

THE UNIVERSITY MARKETPLACE

EFFECT OF PEER TO PEER MARKETS ON SOCIETY

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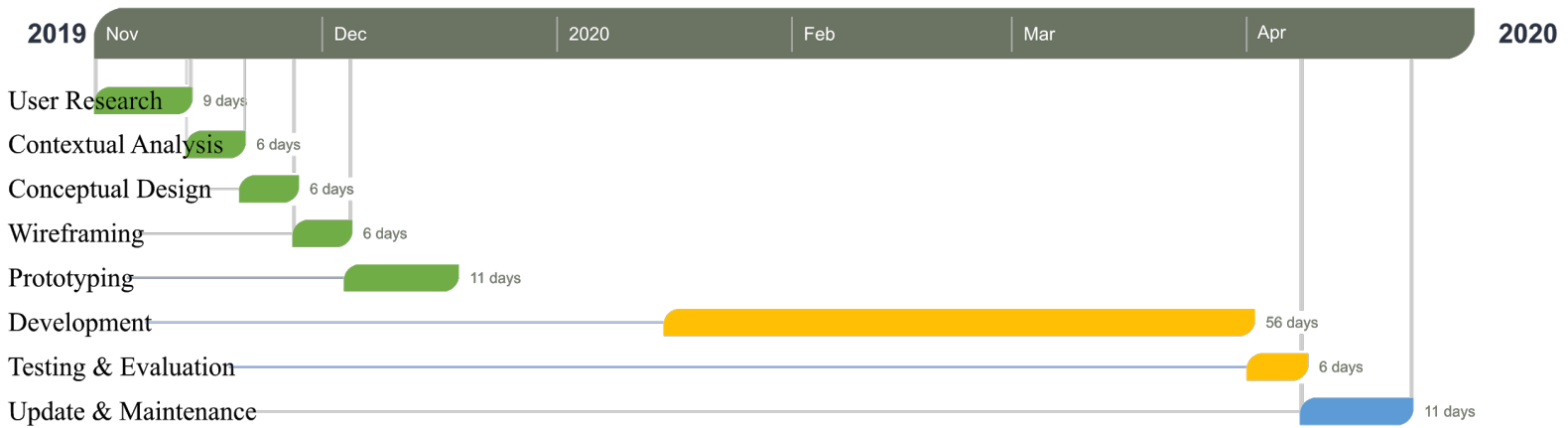
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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

Many pieces of technology that have come to dominate society were initially presented as solutions for easing the lives of individuals. These technologies include smartphones, social media, automated checkouts, delivery services, and many more. While it is true that every day life has become significantly easier due to many facets of these technologies, it has caused society to become more isolated as individuals than any other time in history. Adibifar (2016) points out that “we no longer need to talk to clerks in shopping centers, post offices, and grocery stores because there are self-check-out stations” and “we no longer need to interact with tellers in banks, because we are increasingly interacting with ATM machines or using online banking” (p. 64).

Peer to peer marketplaces (P2P) are becoming an increasingly popular business model which allow members to connect and provide services for the people around them. The STS and technical work are tightly coupled to explore how P2P markets can work to strengthen communities and fight alienation. The technical research will determine the key components for a successful P2P marketplace, which the team will then use to develop The University Marketplace. The development of the application will adhere to the schedule outlined in the gantt chart below. The tightly coupled STS research will then use a Social Construction of

Technology model to show how these P2P markets benefit societies by strengthening communities, reducing waste, and giving power to the individual.



THE UNIVERSITY MARKETPLACE

With the help of Computer Science Professor Nada Basit, Computer Science majors Luis de la Espriella, Johnny Choi, and I will work to bring an online P2P marketplace to The University of Virginia where students can buy and sell goods in the same manner as Craigslist. Students frequently have various items they would like to get rid of such as furniture, textbooks, and old technology, but frequently wind up throwing them away due to students not having an easy way to sell them. According to PlanetAid (2015), “there is a significant spike in the amount of solid waste generated on college campuses specifically during the months of May and June, when their students leave behind an average of 230 tons of waste” (para. 2). Many of the items being discarded could be sold to others in the community, however, students have a difficult time trusting services such as Craigslist. Other platforms such as Ebay wind up being too time consuming and students result to disposing of the perfectly reusable items. The proposed service works to resolve both of these problems.

The most important factor for the success of the technical project will be ensuring users are able to trust the service. Trust is the key component that allows some of the existing peer to peer marketplaces to be as successful as they are. Most people did not believe that services such as Ebay would be successful when P2P markets first started emerging. The idea of sending money to an anonymous person on the Internet to buy something that someone had only seen pictures of did not seem like something consumers would do (Farronato, Einav, & Levin, 2016, p. 620). The P2P markets that have been successful have used different mechanisms to instill trust in their users which have caused their users to stick around.

According to Forranato, Einav, and Levin (2016), the most effective ways to make the marketplace trustworthy are “limiting entry, certifying quality, or insuring against bad

transactions” (p. 621). Access to the proposed marketplace will be limited to users who are able to login through NetBadge. According to The University of Virginia’s Information Technology Services (2019), “NetBadge is the gatekeeper between users and websites, services, or applications at UVA that need to know and verify user identity before granting access” (para. 1). Using NetBadge as the gatekeeper coupled with the historic Honor Code and student self governance at The University, students will use the market feeling confident that they will not be scammed.

To certify quality and insure against bad transactions, a rating system must be put in place to filter out bad users. SteelKiwi (2018) points out that this is the precise reason companies such as Uber and Lyft have been so successful:

Most services have star rating systems that help rate users on both ends of transactions. For example, Uber and Lyft ask both drivers and passengers to rate their experiences. These ratings let the company filter out bad users and improve with every interaction. Drivers on Uber are allowed to have no less than a three-star rating. As a result, riders don’t have to worry about having a bad experience (para. 34).

Using a two way rating system, the level of trust that buyers and sellers feel increases on both ends. Bad sellers can be quickly filtered and removed from the system while bad buyers may have a tough time buying anything with poor reviews. The University Marketplace will use this two way rating strategy to ensure that both buyers and sellers feel comfortable moving forward with their transactions.

Rating manipulation is a major concern for any service using a rating system as a foundation for trust. Unlike a service such as TripAdvisor, where users can leave reviews on any post they desire, buyers and sellers on the University Marketplace will not be able to leave reviews until after a transaction has been made. This will prevent the possibility of buyers or sellers manipulating their ratings to appear better than they are. When a P2P service limits the

ability to leave reviews, Forranato, Einav, and Levin (2016) point out an important side effect that must be considered.

One might expect manipulation to be more limited when reviews can only be written after a confirmed transaction, but because reviews are in some sense a public good, people may still under report information that would be helpful to future customers (p. 621).

In order to enforce users leaving reviews after each transaction so that no information regarding the buyer or seller is lost, buyers will not be able to engage in another transaction until they have written a review for the seller. This will ensure that every single buyer and seller on the marketplace will be rated as soon as they start using the service.

Figure 1 illustrates the entire process that users will follow to either buy or sell goods in the marketplace, including the key features just discussed to enforce trust and quality. Before the site can be accessed, the user must login through

NetBadge which will increase the level of trust

that all buyers and sellers have for one another. Users can then either browse for things to purchase, post things of their own to sell, or both. One of the benefits of the peer to peer market is that customers and providers can be easily interchanged allowing it to be a two way connection (SteelKiwi, 2018). The buyer and seller are then able to engage in a transaction after

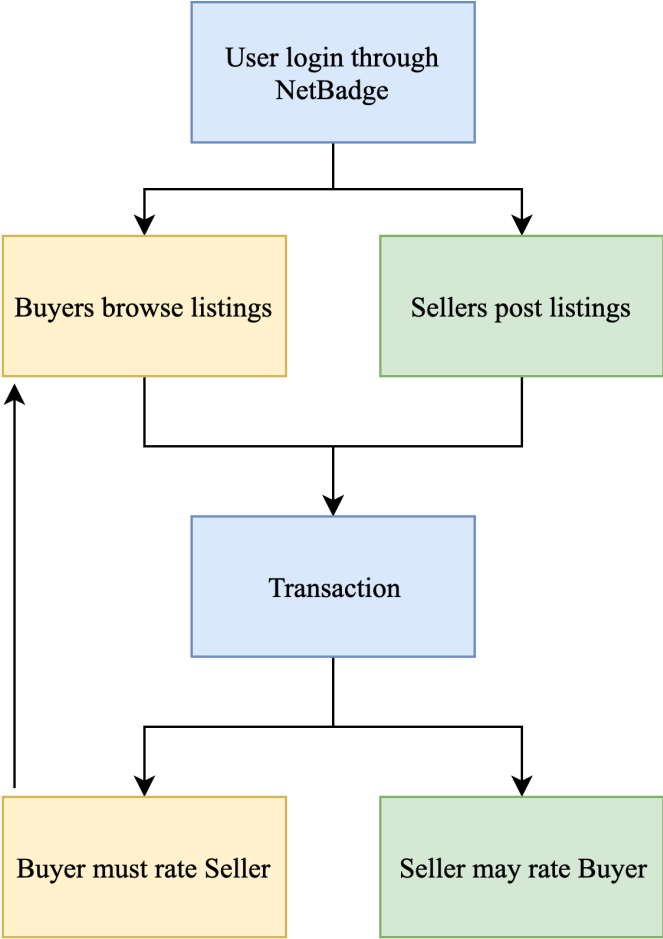


Figure 1: The University Marketplace's Transaction Flow: Highlights the need of a netbadge login to access the system and also the requirement of buyers leaving sellers reviews in order to continue browsing listings (Choi & Workman 2019).

which the buyer is required to rate the seller. The buyer will not be able to view the listings page until they have rated their previous transaction to ensure that no rating data is lost. This will incentivize sellers to provide what they advertise as they know they will be rated and will help keep the quality of listings high in the long run. At the end of each transaction, sellers will be encouraged to rate the buyers but it will not be required. If the seller was required to rate the buyer before engaging in another transaction, then the seller would not be able to have multiple transactions open at once.

The technical paper will serve as a documentation for the development of The University Marketplace. It will show the research done to consider what aspects of the service are necessary for the product to be viable and considerations made to ensure the marketplace is more viable than existing alternatives. A detailed design of the service will be included to show the final decisions that were made based on the research that was done.

EFFECT OF PEER TO PEER MARKETPLACES ON SOCIETY

The digital age of technology has fundamentally changed the way that people interact with each other. Before industrialization, many products were handcrafted and sold on a very personal level which, according to Adibifar (2016), meant “People had more face-to-face social interaction, a stronger social bond, and shared the same social norms and values” (p. 62). As technology has progressed, society has lost many of these face-to-face social interactions to automated systems or processes. There is no longer a need for an individual to speak to anyone in a store with automated checkouts and no need for them to try and connect with people in their local communities when they can remain connected with those they already know online (Adibifar, 2016). As the need for face to face interactions continues to fade, the individuals of society are becoming more and more alienated from one another.

There are many pieces of technology that are increasing this affect of alienation, but online services are the most serious category. The following excerpt from Adibifar’s *Technology and Alienation in Modern-Day Societies* (2016) is a perfect example of how technology that was supposed to make communication easier has started to undermine the value of a face to face conversation:

With electronic mail (email), social networking websites, and text messages, face-to-face conversation is becoming more obsolete. Instead of taking time to call someone or write letters to family, many people send text messages that barely make grammatical sense. It is true that technology has made it easier for people to interact, but it also has and continues to diminish the value of human communication (p. 64).

Technological advancement is typically driven by a desire to make some aspect of an individual's life easier and more convenient. It is important to note that this is not necessarily

how all technological advancement occurs, but it is a common pattern of technological progress.

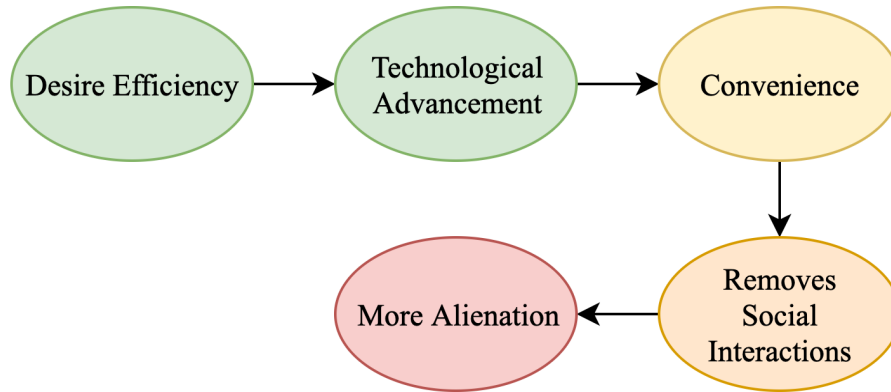


Figure 2: Technological Progress and Alienation: A desire for higher efficiency leads to a drive for technological advancement and while it is typically associated with improved efficiency and convenience, many times it leads to the removal of social interactions and more alienation (Choi & Workman, 2019)

Figure 2 illustrates this pattern of technological progress. It begins with a user desiring a more efficient way to do something. This could be communicating, checking out the grocery store, or the delivery of goods. Then there is some technological advancement such as cell phones, self checkouts, or Amazon Prime that makes that part of the individual's life a little more convenient. While this is true, in each of these cases it has removed a face to face interaction that the individual previously would have had. In turn, this begins to lead to more alienation for that individual.

In Leo Marx's *Does Improved Technology Mean Progress*, he poses important questions when considering what progress really means. He argues that society has moved from the old view of technological progress being a tool for achieving the goal of social progress to a modern view of technological progress being the end goal itself (Marx, 1987). In his closing statements, Marx (1987) leaves the reader with the powerful question of "What do we want beyond such immediate, limited goals as achieving efficiencies, decreasing financial costs, and eliminating the troubling human element from our workplaces?" (p. 9). In a recent market research report from

PwC (2015) on P2P markets, 83% of those surveyed said it makes life more convenient and efficient, 86% said it makes life more affordable, and 78% said it builds a stronger community. P2P markets provide us a way to achieve efficiency, decrease financial costs, and actually bring more human interaction into the process, making it a tool that can be used to achieve both technological and social progress.

Fighting Alienation With Peer to Peer Markets

While online services are the most prevalent examples of how technology can lead to alienation, a part of it may actually help to combat the issue. P2P marketplaces are an exciting new phenomenon that have increased in popularity over the past few decades. A peer to peer market is a platform in which individuals are able to interact and connect with each other without mediation from a third party (Kenton, 2018). Some notable examples of this include AirBnb, Uber, Craigslist, and Ebay. These are all platforms which allow users to connect with and provide goods and services for one another. A P2P market allows society to operate in the same way it did before industrialization. Artists are able to share their work with the surrounding community, skilled workers are able to provide their expertise to neighbors, and individuals are able to find a new home for their unwanted goods.

In each of these examples, the peer to peer market allows the users to do this by connecting with real individuals and in many cases, allowing them to meet these individuals in person. In the case of AirbnB, Hwang and Griffiths (2015) state that “an important aspect of its service is the exciting and pleasurable experience of the community interaction, personal service and accommodations, making for a more enjoyable and memorable experience between travelers and local hosts” (p. 134). A P2P market may also exist for the sole purpose of bringing people

together and meeting each other. Kenton (2018) points out that “Some peer-to-peer services don't involve an economic transaction, such as buying and selling, but they do bring together individuals to work on joint projects, share information, or communicate without intermediation.”

The Normalization of Peer to Peer Marketplaces

In order for peer to peer marketplaces to become more prevalent and continue working to bring communities together in our society, the engineers behind them must ensure they are creating markets that benefit society in the right ways. In order for this to be possible, a Social Construction of Technology model (Bijker and Pinch, 1987) may be used as seen in Figure 3.

As Johnson (1987) points out, “A variety of social factors and forces shape technological development, technological change, and the meanings associated with technology” (p. 1791). Peer to peer marketplaces have an immense amount of interpretive flexibility due to the markets having such a wide range of applications. Interpretive flexibility

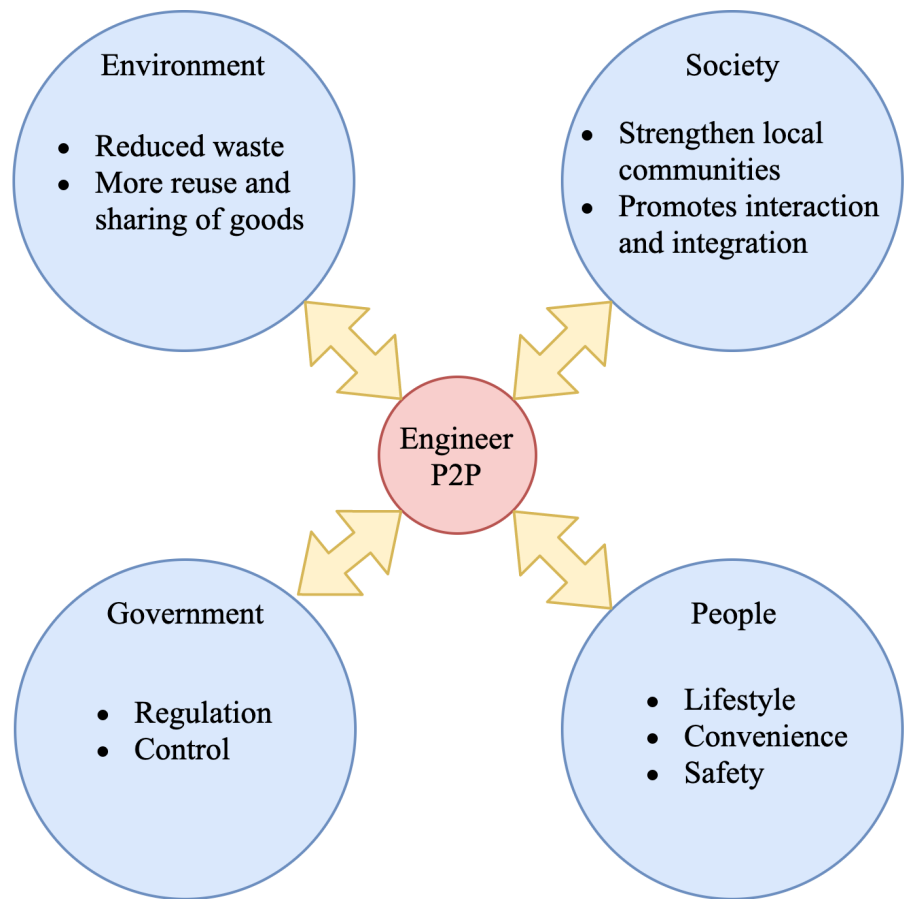


Figure 3: Peer to peer marketplace SCOT model: The Engineer in the center of the social construction must balance the interests of each group involved (Choi & Workman, 2019).

means that different artifacts may have different meanings and interpretations for different social groups (Bijker and Pinch, 1987). For the individual, the most important aspects are convenience and safety. Much like the previous discussion of trust in these marketplaces, it is imperative that the engineer take the proper measures to ensure the safety of its users or the service will not be viable. For society as a whole, it is important that the engineer produce a service that strengthens local communities and promotes integration. The environment will also see many benefits from the rise of P2P markets as people become more inclined to sell used and unwanted goods instead of throwing them away. Finally, the role of government control and regulation needs to be watched carefully. One of the principles of P2P markets is to provide a decentralized way for users to interact with one another. With heavy levels of control and regulation, a P2P marketplace is no different from what society currently has in place.

The balance between the individual and society will be the most important relationship for the engineer. If P2P markets are able to provide convenience in a safe way for individuals while promoting interaction and integration, then these markets will likely reach a steady state in our society. These are the key factors that have allowed Uber to reach a steady state as a P2P market. Riders are able to feel safe and get a convenient ride, all while meeting and talking to someone in their own car.

The STS research will be a scholarly article that explores the impact of peer to peer markets on our society, hoping to answer the question of whether or not they can defeat the alienation other technologies have placed into our communities.

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