THE SHARING ECONOMY AND DESIGN

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ABSTRACT
The sharing economy is gaining momentum and changing the way people think about and interact with products. The commercial economy has created a culture of conspicuous consumption, where status is displayed by owning lots of stuff. But the sharing economy encourages collaborative consumption where status comes from having access to a lot of goods [1]. In the sharing economy, companies use technology to facilitate peer-to-peer rental schemes [2]. These "using rather than owning" strategies have the potential to reduce our demand for natural resources, and revive the old virtue of building products that last [3]. For this reason it is important that design students be exposed to courses, lectures, and projects where they learn to design for the unique challenges of the sharing economy.

Keywords: Sharing economy, design, collaborative consumption.

1 INTRODUCTION
In the past ten years technology has dramatically changed our lives. The Internet, mobile technology and social media have revolutionized the way we connect and communicate with each other. They have enabled collaboration in ways that weren't possible, before now. Soon new technologies will enhance our products and revolutionize the way we interact with them. The sharing economy represents a movement in business to facilitate and monetize collaborative consumption using technology. It is growing quickly and soon designers will be asked to design products specifically for the sharing economy. They can do this by designing products with good shareability. Designing for good shareability happens in two stages: The first is to identify products with the proper attributes for collaborative consumption; the second is to design features for the unique challenges of the sharing economy. The proper attributes for collaborative consumption can be seen in successful shared products, they are: non-consumable, transferable, and underused. The unique challenges of the sharing economy occur in three main areas: Security, Maintenance, and Convenience. Design students should be made aware of both the attributes and the challenges of the sharing economy so they can design products for this new market.

2 THE SHARING ECONOMY
The sharing economy represents a fundamental shift in how consumers value products. In the current commercial economy, consumers value ownership. This causes a lot of conspicuous consumption. As a result many products are underutilized and wasted which contributes to our high demand for natural resources. Collaborative consumption can mitigate these negative effects, but poor communication and small social networks have traditionally limited it. Developments in technology over the past 20 years have overcome these barriers. New companies use the Internet, social media, and mobile technologies to create large networks of people who can easily participate in collaborative consumption. Forbes estimates that in 2014 the revenue generated by companies in the sharing economy "surpass[ed] $3.5 billion…with growth exceeding 25%" over the previous year [4].

2.1 Collaborative Consumption: Definition and Benefits
Collaborative consumption is a family of transactions that occur outside of the commercial economy. The family consists of six different types of transactions: borrowing/lending, gifting, renting, Bartering, Sharing, and Swapping, Figure 1. The most influential transaction type for the current

sharing economy is Renting. Companies have embraced renting primarily because it involves a monetary transaction. The success of these companies represents a change in the way many consumers view products. Traditionally, products have been viewed as assets, but in the in the sharing economy they are viewed as services.

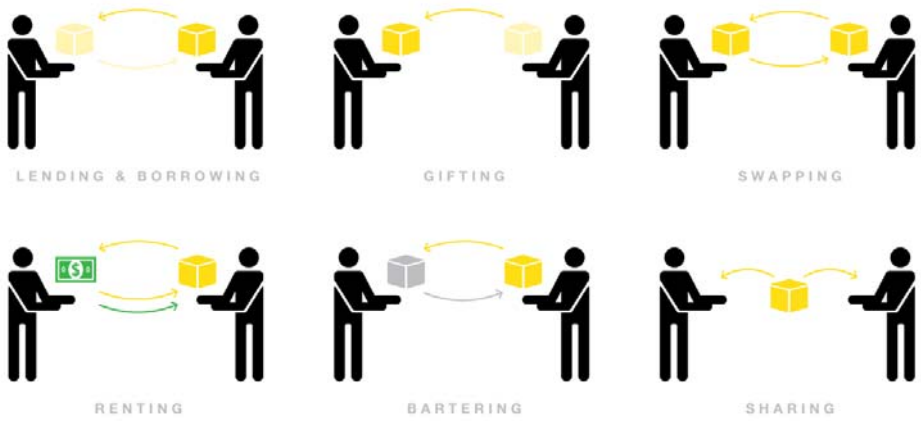

Figure 1. Diagram of the different types of transactions in collaborative consumption

Collaborative consumption can mitigate the negative effects of conspicuous consumption. Underutilization is a big problem. For example, the average American spends 18% of his/her income on a car that is stationary the majority of the time [1]. Collaborative consumption can maximize the utility of each product and minimize the cost to each individual, by distributing the product to those who need it, when they need it. The current economy also creates many disposable goods that could be replaced by fewer high quality products. This creates a lot of unnecessary waste. Collaborative consumption could in theory prevent this waste by providing access to quality products at a low cost. In short, effective collaborative consumption would significantly reduce the demand for natural resources that could lead to a sustainable consumption culture [3].

For example, Airbnb does a great job of facilitating collaborative consumption. They provide an online service where home and apartment owners can rent out rooms that are not being used. Overall, there is greater utility of existing housing, and fewer hotels need to be built and maintained. This saves building materials, energy, and time. It is also frequently less expensive for the consumer, when compared to hotel pricing.

2.2 Advances in Technology: The Internet, Social Media, and Mobile Technology

Collaborative consumption has occurred throughout human history but its scale has always been limited by geography and the size of social networks. The Internet has made peer-to-peer interactions possible at a speed, and on a scale that has never been possible before. Social media has expanded individuals' networks and personalized peer-to-peer interactions. Finally, mobile technology connected us to the network at all times, and introduced new tools, like GPS, that created more possibilities for collaboration. These three developments in technology have overcome some the difficulties of collaborative consumption. Continued improvements in infrastructure, and new technologies will make participating in collaborative consumption even easier.

Uber is perhaps the most talked about company in the current sharing economy. It is a software application that allows people to use their cars to provide taxi service. Uber uses many different technologies from GPS on both the driver's and the individual's phone, to electronic payments. None of it would have been possible before this technology became commonplace.

3 DESIGNING FOR THE SHARING ECONOMY

The sharing economy is growing quickly and designers should know how to design products specifically for it. They can do this by designing for shareability. Shareability is a collection of attributes that effects the success of a product in the sharing economy. When designing for good shareability, there are two stages: The first stage is to design products with the proper attributes for

collaborative consumption; the second step is to design for the unique challenges of the sharing economy.

3.1 Attributes: Non-Consumable, Transferable, Underused

Bikes, cars, clothes, and power tools are examples of products with good shareability. They exhibit three attributes in common: they are non-consumable, transferable, and underused. Currently, renting is the most important transaction for the sharing economy and in order for a product to be rented it cannot be consumable. A product that is being used to its full potential has no need to be shared. And any product that is non-transferable cannot take part in collaboration, so it is excluded from the sharing economy. An example of this might be a prosthetic limb. Its custom fit makes it almost useless to anyone but the owner. Some product without these attributes may take part in collaborative consumption, but products with these attributes will be more successful in the sharing economy.

3.2 Product Challenges of the Sharing economy

The experience of renting a product can be full of troublesome moments. Most of these moments are caused by problems in three categories: security, maintenance, and convenience. These categories signify areas where innovation could improve the renting experience. Traditionally security has meant retaining ownership of your property, but security of a rented product is more concerned with ensuring the responsible use of the product. Owners will want products that will function for a long time to enable greater earning potential. They will look to purchase products with durable design and streamlined maintenance. Finally, designers should consider the challenge of storing and transporting the products. Solutions will vary depending on the specific product, but each category should be carefully considered for good shareability.

3.2.1 Security

Security will be a huge challenge in the sharing economy. As products travel between individuals it will be important to identify each product and track it. People undoubtedly will try to take unfair advantage of the services provided by the sharing economy, but features built into a product can allow for greater security. These include but are not limited to: GPS tracking, RFID tags that allow for identification, and usage tracking that confirms the product was not abused. All of the risks cannot be solved through physical features, but digital features, like peer reviews and ratings, can induce people to act responsibly.

3.2.2 Maintenance

A shareable product needs to be durable to withstand an increased usage in the sharing economy [1]. For many products this may only require higher quality materials, but some may require a more extensive redesign. The wear from increased usage also means that the product will require maintenance more frequently. To make this easy for the users, products should be designed with easy access to parts that will need maintenance or that are likely to break. In coming years 3D printing could also make the replacement of broken parts easy. It is also important to consider how a product will be cleaned. With so many people using a single product, hygiene will be an issue. Designs should avoid gaps, seams, and corners where build-up could occur.

3.2.3 Convenience

A challenging aspect of the sharing economy is the transportation of products, and the diverse group of users. Weight, mobility, and adjustability are important factors in making the product convenient. Heavy products can be extremely difficult for certain users, especially the elderly. Reducing the weight can help them and make transportation easier. Adding a handle may be enough to make smaller products mobile, but medium and large products may need wheels or be sized to fit inside the trunk of a car. Finally, making aspects of a product adjustable may be necessary to accommodate users of different sizes.

4 CONCLUSION

The sharing economy is growing quickly. Technologies like the Internet, social media, and mobile technology have made taking part in collaborative consumption easy. Consumers' preference is

shifting to a “using rather than owning” mentality where products are viewed like services instead of assets. Soon companies will start asking designers to design products specifically for the sharing economy. The designers who can design for good shareability will be able to design products with the proper attributes and anticipate the unique challenges of the sharing economy. Many design students are already aware of the sharing economy but design professors need to help students recognize the attributes of successfully shared products and anticipate the unique challenges new products will face.

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