

Exploring the New Sharing Economy

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On behalf of

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Introduction

The “sharing economy” has been receiving a lot of buzz across popular media, academic and business circles, and local government as well as social enterprises. As the label suggests, the sharing economy is a means of sharing goods, services, ideas, information and skills through a network of individuals, often facilitated through social networks via computers and mobile apps. It can be done for monetary and/or altruistic benefit. On the surface, it seems quite benign, but in reality the sharing economy, with its many micro-entrepreneurial beginnings, is surging across a vast ocean of possibilities. What started as a quiet ripple has grown into a disruptive tidal wave that is having impacts across all sectors of the economy. Time magazine has identified the sharing economy as one of the top 10 ideas that will change the world, adding that “someday we’ll look back on the 20th century and wonder why we owned so much stuff.” (Walsh, 2011)

In a world in which the impacts of hyperconsumption ripple economically, socially and environmentally across the globe, consumers’ mindsets are changing. The market has shifted toward people making conscientious choices that have fewer environmental impacts, with a greater emphasis on renting or borrowing previously used goods and local services.

The sharing economy represents a paradigm shift that economist Jeremy Rifkin equates to the “third industrial revolution.” (Rifkin, 2011) The sharing economy is an emerging and growing economic system that prioritizes access over ownership. It is a system that is supported by the underlying philosophy that finite resources must be used efficiently through the establishment of new value chains that accrue economic, social and environmental benefits via the sharing of goods, ideas, information, skills, etc. Sharing has always played a role in civil society, but has often not been recognized for its economic capacity. As large corporations based on traditional economic models are beginning to see an erosion of their consumer bases, this situation has raised consciousness among these organizations, especially those in the businesses of providing housing and short-term accommodations, transportation and food services.

The sharing economy is challenging policy makers and regulators who are trying to wrestle with how to protect public interests without suppressing all the associated benefits that come with this nascent economic force. This white paper explores the impact that the sharing economy is having on our cities in the areas of transportation, food systems, housing and short-term accommodations, and commercial space. It also explores the various approaches of policy makers and regulators in tackling the complex issues associated with this emerging economic system.

What Is the Sharing Economy?

The sharing economy has commanded a lot of attention recently because of its rapid evolution, growth and impacts on consumption patterns. With its nascent status comes a variety of labels and definitions. Various labels, including “the sharing economy,” “collaborative consumption,” “the collaborative economy” and “peer to peer,” are being used to describe this emerging economic trend. While these terms are often used interchangeably by those trying to describe this new economic phenomenon, each has its own meaning. Rachel Botsman, coauthor of “What’s Mine is Yours,” notes that shared definitions are needed for all of these terms, because each means something different; each has its own economic system, set of practices, models and social relationships. (Botsman, 2013)

The *sharing economy* is generally referred to as “economic and social systems that enables shared access to goods, services, data and talent. These systems take a variety of forms but all leverage information technology to empower individuals, corporations, non-profits and government with information that enable distribution, sharing and reuse of excess capacity in goods and services.” (Mouazan, 2013) The sharing economy is characterized largely by peer-to-peer marketplaces. These marketplaces facilitate transactions in which individuals can share products and services directly, based on a foundation of trust. Trust is one of the key principles governing the sharing economy.

A *collaborative economy*, according to Botsman, is built on distributed networks of connected individuals and communities, typically facilitated via the Internet. Unlike more traditional economic models, which are based on centralized corporations that separate the consumer and the producer in a series of vertically independent functions (wholesaler, distributor, retailer), the collaborative economy enables producers and consumers to exchange goods and services via

distributed and more decentralized networks. It impacts patterns of production, consumption, finance and information transfer.

Collaborative consumption is an economic model of sharing, swapping, trading or renting products and services that values access rather than ownership. It is influencing our choices of what we consume and how we consume it.

A *peer economy*, sometimes referred to as a peer-to-peer or P2P economy, provides a direct connection between buyer and seller, allowing the two to directly trade products and services through a system largely built on a relationship of trust. (Botsman, 2013)

The sharing economy and collaborative consumption derive greater utility out of products, assets or services that would otherwise lay idle or underused. They are a type of redistribution market that finds new uses for existing products rather than manufacturing and buying new ones. The advantage of sharing is that people do not need to put their unused “stuff” in garages or other storage spaces that, when filled, require them to dispose of the excess stuff at the landfill.

This is where the sharing economy can have significant impacts. It can be monetized or nonmonetized. An example of a nonmonetized part of the sharing economy is the emergence of the Freecycle Network, through which goods and products are redistributed at no cost. Freecycling is estimated to divert approximately 24,000 items, or the equivalent of 700 tons of consumables, out of landfills every day. (Botsman and Rogers, 2010) Monetized elements of the sharing economy are discussed in the following sections of this white paper. The sharing economy essentially involves matching those who have an item or service with those who need it, often through some form of peer-to-peer sharing.

Social Dimensions

When we think of the elements that make up our cities and local communities, we recognize that these places are largely defined by shared public assets ranging from swimming pools, parks and community centers to libraries, schools, child care facilities, roadways and parking. These elements become the social and cultural fabric that supports jobs, a sense of place and neighborhood cohesion.

The sharing economy also has a social dimension, in which P2P exchange is combined with cultural and social celebrations. Every spring, on Queen's Day (the queen's birthday), the city of Amsterdam transforms itself into "Vrijmarkt," one of the world's largest free markets. Residents claim a piece of sidewalk along the canal to display items that had been tucked away in closets and attics, while neighbors, visitors and antique store owners seek out treasures for their own domestic or potential commercial purposes. The Vrijmarkt brings a sort of social commerce that combines live music on street corners, impromptu theater, circus acts, sidewalk barbecues and dancing while providing a venue for exchanging items and experiences. It has also become a tourist draw, attracting thousands of visitors to experience and participate in the annual tradition. It is analogous to a massive yard sale that involves homes and people across the city, with an infusion of music and celebration to make it memorable and fun. Buyers and sellers generally engage in conversations about items that are followed by friendly negotiations. These social interactions often feel more personal and "real" than a typical transaction at a mall or other retail outlet.

Scale and Design

While the "free market" concept can operate on the city scale — as illustrated by the Amsterdam example — it can also work well at the building or block scale. Consider the potential opportunities that exist within multifamily residential buildings in terms of unused or underused household appliances that take up space in already compact living arrangements. Why not provide space

within basement foyers or other common areas where people can place goods or products they no longer need or are willing to share? Multifamily buildings could provide a sort of mini free market where residents could exchange goods. Amenity or storage areas could include areas where specialty appliances or tools could be stored for use by all residents. Does every unit require its own vacuum cleaner, waffle iron, food processor, fondue set, deep fryer and other specialty appliances, many of which are used infrequently? "There are 80 million power drills in America that are used an average of 13 minutes," says Brian Chesky, one of the founders of Airbnb. "Does everyone really need their own drill?" (Friedman, 2013)

In fact, the city of Vancouver now requires developers to set aside space within large multifamily residential buildings for occupants to place recyclables and other durable items to be diverted from landfills. An informal economy often takes place at the edge of a multifamily building's waste container, where people leave unwanted but still usable goods beside the dumpster for others to sort through and take away. These areas become mini thrift marts, where residents peruse discarded items for potential reuse. By making these types of informal exchanges possible, these spaces help increase the life span of products and reduce people's need to purchase new products (with all the associated materials and energy that go into the manufacturing process), while also helping to reduce the amount of goods going into landfills.

An Example: Tool Libraries

We often think of libraries as places where people go to borrow books and, increasingly, other — often digital — information sources. Libraries are often considered integral parts of a community, places that are important for education and socialization. But the concept of the library has expanded to include everything from tools to sporting equipment. The notion of idling capacity is most relevant to tools, which people often purchase for a single do-it-yourself (DIY) project

The Vancouver Tool Library

The following text is adapted from an interview with Chris Diplock, cofounder of the Vancouver Tool Library and The Sharing Project in Vancouver, British Columbia, and material available on the library's website. (<http://vancouvertoollibrary.com/>)

The concept for the Vancouver Tool Library (VTL) arose when Chris Diplock and his girlfriend built a chicken coop in fall 2010 with tools borrowed from neighbors. This experience led Diplock and some friends to explore more structured tool lending arrangements. They discovered an array of tool lending libraries in the U.S. and, after further research and input from other organizations, incorporated the VTL in spring 2011. The cooperative tool lending library is located in the city's Cedar Cottage neighborhood. Members, who pay a one-time "member share" and an annual maintenance fee, can borrow a wide variety of tools for home repair, gardening and bicycle maintenance. The library also offers affordable workshops on tool-related skills and projects.

"We are motivated by a vision of our community empowered by the tools and skills needed to transform their homes and communities into vibrant spaces that reflect a commitment to sustainability," states the VTL website. "To get there, we are creating a community resource that will reduce the costs of improving and greening the places in which we live, work, and play."

For its first year and a half, the VTL was run entirely by volunteers. It was self-financed and supported through community partnerships. Initial expenses were limited to the cost of purchasing tools. While it did receive a large amount of donated equipment, materials and tools, the VTL had to buy about half of its initial inventory of tools, in order to make the library convenient and relevant to members. Since the VTL's inception, the organization has moved from a 50 percent donated tool inventory to one that is over 80 percent donated.

According to the VTL's 2013-2014 annual report, the project, which was then entering its third year, "has become an established institution. The use of our services has grown across the board, from workshop attendance to membership renewal rates to inventory use. ... Though operating at a loss for the fiscal year of 2014, our revenue has grown. The proportion of our operating revenue supplied by financial grants fell from 45% to less than 20%, indicating that the cooperative is well on its way to financial self-sustainability."

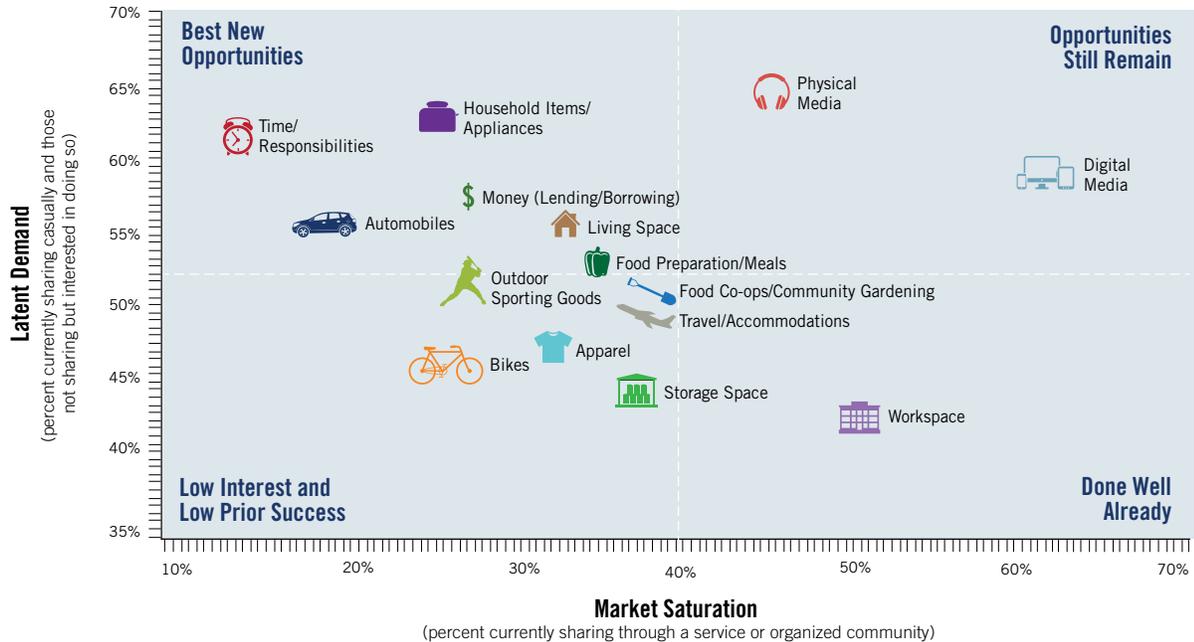
or other use. People spend vast amounts of resources and money on these tools, which then have to be stored, taking up valuable space in their homes, even though they may be used only rarely after their initial purchase. Chris Diplock, founder of the Vancouver Tool Library, decided to develop a cooperative tool lending library because of unmet needs within his community. (See "The Vancouver Tool Library" at left) Tool libraries have emerged in communities throughout North America as an alternative to each individual purchasing his own tools, which leverages existing resources, reduces the individual's environmental footprint, limits the consumption of resources and increases a sense of community through sharing.

Growth

After the deep and persistent economic downturn that began in 2008, the sharing economy provided a new avenue to leverage purchasing power through peer-to-peer business platforms. The sharing economy provides an opportunity for direct transactions between peers, thereby reducing the role of large corporations that act as brokers in the process.

The sharing economy has been steadily gaining market share. Its growth has been facilitated largely through social enterprises — organizations whose primary purpose is improving human and environmental well-being, rather than maximizing profits for external shareholders — and Internet startup companies that help to connect those who have goods or services to share with the vast market of those who want access to those goods or services. In 2013, Forbes magazine estimated that the sharing economy would surpass \$3.5 billion in revenue that year, with growth exceeding 25 percent. (Geron, 2013)

New Opportunities for Sharing



Note: Icons on this graph indicate the relevant percentages of 537 participants in the sharing economy who participated in “The New Sharing Economy” study conducted by Latitude Research and Shareable. The greatest areas of opportunity for new sharing businesses are those where few services currently exist within a specific industry category and where many people are either a) sharing casually (not through an organized community or service) or b) not sharing at all, but interested in doing so. These include transportation, items that are infrequently used and physical spaces.

Source: Adapted by Damuen Kim, Light House Sustainable Building Centre, from a graph created by Latitude Research and Shareable.net for “The New Sharing Economy,” 2010. <http://www.shareable.net/blog/the-new-sharing-economy>

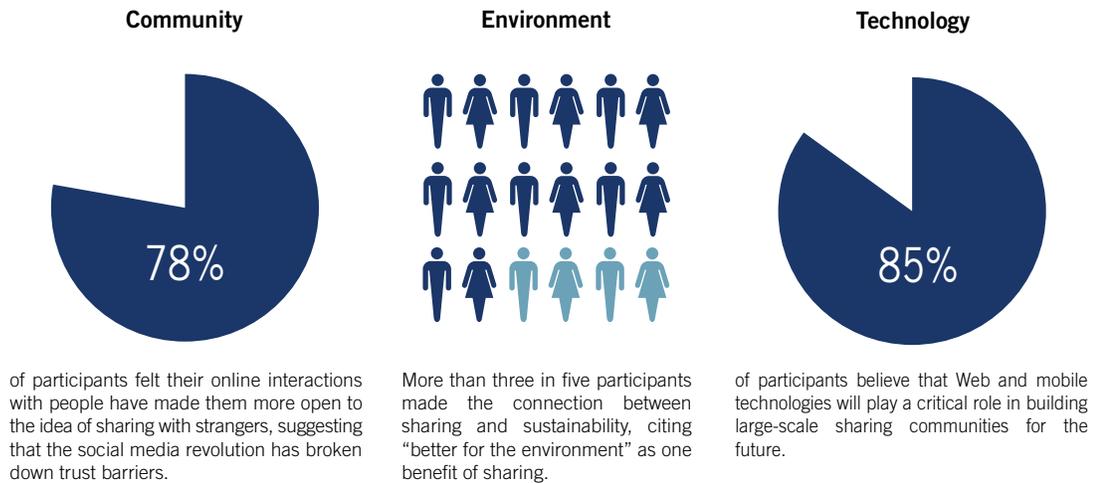
Key Drivers

Some of the key drivers that have helped catalyze the sharing economy include the following:

- The Internet and mobile access.** The Internet has revolutionized economic thinking and practice. Mobile access, via smartphones and tablets, makes sharing via the Internet convenient, expedient and easy. The proliferation of Internet use and mobile access across North American homes has brought about social networks that help to facilitate peer-to-peer (P2P) and peer-to-business (P2B) transactions. Early pioneers in these areas include Napster (music and movies) and eBay (merchandise).
- Declining real incomes.** The divide between the upper and middle classes is becoming larger, and the inability of middle-income earners to keep up with inflationary pressures is helping to drive the sharing economy. Rising inflation and stagnant incomes create opportunities for shared platforms that provide access to goods and services without the high costs of ownership.

- **Belief in the commons.** Many sharing practices also bring people together in ways that traditional business practices do not. The sharing economy often brings with it a sense of shared responsibility for the betterment of the community and the environment.
- **Trust.** There is a code of conduct associated with the sharing economy; each transaction is rated by both the user and the provider. Rating systems have been highly successful in rewarding good performers and shaming those who abuse the code of conduct.

New Drivers of Sharing



Source: Adapted from the European Union's "Sustainable Lifestyles: Today's Facts and Tomorrow's Trends," D1.1 Sustainable lifestyles baseline report, 2012; data from "The New Sharing Economy," 2010. <http://www.shareable.net/blog/the-new-sharing-economy>

Challenges and Opportunities for Large Companies

Large corporations are now looking into how the collaborative or sharing economy can be used to expand their businesses by creating ongoing relationships with their customers, for example, through car sharing. Contrary to the conventional thinking that car manufacturers had to sell more cars in order to be successful, Daimler AG executive Jérôme Guillen proposed making it easier and more convenient for people to use a shared fleet rather than owning.

Daimler's Car2Go service allows an individual to locate a Smart car on a mobile phone, gain access to the vehicle immediately through a card reader and PIN number, then drive it within a defined service area and leave it in another location for someone else to use. The user is charged only for the time the car is in use. The Car2Go program provides users with

more flexibility than traditional car rental services, and has attracted urbanites who prefer the convenience and level of service over public transit. Guillen also thought to match people wanting to share a ride with drivers who had booked a car through a service called Car2gether — an early version of an Uber-like ride-sharing service that combined social networking and geographic positioning systems (GPS) to match drivers and passengers heading toward the same destination or vicinity. (The Economist, 2010)

The sharing economy poses a challenge to large companies, because it is intercepting the traditional relationships that have existed between businesses and customers for many years. With advances in websites and apps, customers and producers are now able to connect directly with each other, without “middlemen” such as distributors and retailers. This emerging economic model is pushing companies to rethink their relationships with their customer bases.

The sharing economy also makes possible a closer relationship that can lead to the collaborative creation of new products and services between companies and their customers. The result is

that the customer can become a partner in the funding, building, distributing, marketing, selling and revenue-sharing processes. The company benefits by building stronger connections with its customers, improving the design of its products or services and reducing its marketing costs.

Using this model, Wal-Mart is exploring ways to use its extensive customer base to provide rapid home delivery service. Through crowdsourcing, Wal-Mart is investigating a platform that would allow shoppers to earn discounts on their purchases in exchange for delivering orders to other customers along their routes home. By doing so, it could limit its use of third-party delivery companies like FedEx and UPS while using a customer delivery option that is potentially more expedient and cost effective. Such a model is also more cost effective than maintaining a vehicle fleet and combines vehicular trips to potentially reduce overall transportation emissions and traffic congestion. Additionally, it could build community and increase socialization opportunities for those willing to deliver items. (Barr and Wohl, 2013)

Transportation and Mobility

The sharing economy is affecting the ways people move and transport goods in North American cities. “We are at the beginning of an important new phase in personal transportation that is both disruptive and revolutionary. It is a new way to access transportation services by those who are propelling the sharing economy where *access* rather than *ownership* is the new norm,” say transportation consultant Larry Filler and transportation coordinator Marc Oliphant. (Filler and Oliphant, 2015)

Car-sharing networks like Zipcar, Car2Go and Modo, as well as new ride-hailing and ride-sharing services like Lyft, Uber, Sidecar and a host of other app-based services, have been taking root in cities across North America. Car-sharing services enable drivers to reserve and drive conveniently located cars by the hour, while ride-hailing and ride-sharing services allow them to summon a driver and car as needed. (Boehret, 2013) (These join traditional ride-sharing techniques like carpooling and vanpooling, which continue to play a role in reducing traffic congestion.) Bike-share programs like Bixi, Capital Bikeshare and Citi Bike also are popping up across many of those same cities, enabling residents and tourists to make shorter urban trips by bicycle rather than by car or taxi.

Car-, ride- and bike-sharing networks all address the quest for mobility with convenience, trust and value. These services thrive within higher-density, well-connected metropolitan areas that attract a typically younger demographic, all of which make these options viable. Together with supportive transportation policies that promote alternatives to the single-occupant vehicle, these locations and demographics make alternative solutions like car-share and bike-share programs possible. Transportation demand management strategies that support car-, ride- and bike-sharing networks can use a variety of tools, including pricing (higher parking fees for single-occupant vehicles or waiving tolls for carpools), reallocating

parking spaces (with preferred spaces for those sharing cars) and promoting and/or subsidizing ride-share programs for workers.

As land values escalate within metropolitan centers, private car ownership becomes less desirable in the context of the highest and best use of scarce and highly valuable land. Parking for single-occupant vehicles that sit idle for the majority of the day ranks low on the scale of highest and best use. Enter the sharing economy model, which maximizes vehicle use throughout the course of a day. Ride- and car-sharing services keep cars on the road and out of parking spaces for much of the day. They also reduce the total number of cars needed to transport people to and from work, social events and other activities.

According to TechCrunch writer Devin Coldewey, private automobiles sit idle for about 95 percent of the time and, when they are used, they often are driven with an average of three to four seats empty on any given commute. (Coldewey, 2011) This statistic has not gone unnoticed by entrepreneurs who see big opportunity in this “idling capacity.” People pay a lot of money to buy, insure and maintain cars that, on average, are used only an hour per day. This opens the door to car- and ride-sharing services that enable people to make money from letting others use their cars, give up a little-used second car, or avoid being car owners completely.

Car Sharing

New platforms facilitated through mobile apps and geographic positioning systems (GPS) are bringing a new dimension of convenience, access and value to urban and suburban mobility. Emerging car-share programs such as RelayRides, Zipcar, Modo, FlightCar and Car2Go enable people to share cars by renting them for periods of time shorter than a traditional daily or weekly car rental. Those cars may be owned

by the service (Zipcar, Car2Go) or by individuals (RelayRides, Modo, FlightCar). They typically can be found in dedicated parking spaces near transit stations as well as office and apartment buildings, as well as at airports, shopping centers or in their owners' driveways or garages.

Services like RelayRides, Modo and FlightCar enable individuals to earn money by sharing their own cars with others. By capitalizing on these idling assets, car owners can make the most of one of their biggest financial investments. According to RelayRides, the average RelayRides car owner/participant earns \$250 per month by renting her vehicle, which may be enough to offset her entire car payment. Services like Zipcar and Car2Go require participants to pay a membership fee as well as additional, typically hourly, fees for the use of vehicles owned by the service. Fee structures vary widely, and fees may be subsidized by employers, building owners or universities.

People make different decisions when driving a shared vehicle than when driving one that they own, because declining use more clearly results in spending less money. Car-sharing services charge competitive rates that include fuel, insurance and maintenance and are directly proportional to a member's usage, thereby encouraging more efficient trip planning. According to Shelby Clark, founder of RelayRides, the average participant in a car-share program drives 40 percent less than the average vehicle owner. (Sacks, 2011)

Bike Sharing

Bike-share programs are popping up in cities across North America as part of an extension of sustainable transportation options available for shorter urban trips. According to Peter Midgley, an urban transportation advisor, "bike sharing has experienced the fastest growth of any mode of transport in the history of the planet." (Earth Policy Institute, 2013) Bike-share programs began in Europe and have expanded commercially across the globe. They now have a presence on five continents and in 500 cities, with half a million bikes available to share. (Larsen, 2013)

Internet-connected information technology (IT) platforms enable bike-share companies to ensure operational effectiveness by shuttling bikes to popular nodes from less-used ones. Cyclists are able to locate available bikes and open docks via mobile apps, which also can provide them — and the bike-share company — with data on the length and time of a journey, frequency of use and popular destinations and activity nodes across cities. For transportation planners, this data becomes a valuable tool that can help them plan bike routes and the deployment of cycling infrastructure. It also opens the door for data sharing to become another lucrative dimension of the sharing economy.

San Francisco's City CarShare program is pushing the integration between car and electric bike sharing, with a plan that will allow members to expand their transportation options with access to both cars and bikes. City CarShare members will have access to electric bicycles in 25 locations across the region, most of which will be in Berkeley. The program plans to provide 90 bikes, of which 22 will be electric cargo bikes. (Tuan, 2013)

Whether they are operated as a single program or as separate ones, bike- and car-sharing programs are helping expand the array of sustainable transportation options. These programs allow people to increase access and mobility through improved intermodal connectivity.

Opportunities for Policy Makers

For policy makers and city planners, bike- and car-share programs provide new tools to address sustainable transportation strategies. The combined impact of these programs has significant potential to reduce congestion, noise and air pollution. Consider the spatial and economic impacts associated with single-occupant vehicles and the demand for parking spaces across North American cities. The average cost of a parking space ranges from \$24,000 (in an above-ground garage) to \$34,000 (underground). (Shoup, 2014) Meeting transportation demands by capitalizing on the

“idling capacity” of vehicles could result in less demand for surface and structured parking. Conversion of surface parking spaces into public amenities such as parks, tennis courts, plazas and farmers markets would help activate a public realm now dominated by vehicle storage.

Food Systems

Urban farming is now emerging as a key facet of many cities' sustainability policies as well as an element of the sharing economy. Historically there has been a clear division between town and country, in which the urban core relies on the hinterland to provide the raw materials needed to support the metabolism of cities. This includes the production of food, which traditionally is grown on outlying agricultural lands, then transported to the city for packaging, distribution, sale and consumption. Today, city residents see an opportunity within the built environment to grow their own food in under-utilized and shared spaces between, atop and on the edges of buildings.

Community Gardens

In Vancouver, a local social enterprise named Sole Food partnered with Astoria Hotel to take advantage of tax concessions being offered by the city to incentivize converting bare lots or unused space into green spaces. Sole Food mobilized 90 volunteers to convert a parking lot next to the hotel into a community garden within a single day. The blighted parking lot, which had been an eyesore and a magnet for crime, was transformed into a 17,000-square-foot urban garden. A once blighted and underutilized space is now employing neighborhood residents, creating a sense of community and producing food for high-end restaurants and local farmers markets across Vancouver.

Rooftop Farms

The first vertical farm or "verticrop" in North America was developed in Vancouver by Alterrus Systems Inc. The project, which launched in November 2012, converted the top of an existing parking structure owned by the city of Vancouver into an innovative 6,000-square-foot vertical hydroponic farm. The venture employed local residents to grow commercial crops of kale, spinach, arugula and fresh herbs that were

branded and sold to local restaurants and stores. It was based on the VertiCrop system, a proprietary growing method developed at the Paignton Zoo in the United Kingdom, which features an experimental vertical hydroponic farm that grows food for zoo animals.

Vancouver's vertical farm project anticipated growing 150,000 pounds of produce annually; plants were grown in containers that rotated on a vertical conveyer belt to optimize the amount of sun they received and increase crop yields. (Brodie, 2011) Unfortunately, the venture encountered financial difficulties and declared bankruptcy in January 2014. (Howell, 2014) Regardless, the venture demonstrates the potential to gain productivity through creative programming of shared spaces.

Other rooftop farming ventures have had greater longevity and success. Lufa Farms created the world's first commercial rooftop urban farm in 2011 in Montreal, Quebec, by taking advantage of vacant commercial rooftops. The 31,000-square-foot farm grows enough food to feed approximately 2,000 people per week. Lufa's business philosophy is to grow food in the city, close to where people live, and to do it sustainably. The rooftop farming system captures rainwater for irrigation and recirculates 100 percent of its wastewater; eliminates the need for synthetic pesticides, herbicides and fungicides by using natural biological pest controls; composts all green waste; and captures waste heat to create ideal growing conditions. Lufa has expanded its rooftop farm concept with a 43,000-square-foot farm atop a large commercial warehouse building in Laval, Quebec, from which the firm harvests 1,000 to 1,500 pounds of food every day and delivers more than 2,500 orders of produce each week.

Lufa also created a direct business-to-consumer (B2C) sales model, using a network of local businesses to support its distribution and pick-up system; customers retrieve their orders from

pick-up points (PUPs) at those local businesses. This innovative distribution system offers benefits for all parties involved: Lufa benefits from reduced transportation and distribution costs; consumers benefit because the system eliminates retailer and distributor costs; and the local PUPs benefit from the increased exposure to prospective new clients. Imagine the possibilities of converting large flat commercial rooftops across North America into productive urban farms. According to Lufa's estimates, the city of Montreal alone could feed 1.6 million people if the roofs of 20 malls were transformed into rooftop greenhouses. (Lufa Farms website)

Housing and Cohousing

The concept of shared housing has been around since the first human settlements. Many of these settlements incorporated elements of shared living space, including shared social spaces, washing areas and cooking facilities. The marked rise of suburban single-family dwellings (SFDs) after World War II was perpetuated by growing affluence, greater mobility and status. Significant investments in roads and highways, as well as disinvestment in public transit, facilitated this flight to the suburbs and led to increased demand for SFDs. Today, however, SFDs are becoming less affordable in many metropolitan areas, making shared housing a more attractive option.

Shared housing and cohousing thus are challenging more traditional forms of housing. Both shared housing (in which couples or individuals combine their resources to purchase or rent and live in a home together) and cohousing (a more structured system in which multiple households live in a community or multifamily structure that includes both private and shared spaces) are attracting younger millennials seeking more affordable housing alternatives located in closer proximity to jobs, entertainment and amenities.

These alternative housing forms provide shared access to amenities such as kitchens, dining rooms, activity and social spaces, gardens and play spaces for children. Many architects designing new cohousing communities are also embracing codesign, a process in which prospective occupants help design the community they will inhabit. A more collaborative design process provides members of cohousing communities greater opportunities to forge community networks. It also allows occupants to influence operational and physical design to meet their changing needs. This is done through a flex-design process that enables residents to reconfigure walls and rooms as their family units evolve. Community gardens, car- and bike-share

programs, and tool and sport equipment sharing are becoming integrated elements in these living arrangements.

Financial institutions are recognizing the need to transform their lending practices to reflect the demand for shared housing arrangements. Vancouver is experiencing growing demand from multiple couples who are forming alliances to purchase housing in one of Canada's most expensive real estate markets. By banding together, these couples increase their purchasing power, enabling them to acquire a house with both private living areas and shared spaces. In response to this demand, Vancity Credit Union developed a product called a "mixer mortgage," tailored for those who have difficulty gaining access into Vancouver's expensive real estate market, which allows multiple buyers to share a single mortgage.

Cohousing and shared housing tend to attract a segment of the population that values access over ownership. While a shared living arrangement may require some compromises, those are often coupled with economic benefits associated with the sharing of appliances, sporting equipment and tools, as well as increased access to amenities and facilities. Shared housing also results in a more efficient use of space and reduces the overall footprint of each household associated with single-family dwellings. Residents of cohousing and shared housing typically have a stronger sense of community and support in terms of child and elder care.

Short-term Accommodations

The sharing economy has also impacted the short-term rental and accommodation industry, which until recently was largely dominated by hotel chains. With the emergence of P2P rental services like Airbnb, HomeAway, FlipKey, VRBO (Vacation Rentals by Owner) and Roomorama, business travelers and vacationers have access to a greater variety and selection of prospective accommodations. This market expansion is largely facilitated through Internet-based search engines that allow homeowners to offer their vacation homes, primary residences, accessory units or even a single bedroom for rent on a short-term basis. Bookings are made seamless with templates for short-term contracts, electronic payments and ratings to ensure that all offerings have met a certain standard and received a “community seal of assurance.”

These short-term rental platforms provide opportunities for homeowners to generate rental income that can help offset mortgage payments and give consumers greater choice. In 2014, Airbnb had a valuation of \$10 billion and listed more rooms for rent in New York City than any single hotel chain. The company also had a presence in more than 8,000 cities worldwide and a monthly growth rate of 45 percent. (Espinosa, 2014)

If Airbnb continues to grow at this rate, hotels will experience an estimated 10 percent loss in market share. (The Economist, 2013) It is therefore no surprise that its growth has been challenged by hotel chains, which claim that Airbnb and similar services should have to comply with the same regulations and be subject to the same taxes as hotels. Regulators, municipal officials, real estate professionals and others are expressing increasing concern about short-term rentals that do not comply with local laws regulating units within multifamily buildings. Affordable housing advocates are also concerned that shared-accommodation sites are resulting in a loss of affordable housing. Some fear that property owners are evicting existing long-term tenants from low-cost housing so that the owners can capitalize on short-term stays, with high turnover resulting in increased rental incomes. Cities are grappling with how best to regulate these services with the public interest and consumer protection in mind.

Office Space

The shared economy has also expanded into the commercial real estate sector. In some cases, the goal is to make better use of fixed assets that traditionally have been used only for certain periods of the day. The sharing economy makes better use of those fixed assets by matching people with spare space. Many forms of shared commercial space use have emerged, including various types of shared office spaces and creative spaces.

Shared office spaces include the executive suites model (where companies or individuals can rent a turnkey office or space in a shared office on a short- or long-term basis), coworking centers (which offer similar types of workspaces, typically through a membership model, and have a greater focus on community) and an emerging hybrid of the two. Traditional executive suites operators like Regus have begun creating coworking-like spaces within their properties. Most shared creative spaces, often called “maker spaces,” “hackerspaces” or “fab labs,” are community-operated workspaces where people with common interests can access shared equipment. (Foertsch, 2014) Over the past year, the number of coworking spaces has increased 83 percent, with coworking center operators like WeWork, NextSpace and others growing at a rapid pace. The coworking trend has grown to more than 110,000 people using collaborative spaces globally. (Small Business BC, 2015) Some coworking programs even allow their members to use office spaces in other cities. Finally, flexible workspace marketplaces like PivotDesk and Liquid Space help companies and individuals locate and rent workspace within coworking centers, executive suites facilities, and even unused office space owned or leased by other companies or nonprofit groups.

In downtown Vancouver, an innovative coworking community called “The HiVe” offers an affordable alternative for small start-ups, freelancers and nonprofit groups seeking boutique space with

creative energy. The 9,000-square-foot HiVe offers permanent desk memberships (which include a dedicated desk), hot desk memberships (which include access to the center’s unassigned desk area) and community memberships (which enable those who already have workspace elsewhere to access the community’s programs and other amenities). Member fees are used to market and improve the space. The center, which opened in 2011, attracts individuals and organizations committed to social change. With a high level of entrepreneurship, the HiVe provides creative and collaborative space very different from the corporate environments of large firms. Because members share the cost of amenities and services, including Internet access, a receptionist, a kitchen, lockers and meeting rooms, rents are more affordable, which is particularly helpful in a market with escalating commercial rents. The flexible membership approach enables members to use the space when and as needed, thereby reducing the risks and costs involved with the long-term leases and contracts typically required for traditional office space.

In Sweden, the coworking movement has been extended to the private home through a platform known as “Hoffice” that aims to improve productivity among independent workers. The Internet-based peer-to-peer network enables entrepreneurs and others to work at other people’s homes or turn their own homes into coworking spaces. The concept has already expanded to cities across the globe, including Taipei, Paris, Vienna and Amsterdam. (Suddath, 2015)

Conclusion

The sharing economy is making a profound impact on the broader economy by deriving value from the idling capacity of products and the provision of services by those who have spare time. As a new economic paradigm, the sharing economy is about providing access to rather than ownership of goods. Large corporations are taking note. While they are not inclined to dismiss traditional economic models, the sharing economy is forcing them to adapt to a more service-oriented model that derives value from experience and relationships rather than just from selling a product.

The sharing economy is also forcing real estate professionals to rethink how traditional brick-and-mortar storefronts, power centers and malls are designed, given people's growing access to smartphones and social networks as well as declining middle-class incomes. The sharing economy is partly a response to the acquisition of "stuff" that people seldom use and the associated waste generated from hyperconsumption.

According to the United Nations, the global population is expected to reach 9.2 billion by 2050, with more people living in cities with higher levels of affluence. (United Nations, 2013) The sharing economy is having significant impacts on urban transportation, housing and food systems. As cities grow and become denser, greater access to a wider array of shared resources and assets becomes easier — without many of the burdens associated with ownership, particularly storage, maintenance and some operating costs.

The implications for cities and the built environment are just starting to be fully understood. The underlying conditions that make the sharing economy successful provide the underpinnings of a well-functioning, efficient, thriving city. "Critical mass" is a key condition to the success of the sharing economy. Some components of the sharing economy require

higher-density, mixed-use communities with a critical mass of people living and working near each other that improves access and choice, creating "enough momentum in a system to make it self-sustaining." (Botsman and Rogers, 2010)

The current trend of consumption is not sustainable, given the planet's finite resources. The sharing economy presents an alternative model to hyperconsumption patterns and the current distribution of resources and services. This alternative model could help extend the life of products, reducing material resource inputs and the amount of waste generated while creating a value chain in the process.

The sharing economy has flourished in the absence of government policy drivers, incentives and regulations. It is, however, posing some challenges to local regulators, who must find a balance that protects the public interest without suppressing the potential benefits of new business models. It demonstrates that small-scale entrepreneurship and altruistic attitudes can lead to more rational uses of scarce resources while providing economic, social and environmental benefits. This "disruptive" economic force is also spurring larger corporations to rethink their economic models and to consider developing and implementing more service-oriented platforms that enable people to use their products without necessarily purchasing them. The sharing economy and its various applications tend to build a sense of community among networks of users while also creating a potential value chain that has not been capitalized on before.

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