An Investigation of the Sharing Economy, Power in the New Tech Economy, and The Opportunity for ESG Investing to Create a More Inclusive Digital Age

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Chapter 1: Introduction

Born out of the economic instability of the Great Recession, the sharing economy is a social technology movement aimed at using technology to share our limited resources in a more efficient manner. After the collapse of the subprime mortgage markets, millions of Americans were out of work and significant concern existed regarding the future of work with rising threats from robots and automation to displace more job opportunities. In an unstable economy with high unemployment rates, poor social mobility, and heightened focus on income inequality, new social movements also emerged, such as Occupy Wall Street, to advocate for more social equity and to orient society around a more moral, stakeholder philosophy.

Out of this chaos, a new wave of sharing economy companies, framed as engines of job creation, emerged. Uber promised a low barrier to entry method of employment in which drivers could download the Uber driver app on their smartphones and begin working almost immediately. In a similar vein, Airbnb enabled individuals to rent out their homes, apartments, and even rooms to create supplemental income for themselves and their families. By using technology to share resources more efficiently, Uber and Airbnb promised to redress some of the inequities exposed during the Great Recession and planned to usher in a new paradigm for earning income. As the sharing economy has evolved over the past decade, usage of Uber and Airbnb has skyrocketed. Over 3.9 million drivers use Uber and 4 million Airbnb hosts have joined the platform, catapulting Uber and Airbnb to market capitalizations of 86.7B and 107.6B, respectively as of October 26, 2021 (Helling). Clear benefits exist to these sharing economy companies, including providing a social safety net to some workers and enabling easier methods of transportation and travel for millions of users. However, there are also questions that exist regarding how this technology is creating two classes in society, one of price and convenience sensitive ‘higher class’ customers and another of ‘lower class’ servants to cater to the higher class’ desires. In the process of creating a new paradigm for generating income, Uber and Airbnb have also fundamentally shifted the power dynamics of society and the future of work in dangerous ways.

Our project uses Uber and Airbnb as a case study for how Silicon Valley algorithms change the rules of the world in favor of the company over the individuals supporting
the functioning of the business. More specifically, we plan to demonstrate how Uber and Airbnb are rewriting the rules of work and employment in the gig economy and demonstrate the problems that we will encounter if we continue to allow technological elitists to decide the future of work.

We will dive into two main areas in which Uber and Airbnb have flipped the notion of employment on its head. First, we will evaluate the classification of drivers and hosts as independent contractors instead of employees. Second, we plan to demonstrate the exploitation and power asymmetry characteristic of these platforms through the use of algorithmic management. In addition to outlining the current research completed on algorithmic management, we will provide our own data analysis to determine the extent to which algorithms used by gig economy companies hurt the worker in favor of the corporation.

In our opinion, these companies, couched in the terms of a “sharing economy,” confuse disruption with innovation and pretend to be stakeholder oriented while actually operating in a shareholder economy. Citing neutral, transparent algorithms and technological exceptionalism narratives, they blur the line between employment and consumption by treating drivers and hosts as consumers of their product. While they promise to provide freedom and entrepreneurial work to drivers and hosts, the realities of the gig economy fall far short. Uber and Airbnb embed exploitation into its algorithms, pit community stakeholders against each other, and use the power of big data to maintain power and hide information from its users. These practices perpetuate social inequality and set a dangerous precedent for how workers should be treated in society.

Ultimately, Uber and Airbnb can be viewed as a cautionary tale of the lengths technology companies will go in the name of growth and the vast impact these organizations can have on societal standards, including the value of work and how we do it. From our analysis on the dangerous precedents set by the sharing economy, the question to be asked is who to blame? In our opinion, venture capitalists played a large role in the creation of these companies by providing cheap capital to fuel rapid expansion and fight legislation.

Understanding the failings and dangers of the sharing economy is particularly relevant as we come out of the COVID pandemic and evaluate what the future of work looks like. Venture capitalists around the world have begun making massive investments into companies tackling the new way of work that the pandemic has brought upon us and “future of work” has become a buzzword among the venture capital and Silicon Valley ecosystems. Just as the crisis created by the Great Recession resulted in the development of the sharing economy that transformed our view on work, we believe that
there will be a new wave of “future of work” related companies that will have a similar outsized impact on societal standards for work. It is critical that venture capitalists consider the ethical implications of their investments and the consequences that funding companies based on exploitation and manipulation have on generating further inequities in society.

Given the watershed moment for the future of work the pandemic has created, the second part of our project will focus on funding the ethical ‘future of work’ companies that are grounded in a more equitable, stakeholder philosophy. First, we will analyze options to incentivize venture capitalists to consider the social and ethical implications of their investments. This will largely take the form of evaluating the Environmental, Social, and Governance (ESG) investing movement and the benefits of applying it to the venture capital scene. We believe that a sustainable economic environment starts with the broader community and limited partners and investors must do a better job supporting it. Second, we plan to outline the first principles companies and investors should follow in the age of algorithms. In other words, we want to create a clear set of criteria investors should look for in potential investments and entrepreneurs should strive for in building their companies that support an equitable future of work.

In summary, our project seeks to demonstrate the dangers of the sharing economy created and funded by Silicon Valley and provide an ethical framework for investors and entrepreneurs in evaluating the creation of new ventures during a time ripe of disruption in the ‘future of work’ space.

**Chapter 2: Related Works**

Incredibly impactful research has been conducted to expose the questionable practices of Uber and Airbnb, which we intend to summarize here. Additionally, we intend to outline the rise of ESG within the private equity industry with the intention of drawing on these insights to accelerate the adoption of ESG within the venture capital industry.

Alex Rosenblat, former senior researcher at Data Society and current Head of Marketplace Policy, Fairness, and Research at Uber, is a leader and pioneer in evaluating the gig economy and Uber. A large part of our project draws inspiration from her 2018 book *Uberland*, in which she exposes how Uber has rewritten the rules of work through the gig economy and utilizes algorithms to hold drivers hostage to the demands of the company. Rosenblat’s research falls largely into two main categories: Uber’s employment model and algorithmic management and practices. We plan to briefly summarize the key findings for these two categories.
First, Rosenblat explores how Uber has decided to weaponize the myths of the sharing economy in order to treat their drivers as consumers instead of workers. Specifically, Uber relies on the myth of the economic value of sharing, technological exceptionalism, and glamorized millennial labor. Uber and the gig economy have transformed a clear top down hierarchical employment structure into a platform in the image of open source software culture, where any person can contribute their resources to achieve a superior service or product. By redefining the nature of work as a form of sharing and as a tech phenomenon, Uber can blur the line between producers and consumers and frame their technology as a counter solution to other more predatory forms of commerce and employment relationships. Uber simultaneously carries the banner of technological exceptionalism, which is the idea that regulations and laws that apply to their industry competitors and predecessors don’t apply to them because they identify as innovative, technology companies. By utilizing the notion of the gig economy instead of a taxi service, Uber tech-washes its service into something that is more culturally desirable and innovative in an effort to avoid regulation. Finally, Uber attempts to glamorize driving for their platform in their ads by appealing to the American entrepreneurial dream. While Uber promises to deliver mass entrepreneurship for workers and a pathway to the middle class through technology, the actual experiences of many drivers are far from this rosy rhetoric.

While Uber claims to provide entrepreneurial endeavors for its drivers, it actually has more power over the drivers than one might realize. For instance, Uber pits its full time and part time drivers against each other in order to have more control over the marketplace. The availability of part time drivers on the platform reduces pressure on Uber to create more sustainable earning opportunities. In other words, Uber has developed a business model that benefits from having drivers with different levels of investment in the job. Due to the two sets of drivers, Uber is able to depress wages to a point that meets the lowest common denominator, their part time drivers. This business model pits the least invested drivers, who compromise the majority, with the most invested drivers and helps to undermine efforts by full time drivers to improve their working conditions.

The second half of Rosenblat’s book focuses on the failure of these promises of entrepreneurship that result from Uber’s problematic use of algorithms to manage drivers. By distancing its employment relationship to the drivers through this entrepreneurship framework, Uber hides its own methods and the power of its algorithms to shape the nature of drivers’ work. For example, drivers for Uber have little control over the rate at which they work, they don’t determine which jobs they do while working, and they are punished for disrupting the system that Uber imposes. Uber unilaterally sets prices for rides on the app and there is zero room for upward mobility within the job. This wouldn’t be a problem if Uber paid the drivers well but after the cut
that Uber takes, it can be difficult for full time drivers to make a living wage. Additionally, if drivers decline multiple rides, even if the fare is too low to make it economically profitable, they are subject to removal from the app, which could threaten a driver’s livelihood. This subjugation to Uber’s rules is compounded by the fact that Uber does not allow the driver to see the final destination of the rider until he/she has accepted the ride.

Uber also utilizes algorithmic management and the idea of drivers as consumers to get away with forms of wage theft. For instance, drivers are forced to wait 2-5 minutes for their passengers if they are running late before being compensated for their time. This effectively is unpaid working time that Uber forces the drivers to stomach themselves. Additionally, Uber has been accused of utilizing their app platform to commit wide spread fee arbitrage. In other words, prices for drivers and passengers are often different. Uber has an information advantage given that it is hard to compare rates as a driver and passenger and Rosenblat has found evidence that Uber utilizes this power imbalance to pocket the difference in fees.

Robotic management rears its ugly head once again when it comes to protecting drivers from discrimination of the job. The rating system that Uber utilizes allows for the biases of passengers to be built into the algorithms and since drivers are not workers, there are no discrimination workplace protections. Drivers are largely helpless against unfair ratings, especially considering the subpar customer service provided through the app. This demonstrates the limits of their power in an employment relationship governed by inflexible algorithmic managers.

In short, Rosenblat demonstrates that Uber’s use of the threat of deactivation subjugates the driver to their algorithmic manager and drivers are largely helpless to change their working conditions. By treating drivers as consumers through the power of technological tools and narratives, Uber has provided society with a template for questioning employment relationships. Uber’s arguments for this new employment relationship articulate the dynamic changes in how employment and consumption are negotiated in digital spaces through algorithmic power and transparency. Given the increasing importance of the digital world in society and the new wave of the future of work, Rosenblat’s findings are incredibly concerning for how we find and do work in the coming years.

Lawrence Mishel, a distinguished fellow at the Economic Policy Institute and reputable researcher in the gig economy, has conducted research corroborating many of Rosenblat’s claims. In “Uber and the labor market,” Mishel examines the true hourly wages and compensation of drivers net of expenses as well as the scale of Uber and gig work in the overall economy. His findings reinforce our lack of conviction that Uber and
the gig economy will or should represent the future of work. Specifically, Mishel’s results reveal that Uber drivers earn low compensation and that the total compensation in the gig economy is a very small share of the total compensation in the overall economy. Mishel takes a different approach to these similar findings however. He argues that the gig economy has been mostly hype and that it deserves only minimal consideration in conversations around the future of work. While he may be right in that the gig economy is a small portion of the overall economy, we disagree that the failings of gig companies do not merit significant ridicule and we ardently believe that much work needs to be done in considering what types of companies we want to even be part of the economy at all.

Any research done of the gig economy and algorithmic management would not be complete without including a section on Airbnb. Just like Uber, Airbnb is notorious for using algorithmic management as a strategic management tool in the sharing economy. Mingming Cheng and Carmel Foley, in “Algorithmic Management: The case of Airbnb,” have done research into analyzing the Airbnb host online community forum and analyzing consistent themes regarding the impact of algorithmic management on the host side of Airbnb’s two sided marketplace. They discuss how the scale of the workforce in the sharing economy platform has necessitated some algorithm based decisions in order to facilitate efficient management. Despite the efficiency these algorithms bring about, evidence supports the algorithmic management by Airbnb has led to uncertainty and anxiety for hosts in the management of their micro-businesses. Just like Uber, Airbnb utilizes the asymmetry of algorithmic information to increase its own power to influence and control host practices. For instance, there is little to no transparency regarding what factors are involved in being designated as a superhost.

What is a Superhost?

Superhosts are experienced hosts who provide a shining example for other hosts, and extraordinary experiences for their guests.

Once a host reaches Superhost status, a badge 🍷 will automatically appear on their listing and profile to help you identify them.

We check Superhosts’ activity four times a year, to ensure that the program highlights the people who are most dedicated to providing outstanding hospitality.

The Superhost Terms & Conditions apply. Airbnb doesn’t endorse or sponsor any host, including Superhosts, or their listings.
Airbnb’s superhost policy taken from the company’s website

Given the advantages of being a superhost in terms of attracting new bookings, this information asymmetry and lack of algorithmic transparency has real repercussions.

Research has also been done on Airbnb’s Smart Pricing algorithm, which came to market in 2015 with the goal of increasing revenue for hosts and mitigating racial economic disparities between hosts. The smart pricing algorithm allows hosts to set a minimum nightly rate and let machine learning handle the pricing for each night beyond that one constraint. In “Can an AI Algorithm Mitigate Racial Economic Inequality? An Analysis in the Context of Airbnb,” a group of researchers from Harvard, Carnegie Mellon, and the University of Toronto determined that conditional on the adoption of the algorithm, the revenue gap between white and black hosts decreased by 71.3%. However, white hosts were significantly more likely to adopt the algorithm than black hosts and as a result, the revenue gap increased after the introduction of the algorithm. This calls into question the ability of algorithms to deal with multi-dimensional issues such as racial economic disparity even if the intentions of the company are noble. In other words, we cannot be strictly concerned with algorithmic management that purposely capitalizes on information asymmetry to create a power imbalance. We should be equally concerned with how gig companies are implementing their algorithms in society even when there are intentions to do good.

Given the plethora of concerns regarding the practices of gig economy companies and its impact on how society views employment, we plan to explore how we can support the creation of more sustainable, ethical companies. We believe that increasing the prevalence of ESG principles in venture capital has enormous potential to do this.

According to research by law firm Womble Bond Dickinson, the rise of the ESG movement corresponds to the need for companies to recognize that societal impact is an essential part of their business strategy (Womble Bond Dickinson). Fifty years ago, the social responsibility of a business was to increase its profits for shareholders. However, companies have begun to recognize that they cannot survive in societies that are failing. Thus, a transformational change in perspective has occurred where companies have begun to view societal impact and shareholder returns as inextricably linked. In other words, the value of a company is directly tied to the value a company creates for society and more stakeholders need to be considered in business decisions than just shareholders.

Significant investment and effort has been put into ESG in the private equity industry and the public markets. Intralinks, a data service provider for investment banks, has also done extensive research on “Embracing ESG in the Deal Process.” In this report,
Intralinks points out that ESG issues have taken a more prominent place in the boardroom as a rule, particularly in the context of acquisitions. For example, Hewlett Packard Enterprise recently acquired Cray and used ESG as a strong incentive for the deal, citing that the company’s supercomputers are enabling healthcare providers with pharmaceutical research and scientists the ability to conduct massive simulations to fight climate change.

Deutsche Bank’s Kamran Khan, managing director and head of ESG for Asia Pacific, believes that we are entering into a time where companies will not do business with a firm that does not have high ESG standards. Khan anticipates that there will be a rise in assets that cannot be sold due to their negative ESG standing. In the same vein, some companies will also be left behind and will be stuck in a cycle of declining valuation with strained capital availability.

Given the increased awareness and consideration of ESG in the private equity and public markets, many firms have made investments in ESG reporting. Reuters reported that Blackstone, the largest private equity firm in the world, has invested over 1 billion dollars into Sphera, an ESG software, data and consulting services provider (Thomson Reuters). Additionally, the firm has started requesting that executives in its portfolio companies report on their ESG matters to their board of directors. In a similar vein, according to CNBC reporting, JP Morgan has also demonstrated its commitment to the ESG space by acquiring OpenInvest, which helps financial advisors, big asset managers, and retail users to create portfolios that more accurately reflect their values (CNBC). JP Morgan already has $2.4 trillion in ESG related assets under management and strives to be a leader in bringing the initiative to the mainstream.

Some efforts have been made to integrate ESG into the gig economy. For example, according to Axios, the riding hailing service The Drivers Cooperative was recently created in New York City and claimed that a lack of VC funding would result in better pay and lower passenger costs (Axios). This worker cooperative corporation seeks to put more power in the hands of the driver and reports that drivers make on average 30% more than they would driving for Uber or Lyft. The jury is still out on if The Drivers Cooperative will be a lasting success. Many companies, including Juno, Austin’s indies, and Dumpling, have tried and failed to create more sustainable, stakeholder driven gig economy companies. A large reason that many of these companies have failed is due to the fact that the venture backed model provides the upfront capital necessary to set up operations and to grow very quickly to capture market share and compete with rivals. Without this capital infusion, it can be incredibly difficult to get a scalable business off the ground in a quick time frame.
In conclusion, many scholars and news outlets have done extensive research exposing the ills of the gig economy, the promise of ESG principles in later stage markets, and the failure of current bootstrapped efforts to fix the gig economy. We plan to continue the work of illustrating the problem with Uber’s and Airbnb’s algorithmic management practices in addition to outlining frameworks for venture capitalists to incorporate ESG principles into their investment decisions in funding the next wave of innovative startups.

Chapter 3: Ethics & Design Statement

When studying Uber’s and Airbnb’s practices along with the effects their policies have on drivers and hosts, there are two appropriate ethical frameworks to work under. Each of these will help to provide different valuable insights into the current state of working conditions and outline a solution to ensure the improvement of these conditions in the future. Firstly, we can analyze the situation from a purely utility-based perspective through the lens of different stakeholders (investors vs. drivers). Good practice, based purely on utility, is determined by how much or how little is gained from specific interactions. Secondly, we can base our analysis on a more holistic and care-based framework. Good practice, in this case, is determined by the overall societal, monetary, and relational gains achieved through certain policies and interactions between the company and its laborers. Multiple different interactions and policies that need to be scrutinized under these two ethical frameworks will be explored in the following sections.

Imbalance – Uber touts its “work when you want” model, enabling drivers to essentially clock in and out whenever they have spare time without any strict schedule like that of a typical job. Because of this, however, not all drivers work the same number of hours. Drivers can be split into three rough categories based on the number of hours they choose to work per week: hobbyists, part-timers, and full-timers. Hobbyists only drive when they want to in their free time and don’t rely on Uber as a necessary source of income. Part-timers hold other jobs in addition to the Uber gig, but still rely on Uber to contribute to their expenses. Both hobbyists and part-timers drive somewhere between one and thirty-five hours, and they comprise a large majority of Uber’s workforce (Uberland). Additionally, Uber welcomes thousands of new workers per month, but half these workers quit within a year (Uberland). This uneven distribution of workers and high attrition rate enables Uber to essentially pander to the lowest common denominator by maintaining policies and depressing wages to levels adequate for part-time workers, avoiding the need to provide full-time benefits and wages. In terms of utility, this approach greatly benefits Uber and its investors by saving massive amounts of money which can then be reinvested to fuel growth even further while starving its workers of proper pay and benefits. From a more holistic perspective, this
harms both the investors and drivers by creating a rift fueled by neglect between the company and its employees while tarnishing the idealistic goals they claimed the sharing economy would achieve.

The theme of imbalance is also weaved into the dynamics of Airbnb and home ownership in America. Specifically, there are two major types of Airbnb hosts. The first is the average American who might have an extra home to rent out as an investment property or a spare bedroom that they want to use to make some extra income. The second is sophisticated institutional real estate investors. The median price of a home in America has increased by 28% over the past two years and the fact that institutional investors bought 15% of homes for sale during the first quarter of 2021 has exacerbated the rising housing market (Splice Today). Due to this rise in prices, many average Americans have become priced out of neighborhoods, leading to gentrification, and has prevented home ownership for many millennials. From a capitalist perspective, the free market theoretically enables the best allocation of goods and services. However, from both a true utilitarian and care ethics perspective, pricing the average American out of home ownership is a clear harm to the public good.

**Opacity and Distrust** – The “work when you want” model isn’t necessarily all Uber makes it out to be. While this kind of structure seems flexible, drivers struggle to control the rate at which they work and are unsure of the payoff for each job they take. When being alerted of a potential job, drivers aren’t informed of the destination until they accept the ride, nor are they aware of exactly how much money they’ll make from completing the trip, as the predicted earnings often differ from the price the rider sees and don’t account for taxes, gas, etc. (insert footnote). Even though the drivers have the option to decline potential rides, they aren’t given enough information to determine whether or not a ride will be profitable. Additionally, drivers are punished for declining too many rides, forcing them to often accept unfavorable rides (insert footnote). Once again, these kinds of policies enable Uber and its investors to profit by controlling their workers under the façade of the sharing economy while further widening the rift between drivers and the company.

As previously mentioned, the same issue rears its head with Airbnb as many of Airbnb’s algorithms are unclear and lack transparency. For instance, the status of superhost does not have a clear description but has a high correlation with a high rate of bookings. Many hosts may fear requesting funds for damages in their homes from guests if it might jeopardize their status as a superhost. Clearly, Airbnb utilizes this ambiguity in their algorithms to maintain power in their relationship with hosts.

**Idleness and Thanklessness** – Uber often advertises that their drivers are entrepreneurs due to the independent nature of the job, however this claim falls flat when put under scrutiny. A common goal of entrepreneurs is to increase one’s worth
over time through informed investments and clever ideas, yet Uber starves their drivers of that opportunity. There is no room for advancement in Uber's employment model. Regardless of how long someone has been driving with the company, their pay does not increase, they receive no additional benefits, and they do not get promoted. Not only are these drivers stuck at the same level with no room for advancement, Uber actually encourages its workers to waste time during their trips which results in unpaid time that Uber benefits from. Drivers aren’t paid while waiting for rides, but Uber encourages them to be patient with their riders and forgo pursuing a cancellation fee when riders are late, resulting in lost time and starved workers.

With these ethical evaluations as context for our research, we plan to continue the work of evaluating the ways in which the policies and algorithms of Uber and Airbnb create concerning outcomes and impacts on society.

**Chapter 4: Legislature and Independent Contractors**

Before diving into the data analysis we conducted for our project, we want to outline the current legal environment surrounding the gig economy. We plan to draw from this research done on the legal status of drivers and hosts in the section of the paper that outlines a framework for ethical investing in the ‘future of work.’

As gig work companies have become more prevalent, we have seen an increase in legislation attempting to both address issues created by gig economies and legislation pushed by these companies in order to benefit themselves. For example, Uber and other gig companies poured over $200 million into lobbying to pass Proposition-22 during the 2020 California General Election. Prop-22 is a ballot initiative that exempts app-based transportation / delivery companies from California Assembly Bill 5, which states that all wage-earning workers must be classified as employees. This exemption enables corporations to define their rideshare drivers, a large portion of the gig economy, as independent contractors (California Voter Guide), meaning that they wouldn’t be entitled to the benefits of full-time workers. While rideshare workers still benefit from limited hours and some form of health insurance coverage (Ballotpedia, 2020), critics say that these benefits are far less extensive than what they would be if workers were granted full-time status (Fuentes, 2020).

By passing Prop-22, California has asserted that gig workers are inherently different from other employees of a company. Corporations such as Uber that supported Prop-22 argued that employees would gain more freedom from this characterization. An important omission from such a statement, however, is the myriad financial gains for corporations that come with such a classification for their employees in addition to increased leniency for how they treat their workers (White, 2020). For example, one of
the most controversial aspects of Prop-22 is workers’ limited ability to advocate for basic protections that fall outside of the contracted worker protection category. However, there has been significant pushback to Prop-22, particularly in the California Court Case Castellanos v. California, during which Prop-22 was deemed unconstitutional as it’s implied interest contradicted the goals of the legislation and it limited (nearly restricted) the possibility of future amendment (Castellanos v. California). In August of 2021, the Alameda County Superior Court ruled that Prop-22 was unconstitutional due to its infringement on “Workers Compensation” (Kreeger, 2021). However, since this case was settled in Alameda county, it did not reverse Prop-22 (which is still in effect as of writing) and is still being debated.

While Prop-22 negatively impacts gig workers, the push back against such legislation doesn’t necessarily bode well for them either. In the absence of robust legislation, employees continue to operate in a void of ambiguity in which rule-bending and deprivation of basic benefits and protections remains unchecked. The lack of a robust classification of those working in the gig economy isn’t the only ambiguity that causes issues, however. Just as it’s difficult to identify what category these workers fall under, in many cases (such as that of Uber and Airbnb) it can be difficult for the workers to identify who their employers are. There are multiple parties involved in every transaction: the requester, the fulfiller, the third-party service that enables the former two parties to connect, and other potential intermediaries. Because of this, the worker providing a certain service struggles to identify which party is actually employing them for collective bargaining purposes or if they need to state a violation of health and safety obligations (Stefano, 484).

Take, for example, a typical food delivery transaction. When someone places an order through a food delivery app, a driver is assigned the job and directed to pick up the food from the restaurant then deliver it to the user. Because the food delivery app classifies this worker as an independent contractor, in such a simple transaction, three potential parties could be defined as the driver’s employer. The user is the one who technically paid for the service, but the food delivery app provided the platform for that transaction, and the restaurant produced the goods as part of the service. If the driver decides that he or she needs to make a claim against their employer, or if he or she needs to provide legal documentation stating who their employer is, the vagueness of these transactions enable companies to absolve themselves of any responsibility or liability for the aforementioned cases. In the event that an employee (or contractor) is trying to make a claim against these companies, the corporations can refer to statements in their independent contractor clauses that identify them as merely providing a venue for requesters and providers to interact and complete transactions (Stefano, 486).
Meanwhile, these companies are still defining the terms of these services between client and worker, enabling them to maintain control of the transactions without experiencing any negative consequences. Defining these terms under their independent contractor clauses and agreements, however, calls into question the legitimacy of a company labeling their workers as non-employees. These platforms will often try to direct all transactions between a provider and client through their app or website (Stefano, 487). For example, a company such as Airbnb will urge clients to only accept deals submitted through and verified by their service. By doing this, companies are creating an artificial exclusivity deal between them, the providers, and the clients, which would imply some form of employment that enables them to do so.

Another example of companies overstepping and defining terms for transactions that they claim to simply provide a platform for would be through policies for unsatisfactory work. These companies enable clients to refuse payment or receive a refund for an error with an order / job without providing any legitimate or observable reason other than their belief that it wasn’t up to par. By assuming responsibility for a service provided through their app or website, companies imply some sort of employer-employee relationship that extends beyond simply facilitating transactions. However, due to a lack of robust legislation, gig corporations can circumvent these ambiguous definitions of client-worker relationships for massive financial savings and legal shielding.

**Chapter 5: Data Analysis**

Utilizing the largest publicly available ridesharing dataset from Chicago, we attempted to predict the hourly earnings of an Uber driver based on the limited information we had available. In order to make a reasonably accurate calculation for the hourly earnings, we analyzed fares, additional fees, and tips. We then factored in the costs associated with being an Uber driver such as depreciation on a driver’s vehicle, gas, and full time benefits/insurance. Based on these revenue and cost estimations, we can then calculate more accurate average hourly earnings for a given driver than what Uber advertises. These calculations incorporate the hidden costs of driving for Uber, such as gas and depreciation. One issue with the dataset is that we are limited by the fact that it does not include wait times for passengers or rides, which is unpaid time according to Uber’s practices. Instead of estimating what percentage of an hour is wait time, we constructed a sensitivity table with different percentages of an hour that are wait times. This allows us to see how much a person makes each hour given different wait time assumptions.

For the purposes of this analysis, we needed to factor in several values for associated costs and fares. We assumed that Uber takes 25% of fares and 50% of fees generated on a given ride, which is on the low end of most estimates publicly available. Additionally,
we used the average Chicago gas price of $3.94 per gallon as well as the average gas mileage weighted across the 20 most popular vehicles for Chicago Uber drivers to determine how much money it costs an Uber driver per hour to keep their vehicle fueled. Using these same 20 vehicles, we took a weighted average of the cost of a car in the Chicago area, and assuming each vehicle lasts a generous 200,000 miles we determined how much a car depreciates per hour.

The analysis of this trip and driver data enables us to get a better picture of the working conditions of Uber drivers. More specifically, we hope that this research informs our understanding of the sustainability of being an Uber driver as well as the ethical nature of Uber’s practices, particularly those implemented by algorithms. Thus, our main question is as follows: Do Uber drivers make a sustainable wage, which we will denote as greater than or equal to the cost of living for a given area.

**Chapter 6: Methods and Results**

The Chicago portal data provides three publicly available datasets: drivers, trips, and vehicles. The (most informative) trips dataset, containing 235 million unique trips, provides us with the time and length of each trip along with tip, fees, and additional charges. The vehicles dataset was used to determine the 20 most popular vehicles used by Uber drivers in order to generalize statistics such as the average gas mileage and cost of rideshare vehicles.

The total earnings from any trip can be expressed as the sum of the fare, additional fees, and tip. However, this value does not factor in any associated costs of the trip. To calculate the users real profit rate, we removed portions of the fare and fees listed in Chapter 5 that Uber takes for itself. Next, we calculated the average miles traveled per hour for a driver to determine how many dollars per mile they earn. We estimated the average gas mileage of the vehicles to be 29.99 mpg, which enabled us to determine the cost of gas per hour based on how many gallons a driver consumed. We were able to calculate the hourly pay per worker by using the dollars per mile while factoring in the gas price and depreciation price per car. After factoring in all these costs we concluded that, assuming a driver is always on a trip, they make $35.69 per hour. However, this number is only the pay for the time the drivers are actively engaged in a ride. If they were only carrying passengers for 30 minutes an hour and waiting for the remaining time they would only be paid for their 30 minutes of driving. The following sensitivity table indicates the projected hourly earnings of an Uber driver based on different percentages of time spent waiting for new trips:
<table>
<thead>
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<th>Percentage of Time Waiting</th>
<th>Estimated Hourly Earnings ($)</th>
<th>Adjusted Estimated Hourly Earnings ($)</th>
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<tbody>
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<td>10%</td>
<td>31.52</td>
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<tr>
<td>50%</td>
<td>14.84</td>
<td>10.67</td>
</tr>
</tbody>
</table>

It should also be noted that these expected hourly earnings do not include the cost of insurance and other typical benefits full-time employees receive that these drivers must pay for themselves. Also, we could only accurately calculate the gas usage per hour based on the data which only included the miles traveled per trip and did not include the miles traveled between trips, which would result in increased gas consumption. An additional column was included in the sensitivity table to indicate our expectation of how these costs would influence a driver’s overall hourly earnings (simply taking the value of the next waiting time percentage). Using this information, it is evident that unless a driver is driving for a large majority of each hour, the work is most likely unsustainable.

**Chapter 7: First Principles for Future of Work Companies**

Based on our research, it is clear that while companies like Uber have created opportunities for low skilled workers to find additional income to support themselves and their families, these jobs fall short of meeting their advertised expectations. Many technology companies have created exceptional pieces of technology that have made people’s lives easier but there still often lacks an element of humanity to these products. As we have seen, exploitation and a lack of transparency can frequently lie at the center of these companies’ operations and business models. The COVID-19 pandemic has led to a significant rise in interest regarding the ‘Future of Work’ and how people’s relationships with work will evolve over the coming years. Additionally, venture capitalists have made many investments in the space and continue to seek opportunities to make money by influencing the workplace in one way or another.

Drawing from our research on Uber, we wish to outline some principles that we believe all venture capitalists and other investors should consider as they enter into the future of work. It is imperative to society and economic equality that more attention be paid to the consequences of particular investments.
Investors and founders need to take a more stakeholder driven approach to investing in and building companies. In other words, the next wave of future of work companies should be more considerate of the impact that their products have on all individuals who interact with the technology. With a stakeholder approach in mind, we believe that these foundational principles are quintessential to avoid funding companies that have the potential to undermine our social fabric.

1. **Algorithmic Transparency**

   In today's gig economy, significant power lies with technology companies to withhold information regarding rates and payments. Companies need to stop utilizing this information asymmetry to their advantage to take advantage of workers. In the new future of work companies, employment and payment information needs to be transparent to all users of the product.

2. **Fairness in Employment**

   Companies should have the ability to pay their workers fair wages and should not seek to utilize laws that they lobbied for in order to cheat people out of adequate payment. For example, we believe that Uber drivers should be classified as and treated as full-time workers and be compensated for unavoidable occurrences like wait time between trips.

3. **Technology Advancement as a Driver of Equality, not Inequality**

   Automation, artificial intelligence, and digitization have reduced demand for lower skilled workers and have threatened job prospects for those who work in areas ripe for automation disruption. The pandemic has accelerated this trend and it disproportionately impacts minority and underprivileged communities. New future of work companies should seek to provide sustainable, ethical opportunities that include a livable wage for low skilled workers.

4. **Mental Health**

   With the rise of remote work and increased power of skilled workers in their employer relationships, mental health and sustainable work environments should remain a top priority.
Chapter 8: Societal Impact and Conclusion

In order to see if working as an Uber driver in Chicago is sustainable, because that is where we sourced our data from, we looked at what qualifies as a living wage, and whether or not Uber drivers are able to attain that. According to the Massachusetts Institute of Technology, for a single person with zero children, a living wage is $16.32. However, according to a study done by Gridwise, a third-party organization that works with rideshare drivers to increase their profit, over 50% of Uber drivers are either married or in a domestic partnership and 63% of them have children. Therefore, in order to have a more realistic comparison we will use the living wage for an adult in a family with two children and a partner who is also working. A living wage in this case is at least $21.96. In order for the average Uber driver in Chicago, who we have described above, to make a living wage, i.e. to have driving for Uber be sustainable for them, they would need to be waiting for less than 40% of the time that they are driving.

This is the facade that gig companies like Lyft and Uber promote. It is technically true that Uber is sustainable in Chicago if the driver is waiting less than 50% of the time, however, this is only if the driver is a single person with no children and no other dependents. This pretty strict example conflicts with the image of flexibility that Uber and other gig work companies promote. They recruit workers by emphasizing their flexibility in working hours and ability to make money without working under the constraints of a typical 9 to 5 job. This sort of recruiting often appeals to people with other commitments and more complicated situations, such as caretakers and parents. When people aren’t earning a living wage, especially parents, a cycle of poverty continues to be replicated which hurts everyone in society. When children aren’t able to reach their full potential due to the economic circumstances of their parents our society as a whole is robbed of their potential talents and contributions.
Works Cited


