Assessing the Potential for Crowdsourcing Customer Deliveries with an Emphasis on Environmental and Social Sustainability

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PURPOSE

Crowd sourced transportation, or ride sharing, is a growing business trend particularly on the west coast. This concept is in its growth stage as the feasibility and viability of ride sharing are still being explored but has major implications on costs and social and natural sustainability. The purpose of this project is to determine if the same concept and similar programs can be applied to supply chains, particularly final mile deliveries from consumer to consumer. Walmart's proposed concept would allow in store customers to deliver packages for online customers on their route home in exchange for some sort of small compensation. The objectives include determining the receptivity of customers to participating in such a concept and speculating how this program may help reduce emissions and promote social sustainability between companies and individuals. It will require speaking with consumers to assess the likelihood that customers would participate in delivering products for other customers and associated benefits and challenges. In turn, it will be determined how such a program can be adjusted and applied to a supply chain in a way that saves money and emissions. Ultimately the project will address the feasibility, receptiveness and sustainability of utilizing such a system.

INTRODUCTION

The concept of crowd sourcing has been around for years in business as the process of using information obtained from other business departments, firms, consumers, or even other industries to apply to innovation or problem solving. Businesses, especially those with economies of scale, are looking to further increase their supply chain efficiency and stay on the leading edge of innovative ideas. Crowd sourced supply chain not only can reduce costs and emissions but may help enhance customer loyalty by making them a part of the process as essentially freelance employees. Most businesses already use strategy to consolidate vehicles and routes in their supply chain in order to reduce costs of transportation, especially on LTL (less than truckload) deliveries. Yet few, if any, have integrated the mobility of their own customers. There is also a current trend of companies that are known as part of the "sharing economy" whereby people share their resources for mutual benefit. This concept is being practiced by companies such as Uber and Zipcar. Similar companies such as Peapods and Zipments currently use this concept applied to home delivery.

In the increasingly connected business environment, the concept of value co creation has stimulated quite a conversation. Traditionally, co creating value with customers was more of process of gathering information from customers and receiving their input to improve services or develop products. Customers have become more active as they provide feedback and insightful information that shapes demand and thus businesses' production but now there is discussion of making customers even more active by literally making them a part of the process. The focus of this study is to look at how businesses can engage customers to more actively co create value in logistics.

The idea of crowd sourced supply chains is being explored by corporations with Walmart of course leading the discussion. According to chief executive of Walmart.com, Joel Anderson, "Wal-Mart has millions of customers visiting its stores each week. Some of these shoppers could tell the retailer where they live and sign up to drop off packages for online customers who live on their route back home." (O'Connor, 2013). This allows Walmart and the receiving customer to save money on delivery and the deliverer to make extra cash while theoretically putting fewer CO2 spewing delivery trucks on the road. Yet there are many barriers to using this system including customer willingness and legal and regulatory issues that other previously mentioned companies have faced. If done correctly, this process could create a win-win situation for business and consumers in a way that enhances that relationship.

SUSTAINABILITY

The use of crowd sourced transportation has implications relevant to all systems of sustainability; natural, social, built, and managed.

Natural Systems: According to the EPA in 2011, 28% of greenhouse gas emissions in the U.S. can be attributed to the transportation sector. If done effectively, using third party middle men to make simple deliveries can reduce emissions created by company's supply chain transportation. Using en route customers to handle minor transportations, especially "final mile" deliveries, can greatly decrease the amount of CO2 equivalent produced by the otherwise inefficient use of less than truckload (LTL) deliveries.

SUSTAINABILITY (cont.)

Social Systems: As much as anything, this project can tell us a lot about our potential to practice social sustainability. Although this program would be done in a controlled and safe manner, it demonstrates the ability of people in the same community to contribute to the supply chain of the goods they consume through market means. If people are willing to deliver materials and goods to businesses or other customers for a small fee, then it promotes a socially sustainable system in which people are feeding into the system of the companies they support.

Built Systems: Since transportation systems are considered a part of built systems, this concept directly correlates with the structuring and components of the supply chain. Crowd sourcing the supply chain can provide a whole new dimension to the transportation infrastructure of businesses that could have sustainability implications which may take time to prove stable but can have benefits that keep supply chains running more efficiently.

Managed Systems: The relevance of green supply chains to the sustainability of managed systems may be the strongest of the four links. As a major component of any business' operations, the supply chain requires extensive management. This means utilizing sustainable management practices that allow for secure and effective delivery by other business or customers. Developing, operating, and managing such a system requires an effective management structure and potentially a special business unit. This means having the know-how of creating a mobile network and making sure it is applied effectively, safely, and profitably.

METHODS

The research in this project will be purely quantitative to determine reactions and receptiveness to the idea of delivering for other customers or receiving from other customers. The method in this research will primarily consist of interviewing various consumers in order to gain insight as to what sort of characteristics and motivational factors would drive shoppers to participate in such a program. Some participants were interviewed in person to allow for depth of discussion and more exploratory conversation while others submitted responses to the same questions via email for the purpose of increasing sample size to receive some general reactions.

After providing a basic overview of the research and acquiring some basic information on the interviewees, the following interview questions were used consistently throughout the interviews with various probes and discussions made based on the interview:
- *Interviewees were then shown the article about potential Walmart customer deliveries* (O'Connor, 2013)
- Would you consider participating in this?
- Why or why not would you consider engaging in this?
- What are your motivations for participating?
- What would prevent you from participating?
- What kind of products would you allow to be delivered this way?
- Would you feel safe delivering/receiving small packages to others in your area?
- How do environmental concerns affect your consumption and energy use decisions?
- What things cause you to be loyal to a company?
- Do you feel that corporations have a responsibility to the environment? To their customers?

The responses were examined to find various characteristics and concerns that the consumers shared regarding a customer to customer delivery service.

RESULTS

The personal and email interviews were reviewed to determine common characteristics and concerns of potential users as well as unique points that may limit use. The following data exemplifies simple quantifications of general responses to various questions based on interviews with 15 people.

Most people were unaware of ride sharing and personal delivery companies such as Uber, Zipcar, and Zipments. Of those interviewed, 6 said they would be likely to take advantage of the program in question while 9 seemed skeptical and unlikely to participate. The following graphs provide the amount of times various motivational and preventive factors were cited in the interviews.

RESULTS (cont.)

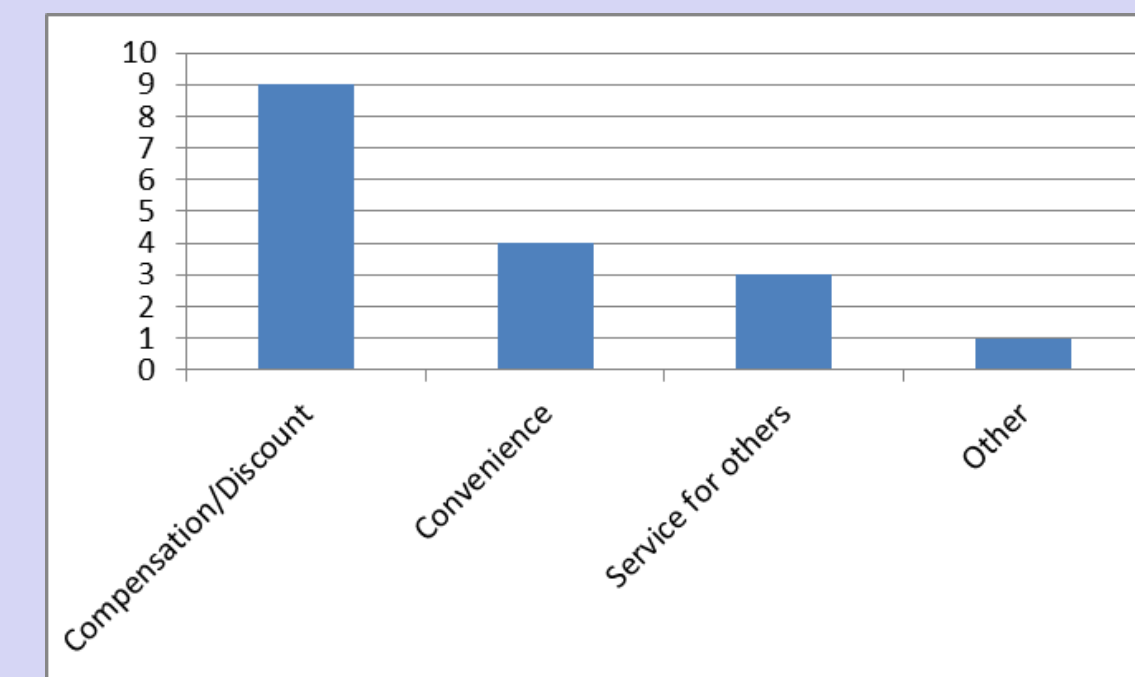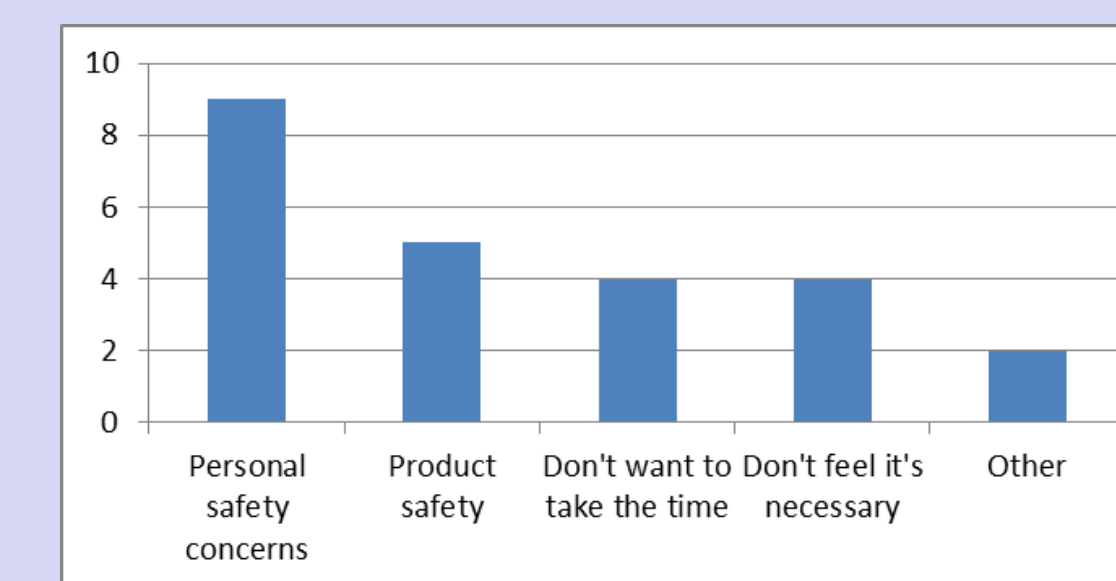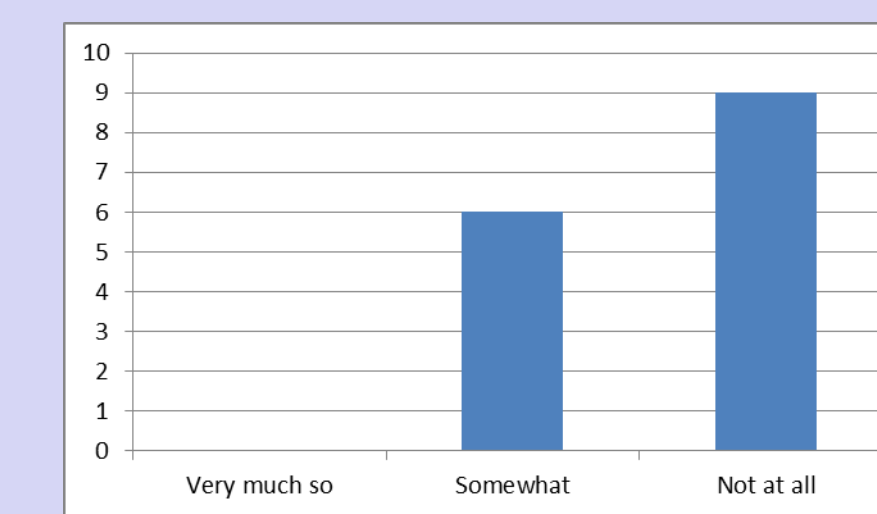### Figure 1. Factors Cited As Motivation For Participating

Figure 2. Factors Cited As Reasons That Would Prevent From Participating

Those that said they would likely participate often suggested that they would only allow certain products to be delivered by another customer which typically included electronics or basic daily items as opposed to groceries or more personal items such as prescriptions. The majority of respondents said that they do most of their shopping in store as opposed to online.
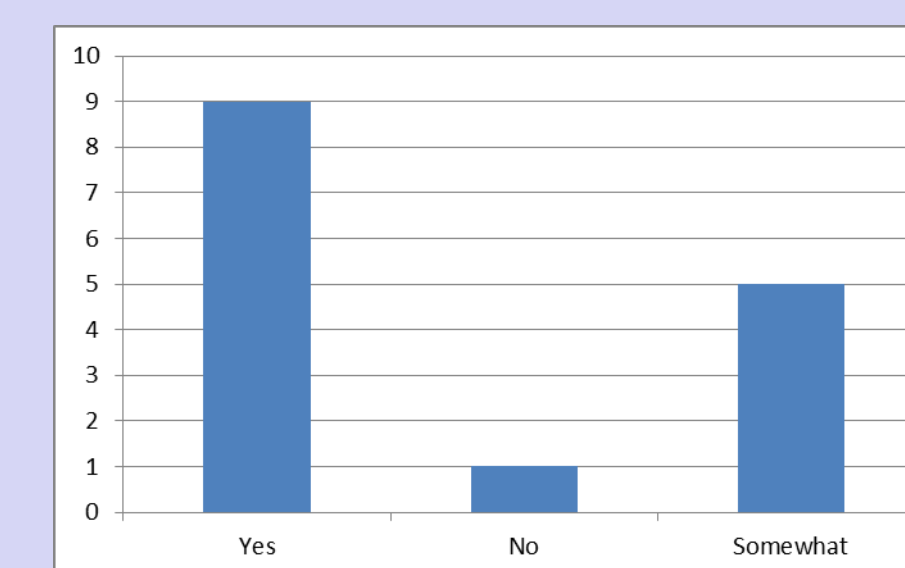
The following graph indicates how the respondents take environmental concerns into consideration in their daily consumption and energy use habits.

Figure 3. How do environmental concerns affect your consumption and energy use habits?

Some characteristics participants mentioned that caused them to be loyal a company included customer service, product quality and longevity, convenience, consistent stock, and brand trust or advertising. Most of the participants admitted to not providing feedback to companies unless incentivized to or if they had an exceptionally good or bad experience with the business. The following table indicates participant's feelings toward the responsibility of corporations to be environmentally and socially responsible.

Figure 4. Do you feel that corporations have a responsibility to the environment?

There were also a few other comments made in some of the interviews that could provide quality insight and considerations that will be included in the analysis and application sections.

ANALYSIS

The interviews show that some would be more than willing to participate while others deemed it useless or unnecessary and most indicating that it would depend on one or more factors of the program. All interviewees expressed various reasons why or why not they would participate that gave some useful insights as to what would motivate users.

ANALYSIS (cont.)

Although 6 of the 15 said they likely would participate and 9 said they likely wouldn't, their receptivity was always dependent on a variety of factors concerning how the program would be run and regulated. Therefore those who were skeptical could become users through the implementation of various program features simply through customer education. The primary motivations were the receiving of some sort of discount or compensation for their time, the convenience of having someone near you deliver your goods and vis versa, and some felt it was just a nice thing to do and would create a win-win for them and their neighbors. The majority of concerns stemmed from safety whether it personal safety or product safety. Many of the participants were very hesitant toward the idea of having strangers arriving at their residence, and from the other perspective, were unsure about delivering to an unknown residence for safety reasons. Respondents were also not convinced that their product would always be delivered without damage or even delivered at all.

The majority of interviewees expressed their belief in the responsibility of corporations to both the environment and their consumers. Yet it seems that it is instinctive to respond this way in today's world which is experiencing a green movement and the amount of exposure that corporations get and the resulting scrutiny they undergo. The current stigma seems to be that yes, of course large, mass producing and supplying corporations should have a responsibility to the environment they use but not all consumers really knows what this means or the extent to which they feel corporations should be responsible. Again this needs to be addressed through consumer education of current issues and benefits of corporate effects on the environment as well as costs incurred by corporations to be environmentally responsible.

The fact that many of the interviewees seemed skeptical to the idea is somewhat discouraging, but at the same time many of their concerns can be addressed through simple program adjustments as well as customer education.

APPLICATION

From the research I would propose that Walmart or any interested companies include the following aspects to ensure the accessibility and motivation for customers as a simple framework for how to conduct this process:
Simple application. The program should be easy for users to operate whether it is through a mobile app or in store kiosk that allows users to search for recipients in their area and pick up a prepared package to be delivered to a clear residential address.
Fair compensation. In order to incentivize users, the company should provide compensation either in the form of covering fuel expenses, discounting groceries, or both. The program should allow for a fuel estimation and proper compensation, a reward or discount system that incentivizes multiple deliveries, or even an option of one or the other.
Product insurance. To avoid concerns of theft or damaged products, the company must insure the cost of the goods. If the customer has paid for their goods online they must be refunded their money or promised safe and quick delivery of the products they ordered.
Background checks and user ratings. In order to addressed the inherit safety concern of delivering for and receiving from strangers, users should be registered in the program by the company which includes a background check. They should also be subject to a rating system by which users can rate the reliability, timeliness, and friendliness of those delivering their packages.
Proper marketing and customer education. In order to be effective and viable, the company should present the program in a way that makes it attractive users. This includes communicating the benefits of compensations and educating on the safety and assurance measures the company has taken. In addition, the company can emphasize the green aspect of minimizing product transportation by delivering for people in your area at convenience. They can also express the sense of community the program can create both between neighbors and between business and customer by exemplifying the resulting dependence and loyalty required by the system.

If the company in theory found that customers would be willing to use the program and were able to implement it in a convenient and safe manner then a cost benefit analysis would be conducted to determine its resulting profitability. In turn, there could be some effects on emissions reduction as a result of using en route customers as opposed to large delivery trucks making multiple stops on an extended route. Considering the amount of deliveries a company such as Walmart makes this could have substantial impact and certainly warrants a study of its own.

Not only is there an element of environmental sustainability associated with this research but one of social sustainability as well. This can be seen as both an issue of company loyalty and the social implications of delivering products for other customers; from one neighbor to another. Walmart and others can view this is a chance to instill further loyalty in their customers by creating a program that incentivizes continually shopping in store and making deliveries that are cheap for the company. Customers may also see the value of participating for the sense of good will and community that comes with helping out your neighbors.