Emerging Governance in the Sharing Economy

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Abstract

How are governance models emerging for businesses operating in the sharing economy, and how will this sector be governed in the future? This paper will begin to discuss how governance is being applied to the emerging transportation sector of shared-use, where gaps remain in the system, and implications for the future. This will be done through a discussion of networks, trust, public-private collaboration, and the role for both non-profit and for-profit businesses in the governance of this emerging sector.

Introduction

The internet and mobile telephony have increased accessibility and innovation. The development of peer-to-peer networks are facilitating shared platforms and will have a tremendous impact on the future of business and global governance. Regulations, both social and economic, are important to ensure equity in the market, but the struggle is how to apply them to shared-use. This paper focuses on the transportation sector but issues that arise are relevant for all sectors in the sharing economy. Subsides have been used to provide public transportation, and to stimulate or even nudge consumers to use or purchase alternative forms of transport but results are mixed on success. Many of the emerging technologies are innovating around current regulations, subverting government rules. Is the way forward, then, a governing body like the Internet Corporation for Assigned Names and Numbers (ICANN), a non-profit agency that manages the Domain Name System (DNS), or rather a stricter use of government tools such as direct government or even a move toward greater integration of a collaborative governance model? As these businesses have been able to develop due to the advances in internet connectivity, should they be held to traditional regulatory measures by individual states or adhere to a global standard?

The internet revolution is comparable to the industrial revolution in the breadth of impact it is having on the evolution of business. At the 2015 ICANN meeting in Dublin, Ira Magaziner, a former senior policy advisor to President Bill Clinton was quoted on the importance of the internet revolution to the world:

“What’s happening now is historic. The internet revolution is as fundamental as the industrial revolution in remaking human society and the governance model that you have been evolving for the past 16 or 17 years is going to form a paradigm for model in the future of how democratic, bottom up multi-stakeholder processes can coordinate for human good”

(Ira Magaziner, Speaking at ICANN54, 2015)

This revolution has led to development of shared-use platforms and the development of peer-to-peer networks. The internet knows few boundaries, and while it can be censored by authoritative states, there are ways around the control. The vastness of the internet, the massive reduction in transaction costs, and the spread of mobile telephony has increased the inclusiveness of innovation, and the content of governance systems. While the literature on internet governance is growing, the literature surrounding the implications of the sharing economy, made possible by the internet, is in its fledging stages. This paper first includes a discussion of trust, the emergence of shared-use technology as a result of capitalism, and the role of transaction costs in facilitating the sharing economy. The second part will explore case studies of emerging governance models relating to shared-use platforms in the transportation sector, through the lenses of networks, collective impact, and tools of government.

The (Sharing) Economy and Trust:

Many of the shared-use platforms rely greatly of the trust mechanism that is developed alongside the reductions in transaction costs to fuel the growth of their businesses. Companies such as Uber have grown considerably fast, and have valuations that are comparable, or greater, to the largest incumbents in their respective industries. By moving quickly, these firms captured the market, becoming leaders in their industries. Uber, in 5 years, has US sales of over $500 million annually (Hoovers, Oct 2015) with a valuation of $51 billion and is now considered the world’s most highly valued private company (Blumstein, 2015). These companies do resemble the traditional firm, with a centralized management core and subsidiaries, but have structures with low employment costs and little capital investment. Uber owns very few cars, Airbnb owns no property, and outside of the management team, employs no one.

The role of governance is also changing as the trust mechanism is becoming far more important than regulation is setting price, expectations, and safety concerns. The peer-to-peer network that the shared use businesses rely on is built on the mechanism of trust. In fact, a trust fee is built in to the bill of some shared use businesses. According to a recent Pew Research poll, however, trust levels are low amongst the millennial generation, defined by Pew Research as those born after 1980. Only 19 percent say that people can generally be trusted, but they are networked in high numbers, trust their networks through social media and are highly connected (Drake, 2014).

Reviews are a growing component of the sharing economy. Trustworthiness is based on reviews that are the result of a peer-to-peer connection. Trust through interpersonal relationships, and knowledge networks have been studied in how individuals receive information through informal networks (Abrams, et al. 2003). The research should now turn to the role of information gathering through digital communities and how people use knowledge sharing to make a consumption decision in the sharing economy. A recent study analyzed reviews for 600,000 Airbnb properties around the world and found that 95 percent of the ratings were 4.5 or 5 stars, and none having lower than 3.5 stars (Zervas and Proserpio, 2015). This is in contrast to rating for 500,000 hotels on TripAdvisor where the average rating is 3.8 stars. (ibid.,). What was particularly interesting about the findings of this study is that where they are cross-listed properties (those on both platforms) Airbnb receives, proportionally higher ratings (4.5 stars and above) than TripAdvisor. (Ibid., p.1). Important to the subject of governance is that the concept of online reviews have tremendous power in the marketplace. A 2012 Nielson study showed that second to ‘earned media’ which includes word of mouth or friends and family recommendations, 70 percent of consumers trust online reviews as a source of information, up 15 percent in the previous four years. Trust in online reviews is a critical component for the shared-use platforms, and a form of governance that is growing for this segment of the market.

So perhaps trust in individuals is not the same thing as trust in a socially connected business, where consumers feel they have a voice in rating and choosing the service. Combined with this is also a growing mistrust in the government, across all levels. In a 2014 Harvard Poll survey respondents said that they only trust the federal government to do the right thing 20 percent of the time (Walker, 2014). Trust in corporations, however, is not as low as between individuals or the government, but according to a Corporate Perception Indicator survey, 40 percent of millennials see corporations as a source of fear (Lam, 2014).

A low trust in corporations and the government, while concerning, may also be driving the sharing economy forward, as businesses are now connected to people in your network or you have a way to directly communicate, or at least feel that the businesses are being responsive to your needs, as well as increasing transparency organically, not through imposed regulation.

While fear exists, one could argue that corporations, particularly large corporations, such as the leading shared-use businesses are vital for the strength of our economy. While 40 percent of millennials see corporations as a source of fear, they are seeing these businesses differently, as they are utilizing their services in greater and greater numbers. Schumpeter’s understanding of capitalism shows us a system where there is constant change, uncertainty, experimentation and diversity, leading to a system of large firms. Schumpeter argues that the idea of the large firm, or big business, have “to do with creating the standard of life” rather than “keeping it down” (Schumpeter 1947, 82). There are more small firms in the US than large ones, but the large firms provide the essential elements necessary for the strength and vitality of our economy. Small firms often rely on the large firms for employment of consumers who in turn purchase goods from the smaller firms, or are in fact, a partner of the large firm through supply chains. But in American society we have continued to demonize big business rather than recognize its benefit to society. An August 2014 article in Salon Magazine stated that “There’s little doubt that Uber is the closest thing we’ve got today to the living, breathing essence of unrestrained capitalism” (Leonard 2014). The writer is in fear of an Uber monopoly: “What happens to labor — the Uber drivers — when they have no alternative but Uber?” (Leonard 2014).The author has fallen victim to the invocation of fear of which Schumpeter warns. He has accepted the “momentary situation as if there were no past or future to think to it” (Schumpeter 1947, 84). It is quite possible, and likely will happen, that Uber will one day become a lazy monopoly. However, if we take heart in Schumpeter’s version of capitalism, Uber will survive only to be unseated by an innovative new company that will challenge its position in the market. Our economy could not survive without large firms who innovate, grow and employ.

Emerging forms of businesses such as the firms that take on characteristics of sharing, or a shared platform, have received wide spread criticism of their business structure, market power, and employment practices. The largest shared-use firms have drawn the most criticism for doing exactly what Schumpeter says must happen in order to sustain a capitalistic economy. These firms are the “fundamental impulse that sets and keeps the capitalist engine in motion” by, in and of themselves, creating new ways of doing things and providing services (Schumpeter 1947, 83). Uber has been the center of multiple lawsuits, including a class action suit which claims that Uber has miss-classified its employees as independent contractors. The outcome of this decision will have profound effects on labor laws and regulations.

Government has long been the steward of public goods and socially minded services. Nevertheless, there is the potential for shared-use to change the delivery of such services. Given that the United States is innovation driven, we can then explore why shared-use businesses have been able to develop and are experiencing success.

The Transaction Cost Explanation:

Shared-use is not a new innovation model, but it is part of the evolutionary process of business development. Shared-use businesses capitalize on essentially absorbing the transaction costs for their users, both the clients and the service providers. The impact of technological change on the actual shared-use business model is evident. The only product that many shared-use companies provide, particularly the largest ones, is the ability of clients and service providers to easily and quickly find each other and exchange payment for service. The development of the peer-to-peer platform, reducing the time and costs involved for access to services has a competitive edge. The circumvention of traditional regulations eases the burden on growth for many of these companies, but recently more have been turning to governmental cooperation, which will be discussed later in the paper. The reduction in costs, resulting in better service, is also driving the creation of shared use businesses. Transaction costs, introduced by Ronald Coase in *The Nature of the Firm,* are those hidden burdens placed on time and money, or the cost of making an economic exchange, are being reduced, causing a decrease in cost, and an increase in the ease and use of shared-use businesses. In the internet age, we have become accustomed to be able to do things faster than ever before, and shared use businesses are capitalizing on this aspect of the platform.

Shared-use businesses take advantage of the reduction in transaction costs that they provide to both the provider and the client. Chandler, building on work by Oliver Williamson, argues that technology has had a “critical impact on the nature of the transaction cost”, much more than Williamson presented (Chandler 1982, 128). The technological advancements in transportation and communication, as outlined by Chandler, are the precondition for the massive increase in such transactions. This has contributed to the development of shared-use platforms. The technological ability of the platforms of firms such as Uber and Lyft allow for millions of transactions to occur instantaneously. Not only the actual financial transaction, but the customer matching, provider search, and reviews and ratings, are all at the customer’s finger tips, drastically reducing the transaction cost to the consumer. The service provider, in this case usually an independent contractor, has the benefit of not having to deal with collection of fees, customer acquisition is streamlined and easy, marketing, and other HR functions are taken care of by the head company. The reduction of transaction costs through technology is very evident in this sector emerging in our economy. Schumpeter would recognize these firms as precisely the kind of firm that is representative of his capitalistic system. Capitalism thrives on innovation. A static system develops the bad types of monopolies and lazy, incumbent industries. New technologies shake up the market, forcing the incumbents to improve service, lower prices, and open up to competition.

Large firms have origins in the need for reducing transaction costs. The ability to innovate, according to Schumpeter, comes from the ability of large firms to exploit economies of scale. It could be said that large firms begin as agile, small firms that recognize the opportunity for innovation and the market. Shared-use firms have disrupted the market, shifting the illusive equilibrium point of the neo-classical model. The destruction of the taxi business or hotel business will not occur in its totality but the reduction of market power, causing pressure and change within the incumbent industry will occur, and has already begun to occur. Capitalism continues to evolve, firms evolve, and the market evolves.

One could argue that the exact result of the introduction of shared-use to the market is directly related to this decrease in transaction costs. This reduction in transaction costs has allowed these companies to grow very quickly, and even the smaller non-profit style shared use businesses operating at lower costs. With this growth, governance has become a very salient topic for this sector. The next section of the paper takes and in-depth look at three segments of transportation where shared use is growing, ride hailing (Lyft, Uber), Bike sharing (Capital Bikeshare) and the development of autonomous vehicles (AV).

Emerging Governance Models in the Shared-use Sector:

The concept of a shared economy has been on the rise in recent years. The internet has ushered in an age of shared content that anyone can be “accessed by anyone with an Internet connection, a browser, and a government that allows access to most or all web content” (Belk 2014, p. 1595). Networks are a key ingredient to governance of these emerging platforms that are affecting incumbent private sector business, non-profit providers and government services. Networks of shared-use businesses are growing more important to the both the economy and the social services and it is vital to understand how regulation and legal oversight can best be applied, if at all, to the growing number of such businesses. Networks link individual groups and organizations along ties between social actors that have reason to connect with one another at the institutional level. Networks can illustrate how the world works, and through networks, we can begin to understand behavior, at the individual, group or institutional level. The strength, reliability, or values of connections have consequences, some bad, and some good, on the outcome or functions of the networks.

In the discussion by Krebs and Holley (2005), on how to build an adaptive community through network weaving, we see how a community is possibly built through these connections. If we look specifically at how shared-use businesses operate, we can utilize network weaving to show the development of the shared-use business, both at the functional level and at the institutional level. At a local level, some of these businesses are undertaking partnerships with government and non-profit agencies to connect to users and their communities, leveraging collaborative impact ideology to become entrenched in the market. Goldsmith and Eggers suggest that the success of a network depends largely on it original design (Goldsmith and Eggers, 2004: 55). While this may be true for a static network, networks made of individual actors can change overtime. Government can avoid problems of wasted energy on problems generated by a poor network if a structured design approach is undertaken (Ibid.,). While this may help, human actors have their own submerged networks that can often undermine the structured network that is planned. Outside opinions, influence, and submerged connections can sometimes play a greater role in determining success or failure than that of a well thought out network plan.

Choosing the right partners is key, but even with the right partner’s unforeseen hurdles from those unexpected sources can ultimately destabilize the network. This traditional philosophy of networks is somewhat upended when dealing with peer-to-peer relationships. Partnerships between the client and the service provider are fleeting but can dramatically affect the future business viability through negative reviews. Transportation networks are complex by nature. There are many actors in the network with varying levels of control over different aspects of the network. The insertion of shared-use businesses has dramatically disrupted the incumbent network actors.

Shared-Use Transportation: Public transportation has been delivered through the tool of direct government, and paid for through taxes, subsidies, and fee for service. Public transportation addresses the failure of the market in the sense that personal transportation is private, expensive and by those definitions unreachable by certain populations. This element of society is highly visible and operates mostly at the local government levels. It is wholly rational that public transportation, including taxi cabs to a certain extent, are regulated through the direct government approach. The situations set forth by Salamon (2002, p. 61-62) illustrate why public transportation is governed through a largely direct approach. Equity is a concern, and performance cannot be left to chance, a private company would be dis-incentivized to operate money losing routes and services.

Economic activity relies on a well-functioning transportation system, both private and public. But the idea of the submerged state, presented by Mettler (2011) could be applied to how public transportation is delivered to the public. Indirect subsidies are rampant in the public transportation sector and while based on the idea of equity, serves a largely middle to upper income population[[1]](#footnote-1). This has caused a ‘gap with in a gap’ in the market, filled by the shared-use transportation sector. The rise of shared-use models can potentially cause a more visible indirect approach or a more collaborative governance system for public transportation through public-private partnerships in the form or bike or car sharing, the addition of ride hailing companies forming partnerships with local governments, and the development of the autonomous vehicle.

Transportation has dominated the discussion around the shared-use companies. Uber and Lyft are the two most notable car-sharing companies and many major cities in the US and abroad have a form of a bicycle sharing company. Ride-sharing is not a new concept, but the incorporation of business where they utilizing real-time data, is. Transportation Network Companies (TNCs) are developing new innovative ways for ride sharing, ride sourcing and ride splitting that are creating social benefits across the value chain. As ride-sharing has moved away from traditional carpooling to a more mechanized automated system utilizing technology, many businesses have taken advantage of the advancement in technology and shifting trends. These transactions of commercial ventures can be referred to more accurately as “pseudo-sharing” as they often take on the term of sharing, like ‘car-sharing’ but are, more accurately, short term transactions or short term contracts of use (Belk 2014, p.1597).

This ability is exemplified by the peer-to-peer connections prevalent in the transportation sector. Shared-use or transportation network companies (TNCs) have grown substantially in the past 5 years. Companies such as Uber, Lyft, Zipcar, Bikeshare, Bikestation, NuCar, Car2Go, and others have taken advantage of this shift in consumer preferences toward ‘renting’ or ‘sharing’ for the purpose of transportation, as well as the ability to have two-way communication between users and providers. Their future impact on government policies cannot be ignored as attitudes of the millennial generation are changing what they demand from government and business. There is greater collaboration between shared-use businesses that are operating at a public level, such as bicycle-share firms and other private-public partnerships in public transportation that are beginning to follow this model. Perhaps as the industry matures there will be more collaborative environment. In order to acquire first mover advantage and maintain it, Uber, most notably, has been determined to outpace its competition. Uber has been accused of using tactics such as ordering Lyft rides, then cancelling them and overt recruitment of Lyft drivers have been reported (Kerr, 2014). But one could argue that these practices are merely aspects of the capitalistic model, “the game is not like roulette, it is more like poker” (Schumpeter 1942, 73). These companies are strategic in their model but also at undermining their competition to maintain market advantage.

Krebs and Holley (2005) provide a guideline for drawing the network, a technique vital for understanding the role of actors within the network and the potential governance structure. We can specifically look at a shared-use entity such as a bike share system. Ultimately, an analysis of a potentially interconnected multimodal system that offers users a variety of choices based on time and price will provide the richest amount of information, but as will be discussed; these networks are just beginning to form. Multimodal networks involve a variety of actors: A private company operating the stations, government involvement in providing space and access to utilities, connection to a large multimodal network of public transit, and users, who are subdivided into commuters and non-commuters. To begin, Capital Bikeshare will be discussed.

*Capital Bikeshare:*

Capital Bikeshare is owned by multiple municipalities but operated by the private company Motivate, which design, deploys, and manages the system. Funding for the project comes from service fees as well as grants and loans from the Federal Highway Administration and Virginia Department of Rail and Public Transportation (Capital Bikeshare, 2105). This is a complex network with a variety of actors, not including the users, which in theory offers high quality service and a system of accountability. However, as a government owned and partially funded entity, concerns are growing in regards to accessibility for all users of all incomes. This network contains no non-profit providers and in contrast, the public transportation network, offers reduced fares and a variety of mandated accessibility options. Capital Bikeshare is leaving many potential users out of its network, with little accountability through the network. As this is a partially government funded program, as is most of public transportation, we see the problems of who actually uses bikeshare are very similar. The popularity of such systems is in large part due to the push for “greener cities”, by reducing congestion and pollutants.

For a network to be successful there are a variety of characteristics that should be present. Alignment of goals, communication, governance structures, accountability, consistent leadership and measures of shared risk amongst the participants in the network are all-important. There are gaps in the network for Capital Bikeshare. Provan and Milward (2001) examine the networks of cooperating service providers, and the effectiveness of a given network. In the case of bike share and ride share companies there are many inter-organization policy decisions that are looming. Most notably would be allocation of street space. Street spaces for bicycle lanes, parking of bicycles, bicycle friendly pathways are all policy decision that affects both the users and non-users of the system. All of these policy decisions widen the network of organizations involved in determining the future progression of bicycles as part of our multimodal transit orientated development. The evaluation of networks at the three levels of analysis: community, network and organization levels can be leveraged in this case to understand how the policy decision impact and performs “at a level that justifies continued public support” (Provan and Milward 2001, 415).

Prevailing wisdom of networks is that interdependent groups that collaborate are more effective than each individual organization could do on its own (Provan and Milward 2001 from Alter and Hage 1993, 415). This is in large part the rationale behind forming a public private partnership as well. Government recognized that in this case it did not have the capacity to maintain and manage the program but had to be the steering body that is able to bring the program together. There is also a point to make between effectiveness, complexity and manageability. Public sector networks are questioned by Provan and Milward, but if we extend their argument to public-private partnerships, many of the same issues exist. The case of Capital Bikeshare is one where private industry failed and the public sector picked up the idea because there was demand and they saw that it fit into their overall transit plan. SmartBike DC was a failure[[2]](#footnote-2), in large part because it had to deal with the public sector in gaining public space, and access to utilities that the public sector was not overly wiling to change for a private company. As the municipalities picked up the program, an issue with the joint –production problem arises: how do multiple agencies, which run the same thing in their respective communities, come together and produce a single service? This is where, for the network to work, a private partner is a good alternative. Motivate can be impartial, but also see the big picture rather than only be subject to the pull of each municipality. They can help mediate the network, and in return receive legitimacy from the partnership with the government.

With this discussion of public-private partnerships, it may be more appropriate in this case to refer the relationship and network between Capital Bikeshare and its municipal partners as public-private collaboration. Donahue and Zeckhauser (2011) analyze the private roles in public goals. Collaboration, where there is a spreading out of agency between the principal (government) and the agent (the private company); can be used in this sense to explain the network that exists in this case. This sharing of agency is expected to pay off in the end, and so far, in the case of Capital Bikeshare, it has. Donahue and Zeckhauser rightfully argue, “the rationale for involving private partners in public work, is to amplify the government’s ability to accomplish its mission” (Donahue and Zeckhauser 2011, 32). In collaboration the relationship and network is much deeper and fruitful than a contractual agreement. This collaboration, runs deep enough that it could be mistaken as a division of the government, and not a privately run company. Bikeshare systems are seen as an alternative to the other forms of public transportation, as well as a complement to existing public transportation (Martin and Shaheen, 2014). The government does motivate, influence and constrain Motivate, as was the case when there was no collaboration and SmartBike DC failed. Without the government, Capital Bikeshare could not operate or it would be very difficult for it to do so, and without the private interest the government would be hard pressed to hire and leverage the same expertise from within its self to effectively pull off this program.

Bikeshare companies have gaps in equity as they grow in popularity as well. In the U.S. most public transportation is only provided by the government, with the exception of a rising non-profit presence to compensate for underserved regions or for special populations that are in need of low-cost, accessible transportation. Bike sharing systems are not for everyone. Many communities have seen great success with bike share programs if the metric you use if actual ridership, but there are many hurdles with the network that exclude potential users. First off, because most are public-private partnerships, as with Capital Bikeshare, the private company operates and manages the system. This means that they hire employees to maintain the bicycles and the payment system and are not beholden to many of the same processes that a public transit system would be until pressured by its public sector partner. The very nature of bikeshare makes it inaccessible for those people requiring a wheelchair or those who have other mobility problems, the payment system is electronic, so a credit card or electronic bank account is a necessity. Location is also a problem. Even though the government owns the company, it has very little say in where to place stations, as the profitability of the business is a priority for Motivate. Traditionally poor neighborhoods in the DC metro area do not have a Bikeshare station, in-fact there is not a single station in Prince Georges County. This will change, as discussions are currently in place[[3]](#footnote-3), but the fact remains that these areas have been excluded the longest.

Transportation is heavily regulated and is in large part seen as a public good, therefore the government has wide spread control over varying aspects of the sector. This is particularly true of public transportation but also roads, railroads, aerospace, etc., The growing popularity of shared-use is not going unseen by government.

*Lyft:*

The ride-hailing companies such as Lyft have been moving towards a more collaborative governance structure. This has come from both a bottom-up approach in connecting with local non-profits through the Lyft for Good program, as well as a top-down approach in collaboration with government through the ‘Friends with Transit’ program. Lyft developed out of the company Zimride, a ride-sharing company geared toward long-distance trips that largely operated on college campuses using Facebook connect. Marketed toward universities and corporations, Zimride offers unique benefits to both classes of users. The company partners with universities and corporations to develop a platform for ridesharing. Zimride encourages users to track their commuting to show how many pounds of carbon they have potentially saved by carpooling.[[4]](#footnote-4) Zimride was bought by Enterprise Rent-A-Car in 2013. The founders, Logan Green and John Zimmer created Lyft in 2012 to address demand for short-term trips in urban areas.

Collective impact to tackle social problems (Kania and Kramer, 2011) has been rising for Lyft as well. Lyft for Good is a program within Lyft whose main mission is to have social impact: “Lyft for Good program works with nonprofits and our driver community to create a positive social impact, one ride at a time.” (Lyft Blog, 2015). This program is based in empowerment, impact and local communities, with the goal to bring social value to the communities where Lyft operates. Lyft for Good, on the surface may seem like a traditional social responsibility, but at its core it can be the way forward for delivering care and services to underserved populations. Lyft sources ideas from its customers and drivers for these initiatives, therefore responding to the needs of the community. Examples of the services are delivering disaster preparedness kits, Meals on Wheels, and other services to seniors who do not have access to regular transportation (Soper, 2014).

Lyft’s motto: “A ride whenever you need one”, reflects the on demand and flexible use that these ride-sharing companies exhibit Lyft’s model, slightly different from Uber’s, where everyone has a private driver, is much more social in nature. ‘Friends with Transit’ is an interesting extension of the business model. One of the motives for collaboration, according to Donahue and Zeckhauser (2011), is better outcomes. This “applies when the government has a well-founded expectation that engaging private collaborators will produce more public value, relative to the resources used, than the public sector could deliver on its own” (Donahue and Zeckhauser, 2011, p.35). Government has engaged Lyft for a few reasons. One appears to be Lyft’s mission itself: “to change transportation for the better”. Second, according to Lyft’s company data, 25 percent of its riders are using Lyft to solve the last mile problem, which is how to connect to public transportation infrastructure. Dallas has been the first to engage Lyft in this program, and Lyft is now a transportation option on the GoPass – a mobile ticketing application by the Dallas Area Rapid Transit(DART) (DART, 2015). Through both collective impact and collaborative governance, Lyft is growing its partnerships and oversight through a dense network with promising results for the future. As these companies grow, we are seeing TNCs move toward a greater friendliness with government.

The examples of bikeshare programs are operating in most places in the US as public-private partnerships, and transit authorities are exploring partnerships with ride hailing companies such as Lyft. The synergies exist in this sector. The next step, connecting people through offering options for multimodal transportation is a role for government and perhaps non-profits, in a multi-stakeholder governance system that will provide reliable and safe transportation for everyone.

*Autonomous Vehicles:*

Coming innovations in transportation such as autonomous and self-driving vehicles on the commercial market will make this a potential sooner than many people think but will also usher in a host of governance problems. Uber has stated that their intention of developing an autonomous fleet is to create a system of on-demand, shared, autonomous taxi services, where no one would have to own a car and has opened a research facility in Pittsburgh to develop the technology (Biggs, 2014).

The current debate centers around a few key issues: is it too soon to impose social or economic regulation on the autonomous car industry? What standards should be undertaken? Who is responsible once we achieve full self-driving technology for the actions of the machine, and do they have the right to self-preservation? The case would be a car which is driving and turns a blind corner, perhaps having its radar blocked but a rock outcropping, caught unaware of the group of people standing on the other side of the outcropping, resulting in a split second decision to crash itself, killing all those inside, and essentially itself, or crashing into the people. It is not the machine’s fault that there were people standing in the middle of the road, around a blind corner, so why should it punish itself and its riders for someone else’s mistake? How do we program ethics into a machine? And who or what kind of entity should be driving the technological development and oversight? These are questions that the industry is currently struggling with and will become to the forefront of governance issues for the sharing economy as the technology continues to evolve and emerge globally.

Governance of electric vehicles in the US and abroad has also lead to questions of now integrating autonomous vehicles, with or without the shared-use component into the market. We have seen China, and the United States and other developed countries, struggle with creating demand for Electric Vehicles (EVs). In 2014, Electric Vehicles had over a 1 percent market share in just four countries (IEA, 2015). This has occurred even with excessive subsidies and government policies favoring the technology, which have failed to penetrate the market (Wan-Wen., et al). With the next big transportation innovation here, autonomous vehicles (AVs), many of the questions and problems that have arisen in implementation and development of EVs remain the same. The new technology that exists goes beyond the scope of simply changing the way a car sources its fuel. AV technology has an opportunity to fundamentally changing transportation, but not without limitations and obstacles. Production capabilities are restricted due to the need for highly skilled labor and manufactured inputs, and high tech networks that allow the connectivity between the vehicle and the external environment.

Telsa and Volvo are the leaders in AV technology for commercial viability, along with Google. The German carmakers Mercedes-Benz and BMW, in joint ventures with Chinese and Indian companies, are rolling out autonomous technology (Asarelli, 2015). Detroit automakers, such as GM, are in production and have plans to release AV cars in the next few years (GM, 2015). Peugeot-Citron are running trials and the French alliance of THALES and Valeo, who provided the self-parking technology to Audi and Mercedes, are testing driverless cars as well.[[5]](#footnote-5) The Chinese firm Tencent has teamed up with Foxconn, the company that produces the IPhone, to create smart driverless vehicles (Wang, 2015). In summary, every major car manufacturer and many technology companies already have a project in place. So where is the technology centered and where will the governing mechanisms be centered are crucial questions for this emerging technology.

Gerschenkron (1962) sees industrial development as the backward nation taking what it is given and developing something new, something different, perhaps even something better, but will the coming technological changes in a globalized, interconnected world, follow the same pattern? We also have to consider the point that Abramovitz (1986) makes toward the social history of a nation: “The state of a country's capability to exploit emerging technological opportunity depends on a social history that is particular to itself and that may not be closely bound to its existing level of productivity” (Abramovitz 1986, 406). This idea of social history is very important in transportation. I believe it will be very hard for nations that do not have a traditional of automotive culture and industry to develop an AV industry, this goes hand in hand to their ability to create a proper governance network as well.

There has been a shift from buying transportation to buying mobility, and this is a growing trend in transportation theory. Autonomous Vehicles (AVs) represent a mobility option, one of many, that is emerging in the market. Combined with the shared-use model there are great possibilities for increase social impact– increased mobility for those with disabilities, children, and elderly, along with decreased congestion, pollution, and increased fuel efficiencies. Due to these positive impacts, the social benefits of AV technology draw in policy makers.

Nevertheless, governance issues are holding back the implementation of the technology; there are the same culprits that hold back EVs – slow regulation, poor understanding of the technology, even fear. With electric vehicles, the fear of running out of a charge on a trip; with AV there is fear of the car going out of control. So how do we salvage economic prosperity from these new technologies that are expensive and when consumers have trepidations of their involvement in our future? One way is to look to the past and the future. The experiences of bringing EVs to market allow us to look at the policy failures of trying to push EVs on consumers. EVs and AVs are tied together as we look to the future. Many producers of AV technology are pairing it with no emission engines. Governments have pushed EVs, to encourage less reliance on fossil fuels, reducing carbon emissions, etc. but there are many problems. The viability for electric motorbikes versus electric cars in China, illustrates this point. The time and size of a bike battery versus a car battery, and cost of charging, makes the electric motorbike a much more viable option for the Chinese consumer, as well as consumers in emerging economies. Wan et al (p. 120) highlights local protectionism, uncertain vehicle technology strategies, limited charging infrastructure, and conservative battery and automotive manufacturers as being the culprits in the Chinese case. Yet, with AV technologies, the Chinese government, the US and Europe, have all continued to push ahead with testing AV technologies in cities.

Problems of infrastructure development, applicability in emerging markets, where electricity is already an issue for basic needs, and cost, are prohibitory factors of adoption of AV technology. As with EVs, infrastructure, social history, and regulation are obstacles to AV production and adoption. Emerging governance issues with AV technology will be global, not national, in scope. AVs are linked to external forces with greater need than EVs, as the cameras and sensors can only react to programmed scenarios or what the car can sense. This requires an outside network of satellite pinging, excellent maps of unfamiliar areas. The car cannot simply anticipate what is ahead of it in 200 feet every time it drives; it has to have the ability, like a human, to look at a map, anticipate the route, understand the dangerous spots, or the heavy traffic areas, and this requires a complexity of connectivity to outside sources of information. The network of actors that must be in place for this technology to operate properly has yet to be developed, but it will be highly complex, and dense. The governance mechanism that is needed for the coming autonomous technology will surely be a form of third party governance. This can potentially be a non-profit association that governs the standards for autonomous vehicles, for-profit companies manufacturing the vehicles, and government regulation of use of streets, and social regulation for currently immobile members of the community. Currently there also are no regulations regarding the actual deployment of full AV to consumers. Policy makers are hesitant, and rightfully so, to implement regulation at this time in the US, as it might hamper innovation and further development of the technology.

Conclusion:

The world is “shrinking”, to some degree, through the digital age that allows a variety of networks and technology to reach around the world instantaneously. The resulting networks and the ability to transfer information at a quicker rate than ever are influence the development of new technologies. Governance issues surrounding these new technologies and businesses models in the sharing economy are not slight. The peer-to-peer connectivity is an important component that is growing in regards to governance of shared-use.

We should not fear these emerging forms of business and technology no more than we should fear capitalism, to borrow from Schumpeter. Mobile phone technology, crowdsourcing, crowdfunding, outlets such as twitter, and Facebook – these large, some multinational corporations, and networks, have been developed in a very exclusive environment has continued to become more inclusive as they grow. Their influence and breadth are spreading globally, and the governance problems that come with a global social network facilitating the sharing economy are growing as well. Governing mechanisms through traditional channels are being applied in varying capacities to these models but gaps and questions remain. Bikeshare systems are being pushed by political agendas, but are not equitable in their services. Ride hailing companies are beginning to show signs of collaboration with government and non-profits organizations but it is not spread throughout the industry. The introduction of autonomous vehicles is proving to be an interesting and challenging global governance issue.

A well-built network is essential to being able to provide delivery of these services to the public. As we have seen through the example of Lyft the road ahead for an integrated transportation network is just beginning. As a greater number of stakeholders enter the network we will see a multimodal network of government, at the local, state and federal level, private companies, non-profit service providers, and peer to peer connections governing this complex system. Shared-use is built out of the public transportation system. The commonalities of providing transportation to everyone, at an affordable rate are aligned. The complexities arise when you enter the multiple actors, rather than solely the use of direct government. Trust is emerging as a critical component in governing the delivery, safety and oversight of these shared-use platforms. Further research needs to include a systematic analysis of role of trust in the sharing economy. This paper has attempted to highlight some of the current governance channels that exist in the sharing economy as it relates to transportation, and try to understand what current models of governance can apply to the future of shared-use. As we continue to move toward an increasingly digitized economy, we have to better understand how these businesses can be governed, and at what level.

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1. Only 16 percent of Capital Bikeshare users have annual household incomes of below $50,000, while 50 percent have annual household incomes of over $100,000 according to the 2014 Capital Bikeshare Member Survey Report p.6. (http://mobilitylab.org/wp-content/uploads/2015/04/CapitalBikeshare\_2014\_Member\_Survey\_Report.pdf) [↑](#footnote-ref-1)
2. To read more about SmartBike DC see <http://www.washingtoncitypaper.com/blogs/housingcomplex/2010/09/16/r-i-p-smartbike-good-riddance/> [↑](#footnote-ref-2)
3. See <http://dcist.com/2012/05/pg_county_bikeshare_study.php> for current status. [↑](#footnote-ref-3)
4. For an example see https://www.zimride.com/mason [↑](#footnote-ref-4)
5. Valeo Autonomous iAV Car Driving System CES 2015 https://www.youtube.com/watch?v=Kawkt1uN-mg [↑](#footnote-ref-5)