertising as well as online presence. With that being said, The Cookie Jar doesn't really engage with their customers the same way other successful businesses do. In other words, they need to improve their customer relations if they want to attract new customers, and increase business. Their socio-

technical system is flawed because it is not utilizing their technological abilities, in order to attract new customers. We proposed multiple solutions that consist of the following:

A.   **iPad:** It's not like The Cookie Jar lacks technology, it's more so that The Cookie Jar lacks the utilization of their technology. Furthermore, The Cookie Jar contains an iPad of which they simply don't utilize what so ever within the store. A proposed solution to this issue is to utilize their ipad for point of sale purposes. This can be applied through the use of Square. Square is a point of sale system that can be implemented through the use of an iPad. Hence, The Cookie Jar employees can utilize the iPad as a cash register instead of having to utilize the outdated cash register. The interaction with this technology will not only make the life of The Cookie Jar employee easier, but it will also limit the transactional errors created by the unorthodox transaction method that current employees have to endure. Thus, it will cut out the need to manually include the 10% sale tax on each transaction. In addition, The iPad will also aid in the use of the application GrubHub. As previously mentioned, GrubHub is a pivotal part of previous solutions. Therefore, The Cookie Jar also needs access to the application in order to implement it in their store's daily operations. The iPad allows for Cookie Jar employees to be able to access orders that are being placed and delivered. In addition, it will allow for GrubHub to notify their customers throughout the entire tracking process after the GrubHub delivery guy picks up the order. Hence, the iPad will be in communications with the GrubHub delivery person, and allow for the delivery system to send a notification to the customer. This will be essential in order to allow access to track the GrubHub delivery process.

B.   **Website:** A proposed solution to The Cookie Jar's current website is actually quite simple. Hence, the current purpose for The Cookie Jar's website is quite dull, and outdated. Therefore, by updating the existing Cooking Jar website, customers will have access to new

features such as being able to order cookies through the website, instead of having to place an order by calling into the store. In addition, the current socio-technical system is missing communication between end users. As a result, we proposed a solution that will allow for The Cookie Jar to expand their online business, and target online customers. To be more specific, by updating The Cookie Jar's website we will make it possible for online customers to use the The Cookie Jar's website as a friendly medium to interact with their The Cookie Jar's employees. This will be possible by including an online chat service that will involve access to a current Cookie Jar employee at all times as well as address any customer inquiries. Such as placing orders, and answering question.

C.   **Social Media:** Social media is being used today, as a platform that connects billions of people across the world. It can be used to communicate with others, as well as keep you up to date with recent events. As a result, The Cookie Jar will greatly benefit from creating social media accounts in accordance with their business. This is a proposed solution that will also improve the end to end communication between The Cookie Jar and its customers. This will help The Cookie Jar to improve their socio-technical relationship with its customers by keeping in close contact with its customers, even when their customers are not in the store. I feel like it is essential for The Cookie Jar to create social media accounts for platforms such as Facebook, Twitter, and Instagram. Hence, these are the 3 most commonly used social media platforms across the nation. Not only will this help The Cookie Jar to advertise more, but it will also help build off of their current foundation which is customer loyalty.

5. EXPECTED ISSUES AND SOLUTIONS

Besides rich information, convenience and many other benefits technologies brought, transforming a traditional retailing business into a technology savvy one could also cause a series of issues. In this section, we will discuss the expected issues coming along with the transformation and suggest solutions to these issues.

IT Infrastructures:

Accidentally deleting a file, an unexpected power outage, network errors, a severe software crash or any other "disaster" could happen in any minute. While technologies rely on infrastructures, they are not always reliable. Infrastructures in the updated system in The Cookie Jar consist of hardware, e.g., iPad, Ethernet network, printers, and software, e.g., GrubHub, Square, etc. Backing up data can protect the business against losing data due to corruption. Moreover, prepare extra devices as a backup can also reduce the chance harming the business.

Resistance from Employees:

New technologies might frustrate The Cookie Jar employees if they lack experience operating on iPad or other devices. For example, some people struggle with technologies and prefer writing down items and calculate total amount by simple calculators. Although software developers designed to accommodating user habits, integrated cashier software, like Square, might daunt employees from utilizing it. The business manager can build users' manual and train employees to follow user's manuals. The manager can also organize employees watching instruction videos and demonstrate to the employees.

Communication Gap between Parties:

There are more parties in the daily procedures of The Cookie Jar, and it is more difficult to coordinate. For instance, when delivering an order to a customer before the redesign, the manager also acted as a driver. If a customer wanted to give negative feedback, he/she could give it directly to the manager/driver. In this process, the driver/manager received the first-hand

information, and he could correct mistakes immediately. However, after the redesign, customers

place an online order through GrubHub, and GrubHub sends drivers to pick up cookies and

deliver afterward. Some of the feedback go to GrubHub, and GrubHub representatives would

redirect the feedback to the business later. The time gap and communication gap is more

significant than before. The manager can use social media to collect feedbacks from existing

customers. Moreover, he can also utilize social media to explore customers' interest in products,

and upgrade formulas and services accordingly.

Cost-Benefit Trade-Off:

The cost associated with the redesign could be a major concern to The Cookie Jar

manager. The expenses include purchasing infrastructures, software licenses, and potential

maintenance cost, however, the profit technologies might bring is unclear at this point.

Moreover, the rent of the property is about thirty-eight dollars per square feet, and the monthly

rent is likely to go up in the following year. Updating infrastructures seem unappropriated at this

moment. Nevertheless, it could be an opportunity to cut the labor cost with up-to-date

technologies. By creating a cost plan and conducting an economic feasibility analysis in the

planning phase, the risk of breaking cash flow can be reduced to the lowest. Asking for advices

from peer business owners can also bring in information outside of the manager's sight.

Surveillance:

With GrubHub and their website, both the manager and the customers can track delivery

drivers' real-time location once orders are out of The Cookie Jar shop until the driver delivers

cookies. On the other hand, since employees' activities on Square can be monitored by manager

account, the manager can supervise employees even if he is not physically in the shop. After the

redesign, the manager can take control over work process previously dependent on a driver's

bodily skill by abstracting actionable knowledge from the physical site of labor to centralized

databases and by increasing managerial surveillance over workers (Levy, 2015). The new system could potentially be perceived as an electronic panopticon by the human actors in the network. An ideal way to reduce the panoptic potential of the system is the manager could make business rules for using the data more transparent. He can develop policies of how and when the data can be accessed.

6. IMPLEMENTATION STRATEGIES

Participatory Design & Personas

Participatory approaches perceive users as a critical source of knowledge about how they work and how the technological systems can best support that work. It integrates user input throughout the design process and is not limited to the usability testing phase of the development cycle (Massanari, 2010). When we redesign the system, we can use personas to describe the primary users of the system. A persona representing the owner Ed could consist of his name with other demographic information, goals, desires and personal details. In the process of redesign, it will serve to justify scenarios that appear in feature specifications.

Feasibility Analysis

A feasibility analysis will be conducted before the redesign, and it examines critical aspects of The Cookie Jar:

a. A technical feasibility analysis would exam to what extent the website can be successfully designed, developed and installed. Since most of the applications we suggested are developed already, we need to focus on evaluating if the website with a tracking system is feasible. We can evaluate the project size, how developers familiar with the technology and its compatibility with The Cookie Jar.

b. An economic feasibility analysis would conduct cash flow analysis and other measures. By invest on developing a website initially, it helps expand the market for The Cookie Jar. This can produce a stream of benefits over time, thus providing funds for upgrading cashier system and other infrastructures later. By calculating return on investment (ROI), break-even point and net present value, we can find a break-even point to balance the revenue and expenditure and reach an equivalent point.

c. An organizational feasibility analysis answers question such as: how well the redesign would

be accepted by the employees and the manager at The Cookie Jar and to which extend it will

incorporated in the daily ongoing operations.

<u>User Documentation</u>

a.   User Manual

Many suggested infrastructures in our redesign have ready-made user manual to its

users. For Square and GrubHub, user instructions can be accessed through their website. They

were made for key stakeholders, such as restaurant end operators and delivery drivers. In

addition, small tutorial videos are also available on third-party video-sharing websites like

YouTube. A major benefit with utilizing mature applications is their users have formed

communities, and they are willing to share experiences with others. By browsing these tutorials,

users can gain knowledge of how to use these applications immediately.

b.   Training Manual

After the manger is familiar with the process, system designers can work together with

the manager to develop a series of tests and training exercise to train employees on how to use

the system. In the process of the training, some of the employees would pretend to be customers

and place order online or purchase cookies walk-in. The manager would teach employees how to

place walk-in orders through Square and how to receive orders through GrubHub and

coordinates with drivers.

7. CONCLUSION & FUTURE WORK

Our motivation of this redesign is to upgrade technologies in The Cookie Jar and exploit its potential to move into an online market. We approached The Cookie Jar as a socio-technical system, divided it into four major subsystems and analyzed each system. To augment the efficiency and to expand online market, we proposed to integrate Square, GrubHub, and a website into the business procedure. In addition, we evaluated the issues might rise along with the redesign project, and suggested using participatory design approach, conducting feasibility analysis and developing user document to evade potential risks.

There are works remained before implementing the redesign, the most urgent one is to conduct a rigorous economic feasibility test with professional's opinion, because we lack accountancy professions on our team. Many of our suggestions in our paper requires further data support, which can only be accessed under the manager's permission, e.g. how customer information is stored.

This redesign will take approximately six months including three phases considering the current cash flow. In the first stage, we will use GrubHub to bring in extra cash, and let GrubHub fit into The Cookie Jar. In the second stage, cash flow brought in by GrubHub would be used to develop the website and it takes about three months. In the final stage, with the online market and increasing sales revenue, The Cookie Jar will upgrade the rest of the infrastructures, e.g. replacing the old register with Square, wiring Ethernet cable, etc.

APPENDIX I: REFERENCES

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APPENDIX II: CONTRIBUTIONS

Abraham Carreon:

My role on this team was evident through the proposed solutions section. I was responsible for constructing solutions for our presentation as well as explaining them in details in our group write up. In addition, I attended and actively participated in every group meeting. This includes our meeting at The Cookie Jar with the owner Ed, and our weekly group meetings. This was a group effort, and could not have been done without every group member completing their roles. Overall, I have enjoyed my experience with this group because everyone was dedicated, and fulfilled their duties as group members. This project was without a doubt a collaborative effort. As far as the logistics for the project's content, I assisted in creating multiple UML's as well as gave every team member personal feedback as to how to improve their content. My positive criticism was taken into consideration in every step along the way. I am pleased to say that every group member carried their own weight, and no one stood out as the weakest link because at the end of the day we were all able to come together as a group, and complete the task on hand.

Jialu Wang:

For the presentation and writing up of the paper, I was in charge of the analysis of the existing system. Before the presentation, we togetherly interviewed the owner of the Cookie Jar. I made a SWOT analysis during the presentation, which is basically from the view of the business as I had a deep background in business. After receiving the feedback, I change the structure of the analysis to the one in our textbook chapter 3. I determined the requirements and made problem & root-cause analysis. I helped with making the presentation structure (my bad)

and drafting the UML in the finalized paper. I attended every group meeting and actively participated in discussion. Overall I like this group pretty much, every group member is really cooperative and thoughtful. Zoe is wonderful at connecting with Ed and taking discussion notes. Abe takes up responsibility for the heavy design part. Te is really detail-oriented and I am a big picture thinker. I would say this is the best group I've ever had.

Te Lin:

My major contribution to this project is to ensure our group adopts socio-technical approaches to describe, analyze, give solutions and explore potential issues in this project. In the beginning, our group approached this case more on the business side. Later, after we received Peter and Beth's feedback of our presentation, I reviewed reading materials and slides from our course. Together with our group members, we shifted our direction and use tools we learned from this class to conduct the analysis.

I was responsible for the Expected Issues and Solutions, the Implementation Strategies and the Conclusion & Future Work parts for this paper. In addition to the writing, I also redesigned their website and included a demo homepage in Abe's section. In the early stage of our project, I talked to a local business owner, and we agreed on using his business as a backup redesign objective for our group project. After we decided to redesign The Cookie Jar, I shot all the photos that relevant to our redesign while interviewing Ed.

I would much appreciate my groupmates for being collaborative. Aside from The Cookie Jar, our group is also as a small socio-technical system. This group was formed in our class, with group size decided by Peter, has a goal to redesign a restaurant on campus. Jialu suggested us to use Slack as a mean of communication, and herself acting as a training technician, taught us how

to use Slack. In addition to that, we used Google Doc for sharing writing space. Zoe suggested us to redesign The Cookie Jar, and it turned out working well.

Zoë Kaler:

For the content writing aspect of the paper, I was in charge of the description of The Cookie Jar, abstract and introduction. I also did the final formatting for the group. I knew some staff here, so I had great access to the type of information that goes into the description of the business. I knew it was pretty out of date technology-wise and it might be interesting to look into it from a sociotechnical point of view. To begin, I had an initial meeting with the owner, Ed Brubaker. I talked to Ed about the ins and outs of The Cookie Jar to get a firm idea of what goes into the business. I asked him about his history with the business, day-to-day workings, and the different processes he uses to get the job done. After this initial interview, I transcribed my findings for the group to see so they could come up with follow up questions. I organized a second meeting with Ed and the team.

Aside from the interview and actual writing, most aspects were pretty collaborative. We met multiple times to discuss our main points and approach, especially after getting the feedback from the presentation. I attended all the meetings and participated in group discussions. We decided that initial UMLs should go in the description section, so I collaborated on creating those and then made them myself. Overall I'd say this was a very collaborative team effort. Everyone did their part to make sure our points were clear and relevant.

I did my best to try to be an effective communicator and always respond to my group member's messages (we used Slack to communicate) in a timely fashion. I was happy to see them reciprocate this as well. I think good communication was a huge factor in completing this project. Lastly, since I was in charge of the final submission I did the final walk-through to make

sure all sections were in order, formatting was consistent and then saved and submitted the

assignment in a timely fashion.

Dear All,

You have done a good job at attempting to provide a sociotechnical redesign of the Cookie Jar business located here on campus. It can be quite a challenge to do a project like this and to do it while working together as a group. Below is your overall grade for this project as well as a break down of the points earned for each section of the paper:

Title Page: Provide a good overview of the system you will focus on; some details/depth are missing (4/5)

Introduction: Good overview of the different actors involved, but not sure what to expect exactly from the rest of the paper   (4/5)

Description of Existing System: Good general overview of the existing system and processes; need for more detail (section is a bit short); good inclusion of UML diagrams! (18/20)

Analysis of Existing System: Good break down of the requirements (functional and non-functional); brief but good mention of privacy issues (i.e. social issues); need more detail   (25/30)

Proposed Solution: Use of the word sociotechnical basically in place of the word "business" but they're not quite the same thing; expected issues section IS the analysis - more of this would have been great; good mention of surveilance (so social) issues; implementation stragies are excellent and truly sociotechnical (20/20)

Conclusion: Some weakness is explaining the significance of the findings but overall good   (4/5)

Format/Grammar/Citations: Good headings/organization of paper; good writing; good citations   (5/5)

Overall Grade: 90/100